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General Notices

COMMUNICATIONS REGULATORY AUTHORITY OF NAMIBIA

No. 191

2013

REGULATIONS SETTING OUT THE FREQUENCY BAND PLAN FOR NAMIBIA

The Communications Regulatory Authority of Namibia in terms of section 100(6) of the Communications Act and the Regulations Regarding Rule-Making Procedures: Communications Act, 2009 published as General Notice 334, in Government Gazette 4630 dated 17 December 2010, hereby publishes these Regulations Setting Out the Frequency Band Plan for Namibia, effective from date of publication in the Gazette.

Definitions

1. In these regulations, any word or expression to which a meaning is assigned in the Act, shall have the same meaning and –

“Act” means the Communications Act, 2009 (Act No. 8 of 2009).

Purpose

2. These regulations set out the frequency band plan in terms of section 100 of the Act.

Table of Frequency Allocations

3. The table of frequency allocations sets out planned allocations for the radio frequency spectrum in Namibia in bands ranging from 9 kHz and 105 GHz. The table is similar to the table set out the ITU in its Radio Regulations and the SADC Frequency Allocation Plan dated May 2010.

Applicability

4. These Regulations are applicable in the assignment of spectrum use licences issued in terms of section 101 of the Act and Regulation 6 of the Regulations Regarding Licencing Procedures for Telecommunications and Broadcasting Service Licences and Spectrum Use Licences, published as General Notice No 272 in Government Gazette 4785 dated 29 August 2011, as may be amended from time to time.

ITU Region 1 allocations and footnotes	SADC common allocation/s and relevant ITU footnotes	SADC proposed common sub-allocations / utilisation	Additional information	Namibian Allocations and Footnotes
Below 8.3 kHz (Not allocated) 5.53 5.54	Below 8.3 kHz (Not allocated) 5.53 5.54			Below 8.3 kHz (Not allocated) 5.53 5.54
8.3 – 9 kHz METEOROLOGICAL AIDS 5.54A 5.54B 5.54C	8.3 – 9 kHz METEOROLOGICAL AIDS 5.54A 5.54B 5.54C			8.3 – 9 kHz METEOROLOGICAL AIDS 5.54A 5.54B 5.54C
9 – 11.3 kHz METEOROLOGICAL AIDS 5.54A RADIONAVIGATION	9 – 11.3 kHz METEOROLOGICAL AIDS 5.54A RADIONAVIGATION			9 – 11.3 kHz METEOROLOGICAL AIDS 5.54A RADIONAVIGATION
11.3-14 kHz RADIONAVIGATION	11.3-14 kHz RADIONAVIGATION	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Navigational Aids	SRDs - see ITU-R Rec. SM.[SRD][1]	11.3-14 kHz RADIONAVIGATION
14-19.95 kHz FIXED MARITIME MOBILE 5.57 5.55 5.56	14-19.95 kHz FIXED MARITIME MOBILE 5.57 5.56	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Maritime mobile communications	SRDs - see ITU-R Rec. SM.[SRD]	14-19.95 kHz FIXED MARITIME MOBILE 5.57 5.56
19.95-20.05 kHz STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	19.95-20.05 kHz STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz)	SRDs - see ITU-R Rec. SM.[SRD]	19.95-20.05 kHz STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)
20.05-70 kHz FIXED MARITIME MOBILE 5.57 5.565 5.58	20.05-70 kHz FIXED MARITIME MOBILE 5.57 5.56	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Maritime mobile communications	SRDs - see ITU-R Rec. SM.[SRD]	20.05-70 kHz FIXED MARITIME MOBILE 5.57 5.56 5.58
70-72 kHz RADIONAVIGATION 5.60	70-72 kHz RADIONAVIGATION 5.60	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Navigational Aids	SRDs - see ITU-R Rec. SM.[SRD]	70-72 kHz RADIONAVIGATION 5.60

72-84 kHz FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56	72-84 kHz FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Maritime mobile communications Navigational Aids	SRDs - see ITU-R Rec. SM.[SRD]	72-84 kHz FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56
84-86 kHz RADIONAVIGATION 5.60	84-86 kHz RADIONAVIGATION 5.60	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Navigational Aids	SRDs - see ITU-R Rec. SM.[SRD]	84-86 kHz RADIONAVIGATION 5.60
86-90 kHz FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56	86-90 kHz FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Maritime mobile communications Navigational Aids	SRDs - see ITU-R Rec. SM.[SRD]	86-90 kHz FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56
90-110 kHz RADIONAVIGATION 5.62 Fixed 5.64	90-110 kHz RADIONAVIGATION 5.62 Fixed 5.64	SRDs – inductive short-range radiocommunications(9 kHz-135 kHz) Navigational Aids	SRDs - see ITU-R Rec. SM.[SRD]	90-110 kHz RADIONAVIGATION 5.62 Fixed 5.64
110-112 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.64	110-112 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.64	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Maritime mobile communications Navigational Aids	SRDs - see ITU-R Rec. SM.[SRD]	110-112 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.64
112-115 kHz RADIONAVIGATION 5.60	112-115 kHz RADIONAVIGATION 5.60	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Navigational Aids	SRDs - see ITU-R Rec. SM.[SRD]	112-115 kHz RADIONAVIGATION 5.60
115-117.6 kHz RADIONAVIGATION 5.60 Fixed Maritime mobile 5.645.66	115-117.6 kHz RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Navigational Aids Maritime mobile communications	SRDs - see ITU-R Rec. SM.[SRD]	115-117.6 kHz RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64
117.6-126 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	117.6-126 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Navigational Aids Maritime mobile communications	SRDs - see ITU-R Rec. SM.[SRD]	117.6-126 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64
126-129 kHz RADIONAVIGATION 5.60	126-129 kHz RADIONAVIGATION 5.60	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Navigational Aids	SRDs - see ITU-R Rec. SM.[SRD]	126-129 kHz RADIONAVIGATION 5.60

129-130 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	129-130 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Navigational Aids Maritime mobile communications	SRDs - see ITU-R Rec. SM.[SRD]	129-130 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64
130-135.7 kHz FIXED MARITIME MOBILE 5.64 5.67	130-135.7 kHz FIXED MARITIME MOBILE 5.64	SRDs – inductive short-range radiocommunications (9 kHz-135 kHz) Maritime mobile communications	SRDs - see ITU-R Rec. SM.[SRD]	130-135.7 kHz FIXED MARITIME MOBILE 5.64
135.7-137.8 kHz FIXED MARITIME MOBILE Amateur 5.67A 5.64 5.67 5.67B	135.7-137.8 kHz FIXED MARITIME MOBILE Amateur 5.67A 5.64	Maritime mobile communications Amateur	Amateur (135.7-137.8 kHz) services are limited to maximum radiated power of 1 W (e.i.r.p).	135.7-137.8 kHz FIXED MARITIME MOBILE Amateur 5.67A 5.64
137.8-148.5 kHz FIXED MARITIME MOBILE 5.64 5.67	137.8-148.5 kHz FIXED MARITIME MOBILE 5.64	Maritime mobile communications		137.8-148.5 kHz FIXED MARITIME MOBILE 5.64 5.67
148.5-255 kHz BROADCASTING 5.68 5.69 5.70	148.5-200 kHz BROADCASTING <u>5.68</u> 200-255 kHz AERONAUTICAL RADIONAVIGATION SERVICE <u>5.7</u>	Broadcasting	Frequency assignment Plan (GE75) applies	148.5-255 kHz BROADCASTING 5.68 5.69 5.70
255-283.5 kHz BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70 5.71	255-283.5 kHz AERONAUTICAL RADIONAVIGATION <u>5.7</u>			255-283.5 kHz BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70 5.71
283.5-315 kHz AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.74	283.5-315 kHz AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.74			283.5-315 kHz AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.74
315-325 kHz AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.75	315-325 kHz AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73			315-325 kHz AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73
325-405 kHz AERONAUTICAL RADIONAVIGATION	325-405 kHz AERONAUTICAL RADIONAVIGATION			325-405 kHz AERONAUTICAL RADIONAVIGATION
405-415 kHz RADIONAVIGATION 5.76	405-415 kHz RADIONAVIGATION 5.76	Navigational Aids		405-415 kHz RADIONAVIGATION 5.76

415-435 kHz MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	415-435 kHz MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	Maritime mobile communications Under the MMS the use of the band 415-495 kHz is limited to radiotelegraphy.	415-435 kHz MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION
435-472 kHz MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.82	435-472 kHz MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.82	Maritime mobile communications Coast Stations in the NAVTEX service on 490 kHz; Res.339 applies. Transmission of navigational and meteorological warnings and urgent info for ships (NBDP telegraphy). Articles 31 and 52 apply.	435-472 kHz MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.82
472-479 kHz MARITIME MOBILE 5.79 Amateur 5.80A Aeronautical radionavigation 5.77 5.80 5.82 5.80B	472-479 kHz MARITIME MOBILE 5.79 Amateur 5.80A Aeronautical radionavigation 5.77 5.80 5.82 5.80B		472-479 kHz MARITIME MOBILE 5.79 Amateur 5.80A Aeronautical radionavigation 5.77 5.80 5.82 5.80B
479-495 kHz MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.82	479-495 kHz MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.82		479-495 kHz MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.82
495-505 kHz MARITIME MOBILE	495-505 kHz MARITIME MOBILE	Limited to radiotelegraphy; Articles 31 and 52 apply.	495-505 kHz MARITIME MOBILE
505-526.5 kHz MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	505-526.5 kHz MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	Maritime mobile communications Coast Stations in the NAVTEX service on 518 kHz; Res.339 applies. Articles 31 and 52 apply. Under the MMS the use of the band 505-526.5 kHz is limited to radiotelegraphy.	505-526.5 kHz MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION
526.5-1 606.5 kHz BROADCASTING 5.87 5.87A	526.5-535 kHz BROADCASTING Mobile <u>5.87</u> 535-1 606.5 kHz BROADCASTING <u>5.87</u>	Land and/or maritime mobile communications MW Sound broadcasting (535.5-1606.5 kHz); GE75 applies	526.5-535 kHz BROADCASTING Mobile <u>5.87</u> 535-1 606.5 kHz BROADCASTING <u>5.87</u>
1 606.5-1 625 kHz FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	1 606.5-1 625 kHz FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	Maritime mobile communications Land mobile communications	1 606.5-1 625 kHz FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92

1 625-1 635 kHz RADIOLOCATION 5.93	1 625-1 635 kHz RADIOLOCATION 5.93	Navigation Aids		1 625-1 635 kHz RADIOLOCATION 5.93
1 635-1 800 kHz FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92 5.96	1 635-1 800 kHz FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	Maritime mobile communications Land mobile communications		1 635-1 800 kHz FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92
1 800-1 810 kHz RADIOLOCATION 5.93	1 800-1 810 kHz RADIOLOCATION 5.93	Navigation Aids		1 800-1 810 kHz RADIOLOCATION 5.93
1 810-1 850 kHz AMATEUR 5.98 5.99 5.100 5.101	1 810-1 850 kHz AMATEUR 5.98 5.100 5.101	Amateur communications		1 810-1 850 kHz AMATEUR 5.98 5.100 5.101
1 850-2 000 kHz FIXED MOBILE except aeronautical mobile 5.925.965.103	1 850-2 000 kHz FIXED MOBILE except aeronautical mobile 5.92 5.103	Maritime and/or land mobile communications		1 850-2 000 kHz FIXED MOBILE except aeronautical mobile 5.92 5.103
2 000-2 025 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	2 000-2 025 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Maritime and/or land mobile communications		2 000-2 025 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103
2 025-2 045 kHz FIXED MOBILE except aeronautical mobile (R) Meteorological aids 5.104 5.92 5.103	2 025-2 045 kHz FIXED MOBILE except aeronautical mobile (R) Meteorological aids 5.104 5.92 5.103	Maritime and/or land mobile communications		2 025-2 045 kHz FIXED MOBILE except aeronautical mobile (R) Meteorological aids 5.104 5.92 5.103
2 045-2 160 kHz FIXED MARITIME MOBILE LAND MOBILE 5.92	2 045-2 160 kHz FIXED MARITIME MOBILE LAND MOBILE 5.92	Maritime and/or land mobile communications		2 045-2 160 kHz FIXED MARITIME MOBILE LAND MOBILE 5.92
2 160-2 170 kHz RADIOLOCATION 5.93 5.107	2 160-2 170 kHz RADIOLOCATION 5.93 5.107	Navigation aids		2 160-2 170 kHz RADIOLOCATION 5.93 5.107
2 170-2 173.5 kHz MARITIME MOBILE	2 170-2 173.5 kHz MARITIME MOBILE	Maritime mobile communications		2 170-2 173.5 kHz MARITIME MOBILE
2 173.5-2 190.5 kHz MOBILE (distress and calling) 5.108 5.109 5.110 5.111	2 173.5-2 190.5 kHz MOBILE (distress and calling) 5.108 5.109 5.110 5.111	2 182 kHz is an international distress and calling frequency for radiotelephony. 2 187.5 kHz – DSC for distress and calling; Article 31 applies. 2 174.5 kHz – international distress frequency for NBDP telegraphy; Article 31 applies.	Articles 31 and 52 applies	2 173.5-2 190.5 kHz MOBILE (distress and calling) 5.108 5.109 5.110 5.111
2 190.5-2 194 kHz MARITIME MOBILE	2 190.5-2 194 kHz MARITIME MOBILE	Maritime mobile communications		2 190.5-2 194 kHz MARITIME MOBILE

2 194-2 300 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.112	2 194-2 300 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Maritime and/or land mobile communications		2 194-2 300 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103
2 300-2 498 kHz FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103	2 300-2 498 kHz FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103	Maritime and/or land mobile communications		2 300-2 498 kHz FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103
2 498-2 501 kHz STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)	2 498-2 501 kHz STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)			2 498-2 501 kHz STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)
2 501-2 502 kHz STANDARD FREQUENCY AND TIME SIGNAL Space Research	2 501-2 502 kHz STANDARD FREQUENCY AND TIME SIGNAL Space Research			2 501-2 502 kHz STANDARD FREQUENCY AND TIME SIGNAL Space Research
2 502-2 625 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.114	2 502-2 625 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Maritime and/or land mobile communications		2 502-2 625 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103
2 625-2 650 kHz MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	2 625-2 650 kHz MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	Maritime mobile communications		2 625-2 650 kHz MARITIME MOBILE MARITIME RADIONAVIGATION 5.92
2 650-2 850 kHz FIXED MOBILE except aeronautical mobile (R) 5.925.103	2 650-2 850 kHz FIXED MOBILE except aeronautical mobile (R) 5.925.103	Maritime and/or land mobile communications		2 650-2 850 kHz FIXED MOBILE except aeronautical mobile (R) 5.925.103
2 850-3 025 kHz AERONAUTICAL MOBILE (R) 5.111 5.115	2 850-3 025 kHz AERONAUTICAL MOBILE (R) 5.111 5.115	Aeronautical mobile (R) 3 023 kHz may be used under the MMS for search and rescue operations (see Article 31)	Appendix 27 Allotment Plan applies	2 850-3 025 kHz AERONAUTICAL MOBILE (R) 5.111 5.115
3 025-3 155 kHz AERONAUTICAL MOBILE (OR)	3 025-3 155 kHz AERONAUTICAL MOBILE (OR)	Aeronautical mobile (OR)	Appendix 26 Allotment Plan applies	3 025-3 155 kHz AERONAUTICAL MOBILE (OR)
3 155-3 200 kHz FIXED MOBILE except aeronautical mobile (R) 5.116 5.117	3 155-3 200 kHz FIXED MOBILE except aeronautical mobile (R) 5.116	Maritime and/or land mobile communications SRDs: Wireless hearing Aides	Worldwide channel for low power hearing aids (3155-3195 kHz). Additional channels may be assigned in the band 3155-3400 kHz; see also ITU-R Rec. [SRD]	3 155-3 200 kHz FIXED MOBILE except aeronautical mobile (R) 5.116

3 200-3 230 kHz FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116	3 200-3 230 kHz FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116	Maritime and/or land mobile communications	Worldwide channel for low power hearing aids (3155-3195 kHz). Additional channels may be assigned in the band 3155-3400 kHz.	3 200-3 230 kHz FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116
3 230-3 400 kHz FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 5.118	3 230-3 400 kHz FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116	Maritime and/or land mobile communications	Worldwide channel for low power hearing aids (3155-3195 kHz). Additional channels may be assigned in the band 3155-3400 kHz.	3 230-3 400 kHz FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116
3 400-3 500 kHz AERONAUTICAL MOBILE (R)	3 400-3 500 kHz AERONAUTICAL MOBILE (R)	Aeronautical mobile (R)	Appendix 27 Allotment Plan applies	3 400-3 500 kHz AERONAUTICAL MOBILE (R)
3 500-3 800 kHz AMATEUR FIXED MOBILE except aeronautical mobile 5.92	3 500-3 800 kHz AMATEUR FIXED MOBILE except aeronautical mobile 5.92	Amateur communications Maritime and/or land mobile communications		3 500-3 800 kHz AMATEUR FIXED MOBILE except aeronautical mobile 5.92
3 800-3 900 kHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	3 800-3 900 kHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	Aeronautical mobile (OR)	Appendix 26 Allotment Plan applies	3 800-3 900 kHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE
3 900-3 950 kHz AERONAUTICAL MOBILE (OR) 5.123	3 900-3 950 kHz AERONAUTICAL MOBILE (OR) BROADCASTING <u>5.123</u>	Aeronautical mobile (OR)	Appendix 26 Allotment Plan applies	3 900-3 950 kHz AERONAUTICAL MOBILE (OR) BROADCASTING <u>5.123</u>
3 950-4 000 kHz FIXED BROADCASTING	3 950-4 000 kHz FIXED BROADCASTING			- - FIXED BROADCASTING
4 000-4 063 kHz FIXED MARITIME MOBILE 5.127 5.126	4 000-4 063 kHz FIXED MARITIME MOBILE 5.127	Maritime mobile communications Use of the band 4000-4063 kHz by the MMS is limited to ship stations using radiotelephony		4 000-4 063 kHz FIXED MARITIME MOBILE 5.127
4 063-4 438 kHz MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128	4 063-4 438 kHz MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 <u>5.128</u>	Maritime mobile communications 4209.5 kHz - Coast Stations in the NAVTEX service; Res.339 applies. Articles 31 and 52 apply. 4207.5 kHz – DSC for distress and calling; Article 31 applies. 4177.5 kHz – international distress frequency for NBDP telegraphy; Article 31 applies. 4125 kHz – use of this frequency prescribed in Article 31. 4209.5 kHz – exclusive for transmission by coast stations of meteorological and navigational warnings and urgent information to ships (NBDP). 4210 kHz – maritime safety information (MSI); App.17 applies.	ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies	4 063-4 438 kHz MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 <u>5.128</u>

4 438-4 488 kHz FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A 5.132B	4 438-4 488 kHz FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A 5.132B	Maritime and/or land mobile communications		4 438-4 488 kHz FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A 5.132B
4 488 -4 650 kHz FIXED MOBILE except aeronautical mobile (R)	4 488 -4 650 kHz FIXED MOBILE except aeronautical mobile (R)	Aeronautical mobile	Appendix 27 Allotment Plan applies	4 488 -4 650 kHz FIXED MOBILE except aeronautical mobile (R)
4 700-4 750 kHz AERONAUTICAL MOBILE (OR)	4 700-4 750 kHz AERONAUTICAL MOBILE (OR)	Aeronautical mobile	Appendix 26 Allotment Plan applies	4 700-4 750 kHz AERONAUTICAL MOBILE (OR)
4 750-4 850 kHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	4 750-4 850 kHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	Aeronautical and/or land mobile Sound broadcasting		4 750-4 850 kHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113
4 850-4 995 kHz FIXED LAND MOBILE BROADCASTING 5.113	4 850-4 995 kHz FIXED LAND MOBILE BROADCASTING 5.113	Land mobile Sound broadcasting		4 850-4 995 kHz FIXED LAND MOBILE BROADCASTING 5.113
4 995-5 003 kHz STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)	4 995-5 003 kHz STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)			4 995-5 003 kHz STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)
5 003-5 005 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research	5 003-5 005 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research			5 003-5 005 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research
5 005-5 060 kHz FIXED BROADCASTING 5.113	5 005-5 060 kHz FIXED BROADCASTING 5.113	Sound broadcasting		5 005-5 060 kHz FIXED BROADCASTING 5.113
5 060-5 250 kHz FIXED Mobile except aeronautical mobile 5.133	5 060-5 250 kHz FIXED Mobile except aeronautical mobile	SADC harmonised HF frequencies for cross-border mobile communications; see Annex G.		5 060-5 250 kHz FIXED Mobile except aeronautical mobile
5 250-5 275 kHz FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A	5 250-5275 kHz FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A	SADC harmonised HF frequencies for cross-border mobile communications; see Annex G.		5 250-5275 kHz FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A
5 275 -5 450 kHz FIXED MOBILE except aeronautical mobile	5 275 -5 450 kHz FIXED MOBILE except aeronautical mobile	Aeronautical mobile		5 275 -5 450 kHz FIXED MOBILE except aeronautical mobile
5 450-5 480 kHz FIXED AERONAUTICAL MOBILE(OR) LAND MOBILE	5 450-5 480 kHz FIXED AERONAUTICAL MOBILE(OR) LAND MOBILE			5 450-5 480 kHz FIXED AERONAUTICAL MOBILE(OR) LAND MOBILE

5 480-5 680 kHz AERONAUTICAL MOBILE (R) 5.111 5.115	5 480-5 680 kHz AERONAUTICAL MOBILE (R) 5.111 5.115	Aeronautical mobile	Appendix 27 Allotment Plan applies	5 480-5 680 kHz AERONAUTICAL MOBILE (R) 5.111 5.115
5 680-5 730 kHz AERONAUTICAL MOBILE (OR) 5.111 5.115	5 680-5 730 kHz AERONAUTICAL MOBILE (OR) 5.111 5.115	5 680 kHz may be used under the MMS for search and rescue operations (see Article 31). 6215 kHz – use of this frequency prescribed in Article 31. SRD applications (6 765- 6 795 kHz)	Appendix 26 Allotment Plan applies Common international SRD band; see ITU-R Rec.SM.[SRD]	5 680-5 730 kHz AERONAUTICAL MOBILE (OR) 5.111 5.115
5 730-5 900 kHz FIXED LAND MOBILE	5 730-5 900 kHz FIXED LAND MOBILE	Land mobile		5 730-5 900 kHz FIXED LAND MOBILE
5 900-5 950 kHz BROADCASTING 5.134 5.136	5 900-5 950 kHz BROADCASTING 5.134 5.136	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	5 900-5 950 kHz BROADCASTING 5.134 5.136
5 950-6 200 kHz BROADCASTING	5 950-6 200 kHz BROADCASTING	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies	5 950-6 200 kHz BROADCASTING
6 200-6 525 kHz MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137	6 200-6 525 kHz MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137	Maritime mobile communications 6312 kHz and 6215 kHz – DSC for distress and calling; Article 31 applies 6268 kHz – international distress frequency for NBDP telegraphy; Article 31 applies. 6314 kHz – maritime safety information (MSI); App.17 applies	ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies	6 200-6 525 kHz MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137
6 525-6 685 kHz AERONAUTICAL MOBILE (R)	6 525-6 685 kHz AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies	6 525-6 685 kHz AERONAUTICAL MOBILE (R)
6 685-6 765 kHz AERONAUTICAL MOBILE (OR)	6 685-6 765 kHz AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies	6 685-6 765 kHz AERONAUTICAL MOBILE (OR)
6 765-7 000 kHz FIXED MOBILE except aeronautical mobile (R) 5.138 5.138A 5.139	6 765-7 000 kHz FIXED MOBILE except aeronautical mobile (R) 5.138 5.138A	Maritime and/or land mobile communications The band 6765-6795 kHz is designated for ISM applications (5.138).		6 765-7 000 kHz FIXED MOBILE except aeronautical mobile (R) 5.138 5.138A
7 000-7 100 kHz AMATEUR AMATEUR- SATELLITE 5.140 5.141 5.141A	7 000-7 100 kHz AMATEUR AMATEUR- SATELLITE 5.140 5.141	Amateur communications Amateur-satellite communications		7 000-7 100 kHz AMATEUR AMATEUR- SATELLITE 5.140 5.141
7 100-7 200 kHz AMATEUR 5.141A 5.141B 5.141C 5.142	7 100-7 200 kHz AMATEUR 5.141B 5.141C 5.142	Amateur communications		7 100-7 200 kHz AMATEUR 5.141B 5.141C 5.142
7 200-7 300 kHz BROADCASTING	7 200-7 300 kHz BROADCASTING	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies	7 200-7 300 kHz BROADCASTING

7 300-7 400 kHz BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D	7 300-7 400 kHz BROADCASTING 5.134 5.143 5.143B	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	7 300-7 400 kHz BROADCASTING 5.134 FIXED Land Mobile 5.143 5.143B
7 400-7 450 kHz BROADCASTING 5.143B5.143C	7 400-7 450 kHz BROADCASTING 5.143B	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies	7 400-7 450 kHz BROADCASTING FIXED Land Mobile 5.143B
7 450-8 100 kHz FIXED MOBILE except aeronautical mobile (R) 5.143E 5.144	7 450-8 100 kHz FIXED MOBILE except aeronautical mobile (R) 5.143E	SADC harmonised HF frequencies for cross-border mobile communications; see Annex G.		7 450-8 100 kHz FIXED MOBILE except aeronautical mobile (R) 5.143E
8 100-8 195 kHz FIXED MARITIME MOBILE	8 100-8 195 kHz FIXED MARITIME MOBILE	Maritime mobile communications		8 100-8 195 kHz FIXED MARITIME MOBILE
8 195-8 815 kHz MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111	8 195-8 815 kHz MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111	Maritime mobile communications 8414.5 kHz – DSC for distress and calling; Article 31 applies 8 376.5 kHz – international distress frequency for NBDP telegraphy; Article 31 applies. 8416.5 kHz – maritime safety information (MSI); App.17 applies.	ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies	8 195-8 815 kHz MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111
8 815-8 965 kHz AERONAUTICAL MOBILE (R)	8 815-8 965 kHz AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies	8 815-8 965 kHz AERONAUTICAL MOBILE (R)
8 965-9 040 kHz AERONAUTICAL MOBILE (OR)	8 965-9 040 kHz AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies	8 965-9 040 kHz AERONAUTICAL MOBILE (OR)
9 040-9 305 kHz FIXED	9 040-9 305 kHz FIXED	Fixed		9 040-9 305 kHz FIXED
9 305 -9 355 kHz FIXED Radiolocation 5.145A 5.145B	9 305 -9 355 kHz FIXED Radiolocation 5.145A 5.145B	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	9 305 -9 355 kHz FIXED Radiolocation 5.145A 5.145B
9355-9400KHz FIXED	9355-9400KHz FIXED			9355-9400 KHz FIXED
BROADCASTING 5.134 5.146	9 400-9 500 kHz BROADCASTING 5.134 5.146	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	9 400-9 500 kHz BROADCASTING 5.134 5.146
9 500-9 900 kHz BROADCASTING 5.147	9 500-9 900 kHz BROADCASTING 5.147	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies	9 500-9 900 kHz BROADCASTING 5.147
9 900-9 995 kHz FIXED	9 900-9 995 kHz FIXED	Fixed		9 900-9 995 kHz FIXED

9 995-10 003 kHz STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111	9 995-10 003 kHz STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111			9 995-10 003 kHz STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111
10 003-10 005 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	10 003-10 005 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			10 003-10 005 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111
10 005-10 100 kHz AERONAUTICAL MOBILE (R) 5.111	10 005-10 100 kHz AERONAUTICAL MOBILE (R) 5.111	Aeronautical mobile communications	Appendix 27 Allotment Plan applies	10 005-10 100 kHz AERONAUTICAL MOBILE (R) 5.111
10 100-10 150 kHz FIXED Amateur	10 100-10 150 kHz FIXED Amateur	Fixed Amateur communications		10 100-10 150 kHz FIXED Amateur
10 150-11 175 kHz FIXED Mobile except aeronautical mobile (R)	10 150-11 175 kHz FIXED Mobile except aeronautical mobile (R)	SADC harmonised HF frequencies for cross-border mobile communications; see Annex G.		10 150-11 175 kHz FIXED Mobile except aeronautical mobile (R)
11 175-11 275 kHz AERONAUTICAL MOBILE (OR)	11 175-11 275 kHz AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies	11 175-11 275 kHz AERONAUTICAL MOBILE (OR)
11 275-11 400 kHz AERONAUTICAL MOBILE (R)	11 275-11 400 kHz AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies	11 275-11 400 kHz AERONAUTICAL MOBILE (R)
11 400-11 600 kHz FIXED	11 400-11 600 kHz FIXED	Fixed		11 400-11 600 kHz FIXED
11 600-11 650 kHz BROADCASTING 5.134 5.146	11 600-11 650 kHz BROADCASTING 5.134 5.146	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	11 600-11 650 kHz BROADCASTING 5.134 5.146
11 650-12 050 kHz BROADCASTING 5.147	11 650-12 050 kHz BROADCASTING 5.147	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies	11 650-12 050 kHz BROADCASTING 5.147
12 050-12 100 kHz BROADCASTING 5.134 5.146	12 050-12 100 kHz BROADCASTING 5.134 5.146	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	12 050-12 100 kHz BROADCASTING 5.134 5.146
12 100-12 230 kHz FIXED	12 100-12 230 kHz FIXED	Fixed		12 100-12 230 kHz FIXED
12 230-13 200 kHz MARITIME MOBILE 5.109 5.1105.132 5.145	12 230-13 200 kHz MARITIME MOBILE 5.109 5.110 5.132 5.145	Maritime mobile communications 12 577 kHz – DSC for distress and calling; Article 31 applies 12 520 kHz – international distress frequency for NBDP telegraphy; Article 31 applies. 12 579 kHz – maritime safety information (MSI); App.17 applies.	ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies	12 230-13 200 kHz MARITIME MOBILE 5.109 5.110 5.132 5.145
13 200-13 260 kHz AERONAUTICAL MOBILE (OR)	13 200-13 260 kHz AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies	13 200-13 260 kHz AERONAUTICAL MOBILE (OR)
13 260-13 360 kHz AERONAUTICAL MOBILE (R)	13 260-13 360 kHz AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies	13 260-13 360 kHz AERONAUTICAL MOBILE (R)

13 360-13 410 kHz FIXED RADIO ASTRONOMY 5.149	13 360-13 410 kHz FIXED RADIO ASTRONOMY 5.149	Radio astronomy		13 360-13 410 kHz FIXED RADIO ASTRONOMY 5.149
13 410-13 450 kHz FIXED Mobile except aeronautical mobile (R)	13 410-13 450 kHz FIXED Mobile except aeronautical mobile (R)	Maritime and/or land mobile communications The band 13 553-13 567 kHz is designated for ISM applications (5.150). SRD applications (13 553- 13 567kHz)	 Common international SRD band; see ITU-R Rec.SM.[SRD]	13 410-13 450 kHz FIXED Mobile except aeronautical mobile (R)
13 450-13 550 KHz FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A 5.149A	13 450-13 550 KHz FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A 5.149A			13 450-13 550 KHz FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A 5.149A
13 550-13 570 KHz FIXED Mobile except aeronautical mobile (R) 5.15	13 550-13 570 KHz FIXED Mobile except aeronautical mobile (R) 5.15			13 550-13 570 KHz FIXED Mobile except aeronautical mobile (R) 5.15
13 570-13 600 kHz BROADCASTING 5.134 5.151	13 570-13 600 kHz BROADCASTING 5.134 5.151	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	13 570-13 600 kHz BROADCASTING 5.134 5.151
13 600-13 800 kHz BROADCASTING	13 600-13 800 kHz BROADCASTING	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies	13 600-13 800 kHz BROADCASTING
13 800-13 870 kHz BROADCASTING 5.134 5.151	13 800-13 870 kHz BROADCASTING 5.134 5.151	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	13 800-13 870 kHz BROADCASTING 5.134 5.151
13 870-14 000 kHz FIXED Mobile except aeronautical mobile (R)	13 870-14 000 kHz FIXED Mobile except aeronautical mobile (R)	Maritime and/or land mobile communications		13 870-14 000 kHz FIXED Mobile except aeronautical mobile (R)
14 000-14 250 kHz AMATEUR AMATEUR- SATELLITE	14 000-14 250 kHz AMATEUR AMATEUR- SATELLITE	Amateur communications Amateur-satellite communications		14 000-14 250 kHz AMATEUR AMATEUR- SATELLITE
14 250-14 350 kHz AMATEUR 5.152	14 250-14 350 kHz AMATEUR	Amateur communications		14 250-14 350 kHz AMATEUR
14 350-14 990 kHz FIXED Mobile except aeronautical mobile (R)	14 350-14 990 kHz FIXED Mobile except aeronautical mobile (R)	SADC harmonised HF frequencies for cross-border mobile communications; see Annex G.		14 350-14 990 kHz FIXED Mobile except aeronautical mobile (R)
14 990-15 005 kHz STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) 5.111	14 990-15 005 kHz STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) 5.111			14 990-15 005 kHz STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) 5.111

15 005-15 010 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research	15 005-15 010 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research			15 005-15 010 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research
15 010-15 100 kHz AERONAUTICAL MOBILE (OR)	15 010-15 100 kHz AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies	15 010-15 100 kHz AERONAUTICAL MOBILE (OR)
15 100-15 600 kHz BROADCASTING	15 100-15 600 kHz BROADCASTING	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies	15 100-15 600 kHz BROADCASTING
15 600-15 800 kHz BROADCASTING 5.134 5.146	15 600-15 800 kHz BROADCASTING 5.134 5.146	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	15 600-15 800 kHz BROADCASTING 5.134 5.146
15 800-16 100 kHz FIXED 5.153	15 800-16 100 kHz FIXED 5.153	Fixed		15 800-16 100 kHz FIXED 5.153
16 100-16 200 KHz FIXED Radiolocation 5.145A 5.145B	16 100-16 200 KHz FIXED Radiolocation 5.145A 5.145B			16 100-16 200 KHz FIXED Radiolocation 5.145A 5.145B
16 200-16 360 KHz FIXED	16 200-16 360 KHz FIXED			16 200-16 360 KHz FIXED
16 360-17 410 kHz MARITIME MOBILE 5.109 5.1105.132 5.145	16 360-17 410 kHz MARITIME MOBILE 5.109 5.110 5.132 5.145	Maritime mobile communications 16 804.5kHz – DSC for distress and calling; Article 31 applies. 16 695 kHz – international distress frequency for NBDP telegraphy; Article 31 applies. 16 806.5 kHz – maritime safety information (MSI); App.17 applies	ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies	16 360-17 410 kHz MARITIME MOBILE 5.109 5.1105.132 5.145
17 410-17 480 kHz FIXED	17 410-17 480 kHz FIXED	Fixed		17 410-17 480 kHz FIXED
17 480-17 550 kHz BROADCASTING 5.134 5.146	17 480-17 550 kHz BROADCASTING 5.134 5.146	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	17 480-17 550 kHz BROADCASTING 5.134 5.146
17 550-17 900 kHz BROADCASTING	17 550-17 900 kHz BROADCASTING	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies	17 550-17 900 kHz BROADCASTING
17 900-17 970 kHz AERONAUTICAL MOBILE (R)	17 900-17 970 kHz AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies	17 900-17 970 kHz AERONAUTICAL MOBILE (R)
17 970-18 030 kHz AERONAUTICAL MOBILE (OR)	17 970-18 030 kHz AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies	17 970-18 030 kHz AERONAUTICAL MOBILE (OR)
18 030-18 052 kHz FIXED	18 030-18 052 kHz FIXED	Fixed		18 030-18 052 kHz FIXED
18 052-18 068 kHz FIXED Space research	18 052-18 068 kHz FIXED Space research	Fixed		18 052-18 068 kHz FIXED Space research
18 068-18 168 kHz AMATEUR AMATEUR- SATELLITE 5.154	18 068-18 168 kHz AMATEUR AMATEUR- SATELLITE	Amateur communications Amateur-satellite communications		18 068-18 168 kHz AMATEUR AMATEUR- SATELLITE 5.154

18 168-18 780 kHz FIXED Mobile except aeronautical mobile	18 168-18 780 kHz FIXED Mobile except aeronautical mobile	Maritime and/or land mobile communications		18 168-18 780 kHz FIXED Mobile except aeronautical mobile
18 780-18 900 kHz MARITIME MOBILE	18 780-18 900 kHz MARITIME MOBILE	Maritime mobile communications	ITU RR Appendix 17 Channelling Plan applies	18 780-18 900 kHz MARITIME MOBILE
18 900-19 020 kHz BROADCASTING 5.134 5.146	18 900-19 020 kHz BROADCASTING 5.134 5.146	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.	18 900-19 020 kHz BROADCASTING 5.134 5.146
19 020-19 680 kHz FIXED	19 020-19 680 kHz FIXED	Fixed		19 020-19 680 kHz FIXED
19 680-19 800 kHz MARITIME MOBILE 5.132	19 680-19 800 kHz MARITIME MOBILE 5.132	19 680.5 kHz – maritime safety information (MSI); App.17 applies	The frequency 19 680.5 kHz is the international frequency for transmission of MSI.	19 680-19 800 kHz MARITIME MOBILE 5.132
19 800-19 990 kHz FIXED	19 800-19 990 kHz FIXED	Fixed		19 800-19 990 kHz FIXED
19 990-19 995 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	19 990-19 995 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			19 990-19 995 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111
19 995-20 010 kHz STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) 5.111	19 995-20 010 kHz STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) 5.111			19 995-20 010 kHz STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) 5.111
20 010-21 000 kHz FIXED Mobile	20 010-21 000 kHz FIXED Mobile			20 010-21 000 kHz FIXED Mobile
21 000-21 450 kHz AMATEUR AMATEUR- SATELLITE	21 000-21 450 kHz AMATEUR AMATEUR- SATELLITE	Amateur communications Amateur-satellite communications		21 000-21 450 kHz AMATEUR AMATEUR- SATELLITE
21 450-21 850 kHz BROADCASTING	21 450-21 850 kHz BROADCASTING	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies	21 450-21 850 kHz BROADCASTING
21 850-21 870 kHz FIXED 5.155A 5.155	21 850-21 870 kHz FIXED	Fixed		21 850-21 870 kHz FIXED 5.155A 5.155
21 870-21 924 kHz FIXED 5.155B	21 870-21 924 kHz FIXED 5.155B	Fixed	This band is used by the FS for services related to aircraft flight safety (5.155B)	21 870-21 924 kHz FIXED 5.155B
21 924-22 000 kHz AERONAUTICAL MOBILE (R)	21 924-22 000 kHz AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies	21 924-22 000 kHz AERONAUTICAL MOBILE (R)
22 000-22 855 kHz MARITIME MOBILE 5.132 5.156	22 000-22 855 kHz MARITIME MOBILE 5.132	22 376 kHz – maritime safety information (MSI); App.17 applies	ITU RR Appendix 17 Channelling Plan applies. ITU RR Appendix 25 Allotment Plan applies. The frequency 22 376 kHz is the international frequency for transmission of MSI.	22 000-22 855 kHz MARITIME MOBILE 5.132

22 855-23 000 kHz FIXED 5.156	22 855-23 000 kHz FIXED	Fixed		22 855-23 000 kHz FIXED
23 000-23 200 kHz FIXED Mobile except aeronautical mobile (R) 5.156	23 000-23 200 kHz FIXED Mobile except aeronautical mobile (R)			23 000-23 200 kHz FIXED Mobile except aeronautical mobile (R)
23 200-23 350 kHz FIXED 5.156A AERONAUTICAL MOBILE (OR)	23 200-23 350 kHz FIXED 5.156A AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	The use of this band by the FS is limited to the provision of services related to aircraft flight safety (5.156A)	23 200-23 350 kHz FIXED 5.156A AERONAUTICAL MOBILE (OR)
23 350-24 000 kHz FIXED MOBILE except aeronautical mobile 5.157	23 350-24 000 kHz FIXED MOBILE except aeronautical mobile 5.157		The use of this band by the MMS is limited to inter-ship radiotelegraphy (5.157).	23 350-24 000 kHz FIXED MOBILE except aeronautical mobile 5.157
24 000-24 450 kHz FIXED LAND MOBILE	24 000-24 450 kHz FIXED LAND MOBILE			24 000-24 450 kHz FIXED LAND MOBILE
24 450 -24 600 kHz FIXED LAND MOBILE Radiolocation 5.132A 5.158	24 450 -24 600 kHz FIXED LAND MOBILE Radiolocation 5.132A 5.158			24 450 -24 600 kHz FIXED LAND MOBILE Radiolocation 5.132A 5.158
24 600-24 890 KHz FIXED LAND MOBILE	24 600-24 890 KHz FIXED LAND MOBILE			24 600-24 890 KHz FIXED LAND MOBILE
				24 890 – 24 990 khz AMATURE AMATURE-SATELITE
24 990-25 005 kHz STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)	24 990-25 005 kHz STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)			24 990-25 005 kHz STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)
25 005-25 010 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research	25 005-25 010 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research			25 005-25 010 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research
25 010-25 070 kHz FIXED MOBILE except aeronautical mobile	25 010-25 070 kHz FIXED MOBILE except aeronautical mobile			25 010-25 070 kHz FIXED MOBILE except aeronautical mobile
25 070-25 210 kHz MARITIME MOBILE	25 070-25 210 kHz MARITIME MOBILE	Maritime mobile communications	ITU RR Appendix 17 Channelling Plan applies	25 070-25 210 kHz MARITIME MOBILE
25 210-25 550 kHz FIXED MOBILE except aeronautical mobile	25 210-25 550 kHz FIXED MOBILE except aeronautical mobile			25 210-25 550 kHz FIXED MOBILE except aeronautical mobile
25 550-25 670 kHz RADIO ASTRONOMY 5.149	25 550-25 670 kHz RADIO ASTRONOMY 5.149	Radio astronomy		25 550-25 670 kHz RADIO ASTRONOMY 5.149
25 670-26 100 kHz BROADCASTING	25 670-26 100 kHz BROADCASTING	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies.	25 670-26 100 kHz BROADCASTING

26 100-26 175 kHz MARITIME MOBILE 5.132	26 100-26 175 kHz MARITIME MOBILE 5.132	26 100.5 kHz – maritime safety information (MSI); App.17 applies	ITU RR Appendix 17 Channelling Plan applies. ITU RR Appendix 25 Allotment Plan applies. The frequency 26 100.5 kHz is the international frequency for transmission of MSI.	26 100-26 175 kHz MARITIME MOBILE 5.132
26 175-26 200 kHz FIXED MOBILE except aeronautical mobile	26 175-26 200 kHz MOBILE except aeronautical mobile	Mobile systems (single frequency) CB Radio (26.96-27.410 MHz) ISM applications (26.975-27.283 MHz) SRD applications (26 957-27 283 kHz)	Common international SRD band; see ITU-R Rec.SM.[SRD]	26 175-26 200 kHz MOBILE except aeronautical mobile
26 200-26 350KHz FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A	26 200-26 350KHz FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A			26 200-26 350KHz FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A
26 350-27 500 KHz FIXED MOBILE except aeronautical Mobile 5.15	26 350-27 500 KHz FIXED MOBILE except aeronautical Mobile 5.15 SADC1			26 350-27 500 KHz FIXED MOBILE except aeronautical Mobile 5.15
27.5-28 MHz METEOROLOGICAL AIDS FIXED MOBILE	27.5-28 MHz METEOROLOGICAL AIDS FIXED MOBILE			27.5-28 MHz METEOROLOGICAL AIDS FIXED MOBILE
28-29.7 MHz AMATEUR AMATEUR-SATELLITE	28-29.7 MHz AMATEUR AMATEUR-SATELLITE	Amateur communications Amateur-satellite communications		28-29.7 MHz AMATEUR AMATEUR-SATELLITE
29.7-30.005 MHz FIXED MOBILE	29.7-30.005 MHz FIXED MOBILE SADC2	Government use		29.7-30.005 MHz FIXED MOBILE
30.005-30.01 MHz SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	30.005-30.01 MHz SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	Government use		30.005-30.01 MHz SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH
30.01-37.5 MHz FIXED MOBILE	30.01-37.5 MHz MOBILE	Government use PMR		30.01-37.5 MHz FIXED MOBILE
37.5-38.25 MHz FIXED MOBILE Radio astronomy 5.149	37.5-38.25 MHz MOBILE Radio astronomy 5.149	PMR Radio astronomy		37.5-38.25 MHz FIXED MOBILE Radio astronomy 5.149

38.25-39 MHz FIXED MOBILE	38.25-39 MHz MOBILE	PMR		38.25-39 MHz MOBILE
39-39.5 MHz FIXED MOBILE Radiolocation 5.132A 5.159	39-39.5 MHz FIXED MOBILE Radiolocation 5.132A 5.159			39-39.5 MHz FIXED MOBILE Radiolocation 5.132A 5.159
39.5-39.986 FIXED MOBILE	39.5-39.986 FIXED MOBILE			39.5-39.986 MHz FIXED MOBILE
39.986-40.02 MHz FIXED MOBILE Space research	39.986-40.02 MHz MOBILE	PMR		39.986-40.02 MHz FIXED MOBILE Space research
40.02-40.98 MHz FIXED MOBILE 5.15	40.02-40.98 MHz MOBILE 5.15 SADC3	PMR ISM (40.66-40.70 MHz) SRD applications (40.66-40.77 MHz)	Common international SRD band; see ITU-R Rec.SM.[SRD]	40.02-40.98 MHz FIXED MOBILE 5.15
40.98-41.015 MHz FIXED MOBILE Space research 5.1605.161	40.98-41.015 MHz MOBILE Space research 5.16	PMR		40.98-41.015 MHz FIXED MOBILE Space research 5.160 5.161
41.015-42 MHz FIXED MOBILE 5.160 5.161 5.161A	41.015-42 MHz MOBILE 5.160 5.161 5.161A	PMR		41.015-42 MHz FIXED MOBILE 5.160 5.161 5.161A
42-42.5 MHz FIXED MOBILE Radiolocation 5.132A 5.160 5.161A	42-42.5 MHz FIXED MOBILE Radiolocation 5.132A 5.160 5.161A			42-42.5 MHz FIXED MOBILE Radiolocation 5.132A 5.160 5.161A
42.5-44 MHz FIXED MOBILE 5.160 5.161 5.161A	42.5-44 MHz FIXED MOBILE 5.160 5.161 5.161A			42.5-44 MHz FIXED MOBILE 5.160 5.161 5.161A
44-47 MHz FIXED MOBILE 5.162 5.162A	44-47 MHz FIXED MOBILE	PMR Meteor Burst (45.3-46.9 MHz) CT0 Cordless Telephony BTx (46.61-46.97 MHz)	Paired with 47.5-49.1 MHz)	44-47 MHz FIXED MOBILE 5.162 5.162A
47-68 MHz BROADCASTING 5.162A 5.163 5.164 5.165 5.169 5.171	47-50 MHz LAND MOBILE 5.164 5.165	PMR Meteor Burst (47.5-49.1 MHz) CT0 Cordless Telephony MTx (49.67-49.97 MHz)	Paired with 45.3-46.9 MHz Paired with (46.61-46.97 MHz)	47-68 MHz BROADCASTING 5.162A 5.163 5.164 5.165 5.169 5.171
	50-54 MHz AMATEUR 5.164 5.165 5.169			
	54-68 MHz MOBILE except aeronautical mobile 5.164 5.165 5.171	PMR		

68-74.8 MHz FIXED MOBILE except aeronautical mobile 5.149 5.175 5.177 5.179	68-74.8 MHz MOBILE except aeronautical mobile 5.149 SADC4	PMR and/or PAMR		68-74.8 MHz FIXED MOBILE except aeronautical mobile 5.149
74.8-75.2 MHz AERONAUTICAL RADIONAVIGATION 5.180 5.181	74.8-75.2 MHz AERONAUTICAL RADIONAVIGATION 5.18	Instrument Landing System (ILS) Marker beacons (75 MHz)		74.8-75.2 MHz AERONAUTICAL RADIONAVIGATION 5.18
75.2-87.5 MHz FIXED MOBILE except aeronautical mobile 5.175 5.179 5.187	75.2-87.5 MHz MOBILE except aeronautical mobile	PMR and/or PAMR		75.2-87.5 MHz MOBILE except aeronautical mobile
87.5-100 MHz BROADCASTING 5.19	87.5-100 MHz BROADCASTING	FM Sound broadcasting (87.5- 108 MHz)	Geneva agreement GE84	87.5-100 MHz BROADCASTING
100-108 MHz BROADCASTING 5.192 5.194	100-108 MHz BROADCASTING			100-108 MHz BROADCASTING
108-117.975 MHz AERONAUTICAL RADIONAVIGATION 5.197 5.197A	108-117.975 MHz AERONAUTICAL RADIONAVIGATION 5.197A	Instrument Landing System (ILS) / Localiser (108-112 MHz) VHF Omni-directional Range (VOR) (112-117.975 MHz) Aeronautical mobile communications (108-117.975 MHz)	AM(R)S shall operate in accordance with Res.413(Rev.WRC-07). Safety and regularity of flights; in the band 108-112 MHz AM(R)S limited to ground based transmitters.	108-117.975 MHz AERONAUTICAL RADIONAVIGATION 5.197A
117.975-137 MHz AERONAUTICAL MOBILE (R) 5.111 5.200 5.201 5.202	117.975-137 MHz AERONAUTICAL MOBILE (R) 5.111 5.200 5.201	117.975-121.450 MHz Aeronautical mobile communications	Safety and regularity of flights	117.975-137 MHz AERONAUTICAL MOBILE (R) 5.111 5.200 5.201
		121.450-121.550 MHz International Distress Frequency (121.5 MHz)	EPIRBs at 121.5 MHz ITU RR Article 31 applies	
		121.550-137.000 MHz Aeronautical mobile communications	123.1 MHz - auxiliary emergency frequency	
137-137.025 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL- SATELLITE (space-to- Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	137-137.025 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL- SATELLITE (space-to- Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Mobile except aeronautical mobile (R) 5.208			137-137.025 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL- SATELLITE (space-to- Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Mobile except aeronautical mobile (R) 5.208

137.025-137.175 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	137.025-137.175 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.208			137.025-137.175 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) 5.208A 5.209 Mobile except aeronautical mobile (R) 5.208
137.175-137.825 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	137.175-137.825 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Mobile except aeronautical mobile (R) 5.208	NOAA meteorology satellite (137.500-137.620 MHz)		137.175-137.825 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.208
137.825-138 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	137.825-138 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.208			137.825-138 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.209 Mobile except aeronautical mobile (R) 5.208
138-143.6 MHz AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	138-143.6 MHz MOBILE 5.211 5.212 5.214 SADCS	PMR and / or PAMR		138-143.6 MHz AERONAUTICAL MOBILE (OR) 5.212
143.6-143.65 MHz AERONAUTICAL MOBILE (OR) 5.211 5.212 5.214 SPACE RESEARCH (space-to-Earth) 5.211 5.212 5.214	143.6-143.65 MHz MOBILE 5.211 5.212 5.214	PMR and/or PAMR		143.6-143.65 MHz AERONAUTICAL MOBILE (OR) 5.212 SPACE RESEARCH (space-to-Earth) 5.212
143.65-144 MHz AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	143.65-144 MHz MOBILE 5.211 5.212 5.214	PMR and/or PAMR		AERONAUTICAL MOBILE (OR) 5.212

144-146 MHz AMATEUR AMATEUR-SATELLITE 5.216	144-146 MHz AMATEUR AMATEUR-SATELLITE			144-146 MHz AMATEUR AMATEUR-SATELLITE
146-148 MHz FIXED MOBILE except aeronautical mobile (R)	146-148 MHz MOBILE except aeronautical mobile (R)	PMR and/or PAMR		146-148 MHz FIXED MOBILE except aeronautical mobile (R)
148-149.9 MHz FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221	148-149.9 MHz MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221 SADC6	Mobile satellite communications (Little LEO)	For some Little LEO systems this band is supplemented by the band 149.9-150.05 MHz.	148-149.9 MHz FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221
149.9-150.05 MHz MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223	149.9-150.05 MHz MOBILE-SATELLITE (Earth-to-space) 5.2095.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223	Mobile satellite communications (Little LEO)		149.9-150.05 MHz MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223
150.05-153 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	150.05-153 MHz MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	PMR and/or PAMR Paging		150.05-153 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149
153-154 MHz FIXED MOBILE except aeronautical mobile (R) Meteorological Aids	153-154 MHz MOBILE except aeronautical mobile (R)	PMR and/or PAMR		153-154 MHz FIXED MOBILE except aeronautical mobile (R) Meteorological Aids
154-156.4875 MHz FIXED MOBILE except aeronautical mobile (R) 5.226 5.225A	154-156.4875 MHz MOBILE except aeronautical mobile (R) 5.226 5.225A	154-156 MHz PMR and/or PAMR		154-156.4875 MHz FIXED MOBILE except aeronautical mobile (R) 5.226 5.225A
		156.00-156.4875 MHz Maritime mobile communications (Ship stations) Land mobile in areas remote from coast	Paired with 160.625- 160.950 MHz, single frequency 156.3 MHz and in the band 156.375-156.475 MHz. ITU RR Articles 31 and 52 and Appendix 18 apply.	
156.4875-156.5625 MHz MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227	156.4875-156.5625 MHz MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227	Maritime mobile distress, safety and calling frequency 156.525 MHz for maritime mobile VHF radiotelephone service using DSC. The bands 156.4875-156.5125 MHz and 156.5375-156.5625 MHz may also be used for land mobile services while protecting the maritime mobile service.	ITU RR Articles 31 and 52 and Appendix 18 apply.	156.4875-156.5625 MHz MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227

156.5625-156.7625 MHz FIXED MOBILE except aeronautical mobile (R) 5.226	156.5625-156.7625 MHz MOBILE except aeronautical mobile (R) 5.226	156.5625-156.7625 MHz Maritime mobile communications. Land mobile in areas remote from coast.	Single frequency applications, ITU RR Articles 31 and 52 and Appendix 18 apply.	156.5625-156.7625 MHz FIXED MOBILE except aeronautical mobile (R) 5.226
156.7625-156.7875 MHz MARITIME MOBILE (earth to space) 5.111 5.226 5.228	156.7625-156.8375 MHz MARITIME MOBILE (earth to space) 5.111 5.226 5.228	International distress, safety and calling frequency at 156.8 MHz for the maritime mobile VHF radiotelephone service.	ITU RR Article 31 and Appendix 18 apply to the use of the frequency 156.8 MHz and this band.	156.7625-156.7875 MHz MARITIME MOBILE (earth to space) 5.111 5.226 5.228
156.7875-156.8125 MHz MARITIME MOBILE (distress and calling) 5.111 5.226	156.7875-156.8125 MHz MARITIME MOBILE (distress and calling) 5.111 5.226			156.7875-156.8125 MHz MARITIME MOBILE (distress and calling) 5.111 5.226
156.8125-156.8375 MHz MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	156.8125-156.8375 MHz MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228			156.8125-156.8375 MHz MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228
156.8375-161.9625 MHz FIXED MOBILE except aeronautical mobile 5.226	156.8375-161.9625 MHz MOBILE except aeronautical mobile 5.226	156.8375-157.45 MHz Maritime mobile communications (ship stations). Land mobile in areas remote from coast.	Paired with 161.5-162.0 MHz and single frequency applications; ITU RR Articles 31 and 52 and Appendix 18 apply.	156.8375-161.9625 MHz MOBILE except aeronautical mobile 5.226
		157.450-160.6 MHz PMR and/or PAMR		
		160.600-160.975 MHz Maritime mobile communications (Coast stations). Land mobile in areas remote from coast.	Paired with 156.025-156.350 MHz; ITU RR Articles 31 and 52 and Appendix 18 apply.	
		160.975-161.475 MHz PMR and/or PAMR	Single frequency applications.	
		161.475-162.050 MHz Maritime mobile communications (Coast stations) Land mobile in areas remote from coast Automatic Identification System (AIS) at 161.975 MHz and 162.025 MHz	Paired with 156.9-157.4 MHz; ITU RR Articles 31 and 52 and Appendix 18 apply.	
		162.050-174 MHz PMR and/or PAMR		
161.9625-161.9875 MHz FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	161.9625-161.9875 MHz FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B			161.9625-161.9875 MHz FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B

161.9875-162.0125 FIXED MOBILE except aeronautical mobile 5.226 5.229	161.9875-162.0125 FIXED MOBILE except aeronautical mobile 5.226 5.229			161.9875-162.0125 MHz FIXED MOBILE except aeronautical mobile 5.226 5.229
162.0125-162.0375 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.229 5.228A 5.228B	162.0125-162.0375 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.229 5.228A 5.228F 5.228B			162.0125-162.0375 MHz FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.229 5.228A 5.228F 5.228B
162.0375-174 FIXED MOBILE except aeronautical Mobile 5.226 5.229	162.0375-174 FIXED MOBILE except aeronautical Mobile 5.226 5.229 SADC7			162.0375-174 MHz FIXED MOBILE except aeronautical Mobile 5.226 5.229
174-223 MHz BROADCASTING 5.235 5.237 5.243	174-223 MHz BROADCASTING 5.237	TV Broadcasting (174-214 MHz) T-DAB (214-230 MHz)	TV Band III Migration from analogue to digital in accordance with SADC time lines.	174-223 MHz BROADCASTING 5.235 5.237 5.243
223-230 MHz BROADCASTING Fixed Mobile 5.243 5.246 5.247	223-230 MHz BROADCASTING	TV Broadcasting (174-214 MHz) T-DAB (214-230 MHz)	TV Band III Migration from analogue to digital in accordance with SADC time lines.	223-230 MHz BROADCASTING Fixed Mobile
230-235 MHz FIXED MOBILE 5.247 5.251 5.252	230-235 MHz BROADCASTING 5.252 SADC8	TV Broadcasting	TV Band III (Analogue television to migrate according to SADC time lines)	230-235 MHz BROADCASTING 5.252 FIXED MOBILE
235-267 MHz FIXED MOBILE 5.111 5.252 5.254 5.256 5.256A	235-238 MHz BROADCASTING 5.252,5.254 SADC9	TV Broadcasting	TV Band III (Analogue television to migrate according to SADC time lines)	235-267 MHz BROADCASTING 5.252 FIXED MOBILE 5.111 5.199 5.254 5.256
	238-246 MHz MOBILE 5.111 5.254 5.256 SADC9	238-242.95 MHz PMR and/or PAMR 242.95-243.05 MHz International Distress Frequency (243 MHz) 243.05-246.00 MHz Low-power devices	Band available for distress and safety purposes. Low-power devices ancillary to the broadcasting service.	
	246-254 MHz BROADCASTING 5.252 5.254 SADC9	TV Broadcasting (channel 13) (246.18-254.18 MHz)	TV Band III (Analogue television to migrate according to SADC time lines)	

	254-267 MHz MOBILE 5.254 SADC9	PMR and/or PAMR		
267-272 MHz FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257	267-272 MHz FIXED MOBILE 5.254 5.257	Government use		267-272 MHz FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257
272-273 MHz SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254	272-273 MHz SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254	Government use		272-273 MHz SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254
273-312 MHz FIXED MOBILE 5.254	273-312 MHz FIXED MOBILE 5.254	Government use		273-312 MHz FIXED MOBILE 5.254
312-315 MHz FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255	312-315 MHz FIXED MOBILE 5.254 5.255	Government use		312-315 MHz FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255
315-322 MHz FIXED MOBILE 5.254	315-322 MHz FIXED MOBILE 5.254	Government use		315-322 MHz FIXED MOBILE 5.254
322-328.6 MHz FIXED MOBILE RADIO ASTRONOMY 5.149	322-328.6 MHz FIXED MOBILE RADIO ASTRONOMY 5.149	Government use		322-328.6 MHz FIXED MOBILE RADIO ASTRONOMY 5.149
328.6-335.4 MHz AERONAUTICAL RADIONAVIGATION 5.258 5.259	328.6-335.4 MHz AERONAUTICAL RADIONAVIGATION 5.258	Instrument Landing Systems (ILS) (glide path)		328.6-335.4 MHz AERONAUTICAL RADIONAVIGATION 5.258
335.4-387 MHz FIXED MOBILE 5.254	335.4-387 MHz FIXED MOBILE 5.254	335.4-336 MHz PMR and/or PAMR		335.4-387 MHz FIXED MOBILE 5.254
		336-346 MHz Fixed Wireless Access	PTP/PTMP rural system; Paired with 356-366 MHz.	
		346.0-356.0 MHz PMR and/or PAMR		
		356.0-366.0 MHz Fixed Wireless Access	PTP/PTMP rural system; Paired with 336-346 MHz	
		366.0-380.0 MHz PMR and/or PAMR		
		380.0-387.0 MHz PPDR	Paired with 390.0-397.0 MHz. To be used mainly for digital systems.	
387-390 MHz FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255	387-390 MHz MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255 SADC10	387.0-390.0 MHz PMR and/or PAMR	Paired with 397.0-399.9 MHz. To be used mainly for digital systems.	387-390 MHz FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255

390-399.9 MHz FIXED MOBILE 5.254	390-399.9 MHz MOBILE 5.254 SADC10	390.0-397.0 MHz PPDR	Paired with 380.0-387.0 MHz. To be used mainly for digital systems.	390-399.9 MHz FIXED MOBILE 5.254
399.9-400.05 MHz MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.22	399.9-400.05 MHz MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.22	397.0-399.9 MHz PMR and/or PAMR	Paired with 387.0-390.0 MHz. To be used mainly for digital systems.	399.9-400.05 MHz MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.22
400.05-400.15 MHz STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262	400.05-400.15 MHz STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262			400.05-400.15 MHz STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262
400.15-401 MHz METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.262 5.264	400.15-401 MHz METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) 5.263 5.262 5.264			400.15-401 MHz METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 SPACE RESEARCH (space-to-Earth) 5.263 5.262 5.264
401-402 MHz METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	401-402 MHz METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space)			401-402 MHz METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile
402-403 MHz METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	402-403 MHz METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space)	SRDs – ultra low power active medical implants	SRDs – see ITU-R Rec. SM.[SRD] and Rec. RS.1346	402-403 MHz METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile

403-406 MHz METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	403-406 MHz METEOROLOGICAL AIDS			403-406 MHz METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile
406-406.1 MHz MOBILE-SATELLITE (Earth-to-space) 5.266 5.267	406-406.1 MHz MOBILE-SATELLITE (Earth-to-space) 5.266 5.267	Low power satellite EPIRBs (distress and safety purposes)	ITU RR Articles 32 and 34 and Appendix 15 applies	406-406.1 MHz MOBILE-SATELLITE (Earth-to-space) 5.266 5.267
406.1-410 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	406.1-410 MHz MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	PMR and/or PAMR PPDR	The use of this band for PPDR to be studied.	406.1-410 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149
410-420 MHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268	410-420 MHz MOBILE except aeronautical mobile SADC11	PMR and/or PAMR PPDR	The use of this band for PPDR to be studied.	410-420 MHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268
420-430 MHz FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271	420-430 MHz MOBILE except aeronautical mobile SADC11	PMR and/or PAMR PPDR	The use of this band for PPDR to be studied.	420-430 MHz FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271
430-432 MHz AMATEUR RADIOLOCATION 5.271 5.272 5.273 5.274 5.275 5.276 5.277	430-432 MHz AMATEUR RADIOLOCATION 5.276 5.277 SADC11	Amateur		430-432 MHz AMATEUR RADIOLOCATION 5.276 5.277
432-438 MHz AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	432-438 MHz AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.276 5.277 5.282 SADC11	Amateur (432-438 MHz) Amateur-satellite (435-438 MHz) ISM (433.0-434.79 MHz)	Conditions for amateur satellite service is given in 5.282	432-438 MHz AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.276 5.277 5.282
438-440 MHz AMATEUR RADIOLOCATION 5.271 5.273 5.274 5.275 5.276 5.277 5.283	438-440 MHz AMATEUR RADIOLOCATION 5.276 5.277	Amateur		438-440 MHz AMATEUR RADIOLOCATION 5.276 5.277
440-450 MHz FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271 5.284 5.285 5.286	440-450 MHz FIXED MOBILE except aeronautical mobile 5.286	PMR and/or PAMR PPDR PMR446 (446-446.1 MHz) FIXED (telemetry, dual frequency alarm systems)	The use of this band for PPDR to be studied. PMR446-ERC/DEC/ (98)25	440-450 MHz FIXED MOBILE except aeronautical mobile Radiolocation 5.286

450-455 MHz	450-455 MHz	Fixed links (PTP)	This band is currently used for a variety of fixed and mobile systems in the various SADC countries. This band is also identified for IMT (Res.224 applies).	450-455 MHz
FIXED	FIXED	IMT (450-470 MHz)		FIXED
MOBILE 5.286AA 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E	MOBILE 5.286AA 5.286 5.286A	PMR and/or PAMR		MOBILE 5.209 5.286 5.286A
455-456 MHz	455-456 MHz			455-456 MHz
FIXED	FIXED			FIXED
MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	MOBILE 5.286AA 5.209 5.286A			MOBILE 5.209 5.286A
456-459 MHz	456-459 MHz		456-459 MHz	
FIXED	FIXED		FIXED	
MOBILE 5.286AA 5.271 5.287 5.288	MOBILE 5.286AA 5.287		MOBILE	
459-460 MHz	459-460 MHz		459-460 MHz	
FIXED	FIXED		FIXED	
MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286 ^E	MOBILE 5.286AA 5.209 5.286A		MOBILE 5.209 5.286A	
460-470 MHz	460-470 MHz		460-470 MHz	
FIXED	FIXED		FIXED	
MOBILE 5.286AA Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 5.290	MOBILE 5.286AA Meteorological-satellite (space-to-Earth) 5.287 5.289		MOBILE Meteorological-satellite (space-to-Earth) 5.289	
470-790 MHz	470-790 MHz	DTT broadcasting (470-694 MHz)	Band IV/V Analogue television to migrate to digital television in line with SADC time lines. WRC-12 allocated the band 694-790MHz to Mobile service aeronautical mobile and identified it for IMT subject to confirmation by WRC-15 (WRC-12 Res 232 refers).	470-694 MHz
BROADCASTING 5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311A 5.312 5.312A	BROADCASTING 5.149 5.294 5.296 5.304 5.311A 5.312A	IMT (694-790 MHz)		BROADCASTING Radio astronomy (606-614 MHz) 5.149 5.304 5.306 5.311
	SADC12	Radio astronomy (606-614 MHz)		694-790 MHz MOBILE except aeronautical mobile 5.317A

<p>790-862 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.316B 5.317A</p> <p>BROADCASTING 5.312 5.314 5.315 5.316 5.316A 5.319</p>	<p>790-862 MHz</p> <p>MOBILE except aeronautical mobile 5.316B 5.317A</p> <p>BROADCASTING</p> <p>5.314 5.315 5.316 5.316A 5.319</p>	<p>IMT</p>	<p>Band IV/V analogue television to migrate to digital television according to SADC time lines.</p> <p>WRC-07 and WRC-12 allocated this band to Mobile service except aeronautical mobile and identified it for IMT. This band should be made available for IMT as soon as possible after the migration of analogue television to digital. This band needs to be harmonised in SADC for IMT; channelling plan to be developed for SADC region.</p> <p>Fixed links operating in this band will have to be migrated in order to accommodate IMT.</p>	<p>790-862 MHz</p> <p>MOBILE except aeronautical mobile 5.316B 5.317A</p>
<p>862-890 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.317A</p> <p>BROADCASTING 5.322</p> <p>5.319 5.323</p>	<p>862-890 MHz</p> <p>MOBILE except aeronautical mobile 5.317A</p> <p>5.322</p> <p>SADC14</p>	<p>862-876 MHz</p> <p>IMT</p> <p>876-880 MHz</p> <p>IMT</p> <p>PMR and/or PAMR</p> <p>880-915 MHz</p>	<p>The use of this band for IMT in the future to be investigated as part of the development of harmonised IMT channelling arrangements.</p> <p>This band is paired with 921-925 MHz.</p> <p>The use of this band for IMT in the future to be investigated as part of the development of harmonised IMT channelling arrangement.</p>	<p>862-890 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.317A</p> <p>BROADCASTING 5.322</p>
<p>890-942 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.317A</p> <p>BROADCASTING 5.322</p> <p>Radiolocation 5.323</p>	<p>890-942 MHz</p> <p>MOBILE except aeronautical mobile 5.317A</p>	<p>IMT</p> <p>915-921 MHz</p> <p>PMR and/or PMR</p> <p>921-925 MHz</p> <p>IMT</p> <p>PMR and/or PAMR</p> <p>925-960 MHz</p> <p>IMT</p>	<p>Paired with 925-960 MHz.</p> <p>Paired with 876-880 MHz.</p> <p>Paired with 880-915 MHz</p>	<p>890-942 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.317A</p> <p>BROADCASTING 5.322</p> <p>Radiolocation 5.323</p>

942-960 MHz FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.323	942-960 MHz MOBILE except aeronautical mobile 5.317A <u>5.322</u>			942-960 MHz FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322
960-1 164 MHz AERONAUTICAL RADIONAVIGATION 5.328 AERONAUTICAL MOBILE (R) 5.327A	960-1 164 MHz AERONAUTICAL RADIONAVIGATION 5.328 AERONAUTICAL MOBILE (R) 5.327A	Distance measuring equipment Secondary surveillance radar		960-1 164 MHz AERONAUTICAL RADIONAVIGATION 5.328 AERONAUTICAL MOBILE (R) 5.327A
1 164-1 215 MHz AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.328A	1 164-1 215 MHz AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.328A	Galileo (1164-1214 MHz) GLONASS (1190.3- 1213.8 MHz)		1 164-1 215 MHz AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.328A
1 215-1 240 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332	1 215-1 240 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332	GLONASS (1237.8- 1253.8 MHz) GPS (1215.6-1239.6 MHz)		1 215-1 240 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332
1 240-1 300 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A	1 240-1 300 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.330 5.331 5.282 5.332 5.335A	GLONASS (1237.8- 1253.8 MHz) Galileo (1260-1300 MHz)		1 240-1 300 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.330 5.331 5.282 5.332 5.335A
1 300-1 350 MHz AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION- SATELLITE (Earth-to- space) 5.149 5.337A	1 300-1 350 MHz AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION- SATELLITE (Earth-to- space) 5.149 5.337A			1 300-1 350 MHz AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION- SATELLITE (Earth-to- space) 5.149 5.337A
1 350-1 400 MHz FIXED MOBILE RADIOLOCATION	1 350-1 400 MHz FIXED RADIOLOCATION 5.149 5.338A 5.339	1 350-1 375 MHz Fixed links (duplex)	Paired with 1492-1517 MHz; CEPT T/R 13-01 refers.	1 350-1 400 MHz FIXED RADIOLOCATION 5.149 5.338A 5.339

5.149 5.338 5.338A 5.339		1 375-1 400 MHz Fixed links (duplex)	Paired with 1427-1452 MHz; CEPT T/R 13-01 refers.	
1 400-1 427 MHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	1 400-1 427 MHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			1 400-1 427 MHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
1 427-1 429 MHz SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.338A 5.341	1 427-1 429 MHz SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.338A 5.341	1 427-1 452 MHz Fixed links (duplex)	Paired with 1375-1400 MHz; CEPT T/R 13-01 refers.	1 427-1 429 MHz SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.338A 5.341
1 429-1 452 MHz FIXED MOBILE except aeronautical mobile 5.338A 5.341 5.342	1 429-1 452 MHz FIXED MOBILE except aeronautical mobile 5.338A 5.341			1 429-1 452 MHz FIXED MOBILE except aeronautical mobile 5.338A 5.341
1 452-1 492 MHz FIXED MOBILE except aeronautical mobile BROADCASTING 5.345 BROADCASTING- SATELLITE 5.208B 5.345 BROADCASTING- SATELLITE 5.208B 5.345 5.3415.342	1 452-1 492 MHz MOBILE except aeronautical mobile BROADCASTING 5.345 BROADCASTING- SATELLITE 5.208B 5.345 5.341	1 452-1 467 MHz Terrestrial Digital Audio Broadcasting (T-DAB) 1 467-1 492 MHz Satellite Digital Audio Broadcasting (S-DAB)	The future use of this band for T-DAB to be re-evaluated.	1 452-1 492 MHz FIXED MOBILE except aeronautical mobile BROADCASTING 5.345 BROADCASTING- SATELLITE 5.208B 5.345 5.341
1 492-1 518 MHz FIXED MOBILE except aeronautical mobile 5.341 5.342	1 492-1 518 MHz FIXED 5.341 SADC15	1 492-1 517 MHz Fixed links (dual frequency) 1 517-1 518 MHz Fixed links (single frequency)		Paired with 1350-1375 MHz; CEPT T/R 13-01 refers.
1 518-1 525 MHz FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.342	1 518-1 525 MHz FIXED MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341	1518-1525 MHz Fixed links (single frequency)	The band 1518-1559 MHz is identified for satellite component of IMT; Res.225 applies.	1 518-1 525 MHz FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341

<p>1 525-1 530 MHz</p> <p>SPACE OPERATION (space-to-Earth)</p> <p>FIXED</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A</p> <p>Earth exploration- satellite</p> <p>Mobile except aeronautical mobile 5.349</p> <p>5.341 5.342 5.350 5.351 5.352A 5.354</p>	<p>1 525-1 530 MHz</p> <p>SPACE OPERATION (space-to-Earth)</p> <p>FIXED</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A</p> <p>5.341 5.351 5.354 5.352A</p>		<p>The band 1518-1559 MHz is identified for satellite component of IMT; Res.225 applies.</p>	<p>1 525-1 530 MHz</p> <p>SPACE OPERATION (space-to-Earth)</p> <p>FIXED</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A</p> <p>Earth exploration- satellite</p> <p>Mobile except aeronautical mobile 5.341 5.351 5.354</p>
<p>1 530-1 535 MHz</p> <p>SPACE OPERATION (space-to-Earth)</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A</p> <p>Earth exploration- satellite</p> <p>Fixed</p> <p>Mobile except aeronautical mobile 5.341 5.342 5.351 5.354</p>	<p>1 530-1 535 MHz</p> <p>SPACE OPERATION (space-to-Earth)</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A</p> <p>5.341 5.351 5.354</p>		<p>The band 1518-1559 MHz is identified for satellite component of IMT; Res.225 applies. In the band 1530- 1544 MHz priority for maritime mobile distress, urgency and safety communications (GMDSS); Res.222 applies.</p>	<p>1 530-1 535 MHz</p> <p>SPACE OPERATION (space-to-Earth)</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A</p> <p>Earth exploration- satellite</p> <p>Fixed</p> <p>Mobile except aeronautical mobile 5.341 5.342 5.354</p>
<p>1 535-1 559 MHz</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A</p> <p>5.341 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A</p>	<p>1 535-1 559 MHz</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A</p> <p>5.341 5.351 5.353A 5.354 5.356 5.357 5.357A 5.359</p>		<p>The band 1518-1559 MHz is identified for satellite component of IMT; Res.225 applies. In the band 1530- 1544 MHz priority for maritime mobile distress, urgency and safety communications (GMDSS); Res.222 applies.</p>	<p>1 535-1 559 MHz</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A</p> <p>5.341 5.351 5.353A 5.354 5.356 5.357 5.357A 5.359</p>
<p>1 559-1 610 MHz</p> <p>AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341 5.362B 5.362C</p>	<p>1 559-1 610 MHz</p> <p>AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341 5.362B</p>	<p>Galileo (1559.42-1591.42 MHz)</p> <p>GLONASS (1592.9-1610.5 MHz)</p> <p>GPS (1563.42-1587.42 MHz)</p>		<p>1 559-1 610 MHz</p> <p>AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.329A 5.341</p>
<p>1 610-1 610.6 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>AERONAUTICAL RADIONAVIGATION 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372</p>	<p>1 610-1 610.6 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>AERONAUTICAL RADIONAVIGATION 5.341 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372</p>	<p>GLONASS (1592.9-1610.5 MHz)</p>	<p>The band 1610-1645.5 MHz is identified for satellite component of IMT; Res.225 applies. This band is designated world-wide for the MSS. Paired with 2483.5-2484.1 MHz for some systems.</p>	<p>1 610-1 610.6 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>AERONAUTICAL RADIONAVIGATION 5.341 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372</p>

<p>1 610.6-1 613.8 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION</p> <p>5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372</p>	<p>1 610.6-1 613.8 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION</p> <p>5.149 5.341 <u>5.359</u> 5.364 5.366 5.367 5.368 5.369 5.371 5.372</p>		<p>The band 1610-1645.5 MHz is identified for satellite component of IMT; Res.225 applies.</p> <p>This band is designated world-wide for the MSS. Paired with 2484.1-2487.3 MHz for some systems.</p>	<p>1 610.6-1 613.8 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION</p> <p>5.149 5.341 5.364 5.366 5.367 5.368 5.371 5.372</p>
<p>1 613.8-1 626.5 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>AERONAUTICAL RADIONAVIGATION</p> <p>Mobile-satellite (space-to-Earth) 5.208B</p> <p>5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372</p>	<p>1 613.8-1 626.5 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>AERONAUTICAL RADIONAVIGATION</p> <p>Mobile-satellite (space-to-Earth) 5.208B</p> <p>5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372</p>		<p>The band 1610-1645.5 MHz is identified for satellite component of IMT; Res.225 applies.</p> <p>Paired with 1593-1594 MHz for aeronautical public correspondence</p>	<p>1 613.8-1 626.5 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>AERONAUTICAL RADIONAVIGATION</p> <p>Mobile-satellite (space-to-Earth) 5.208B</p> <p>5.341 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372</p>
<p>1 626.5-1 660 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376</p>	<p>1 626.5-1 660 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>5.341 5.351 5.353A 5.354 5.357A 5.359 5.374 5.375 5.376</p>		<p>The bands 1610-1645.5 MHz and 1646.5-1660.5 MHz are identified for satellite component of IMT; Res.225 applies.</p> <p>In the band 1626.5-1645.5 MHz priority is given to maritime mobile distress, urgency and safety communications (GMDSS); Res.222 applies.</p>	<p>1 626.5-1 660 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space) 5.351A</p> <p>5.341 5.351 5.353A 5.354 5.357A 5.359 5.374 5.375 5.376</p>
<p>1 660-1 660.5 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space)5.351A</p> <p>RADIO ASTRONOMY</p> <p>5.149 5.341 5.351 5.354 5.362A 5.376A</p>	<p>1 660-1 660.5 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space)5.351A</p> <p>RADIO ASTRONOMY</p> <p>5.149 5.341 5.351 5.354 5.376A</p>		<p>The band 1610-1645.5 MHz and 1646.5-1660.5 MHz are identified for satellite component of IMT; Res.225 applies.</p>	<p>1 660-1 660.5 MHz</p> <p>MOBILE-SATELLITE (Earth-to-space)</p> <p>RADIO ASTRONOMY</p> <p>5.149 5.341 5.351 5.354 5.376A</p>
<p>1 660.5-1 668 MHz</p> <p>RADIO ASTRONOMY SPACE RESEARCH (passive)</p> <p>Fixed</p> <p>Mobile except aeronautical mobile</p> <p>5.149 5.341 5.379 5.379A</p>	<p>1 660.5-1 668 MHz</p> <p>RADIO ASTRONOMY SPACE RESEARCH (passive)</p> <p>5.149 5.341 5.379A</p>			<p>1 660.5-1 668 MHz</p> <p>RADIO ASTRONOMY SPACE RESEARCH (passive)</p> <p>5.149 5.341 5.379A</p>

<p>1 668-1 668.4 MHz MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A</p>	<p>1 668-1 668.4 MHz MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.341 5.379 5.379A</p>		<p>The band 1668-1675 MHz is identified for satellite component of IMT; Res.225 applies.</p>	<p>1 668-1 668.4 MHz MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A</p>
<p>1 668.4-1 670 MHz METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E</p>	<p>1 668.4-1 670 MHz METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E</p>		<p>The band 1668-1675 MHz is identified for satellite component of IMT; Res.225 applies.</p>	<p>1 668.4-1 670 MHz METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E</p>
<p>1 670-1 675 MHz METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.341 5.379D 5.379E 5.380A</p>	<p>1 670-1 675 MHz METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.341 5.379D 5.379E 5.380A</p>		<p>The band 1668-1675 MHz is identified for satellite component of IMT; Res.225 applies.</p>	<p>1 670-1 675 MHz METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.341 5.379D 5.379E 5.380A</p>
<p>1 675-1 690 MHz METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341</p>	<p>1 675-1 690 MHz METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341</p>			<p>1 675-1 690 MHz METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341</p>
<p>1 690-1 700 MHz METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382</p>	<p>1 690-1 700 MHz METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382</p>			<p>1 690-1 700 MHz METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341</p>

1 700-1 710 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341	1 700-1 710 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341	Fixed links (single frequency)		1 700-1 710 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341
1 710-1 930 MHz FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.386 5.387 5.388	1 710-1 930 MHz FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.388	1 710-1 785 MHz IMT	Paired with 1805-1880 MHz.	1 710-1 930 MHz FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.388
		1785-1805 MHz BFWA		
		1 805-1 880 MHz IMT	Paired with 1710-1785 MHz.	
		1 880-1 900 MHz FWA Cordless telephone		
		1 900-1 920 MHz FWA IMT (terrestrial)		
		1 920-1 980 MHz IMT (terrestrial)		
1 930-1 970 MHz FIXED MOBILE 5.388A 5.388B 5.388	1 930-1 970 MHz MOBILE 5.388A 5.388B 5.388		Paired with 2110-2170 MHz	1 930-1 970 MHz FIXED MOBILE 5.388A 5.388B 5.388
				1 970-1 980 MHz FIXED MOBILE 5.388A 5.388B 5.388
1 970-1 980 MHz FIXED MOBILE 5.388A 5.388B 5.388	1 970-1 980 MHz MOBILE 5.388A 5.388B 5.388			1 970-1 980 MHz FIXED MOBILE 5.388A 5.388B 5.388
1 980-2 010 MHz FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F	1 980-2 010 MHz MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B	IMT (satellite) (1980-2010 MHz)	Paired with 2170 - 2200 MHz. The development of satellites for IMT services to be monitored.	1 980-2 010 MHz FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A
2 010-2 025 MHz FIXED MOBILE 5.388A 5.388B 5.388	2 010-2 025 MHz MOBILE 5.388A 5.388B 5.388	IMT (terrestrial) (2010-2025 MHz)	TDD	2 010-2 025 MHz FIXED MOBILE 5.388A 5.388
2 025-2 110 MHz SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392	2 025-2 110 MHz SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392	Fixed links (2025-2110 MHz paired with 2200-2285 MHz)	Radio Frequency channel arrangement according to ITU-R F.1098.	2 025-2 110 MHz SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392

2 110-2 120 MHz FIXED MOBILE 5.388A 5.388B SPACE RESEARCH (deep space) (Earth-to-space) 5.388	2 110-2 120 MHz MOBILE 5.388A 5.388B SPACE RESEARCH (deep space) (Earth-to-space) 5.388			2 110-2 120 MHz FIXED MOBILE 5.388A SPACE RESEARCH (deep space) (Earth-to-space) 5.388
2 120-2 160 MHz FIXED MOBILE 5.388A 5.388B 5.388	2 120-2 170 MHz MOBILE 5.388A 5.388B 5.388	IMT (terrestrial) (2110-2170 MHz)	Paired with 1920-1980 MHz	2 120-2 160 MHz FIXED MOBILE 5.388A 5.388
2 160-2 170 MHz FIXED MOBILE 5.388A 5.388B 5.388	2 160-2 170 MHz MOBILE 5.388A 5.388B 5.388			2 160-2 170 MHz FIXED MOBILE 5.388A 5.388
2 170-2 200 MHz FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A 5.389F	2 170-2 200 MHz MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A 5.389F			IMT (satellite) (2170-2200 MHz)
2 200-2 290 MHz SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392	2 200-2 290 MHz SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392	Fixed links (2025-2110 MHz paired with 2200-2285 MHz)	Radio Frequency channel arrangement according to ITU-R F.1098.	2 200-2 290 MHz SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392
2 290-2 300 MHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	2 290-2 300 MHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)			BFWA (2 285-2 300 MHz)
2 300-2 450 MHz FIXED MOBILE 5.384A Amateur Radiolocation 5.150 5.282 5.395	2 300-2 450 MHz FIXED MOBILE 5.384A Amateur Radiolocation 5.150 5.282	2300-2400 MHz Fixed links PTP/PTMP IMT (TDD) BFWA	Fixed paired with 2400-2500 MHz. This band has been identified for IMT.	2 300-2 450 MHz FIXED MOBILE 5.384A Amateur Radiolocation 5.150 5.282
		2400-2500 MHz Fixed links PTP/PTMP	FS paired with 2300-2400 MHz. The band 2483.5-2500 MHz is identified for satellite component of IMT; Res.225 applies.	

<p>2 450-2 483.5 MHz</p> <p>FIXED</p> <p>MOBILE</p> <p>Radiolocation</p> <p>5.150 5.397</p>	<p>2 450-2 483.5 MHz</p> <p>FIXED</p> <p>MOBILE</p> <p>Radiolocation</p> <p>5.150 5.397</p>	<p>The band 2 400-2 500 MHz is designated for ISM applications (5.150).</p> <p>SRD applications (2 400-2 483.5 MHz)</p>	<p>Common international SRD band; see ITU-R Rec.SM.[SRD]</p>	<p>2 450-2 483.5 MHz</p> <p>FIXED</p> <p>MOBILE</p> <p>Radiolocation</p> <p>5.15</p>
<p>2 483.5-2 500 MHz</p> <p>FIXED</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.351A</p> <p>RADIO DETERMINATION SATELLITE (space-to-Earth) 5.398</p> <p>Radiolocation</p> <p>5.398A</p> <p>5.150 5.399 5.402 5.401</p>	<p>2 483.5-2 500 MHz</p> <p>FIXED</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.351A</p> <p>RADIO DETERMINATION SATELLITE (space-to-Earth) 5.398</p> <p>Radiolocation</p> <p>5.398A</p> <p>5.150 5.399 5.402 5.401</p>			<p>2 483.5-2 500 MHz</p> <p>FIXED</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth) 5.351A</p> <p>RADIO DETERMINATION SATELLITE (space-to-Earth) 5.398</p> <p>Radiolocation</p> <p>5.398A</p> <p>5.150 5.399 5.402 5.401</p>
<p>2 500-2 520 MHz</p> <p>FIXED 5.410</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>5.405 5.412</p>	<p>2 500-2 520 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.384A</p>	<p>BFWA (2500-2690 MHz)</p> <p>IMT (2500-2690 MHz)</p>	<p>The band 2 500-2 690 MHz is currently used mainly for BFWA.</p> <p>This band is also allocated to the mobile service and identified for IMT.</p> <p>This band needs to be harmonised in SADC for IMT; channelling plan to be developed.</p>	<p>2 500-2 520 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.384A</p>
<p>2 520-2 655 MHz</p> <p>FIXED 5.410</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>BROADCASTING-SATELLITE 5.413 5.416</p> <p>5.339 5.405 5.412 5.417C 5.417D 5.418B 5.418C</p>	<p>2 520-2 655 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>5.339</p>			<p>2 520-2 655 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>BROADCASTING-SATELLITE 5.413 5.416</p> <p>5.339</p>
<p>2 655-2 670 MHz</p> <p>FIXED 5.410</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>BROADCASTING-SATELLITE 5.208B 5.413 5.416</p> <p>Earth exploration-satellite (passive)</p> <p>Radio astronomy</p> <p>Space research (passive)</p> <p>5.149 5.412</p>	<p>2 655-2 670 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>5.149 5.412</p>			<p>2 655-2 670 MHz</p> <p>FIXED 5.410</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>BROADCASTING-SATELLITE 5.208B 5.413 5.416</p> <p>Earth exploration-satellite (passive)</p> <p>Radio astronomy</p> <p>Space research (passive)</p> <p>5.149 5.412</p>
<p>2 670-2 690 MHz</p> <p>FIXED 5.410</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>Earth exploration-satellite (passive)</p> <p>Radio astronomy</p> <p>Space research (passive)</p> <p>5.149 5.412</p>	<p>2 670-2 690 MHz</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>5.149 5.412</p>			<p>2 670-2 690 MHz</p> <p>FIXED 5.410</p> <p>MOBILE except aeronautical mobile 5.384A</p> <p>Earth exploration-satellite (passive)</p> <p>Radio astronomy</p> <p>Space research (passive)</p> <p>5.149 5.412</p>

2 690-2 700 MHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422	2 690-2 700 MHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422			2 690-2 700 MHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422
2 700-2 900 MHz AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424	2 700-2 900 MHz AERONAUTICAL RADIONAVIGATION 5.337 5.423			2 700-2 900 MHz AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424
2 900-3 100 MHz RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.4255.427	2 900-3 100 MHz RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427			2 900-3 100 MHz RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.4255.427
3 100-3 300 MHz RADIOLOCATION Earth exploration- satellite (active) Space research (active) 5.149 5.428	3 100-3 300 MHz RADIOLOCATION 5.149	Government use		3 100-3 300 MHz RADIOLOCATION Earth exploration- satellite (active) Space research (active) 5.149
3 300-3 400 MHz RADIOLOCATION 5.149 5.429 5.430	3 300-3 400 MHz RADIOLOCATION 5.149	Radars		3 300-3 400 MHz RADIOLOCATION 5.149
3 400-3 600 MHz FIXED FIXED-SATELLITE (space-to-Earth) Mobile 5.430A Radiolocation 5.431	3 400-3 600 MHz FIXED MOBILE except aeronautical mobile 5.430A SADC16	BFWA IMT (3400-3600 MHz)	The band 3 400-3 600 MHz is currently used mainly for BFWA. From 17 Nov 2010 this band is also allocated to the mobile service on a primary basis and should be used for IMT in line with WRC-07 decisions. Because of the expected high usage of BFWA and/or IMT applications in this band, satellite services should be accommodated above 3 600 MHz. This band needs to be harmonised in SADC for IMT; channelling plan to be developed.	3 400-3 600 MHz FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation
3 600-4 200 MHz FIXED FIXED-SATELLITE (space-to-Earth)	3 600-4 200 MHz FIXED FIXED-SATELLITE (space-to-Earth)	Fixed services (PTP) (3600-4200 MHz) Fixed-satellite (space-to-Earth) (PTP/VSAT/SNG) (3600-4200 MHz) Broadband Fixed Wireless Access (BFWA) (3600-3800 MHz)	The sub-band 3 600-3 800 MHz could be used for BFWA where frequency sharing with FS PTP and/or FSS is feasible. The channelling arrangement for PTP links in this band is based on ITU-R Recommendation F.635 Annex 1. The sub-band 3 600-4 200 MHz is used for medium and high capacity PTP links and FSS.	3 600-4 200 MHz FIXED FIXED-SATELLITE (space-to-Earth)

Mobile	SADC16A SADC17		In the band 3 600-3 800 MHz, BFWA, FS PTP and FSS applications will have to operate on coordinated basis. However, considering the difficulty in coordinating ubiquitous user terminals used for BFWA and VSAT, it is proposed that VSAT systems be migrated to the Ku-band.	Mobile
4 200-4 400 MHz AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440	4 200-4 400 MHz AERONAUTICAL RADIONAVIGATION 5.438 5.44	Radio altimeters onboard aircraft		4 200-4 400 MHz AERONAUTICAL RADIONAVIGATION 5.438 5.440
4 400-4 500 MHz FIXED MOBILE 5.440A	4 400-4 500 MHz FIXED MOBILE	Government use		4 400-4 500 MHz FIXED MOBILE
4 500-4 800 MHz FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE 5.440A	4 500-4 800 MHz FIXED FIXED-SATELLITE (space-Earth) 5.441 MOBILE	Government use	The band 4 500-4 800 MHz is part of the APP30B Plan (FSS space-to-Earth). Refer to Annex B.	4 500-4 800 MHz FIXED FIXED-SATELLITE (space-Earth) 5.441 MOBILE
4 800-4 990 MHz FIXED MOBILE 5.440A 5.442 Radio astronomy 5.149 5.339 5.443	4 800-4 990 MHz FIXED MOBILE 5.442 Radio Astronomy 5.149 5.339	Government use		4 800-4 990 MHz FIXED MOBILE 5.442 Radio Astronomy 5.149 5.339
4 990-5 000 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149	4 990-5 000 MHz FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY Space Research (passive) 5.149	Government use		4 990-5 000 MHz FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY Space Research (passive) 5.149
5 000-5 010 MHz AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (Earth-to- space)	5 000-5 010 MHz AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (Earth-to- space)			5 000-5 010 MHz AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (Earth-to- space)
5 010-5 030 MHz AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.443B	5 010-5 030 MHz AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.443B			5 010-5 030 MHz AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (space-to- Earth) (space-to-space) 5.328B 5.443B
5 030-5 091 MHz AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444	5 030-5 091 MHz AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444	Microwave Landing systems.		5 030-5 091 MHz AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444

5 091-5 150 MHz AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL MOBILE 5.444B 5.444 5.444A	5 091-5 150 MHz AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL MOBILE 5.444B 5.444 5.444A			5 091-5 150 MHz AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL MOBILE 5.444B 5.444 5.444A
5 150-5 250 MHz AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.446C 5.447B 5.447C	5 150-5 250 MHz AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.446C 5.447B 5.447C	Wireless Access Systems (WAS)/ RLAN		5 150-5 250 MHz AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.447B 5.447C
5 250-5 255 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A	5 250-5 255 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.448A	Wireless Access Systems (WAS)/ RLAN		5 250-5 255 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.448A
5 255-5 350 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A	5 255-5 350 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.448A	Wireless Access Systems (WAS)/ RLAN		5 255-5 350 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.448A
5 350-5 460 MHz EARTH EXPLORATION- SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D	5 350-5 460 MHz EARTH EXPLORATION- SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D	Ground based and airborne weather Radar		5 350-5 460 MHz EARTH EXPLORATION- SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D
5 460-5 470 MHz RADIONAVIGATION 5.449 EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D 5.448B	5 460-5 470 MHz RADIONAVIGATION 5.449 EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D 5.448B			5 460-5 470 MHz RADIONAVIGATION 5.449 EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D 5.448B

5 470-5 570 MHz MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B 5.450 5.451	5 470-5 570 MHz MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B	Wireless Access Systems (WAS)/ RLAN		5 470-5 570 MHz MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B
5 570-5 650 MHz MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.450 5.451 5.452	5 570-5 650 MHz MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.452	Wireless Access Systems (WAS)/ RLAN Ground-based meteorological radars (5600-5650 MHz)		5 570-5 650 MHz MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.452
5 650-5 725 MHz RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455	5 650-5 725 MHz RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space Research (deep space) 5.282	Wireless Access Systems (WAS)/ RLAN		5 650-5 725 MHz RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space Research (deep space) 5.282
5 725-5 830 MHz FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur 5.150 5.451 5.453 5.455 5.456	5 725-5 830 MHz RADIOLOCATION Amateur 5.15	BFWA (5725-5850 MHz) ISM (5725-5875 MHz) RTTT (Road Transport and Traffic Telematics) (5795-5815 MHz) SRD applications (5 725- 5 875 MHz) SRD - Transport and information control systems (5 805-5 815 MHz)	BFWA limited to below 5850 MHz in order to protect FSS in the band 5850-6425 MHz. Common international SRD band; see ITU-R Rec.SM.[SRD] Transport information and control systems Recommendation ITU-R M.1453	5 725-5 830 MHz RADIOLOCATION Amateur 5.15
5 830-5 850 MHz FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.451 5.453 5.455 5.456	5 830-5 850 MHz FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-Satellite (space-Earth) 5.150 5.453 SADC18	BFWA (5725-5850 MHz) ISM (5725-5875 MHz)	BFWA limited to below 5850 MHz in order to protect FSS in the band 5850-6425 MHz.	5 830-5 850 MHz FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.453
5 850-5 925 MHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.15	5 850-5 925 MHz FIXED FIXED-SATELLITE (Earth-to-space) 5.15	Fixed-satellite uplinks (PTP/ VSAT/SNG) (5850-6425 MHz) FIXED links (5850-5925 MHz) ISM (5725-5875 MHz)	FS could be used for temporary OB links.	5 850-5 925 MHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.15

5 925-6 700 MHz FIXED 5.457 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C 5.149 5.440 5.458	5 925-6 700 MHz FIXED 5.457 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.149 5.440 5.458	Fixed links - Lower 6 GHz (5925-6425 MHz) and Upper 6 GHz (6425-7110 MHz) Fixed-satellite uplinks (PTP/VSAT/SNG) (5850-6425 MHz)	Channelling plan for L6 GHz band in accordance with ITU-R Rec. F.383. Channelling plan for U6 GHz band in accordance with ITU-R Rec. F.384. Earth Station onboard vessels (ESV) also allowed under FSS.	5 925-6 700 MHz FIXED 5.457 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.149 5.440 5.458
6 700-7 075 MHz FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C	6 700-7 075 MHz FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 5.458 5.458A 5.458B 5.458C	Fixed links - Upper 6 GHz (6425-7110 MHz)	Channelling plan for U6 GHz band in accordance with ITU-R Rec. F.384. The band 6 725-7 025 MHz is part of the APP30B Plan (FSS Earth-to-space); refer to Annex B.	6 700-7 075 MHz FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C
7 075-7 145 MHz FIXED MOBILE 5.458 5.459	7 075-7 145 MHz FIXED 5.458 5.460	Fixed links - Upper 6 GHz (6425-7110 MHz) and Lower 7 GHz (7110-7425 MHz)	Channelling plan for U6 band in accordance with ITU-R Rec. F.384. Channelling plan for L7 band is in accordance with ITU-R Rec. F.385 Annex 3.	7 075-7 145 MHz FIXED MOBILE 5.458
7 145-7 235 MHz FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458 5.459	7 145-7 235 MHz FIXED SPACE RESEARCH (Earth-to-space) 5.460 5.458	Fixed links - Lower 7 GHz (7110-7425 MHz)	Channelling plan for L7 band in accordance with ITU-R Rec. F.385 Annex 3.	7 145-7 235 MHz FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458
7 235-7 250 MHz FIXED MOBILE 5.458	7 235-7 250 MHz FIXED 5.458	Fixed links - Lower 7 GHz (7110-7425 MHz)	Channelling plan for L7 band in accordance with ITU-R Rec. F.385 Annex 3.	7 235-7 250 MHz FIXED MOBILE 5.458
7 250-7 300 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461	7 250-7 300 MHz FIXED 5.461	Fixed links - Lower 7 GHz (7110-7425 MHz)	Channelling plan for L7 band in accordance with ITU-R Rec. F.385 Annex 3.	7 250-7 300 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461
7 300-7 450 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461	7 300-7 450 MHz FIXED 5.461	Fixed links - Lower 7 GHz (7110-7425 MHz) and Upper 7 GHz (7425-7750 MHz)	Channelling plan for L7 band in accordance with ITU-R Rec. F.385 Annex 3. Channelling plan for U7 band in accordance with ITU-R Rec. F.385 Annex 3.	7 300-7 450 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461

7 450-7 550 MHz FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A	7 450-7 550 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461A	Fixed links - Upper 7 GHz (7425-7750 MHz)	Channelling plan for U7 band in accordance with ITU-R Rec. F.385 Annex 3.	7 450-7 550 MHz FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A
7 550-7 750 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	7 550-7 750 MHz FIXED	Fixed links - Upper 7 GHz (7425-7750 MHz)	Channelling plan for U7 band in accordance with ITU-R Rec. F.385 Annex 3.	7 550-7 750 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile
7 750-7 900 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile	7 750-7 900 MHz FIXED Meteorological-SATELLITE (space-to-Earth) 5.461B	Fixed links - Lower 8 GHz (7725-8275 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 1.	7 750-7 900 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile
7 900-8 025 MHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461	7 900-8 025 MHz FIXED 5.461	Fixed links - Lower 8 GHz (7725-8275 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 1.	7 900-8 025 MHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461
8 025-8 175 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	8 025-8 175 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED 5.462A	Fixed links - Lower 8 GHz (7725-8275 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 1.	8 025-8 175 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A
8 175-8 215 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	8 175-8 215 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED 5.462A	Fixed links - Lower 8 GHz (7725-8275 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 1.	8 175-8 215 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A
8 215-8 400 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	8 215-8 400 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED 5.462A	Fixed links - Lower 8 GHz (7725-8275 MHz) and Upper 8 GHz (8275-8500 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 1. Channelling plan for U8 band in accordance with ITU-R Rec. F.386 Annex 1.	8 215-8 400 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A

8 400-8 500 MHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466	8 400-8 500 MHz FIXED	Fixed links - Upper 8 GHz (8275-8500 MHz)	Channelling plan for U8 band in accordance with ITU-R Rec. F.386 Annex 1.	8 400-8 500 MHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465
8 500-8 550 MHz RADIOLOCATION 5.468 5.469	8 500-8 550 MHz RADIOLOCATION 5.468	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars.		8 500-8 550 MHz RADIOLOCATION
8 550-8 650 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A	8 550-8 650 MHz EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469A	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars		8 550-8 650 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.469A
8 650-8 750 MHz RADIOLOCATION 5.468 5.469	8 650-8 750 MHz RADIOLOCATION 5.468	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars		8 650-8 750 MHz RADIOLOCATION
8 750-8 850 MHz RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471	8 750-8 850 MHz RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars		8 750-8 850 MHz RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470
8 850-9 000 MHz RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473	8 850-9 000 MHz RADIOLOCATION MARITIME RADIONAVIGATION 5.472	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars		8 850-9 000 MHz RADIOLOCATION MARITIME RADIONAVIGATION 5.472
9 000-9 200 MHz AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION 5.471 5.473A	9 000-9 200 MHz AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION 5.473A	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars		9 000-9 200 MHz AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION
9 200-9 300 MHz RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474	9 200-9 300 MHz RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.474	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars		9 200-9 300 MHz RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.474
9 300-9 500 MHz RADIONAVIGATION EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.427 5.474 5.475 5.475A 5.475B 5.476A	9 300-9 500 MHz RADIONAVIGATION EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.427 5.474 5.475 5.475A 5.475B 5.476A	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars		9 300-9 500 MHz RADIONAVIGATION EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.427 5.474 5.475
9 500-9 800 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	9 500-9 800 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars		9 500-9 800 MHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A

9 800-9 900 MHz RADIOLOCATION Earth exploration-satellite (active) Space research (active) Fixed 5.477 5.478 5.478A 5.478B	9 800-9 900 MHz RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.478A 5.478B			9 800-9 900 MHz RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.478A 5.478B
9 900-10 000 MHz RADIOLOCATION Fixed 5.477 5.478 5.479	9 900-10 000 MHz RADIOLOCATION 5.479	RADARS. Civil and military aeronautical radionavigation e.g. precision airfield approach radars		9 900-10 000 MHz RADIOLOCATION Fixed 5.477 5.478 5.479
10-10.45 GHz FIXED MOBILE RADIOLOCATION Amateur 5.479	10-10.45 GHz FIXED RADIOLOCATION 5.479	BFWA – 10.5 GHz (10.15-10.30 GHz)	Paired with 10.50-10.65 GHz Channelling plan for 10.5 GHz band in accordance with ITU-R Rec. F.1568 Annex 1.	10-10.45 GHz FIXED MOBILE RADIOLOCATION Amateur 5.479
10.45-10.5 GHz RADIOLOCATION Amateur Amateur-satellite 5.481	10.45-10.5 GHz RADIOLOCATION Amateur Amateur-Satellite 5.481	RADIOLOCATION		10.45-10.5 GHz RADIOLOCATION Amateur Amateur-satellite
10.5-10.55 GHz FIXED MOBILE Radiolocation	10.5-10.55 GHz FIXED	BFWA (10.50-10.65 GHz)	Paired with 10.15-10.30 GHz Channelling plan for 10.5 GHz band in accordance with ITU-R Rec. F.1568 Annex 1.	10.5-10.55 GHz FIXED MOBILE Radiolocation
10.55-10.6 GHz FIXED MOBILE except aeronautical mobile Radiolocation	10.55-10.6 GHz FIXED	BFWA (10.50-10.65 GHz)	Paired with 10.15-10.30 GHz Channelling plan for 10.5 GHz band in accordance with ITU-R Rec. F.1568 Annex 1.	FIXED MOBILE except Aeronautical Mobile Radiolocation
10.6-10.68 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A	10.6-10.68 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.482 5.482A	BFWA (10.50-10.65 GHz)	Paired with 10.15-10.30 GHz Channelling plan for 10.5 GHz band in accordance with ITU-R Rec. F.1568 Annex 1. For sharing between EESS (passive) and the fixed and mobile service Res.751 applies.	10.6-10.68 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482

10.68-10.7 GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483	10.68-10.7 GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34			10.68-10.7 GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483
10.7-11.7 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.4415.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.7-11.7 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484	Fixed links - 11 GHz (10.7- 11.7 GHz) Fixed-satellite downlinks (PTP/ VSAT/SNG)	Channelling plan for 11 GHz band in accordance with ITU-R Rec. F.387. The bands 10.7-10.95 GHz and 11.2-11.45 GHz are part of the APP30B Plan (FSS space-to-Earth); refer to Annex B.	10.7-11.7 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484
11.7-12.5 GHz FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING- SATELLITE 5.492 5.487 5.487A	11.7-12.5 GHz BROADCASTING- SATELLITE 5.492 5.487 5.487A		This band is available for BSS in accordance with Appendix 30 of ITU RR. Refer to Annex B.	11.7-12.5 GHz FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING- SATELLITE 5.492 5.487 5.487A
12.5-12.75 GHz FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.494 5.495 5.496	12.5-12.75 GHz FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.494 5.495	FSS uplinks (VSAT/SNG) (12.5- 12.75 GHz)		12.5-12.75 GHz FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.494 5.495
12.75-13.25 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)	12.75-13.25 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.441	Fixed links - 13 GHz (12.75- 13.25 GHz)	Channelling plan for 13 GHz band in accordance with ITU-R Rec. F.497. The band 12.75-13.25 GHz is part of the APP30B Plan (FSS Earth-to-space); refer to Annex B.	12.75-13.25 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)
13.25-13.4 GHz EARTH EXPLORATION- SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A 5.499	13.25-13.4 GHz EARTH EXPLORATION- SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A	Airborne Doppler Radar		13.25-13.4 GHz EARTH EXPLORATION- SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A 5.499

<p>13.4-13.75 GHz</p> <p>EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A</p> <p>Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B</p>	<p>13.4-13.75 GHz</p> <p>EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A</p> <p>5.500 5.501B</p>	<p>RADIOLOCATION</p>		<p>13.4-13.75 GHz</p> <p>EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A</p> <p>Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B</p>
<p>13.75-14 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION</p> <p>Earth exploration-satellite</p> <p>Standard frequency and time signal-satellite (Earth-to-space)</p> <p>Space research 5.499 5.500 5.501 5.502 5.503</p>	<p>13.75-14 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION</p> <p>5.500 5.502 5.503</p>	<p>FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)</p> <p>RADIOLOCATION</p>		<p>13.75-14 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION</p> <p>Earth exploration-satellite</p> <p>Standard frequency and time signal-satellite (Earth-to-space)</p> <p>Space research 5.502 5.503</p>
<p>14-14.25 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B</p> <p>RADIONAVIGATION 5.504</p> <p>Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A</p> <p>Space research 5.504A 5.505</p>	<p>14-14.25 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B</p> <p>Mobile-Satellite (Earth-to-space) 5.504B 5.504C 5.506A</p> <p>5.504A 5.505</p>	<p>FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)</p>	<p>Earth Station onboard vessels (ESV) also allowed under FSS; Res. 902 applies.</p> <p>The band 14.0-14.5 GHz may also be used for AES (aircraft-to-space station).</p>	<p>14-14.25 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A</p> <p>RADIONAVIGATION 5.504</p> <p>Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A</p> <p>Space research 5.504A 5.505</p>
<p>14.25-14.3 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B</p> <p>RADIONAVIGATION 5.504</p> <p>Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A</p> <p>Space research 5.504A 5.505 5.508</p>	<p>14.25-14.3 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B</p> <p>Mobile-Satellite (Earth-to-space) 5.504B 5.506A 5.508A</p> <p>5.504A 5.505</p>	<p>FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)</p>	<p>Earth Station onboard vessels (ESV) also allowed under FSS; Res. 902 applies.</p> <p>The band 14.0-14.5 GHz may also be used for AES (aircraft-to-space station).</p>	<p>14.25-14.3 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506</p> <p>RADIONAVIGATION 5.504</p> <p>Mobile-satellite (Earth-to-space) 5.504B</p> <p>Space research 5.504A 5.505</p>

<p>14.3-14.4 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B</p> <p>MOBILE except aeronautical mobile</p> <p>Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A</p> <p>Radionavigation-satellite 5.504A</p>	<p>14.3-14.4 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B</p> <p>5.484A 5.506 5.506B</p> <p>Mobile-Satellite (Earth-to-space) 5.504B 5.506A 5.509A 5.504A</p>	<p>FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)</p>	<p>Earth Station onboard vessels (ESV) also allowed under FSS; Res. 902 applies.</p> <p>The band 14.0-14.5 GHz may also be used for AES (aircraft-to-space station).</p>	<p>14.3-14.4 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506</p> <p>MOBILE except aeronautical mobile</p> <p>Mobile-satellite (Earth-to-space) 5.506A 5.509A</p> <p>Radionavigation-satellite 5.504A</p>
<p>14.4-14.47 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B</p> <p>MOBILE except aeronautical mobile</p> <p>Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A</p> <p>Space research (space-to-Earth) 5.504A</p>	<p>14.4-14.47 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B</p> <p>5.484A 5.506 5.506B</p> <p>Mobile-Satellite (Earth-to-space) 5.504B 5.506A 5.509A 5.504A</p>	<p>FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)</p>	<p>Earth Station onboard vessels (ESV) also allowed under FSS; Res. 902 applies.</p> <p>The band 14.0-14.5 GHz may also be used for AES (aircraft-to-space station).</p>	<p>14.4-14.47 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506</p> <p>MOBILE except aeronautical mobile</p> <p>Mobile-satellite (Earth-to-space) 5.506A 5.509A</p> <p>Space research (space-to-Earth) 5.504A</p>
<p>14.47-14.5 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B</p> <p>MOBILE except aeronautical mobile</p> <p>Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A</p> <p>Radio astronomy 5.149 5.504A</p>	<p>14.47-14.5 GHz</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B</p> <p>Mobile-Satellite (Earth-to-space) 5.504B 5.506A 5.509A 5.149 5.504A</p>	<p>FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)</p>	<p>Earth Station onboard vessels (ESV) also allowed under FSS; Res. 902 applies.</p> <p>The band 14.0-14.5 GHz may also be used for AES (aircraft-to-space station).</p>	<p>14.47-14.5 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506</p> <p>MOBILE except aeronautical mobile</p> <p>Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A</p> <p>Radio astronomy 5.149 5.504A</p>

14.5-14.8 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research	14.5-14.8 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.510	Fixed links - 15 GHz (14.5-15.35 GHz)	Channelling plan for 15 GHz band in accordance with ITU-R Rec. F.636. The band 14.5-14.8 GHz is part of the APP30A Plan (Feeder Links for BSS) for some SADC countries. Refer to Annex B.	14.5-14.8 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research
14.8-15.35 GHz FIXED MOBILE Space research 5.339	14.8-15.35 GHz FIXED 5.339	Fixed links - 15 GHz (14.5-15.35 GHz)	Channelling plan for 15 GHz band in accordance with ITU-R Rec. F.636. The band 14.5-14.8 GHz is part of the APP30A Plan (Feeder Links for BSS) for some SADC countries. Refer to Annex B.	14.8-15.35 GHz FIXED MOBILE Space research 5.339
15.35-15.4 GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.511	15.35-15.4 GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34			15.35-15.4 GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
15.4-15.43 GHz RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D	15.4-15.43 GHz RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D	Radio altimeters / Radars		15.4-15.43 GHz RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D
15.43-15.63 GHz FIXED-SATELLITE (Earth-to-space) 5.511A RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511C	15.43-15.63 GHz FIXED-SATELLITE (Earth-to-space) 5.511A RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511C	Radars		15.43-15.63 GHz FIXED-SATELLITE (Earth-to-space) 5.511A RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511C
15.63-15.7 GHz RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D	15.63-15.7 GHz RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D	Radars		15.63-15.7 GHz RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D
15.7-16.6 GHz RADIOLOCATION 5.512 5.513	15.7-16.6 GHz RADIOLOCATION 5.512	Government use		15.7-16.6 GHz RADIOLOCATION
16.6-17.1 GHz RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513	16.6-17.1 GHz RADIOLOCATION Space Research (deep space)(Earth-to-space) 5.512			16.6-17.1 GHz RADIOLOCATION Space Research (deep space)(Earth-to-space)
17.1-17.2 GHz RADIOLOCATION 5.512 5.513	17.1-17.2 GHz RADIOLOCATION 5.512	WAS/RLAN (17.1-17.3 GHz)		17.1-17.2 GHz RADIOLOCATION

17.2-17.3 GHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A	17.2-17.3 GHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513A	WAS/RLAN (17.1-17.3 GHz)		17.2-17.3 GHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.513A
17.3-17.7 GHz FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B Radiolocation 5.514	17.3-17.7 GHz FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B Radiolocation 5.514		The band 17.3-17.7 GHz is part of the APP30A Plan (Feeder Links for BSS) for many SADC countries; refer to Annex B. The band 17.3-17.7 GHz is identified for HDFS; Res.143 applies.	17.3-17.7 GHz FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B Radiolocation
17.7-18.1 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-18.1 GHz FIXED	Fixed links - 18 GHz (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1.	17.7-18.1 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE
18.1-18.4 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519 5.521	18.1-18.4 GHz FIXED 5.519	Fixed links - 18 GHz (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1.	18.1-18.4 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519
18.4-18.6 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE	18.4-18.6 GHz FIXED	Fixed links - 18 GHz (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1.	18.4-18.6 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE
18.6-18.8 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	18.6-18.8 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED 5.522A	Fixed links - 18 GHz (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1.	18.6-18.8 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A
18.8-19.3 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.523A MOBILE	18.8-19.3 GHz FIXED	Fixed links - 18 GHz (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1.	18.8-19.3 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.523A MOBILE

19.3-19.7 GHz FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE	19.3-19.7 GHz FIXED	Fixed links - 18 GHz (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1.	19.3-19.7 GHz FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE
19.7-20.1 GHz FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524	19.7-20.1 GHz FIXED-SATELLITE (space-to-Earth) 5.484A Mobile-Satellite (space-to-Earth) 5.524		The band 19.7-20.2 GHz is identified for HDFFS; Res.143 applies.	19.7-20.1 GHz FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth)
20.1-20.2 GHz FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528	20.1-20.2 GHz FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528		The band 19.7-20.2 GHz is identified for HDFFS; Res.143 applies.	20.1-20.2 GHz FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528
20.2-21.2 GHz FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524	20.2-21.2 GHz FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard Frequency and Time Signal-Satellite (space-to-Earth) 5.524	Government use		20.2-21.2 GHz FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth)
21.2-21.4 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	21.2-21.4 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED SPACE RESEARCH (passive)	Fixed links - 23 GHz (21.2-23.6 GHz or 22.0-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1 or Annex 3.	21.2-21.4 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)
21.4-22 GHz FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530C 5.530D	21.4-22 GHz FIXED BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530C 5.530D	Fixed links - 23 GHz (21.2-23.6 GHz or 22.0-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1 or Annex 3. The use of BSS in this band is subject to the provisions of Res.525. BSS systems operating in this band over SADC countries are not expected within the foreseeable future.	21.4-22 GHz FIXED MOBILE BROADCASTING-SATELLITE 5.530
22-22.21 GHz FIXED MOBILE except aeronautical mobile 5.149	22-22.21 GHz FIXED 5.149	Fixed links - 23 GHz (21.2-23.6 GHz or 22.0-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1 or Annex 3.	22-22.21 GHz FIXED MOBILE except aeronautical mobile 5.149

22.21-22.5 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532	22.21-22.5 GHz FIXED 5.149 5.532	Fixed links - 23 GHz (21.2-23.6 GHz or 22.0-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1 or Annex 3.	22.21-22.5 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532
22.5-22.55 GHz FIXED MOBILE	22.5-22.55 GHz FIXED	Fixed links - 23 GHz (21.2-23.6 GHz or 22.0-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1 or Annex 3.	22.5-22.55 GHz FIXED MOBILE
22.55-23.15 GHz FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH (Earth-to-space) 5.532A 5.149	22.55-23.15 GHz FIXED INTER-SATELLITE 5.338A 5.149 SPACE RESEARCH (Earth-to-space) 5.532A 5.149	Fixed links - 23 GHz (21.2-23.6 GHz or 22.0-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1 or Annex 3.	22.55-23.15 GHz FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH (Earth-to-space) 5.532A 5.149
23.15-23.55GHz FIXED INTER-SATELLITE 5.338A MOBILE	23.15-23.55 GHz FIXED INTER-SATELLITE 5.338A MOBILE SADC19			23.15-23.55 GHz FIXED INTER-SATELLITE 5.338A MOBILE
23.55-23.6 GHz FIXED MOBILE	23.55-23.6 GHz FIXED	Fixed links - 23 GHz (21.2-23.6 GHz or 22.0-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1 or Annex 3.	23.55-23.6 GHz FIXED MOBILE
23.6-24 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34	23.6-24 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34			23.6-24 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34
24-24.05 GHz AMATEUR AMATEUR-SATELLITE 5.15	24-24.05 GHz AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE ISM (24.0-24.25 GHz) SRD applications (24-24.25 GHz)	Common international SRD band; see ITU-R Rec.SM.[SRD]	24-24.05 GHz AMATEUR AMATEUR-SATELLITE 5.15
24.05-24.25 GHz RADIOLOCATION Amateur Earth exploration-satellite (active) 5.15	24.05-24.25 GHz RADIOLOCATION Amateur Earth Exploration-Satellite (active) 5.15		The band 24.0-24.25 GHz is designated for ISM applications (5.150).	24.05-24.25 GHz RADIOLOCATION Amateur Earth exploration-satellite (active) 5.15
24.25-24.45 GHz FIXED	24.25-24.45 GHz FIXED		Temporary fixed links for ENG/OB	24.25-24.45 GHz FIXED
24.45-24.65 GHz FIXED INTER-SATELLITE	24.45-24.65 GHz FIXED	Fixed links - 26 GHz (24.5-26.5 GHz) BFWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1.	24.45-24.65 GHz FIXED INTER-SATELLITE

24.65-24.75 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE	24.65-24.75 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE	Fixed links - 26 GHz (24.5-26.5 GHz) BFWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1.	24.65-24.75 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE
24.75-25.25 GHz FIXED FIXED SATELLITE (Earth-to-space) 5.532B	24.75-25.25 GHz FIXED FIXED SATELLITE (Earth-to-space) 5.532B	Fixed links - 26 GHz (24.5-26.5 GHz) BFWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1.	24.75-25.25 GHz FIXED FIXED SATELLITE (Earth-to-space) 5.532B
25.25-25.5 GHz FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.25-25.5 GHz FIXED	Fixed links - 26 GHz (24.5-26.5 GHz) BFWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1.	25.25-25.5 GHz FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)
25.5-27 GHz EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A	25.5-27 GHz EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536B FIXED SPACE RESEARCH (space-to-Earth) 5.536C 5.536A	Fixed links - 26 GHz (24.5-26.5 GHz) BFWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1.	25.5-27 GHz EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space)
27-27.5 GHz FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 GHz FIXED INTER-SATELLITE 5.536 MOBILE	Government use		27-27.5 GHz FIXED INTER-SATELLITE 5.536 MOBILE
27.5-28.5 GHz FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540	27.5-28.5 GHz FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 5.538 5.540	Fixed links – 28 GHz (27.5-29.5 GHz) BFWA (27.5-29.5 GHz)	Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 Annex 2. The band 27.5-27.82 GHz is identified for HDFFS; Res.143 applies. The band 27.5-30 GHz may be used by the FSS for BSS feeder links.	27.5-28.5 GHz FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.516B 5.539 MOBILE 5.538 5.540
28.5-29.1 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539	28.5-29.1 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539	Fixed links – 28 GHz (27.5-29.5 GHz) BFWA (27.5-29.5 GHz)	Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 Annex 2. The band 28.45-28.94 GHz is identified for HDFFS; Res.143 applies. The band 27.5-30 GHz may be used by the FSS for BSS feeder links.	28.5-29.1 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539

MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.54	5.54			MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.54
29.1-29.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.54	29.1-29.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A 5.54			29.1-29.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.54
29.5-29.9 GHz FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	29.5-29.9 GHz FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth Exploration-Satellite (Earth-to-space) 5.541 Mobile-Satellite (Earth-to-space) 5.54		The band 29.46-30.0 GHz is identified for HDFS; Res.143 applies.	29.5-29.9 GHz FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540
29.9-30 GHz FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542	29.9-30 GHz FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540		The band 29.46-30.0 GHz is identified for HDFS; Res.143 applies.	29.9-30 GHz FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540
30-31 GHz FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.542	30-31 GHz FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard Frequency and Time Signal-Satellite (space-to-Earth)			30-31 GHz FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth)
31-31.3 GHz FIXED 5.338A 5.543A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545 5.149	31-31.3 GHz FIXED 5.338A 5.543A MOBILE Standard Frequency and Time Signal-Satellite (space-to-Earth) Space Research 5.544 5.149			31-31.3 GHz FIXED MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.149
31.3-31.5 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34	31.3-31.5 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34			31.3-31.5 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34

31.5-31.8 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.546	31.5-31.8 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except Aeronautical Mobile 5.149 5.546			31.5-31.8 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149
31.8-32 GHz Channelling plan for 32 GHz band in accordance with ITU-R Rec. F.1520 Annex 1. FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548	31.8-32 GHz FIXED 5.547A 5.547 5.548	Fixed links (PTP/PTMP) (31.8-33.4 GHz)	Channelling plan for 32 GHz band in accordance with ITU-R Rec. F.1520 Annex 1. The band 31.8-33.4 GHz is identified for HDFS; Res.75 applies.	31.8-32 GHz FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.548
32-32.3 GHz FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 5.548	32-32.3 GHz FIXED 5.547A 5.547 5.548	Fixed links (PTP/PTMP) (31.8-33.4 GHz)	Channelling plan for 32 GHz band in accordance with ITU-R Rec. F.1520 Annex 1. The band 31.8-33.4 GHz is identified for HDFS; Res.75 applies.	32-32.3 GHz FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.548
32.3-33 GHz FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.547D 5.548	32.3-33 GHz FIXED 5.547A 5.547 5.548	Fixed links (PTP/PTMP) (31.8-33.4 GHz)	Channelling plan for 32 GHz band in accordance with ITU-R Rec. F.1520 Annex 1. The band 31.8-33.4 GHz is identified for HDFS; Res.75 applies.	32.3-33 GHz FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.548
33-33.4 GHz FIXED 5.547A RADIONAVIGATION 5.547 5.547E	33-33.4 GHz FIXED 5.547A 5.547	Fixed links (PTP/PTMP) (31.8-33.4 GHz)	Channelling plan for 32 GHz band in accordance with ITU-R Rec. F.1520 Annex 1. The band 31.8-33.4 GHz is identified for HDFS; Res.75 applies.	33-33.4 GHz FIXED 5.547A RADIONAVIGATION 5.547
33.4-34.2 GHz RADIOLOCATION 5.549	33.4-34.2 GHz RADIOLOCATION 5.549	Government use		33.4-34.2 GHz RADIOLOCATION

34.2-34.7 GHz RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) 5.549	34.2-34.7 GHz RADIOLOCATION SPACE RESEARCH (deep space)(Earth-to-space) 5.549	Government use		34.2-34.7 GHz RADIOLOCATION SPACE RESEARCH (deep space)(Earth-to-space)
34.7-35.2 GHz RADIOLOCATION Space research 5.550 5.549	34.7-35.2 GHz RADIOLOCATION Space Research 5.549	Government use		34.7-35.2 GHz RADIOLOCATION Space Research -
35.2-35.5 GHz METEOROLOGICAL AIDS RADIOLOCATION 5.549	35.2-35.5 GHz METEOROLOGICAL AIDS RADIOLOCATION 5.549	Government use		35.2-35.5 GHz METEOROLOGICAL AIDS RADIOLOCATION
35.5-36 GHz METEOROLOGICAL AIDS EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A	35.5-36 GHz METEOROLOGICAL AIDS EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.551A 5.549 5.549A	Government use		35.5-36 GHz METEOROLOGICAL AIDS EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549
36-37 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A	36-37 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A	Government use		36-37 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149
37-37.5 GHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.547	37-37.5 GHz FIXED 5.547	Fixed links - 38 GHz (37.0-39.5 GHz)	The band 37-40 GHz is identified for HDFS; Res.75 applies. Channelling plan for 38 GHz band in accordance with ITU Rec. F.749 Annex 1.	37-37.5 GHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.547
37.5-38 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) Earth exploration- satellite (space-to-Earth) 5.547	37.5-38 GHz FIXED 5.547	Fixed links - 38 GHz (37.0-39.5 GHz)	The band 37-40 GHz is identified for HDFS; Res.75 applies. Channelling plan for 38 GHz band in accordance with ITU Rec. F.749 Annex 1.	37.5-38 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) Earth exploration- satellite (space-to-Earth) 5.547

<p>38-39.5 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>MOBILE</p> <p>Earth exploration-satellite (space-to-Earth)</p> <p>5.547</p>	<p>38-39.5 GHz</p> <p>FIXED</p> <p>5.547</p>	<p>Fixed links - 38 GHz (37.0-39.5 GHz)</p>	<p>Channelling plan for 38 GHz band in accordance with ITU Rec. F.749 Annex 1.</p> <p>The band 37-40 GHz is identified for HDFS; Res.75 applies.</p>	<p>38-39.5 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>MOBILE</p> <p>Earth exploration-satellite (space-to-Earth)</p> <p>5.547</p>
<p>39.5-40 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth) 5.516B</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>Earth exploration-satellite (space-to-Earth)</p> <p>5.547</p>	<p>39.5-40 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth) 5.516B</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>Earth exploration-satellite (space-to-Earth)</p> <p>5.547</p>		<p>The band 37-40 GHz is identified for HDFS; Res.75 applies.</p> <p>The band 39.5-40 GHz is identified for HDFS; Res.143 applies.</p>	<p>39.5-40 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth) 5.516B</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>Earth exploration-satellite (space-to-Earth)</p> <p>5.547</p>
<p>40-40.5 GHz</p> <p>EARTH EXPLORATION-SATELLITE (Earth-to-space)</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth) 5.516B</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>SPACE RESEARCH (Earth-to-space)</p> <p>Earth exploration-satellite (space-to-Earth)</p>	<p>40-40.5 GHz</p> <p>EARTH EXPLORATION-SATELLITE (Earth-to-space)</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth) 5.516B</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>SPACE RESEARCH (Earth-to-space)</p> <p>Earth exploration-satellite (space-to-Earth)</p>	<p>Government use</p>	<p>The band 40-40.5 GHz is identified for HDFS; Res.143 applies.</p>	<p>40-40.5 GHz</p> <p>EARTH EXPLORATION-SATELLITE (Earth-to-space)</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth) 5.516B</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>SPACE RESEARCH (Earth-to-space)</p> <p>Earth exploration-satellite (space-to-Earth)</p>
<p>40.5-41 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>BROADCASTING</p> <p>BROADCASTING-SATELLITE</p> <p>Mobile</p> <p>5.547</p>	<p>40.5-41 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>BROADCASTING</p> <p>BROADCASTING-SATELLITE</p> <p>5.547</p>		<p>BFWA or MWS (40.5-43.5 GHz).</p> <p>The band 40.5-43.5 GHz is identified for HDFS; Res.75 applies.</p>	<p>40.5-41 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>BROADCASTING</p> <p>BROADCASTING-SATELLITE</p> <p>5.547</p>
<p>41-42.5 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>BROADCASTING</p> <p>BROADCASTING-SATELLITE</p> <p>Mobile</p> <p>5.547 5.551F 5.551H 5.551I</p>	<p>41-42.5 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>BROADCASTING</p> <p>BROADCASTING-SATELLITE</p> <p>5.547 5.551H 5.551I</p>		<p>BFWA or MWS (40.5-43.5 GHz).</p> <p>The band 40.5-43.5 GHz is identified for HDFS; Res.75 applies.</p>	<p>41-42.5 GHz</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>BROADCASTING</p> <p>BROADCASTING-SATELLITE</p> <p>5.547 5.551H 5.551I</p>

42.5-43.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547 5.551H	42.5-43.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except Aeronautical Mobile RADIO ASTRONOMY 5.149 5.547		BFWA or MWS (40.5-43.5 GHz). The band 40.5-43.5 GHz is identified for HDFS; Res.75 applies.	42.5-43.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except Aeronautical Mobile RADIO ASTRONOMY 5.149 5.547
43.5-47 GHz MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	43.5-47 GHz MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	Government use (43.5-45.5 GHz)		43.5-47 GHz MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554
47-47.2 GHz AMATEUR AMATEUR-SATELLITE	47-47.2 GHz AMATEUR AMATEUR-SATELLITE	Amateur Amateur satellite		47-47.2 GHz AMATEUR AMATEUR-SATELLITE
47.2-47.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A	47.2-47.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			47.2-47.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A
47.5-47.9 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE	47.5-47.9 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE		The band 47.5-47.9 GHz is identified for HDFS; Res.143 applies.	47.5-47.9 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE
47.9-48.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A	47.9-48.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			47.9-48.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A
48.2-48.54 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	48.2-48.54 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE		The band 48.2-48.54 GHz is identified for HDFS; Res.143 applies.	48.2-48.54 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE
48.54-49.44 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.149 5.340 5.555	48.54-49.44 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.340 5.555			48.54-49.44 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.340 5.555
49.44-50.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	49.44-50.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE		The band 49.44-50.2 GHz is identified for HDFS; Res.143 applies.	49.44-50.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE

50.2-50.4 GHz EARTH EXPLORATION- SATELLITE (passive) SPACE RESEARCH (passive) 5.34	50.2-50.4 GHz EARTH EXPLORATION- SATELLITE (passive) SPACE RESEARCH (passive) 5.34			50.2-50.4 GHz EARTH EXPLORATION- SATELLITE (passive) SPACE RESEARCH (passive) 5.34
50.4-51.4 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE Mobile-satellite (Earth- to-space)	50.4-51.4 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE Mobile-Satellite (Earth- to-space)			50.4-51.4 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-Satellite (Earth- to-space)
51.4-52.6 GHz FIXED 5.338A MOBILE 5.547 5.556	51.4-52.6 GHz FIXED MOBILE 5.547 5.556		The band 51.4-52.6 GHz is identified for HDFS; Res.75 applies.	51.4-52.6 GHz FIXED MOBILE 5.547 5.556
52.6-54.25 GHz EARTH EXPLORATION- SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	52.6-54.25 GHz EARTH EXPLORATION- SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556			52.6-54.25 GHz EARTH EXPLORATION- SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556
54.25-55.78 GHz EARTH EXPLORATION- SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B	54.25-55.78 GHz EARTH EXPLORATION- SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)			54.25-55.78 GHz EARTH EXPLORATION- SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)
55.78-56.9 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557	55.78-56.9 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547		The band 55.78-59 GHz is identified for HDFS; Res.75 applies.	55.78-56.9 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547
56.9-57 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557	56.9-57 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547		The band 55.78-59 GHz is identified for HDFS; Res.75 applies.	56.9-57 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547
57-58.2 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557	57-58.2 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547		The band 55.78-59 GHz is identified for HDFS; Res.75 applies.	57-58.2 GHz EARTH EXPLORATION- SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547

58.2-59 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556	58.2-59 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556		The band 55.78-59 GHz is identified for HDFS; Res.75 applies.	58.2-59 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556
59-59.3 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)	59-59.3 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)	Government use		59-59.3 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)
59.3-64 GHz FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138	59.3-64 GHz FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138		The band 61-61.5 GHz is designated for ISM applications (5.138). The band 59 - 61 GHz reserved for government use. Common international SRD band; see ITU-R Rec.SM.[SRD]	59.3-64 GHz FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138
64-65 GHz FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556	64-65 GHz FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556		The band 64-66 GHz is identified for HDFS; Res.75 applies.	64-65 GHz FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556
65-66 GHz EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547	65-66 GHz EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547		The band 64-66 GHz is identified for HDFS; Res.75 applies.	65-66 GHz EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547
66-71 GHz INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	66-71 GHz INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554			66-71 GHz INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554
71-74 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	71-74 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	Government use Fixed links (71-76 GHz)		71-74 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)

74-76 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING- SATELLITE Space research (space- to-Earth) 5.561	74-76 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING- SATELLITE Space Research (space- to-Earth) 5.561	Fixed links (71-76 GHz)		74-76 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING- SATELLITE Space research (space- to-Earth) 5.561
76-77.5 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space- to-Earth) 5.149	76-77.5 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space Research (space- to-Earth) 5.149	SRD - Road Transport and Traffic Telematics Radar (76 – 77 GHz)	Common international SRD band; see ITU-R Rec.SM.[SRD] and Rec. M.1452	76-77.5 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space- to-Earth) 5.149
77.5-78 GHz AMATEUR AMATEUR- SATELLITE Radio astronomy Space research (space- to-Earth) 5.149	77.5-78 GHz AMATEUR AMATEUR- SATELLITE Radio astronomy Space research (space- to-Earth) 5.149			77.5-78 GHz AMATEUR AMATEUR- SATELLITE Radio astronomy Space research (space- to-Earth) 5.149
78-79 GHz RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space- to-Earth) 5.149 5.560	78-79 GHz RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space- to-Earth) 5.149 5.560			78-79 GHz RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space- to-Earth) 5.149 5.560
79-81 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space- to-Earth) 5.149	79-81 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space- to-Earth) 5.149			79-81 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space- to-Earth) 5.149
81-84 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space- to-Earth) 5.149 5.561A 5.338A	81-84 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space Research (space- to-Earth) 5.149 5.561A 5.338A	Fixed links (81-86 GHz)		81-84 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space- to-Earth) 5.149 5.561A 5.338A
84-86 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.561B MOBILE RADIO ASTRONOMY 5.149 5.338A	84-86 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.338A	Fixed links (81-86 GHz)		84-86 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.561B MOBILE RADIO ASTRONOMY 5.149

86-92 GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34	86-92 GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34			86-92 GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34
92-94 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149 5.338A	92-94 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149 5.338A			92-94 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
94-94.1 GHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	94-94.1 GHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A			94-94.1 GHz EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A
94.1-95 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	94.1-95 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			94.1-95 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
95-100 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION- SATELLITE 5.149 5.554	95-100 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION- SATELLITE 5.149 5.554			95-100 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION- SATELLITE 5.149 5.554
100 - 102GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34				100 - 102GHz EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.34
102 - 105GHz FIXED MOBILE RADIO ASTRONOMY 5.149				102 - 105GHz FIXED MOBILE RADIO ASTRONOMY 5.149

ITU DEFINITIONS

“**Administration**” means a government or public authority of a country that is responsible for giving effect to the obligations of the country as a member of International Telecommunications Union (ITU).

“**Additional Allocation**” means an allocation, in the form of Footnote, which is added in this area or in this country to the services or services which are indicated in Table of Frequency allocation.

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

“Aeronautical mobile (OR) service” means an aeronautical mobile service for communications, including those relating to flight coordination, primarily outside national or international civil air routes. (OR) means off-route.

“Aeronautical mobile (R) service” means an aeronautical mobile service that is reserved for communications relating to the safety and regularity of flight, primarily along national or international civil air routes. (R) means route.

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

“Aeronautical Mobile – Satellite Service” means a mobile satellite service in which mobile earth stations are located on board aircraft; survival craft stations and emergency position indicating radiobeacon stations may also participate in this service.

“Allocation” (of a frequency band) means entry in the Table of Frequency Allocation of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions.

“Alternative allocation” means an allocation in the form of footnote which replaces, in this area or in this area country, the allocation indicated in the Table of Frequency Allocation.

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

“Amateur – Satellite Service” means a radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service.

“Assignment” (of a radio frequency or radio frequency channel) means authorisation given by the Authority for a radio device to use a radio frequency or radio frequency channel under specified conditions.

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

“Broadcasting – Satellite Service” means a radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public. In the broadcasting satellite service the term “direct reception” shall encompass both individual reception and community reception.

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

“Earth Exploration – Satellite Service” means a radiocommunication service between earth stations and one or more space stations, which may include links between space stations, in which:

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

- platform interrogation may be included.

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

“Emergency Position – Indicating Radiobeacon Station” means a station in the mobile service the emissions of which are intended to facilitate search and rescue operations.

“Fixed Service” means a radiocommunication service between specified fixed points.

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

“Inductive Loop Systems” means systems, which operate by producing a controlled magnetic field within which a predetermined recognisable signal is formed.

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

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

“Inter – Satellite Service” means a radiocommunication service providing links between artificial earth satellites.

“Land Mobile Service” means a mobile radiocommunication service between base stations and land mobile stations or between land mobile stations.

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

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

“Meteorological Aids Service” means a radiocommunication service used for meteorological, including hydrological, observations and exploration.

“Meteorological – Satellite Service” means an earth exploration satellite service for meteorological purposes.

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

“Primary Services” means where a band is indicated as allocated to more than one service and the name of the service printed in Capital characters (e.g. MOBILE) is the primary services.

“Radar” means a radiodetermination system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined.

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

“**Radio Astronomy**” means astronomy based on the reception of radio waves of cosmic origin.

“**Radio Astronomy Service**” means a service involving the use of radio astronomy.

“**Radiocommunications Service**” means a service involving the transmission, emission and/or reception of radio waves for specific telecommunications purposes.

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

*“**Radionavigation**” means radiodetermination used for the purposes of radionavigation, including obstruction warning.

“**Radiolocation**” means radiodetermination used for purposes other than radionavigation.

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

“**Safety Service**” means any radiocommunication service used permanently or temporarily for the safeguarding of human life and property.

“**Secondary Service**” means where a band is indicated as allocated to more than one service and the name of the service printed in normal characters (e.g. Mobile). These are called secondary services. Stations of a secondary service shall:

- not cause harmful interference to stations of primary services to which the frequencies are already assigned or to which stations may be assigned at a later date,
- not claim protection from harmful interference from stations of a primary service, to which frequencies are already assigned or may be assigned at a later date,
- claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

“**Space Research Service**” means a radiocommunication service in which spacecraft or other objects in space are used for scientific or technological research purposes.

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

“**Standard Frequency and Time Signal – Satellite Service**” means a radiocommunication service using space stations on earth satellites for the same purpose as those of the standard frequency and time signal service.

ITU Footnotes

- 5.53** Administrations authorizing the use of frequencies below 8.3 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 8.3 kHz are allocated.

- 5.54** Administrations conducting scientific research using frequencies below 8.3 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.
- 5.54A** Use of the 8.3-11.3 kHz frequency band by stations in the meteorological aids service is limited to passive use only. In the band 9-11.3 kHz, meteorological aids stations shall not claim protection from stations of the radionavigation service submitted for notification to the Bureau prior to 1 January 2013. For sharing between stations of the meteorological aids service and stations in the radionavigation service submitted for notification after this date, the most recent version of Recommendation ITU-R RS.1881 should be applied.
- 5.54B** Additional allocation: in Algeria, Saudi Arabia, Egypt, the United Arab Emirates, the Russian Federation, Iraq, Lebanon, Morocco, Qatar, the Syrian Arab Republic, Sudan and Tunisia, the frequency band 8.3-9 kHz is also allocated to the radionavigation, fixed and mobile services on a primary basis.
- 5.54C** Additional allocation: in China, the frequency band 8.3-9 kHz is also allocated to the maritime radionavigation and maritime mobile services on a primary basis.
- 5.55** *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the band 14-17 kHz is also allocated to the radionavigation service on a primary basis. (WRC-07)
- 5.56** The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, , Kyrgyzstan, , Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-12)
- 5.57** The use of the bands 14-19.95 kHz, 20.05-70 kHz and 70-90 kHz (72-84 kHz and 86-90 kHz in Region 1) by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only). Exceptionally, the use of class J2B or J7B emissions is authorized subject to the necessary bandwidth not exceeding that normally used for class A1A or F1B emissions in the band concerned.
- 5.58** *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the band 67-70 kHz is also allocated to the radionavigation service on a primary basis. (WRC-2000)
- 5.59** *Different category of service:* in Bangladesh and Pakistan, the allocation of the bands 70-72 kHz and 84-86 kHz to the fixed and maritime mobile services is on a primary basis (see No. **5.33**). (WRC-2000)
- 5.60** In the bands 70-90 kHz (70-86 kHz in Region 1) and 110-130 kHz (112-130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.
- 5.61** In Region 2, the establishment and operation of stations in the maritime radionavigation service in the bands 70-90 kHz and 110-130 kHz shall be subject to agreement obtained under No. **9.21** with administrations whose services, operating in accordance with the Table, may be affected. However, stations of the fixed, maritime mobile and radiolocation services shall not cause harmful interference to stations in the maritime radionavigation service established under such agreements.

- 5.62** Administrations which operate stations in the radionavigation service in the band 90-110 kHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.
- 5.63** (SUP - WRC-97)
- 5.64** Only classes A1A or F1B, A2C, A3C, F1C or F3C emissions are authorized for stations of the fixed service in the bands allocated to this service between 90 kHz and 160 kHz (148.5 kHz in Region 1) and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 160 kHz (148.5 kHz in Region 1). Exceptionally, class J2B or J7B emissions are also authorized in the bands between 110 kHz and 160 kHz (148.5 kHz in Region 1) for stations of the maritime mobile service.
- 5.65** Different category of service: in Bangladesh, the allocation of the bands 112-117.6 kHz and 126-129 kHz to the fixed and maritime mobile services is on a primary basis (see No. 5.33). (WRC-2000)
- 5.66** *Different category of service:* in Germany, the allocation of the band 115-117.6 kHz to the fixed and maritime mobile services is on a primary basis (see No. 5.33) and to the radionavigation service on a secondary basis (see No. 5.32).
- 5.67** *Additional allocation:* in Mongolia, Kyrgyzstan and Turkmenistan, the band 130-148.5 kHz is also allocated to the radionavigation service on a secondary basis. Within and between these countries this service shall have an equal right to operate. (WRC-07)
- 5.67A** Stations in the amateur service using frequencies in the band 135.7-137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. 5.67. (WRC-07)
- 5.67B** The use of the band 135.7-137.8 kHz in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Libyan Arab Jamahiriya, Lebanon, Syrian Arab Republic, Sudan, South Sudan and Tunisia is limited to the fixed and maritime mobile services. The amateur service shall not be used in the above-mentioned countries in the band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-12)
- 5.68** *Alternative allocation:* in Angola, Congo (Rep. of the), , the Dem. Rep. of the Congo, and South Africa, the band 160-200 kHz is allocated to the fixed service on a primary basis. (WRC-12)
- 5.69** *Additional allocation:* in Somalia, the band 200-255 kHz is also allocated to the aeronautical radionavigation service on a primary basis.
- 5.70** *Alternative allocation:* 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, Rwanda, 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-07)
- 5.71** *Alternative allocation:* in Tunisia, the band 255-283.5 kHz is allocated to the broadcasting service on a primary basis.
- 5.72** Not used ((SUP WRC-12))

- 5.73** The band 285-325 kHz (283.5-325 kHz in Region 1) in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service. (WRC-97)
- 5.74** *Additional Allocation:* in Region 1, the frequency band 285.3-285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis.
- 5.75** *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Moldova, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and the Black Sea areas of Romania, the allocation of the band 315-325 kHz to the maritime radionavigation service is on a primary basis under the condition that in the Baltic Sea area, the assignment of frequencies in this band to new stations in the maritime or aeronautical radionavigation services shall be subject to prior consultation between the administrations concerned. (WRC-07)
- 5.76** The frequency 410 kHz is designated for radio direction-finding in the maritime radionavigation service. The other radionavigation services to which the band 405-415 kHz is allocated shall not cause harmful interference to radio direction-finding in the band 406.5-413.5 kHz.
- 5.77** *Different category of service:* in Australia, China, the French overseas communities of Region 3, India, Iran (Islamic Republic of), Japan, Pakistan, Papua New Guinea and Sri Lanka, the allocation of the band 415-495 kHz to the aeronautical radionavigation service is on a primary basis. In Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Latvia, Uzbekistan and Kyrgyzstan, the allocation of the frequency band 435-495 kHz to the aeronautical radionavigation service is on a primary basis. Administrations in these countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the band 435-495 kHz do not cause interference to reception by coast stations of ship stations transmitting on frequencies designated for ship stations on a worldwide basis. (WRC-12)
- 5.78** *Different category of service:* in Cuba, the United States of America and Mexico, the allocation of the band 415-435 kHz to the aeronautical radionavigation service is on a primary basis.
- 5.79** The use of the bands 415-495 kHz and 505-526.5 kHz (505-510 kHz in Region 2) by the maritime mobile service is limited to radiotelegraphy.
- 5.79A** When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4 209.5 kHz, administrations are strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution **339 (Rev.WRC-07)**). (WRC-07)
- 5.80** In Region 2, the use of the band 435-495 kHz by the aeronautical radionavigation service is limited to non-directional beacons not employing voice transmission.
- 5.81** (SUP - WRC-2000)
- 5.82** In the maritime mobile service, the frequency 490 kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles 31 and 52. In using the frequency band 415-495 kHz for the aeronautical radionavigation

tion service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. In using the frequency band 472-479 kHz for the amateur service, administrations shall ensure that no harmful interference is caused to the frequency 490 kHz. (WRC-12))

- 5.82A** Not used ((SUP - WRC-12))
- 5.82B** Administrations authorizing the use of frequencies in the band 495-505 kHz by services other than the maritime mobile service shall ensure that no harmful interference is caused to the maritime mobile service in this band or to the services having allocations in the adjacent bands, noting in particular the conditions of use of the frequencies 490 kHz and 518 kHz, as prescribed in Articles **31** and **52**. (WRC-07)
- 5.80A** The maximum equivalent isotropically radiated power (e.i.r.p.) of stations in the amateur service using frequencies in the band 472-479 kHz shall not exceed 1 W. Administrations may increase this limit of e.i.r.p. to 5 W in portions of their territory which are at a distance of over 800 km from the borders of Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia, Ukraine and Yemen. In this frequency band, stations in the amateur service shall not cause harmful interference to, or claim protection from, stations of the aeronautical radionavigation service.
- 5.80B** The use of the frequency band 472-479 kHz in Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia and Yemen is limited to the maritime mobile and aeronautical radionavigation services. The amateur service shall not be used in the abovementioned countries in this frequency band, and this should be taken into account by the countries authorizing such use.
- 5.83** (SUP - WRC-07)
- 5.84** The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **31** and **52**. (WRC-07)
- 5.85** Not used.
- 5.86** In Region 2, in the band 525-535 kHz the carrier power of broadcasting stations shall not exceed 1 kW during the day and 250 W at night.
- 5.87** *Additional allocation:* 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** *Additional allocation:* in Uzbekistan, the band 526.5-1 606.5 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 radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-97)
- 5.88** *Additional allocation:* in China, the band 526.5-535 kHz is also allocated to the aeronautical radionavigation service on a secondary basis.

- 5.89** In Region 2, the use of the band 1 605-1 705 kHz by stations of the broadcasting service is subject to the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).
The examination of frequency assignments to stations of the fixed and mobile services in the band 1 625-1 705 kHz shall take account of the allotments appearing in the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).
- 5.90** In the band 1 605-1 705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.
- 5.91** *Additional allocation:* in the Philippines and Sri Lanka, the band 1 606.5-1 705 kHz is also allocated to the broadcasting service on a secondary basis. (WRC-97)
- 5.92** Some countries of Region 1 use radiodetermination systems in the bands 1 606.5-1 625 kHz, 1 635-1 800 kHz, 1 850-2 160 kHz, 2 194-2 300 kHz, 2 502-2 850 kHz and 3 500-3 800 kHz, subject to agreement obtained under No. **9.21**. The radiated mean power of these stations shall not exceed 50 W.
- 5.93** *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, , Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Tajikistan, Chad, Turkmenistan and Ukraine, the bands 1 625-1 635 kHz, 1 800-1 810 kHz and 2 160-2 170 kHz are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-12)
- 5.94** and **5.95** Not used.
- 5.96** In Germany, Armenia, Austria, Azerbaijan, Belarus, Denmark, Estonia, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1 715-1 800 kHz and 1 850-2 000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W. (WRC-03)
- 5.97** In Region 3, the Loran system operates either on 1 850 kHz or 1 950 kHz, the bands occupied being 1 825-1 875 kHz and 1 925-1 975 kHz respectively. Other services to which the band 1 800-2 000 kHz is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1 850 kHz or 1 950 kHz.
- 5.98** *Alternative allocation:* in Angola, Armenia, Azerbaijan, Belarus, Belgium, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, , the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan, Turkey and Ukraine, the band 1 810-1 830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.99** *Additional allocation:* in Saudi Arabia, Austria, Iraq, Libya, Uzbekistan, Slovakia, Romania, Serbia, Slovenia, Chad, and Togo, the band 1 810-1 830 kHz is also al-

located to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

- 5.100** In Region 1, the authorization to use the band 1 810-1 830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. **5.98** and **5.99** to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. **5.98** and **5.99**.
- 5.101** (Sup WRC-12)
- 5.102** *Alternative allocation:* in Bolivia, Chile, Mexico, Paraguay, Peru and Uruguay, the band 1 850-2 000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis. (WRC-07)
- 5.103** In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1 850-2 045 kHz, 2 194-2 498 kHz, 2 502-2 625 kHz and 2 650-2 850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.
- 5.104** In Region 1, the use of the band 2 025-2 045 kHz by the meteorological aids service is limited to oceanographic buoy stations.
- 5.105** In Region 2, except in Greenland, coast stations and ship stations using radiotelephony in the band 2 065-2 107 kHz shall be limited to class J3E emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2 065.0 kHz, 2 079.0 kHz, 2 082.5 kHz, 2 086.0 kHz, 2 093.0 kHz, 2 096.5 kHz, 2 100.0 kHz and 2 103.5 kHz. In Argentina and Uruguay, the carrier frequencies 2 068.5 kHz and 2 075.5 kHz are also used for this purpose, while the frequencies within the band 2 072-2 075.5 kHz are used as provided in No. **52.165**.
- 5.106** In Regions 2 and 3, provided no harmful interference is caused to the maritime mobile service, the frequencies between 2 065 kHz and 2 107 kHz may be used by stations of the fixed service communicating only within national borders and whose mean power does not exceed 50 W. In notifying the frequencies, the attention of the Bureau should be drawn to these provisions.
- 5.107** *Additional allocation:* in Saudi Arabia, Eritrea, Ethiopia, Iraq, Libya, , Somalia and Swaziland, the band 2 160-2 170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W. (WRC-12)
- 5.108** The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5-2 190.5 kHz are prescribed in Articles **31** and **52**. (WRC-07)
- 5.109** The frequencies 2 187.5 kHz, 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz and 16 804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article **31**.
- 5.110** The frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article **31**.

- 5.111** The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **31**.
The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of ± 3 kHz about the frequency. (WRC-07)
- 5.112** Alternative allocation: in Denmark and Sri Lanka, the band 2 194-2 300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.113** For the conditions for the use of the bands 2 300-2 495 kHz (2 498 kHz in Region 1), 3 200-3 400 kHz, 4 750-4 995 kHz and 5 005-5 060 kHz by the broadcasting service, see Nos. **5.16** to **5.20**, **5.21** and **23.3** to **23.10**.
- 5.114** *Alternative allocation:* in Denmark and Iraq, the band 2 502-2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.115** The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **31**, by stations of the maritime mobile service engaged in coordinated search and rescue operations. (WRC-07)
- 5.116** Administrations are urged to authorize the use of the band 3 155-3 195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3 155 kHz and 3 400 kHz to suit local needs.
It should be noted that frequencies in the range 3 000 kHz to 4 000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.
- 5.117** *Alternative allocation:* in Côte d'Ivoire, Denmark, Egypt, Liberia, , , Sri Lanka and Togo, the band 3 155-3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 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)**.
- 5.132B** *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 4 438-4 488 kHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis
- 5.118** *Additional allocation:* in the United States, Mexico, Peru and Uruguay, the band 3 230-3 400 kHz is also allocated to the radiolocation service on a secondary basis. (WRC-03)
- 5.119** *Additional allocation:* in Honduras, Mexico and Peru, the band 3 500-3 750 kHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)
- 5.120** (SUP - WRC-2000)

- 5.121** Not used.
- 5.122** *Alternative allocation:* in Bolivia, Chile, Ecuador, Paraguay, Peru and Uruguay, the band 3 750-4 000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)
- 5.123** *Additional allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 3 900-3 950 kHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**.
- 5.124** (SUP - WRC-2000)
- 5.125** *Additional allocation:* in Greenland, the band 3 950-4 000 kHz is also allocated to the broadcasting service on a primary basis. The power of the broadcasting stations operating in this band shall not exceed that necessary for a national service and shall in no case exceed 5 kW.
- 5.126** In Region 3, the stations of those services to which the band 3 995-4 005 kHz is allocated may transmit standard frequency and time signals.
- 5.127** The use of the band 4 000-4 063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. **52.220** and Appendix **17**).
- 5.128** Frequencies in the bands 4 063-4 123 kHz and 4 130-4 438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Azerbaijan, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Pakistan, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the bands 4 063-4 123 kHz, 4 130-4 133 kHz and 4 408-4 438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service. (WRC-12)
- 5.133A** *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency bands 5 250-5 275 kHz and 26 200-26 350 kHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- 5.129** (SUP - WRC-07)
- 5.130** The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **31** and **52**. (WRC-07)
- 5.131** The frequency 4 209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques. (WRC-97)
- 5.132** The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendix **17**).
- 5.133** *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Niger, Uzbekistan, Kyrgyzstan,

Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5 130-5 250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-12)

- 5.134** The use of the bands 5 900-5 950 kHz, 7 300-7 350 kHz, 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 13 570-13 600 kHz, 13 800-13 870 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz by the broadcasting service 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)**. (WRC-07)
- 5.135** (SUP - WRC-97)
- 5.136** *Additional allocation:* frequencies in the band 5 900-5 950 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)
- 5.137** On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200-6 213.5 kHz and 6 220.5-6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.
- 5.138** The following bands:
 6 765-6 795 kHz (centre frequency 6 780 kHz),
 433.05-434.79 MHz (centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **5.280**,
 61-61.5 GHz (centre frequency 61.25 GHz),
 122-123 GHz (centre frequency 122.5 GHz), and
 244-246 GHz (centre frequency 245 GHz)
 are designated for industrial, scientific and medical (ISM) applications. The use of these frequency bands for ISM applications shall be subject to special authorization by the administration concerned, in agreement with other administrations whose radiocommunication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.
- 5.138A** Until 29 March 2009, the band 6 765-7 000 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. After this date, this band is allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis. (WRC-03)
- 5.139** *Different category of service:* until 29 March 2009, in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 6 765-7 000 kHz to the land mobile service is on a primary basis (see No. **5.33**). (WRC-07)
- 5.140** *Additional allocation:* in Angola, Iraq, Kenya, Somalia and Togo, the band 7 000-7 050 kHz is also allocated to the fixed service on a primary basis. (WRC-12)

- 5.141** *Alternative allocation:* in Egypt, Eritrea, Ethiopia, Guinea, Libya, Madagascar and Niger, the band 7 000-7 050 kHz is allocated to the fixed service on a primary basis. (WRC-12)
- 5.141A** *Additional allocation:* in Uzbekistan and Kyrgyzstan, the bands 7 000-7 100 kHz and 7 100-7 200 kHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-03)
- 5.141B** *Additional allocation:* after 29 March 2009, in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya, Morocco, Mauritania, Niger ,New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the band 7 100-7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC-12)
- 5.141C** In Regions 1 and 3, the band 7 100-7 200 kHz is allocated to the broadcasting service until 29 March 2009 on a primary basis. (WRC-03)
- 5.142** Until 29 March 2009, the use of the band 7 100-7 300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After 29 March 2009 the use of the band 7 200-7 300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. (WRC-03)
- 5.143** *Additional allocation:* frequencies in the band 7 300-7 350 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)
- 5.143A** In Region 3, the band 7 350-7 450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-03)
- 5.143B** In Region 1, the band 7 350-7 450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, on condition that harmful interference is not caused to the broadcasting service, frequencies in the band 7 350-7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located, each station using a total radiated power that shall not exceed 24 dBW. (WRC-03)
- 5.143C** *Additional allocation:* after 29 March 2009 in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), Libya, Jordan, Kuwait, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, South Sudan, Tunisia and Yemen, the bands 7 350-7 400 kHz and 7 400-7 450 kHz are also allocated to the fixed service on a primary basis. (WRC-12)

- 5.145** A Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed service. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC-12)**.
- 5.145B** *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency bands 9 305-9 355 kHz and 16 100-16 200 kHz are allocated to the fixed service on a primary basis.
- 5.149A** *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 13 450-13 550 kHz is allocated to the fixed service on a primary basis and to the mobile, except aeronautical mobile (R), service on a secondary basis.
- 5.158** *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 24 450-24 600 kHz is allocated to the fixed and land mobile services on a primary basis.
- 5.159** *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 39-39.5 MHz is allocated to the fixed and mobile services on a primary basis.
- 5.161A** *Additional allocation:* 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)**.
- 5.161A** *Alternative allocation:* in Albania, Germany, Armenia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, 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, Poland, 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.
- 5.143D** In Region 2, the band 7 350-7 400 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-03)
- 5.143E** Until 29 March 2009, the band 7 450-8 100 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. (WRC-03)
- 5.144** In Region 3, the stations of those services to which the band 7 995-8 005 kHz is allocated may transmit standard frequency and time signals.
- 5.145** The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles **31** and **52**. (WRC-07)

- 5.146** *Additional allocation:* frequencies in the bands 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz 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 9 775-9 900 kHz, 11 650-11 700 kHz and 11 975-12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.
- 5.149** In making assignments to stations of other services to which the bands:
- 5.150** The following bands:
 13 553-13 567 kHz (centre frequency 13 560 kHz),
 26 957-27 283 kHz (centre frequency 27 120 kHz),
 40.66-40.70 MHz (centre frequency 40.68 MHz),
 902-928 MHz in Region 2 (centre frequency 915 MHz),
 2 400-2 500 MHz (centre frequency 2 450 MHz),
 5 725-5 875 MHz (centre frequency 5 800 MHz), and
 24-24.25 GHz (centre frequency 24.125 GHz)
 are also designated for industrial, scientific and medical (ISM) applications. Radio-communication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. **15.13**.
- 5.151** *Additional allocation:* frequencies in the bands 13 570-13 600 kHz and 13 800-13 870 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)
- 5.152** *Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14 250-14 350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW. (WRC-03)
- 5.153** In Region 3, the stations of those services to which the band 15 995-16 005 kHz is allocated may transmit standard frequency and time signals.
- 5.154** *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18 068-18 168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW. (WRC-03)
- 5.155** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the band 21 850-21 870 kHz is also allocated to the aeronautical mobile (R) service on a primary basis. (WRC-07)

- 5.155A** In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the use of the band 21 850-21 870 kHz by the fixed service is limited to provision of services related to aircraft flight safety. (WRC-07)
- 5.155B** The band 21 870-21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.
- 5.156** *Additional allocation:* in Nigeria, the band 22 720-23 200 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.
- 5.156A** The use of the band 23 200-23 350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.
- 5.157** The use of the band 23 350-24 000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.
- 5.160** *Additional allocation:* 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** *Additional allocation:* in Iran (Islamic Republic of) and Japan, the band 41-44 MHz is also allocated to the radiolocation service on a secondary basis.
- 5.162** *Additional allocation:* in Australia, the band 44-47 MHz is also allocated to the broadcasting service on a primary basis.
- 5.162A** *Additional allocation:* 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, Slovakia, 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-07)
- 5.163** *Additional allocation:* in Armenia, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, 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** *Additional allocation:* in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the band 47-68 MHz, in South Africa the band 47-50 MHz, in the Czech Rep. the band 66-68 MHz, and in Latvia and Lithuania the 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-12)

- 5.165** *Additional allocation:* in Angola, Cameroon, Congo (Rep. of the), Madagascar, Mozambique, 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. (WRC12)
- 5.166** *Alternative allocation:* in New Zealand, the band 50-51 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis; the band 53-54 MHz is allocated to the fixed and mobile services on a primary basis.
- 5.167** *Alternative allocation:* in Bangladesh, Brunei Darussalam, India, Iran (Islamic Republic of), Pakistan, Singapore and Thailand, the band 50-54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-07)
- 5.167A** *Additional allocation:* in Indonesia, the band 50-54 MHz is also allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-07)
- 5.168** *Additional allocation:* in Australia, China and the Dem. People's Rep. of Korea, the band 50-54 MHz is also allocated to the broadcasting service on a primary basis.
- 5.169** *Alternative allocation:* in Botswana, Burundi, 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.
- 5.170** *Additional allocation:* in New Zealand, the band 51-53 MHz is also allocated to the fixed and mobile services on a primary basis.
- 5.171** *Additional allocation:* 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.(WRC12)
- 5.172** *Different category of service:* in the French overseas departments and communities in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 54-68 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**).
- 5.173** *Different category of service:* in the French overseas departments and communities in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 68-72 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**).
- 5.175** *Alternative allocation:* 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)
- 5.176** *Additional allocation:* in Australia, China, Korea (Rep. of), the Philippines, the Dem. People's Rep. of Korea and Samoa, the band 68-74 MHz is also allocated to the broadcasting service on a primary basis. (WRC-07)
- 5.177** *Additional allocation:* 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)

- 5.178** *Additional allocation:* in Colombia, , Cuba, El Salvador, Guatemala, Guyana, Honduras and Nicaragua, the band 73-74.6 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC12)
- 5.179** *Additional allocation:* in Armenia, Azerbaijan, Belarus, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Mongolia, Kyrgyzstan, Slovakia, 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-07)
- 5.180** The frequency 75 MHz is assigned to marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the guardband to stations of other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons.
Every effort should be made to improve further the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.8 MHz and 75.2 MHz.
- 5.181** *Additional allocation:* in Egypt, Israel and the Syrian Arab Republic, the band 74.8-75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **9.21**. (WRC-03)
- 5.182** *Additional allocation:* in Western Samoa, the band 75.4-87 MHz is also allocated to the broadcasting service on a primary basis.
- 5.183** *Additional allocation:* in China, Korea (Rep. of), Japan, the Philippines and the Dem. People's Rep. of Korea, the band 76-87 MHz is also allocated to the broadcasting service on a primary basis.
- 5.184** (SUP - WRC-07)
- 5.185** *Different category of service:* in the United States, the French overseas departments and communities in Region 2, Guyana, Jamaica, Mexico and Paraguay, the allocation of the band 76-88 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**).
- 5.186** (SUP - WRC-97)
- 5.187** *Alternative allocation:* in Albania, the band 81-87.5 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions contained in the Final Acts of the Special Regional Conference (Geneva, 1960).
- 5.188** *Additional allocation:* in Australia, the band 85-87 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service in Australia is subject to special agreements between the administrations concerned.
- 5.189** Not used.
- 5.190** *Additional allocation:* in Monaco, the band 87.5-88 MHz is also allocated to the land mobile service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-97)
5.191 Not used.

- 5.192** *Additional allocation:* in China and Korea (Rep. of), the band 100-108 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)
- 5.193** Not used.
- 5.194** *Additional allocation:* 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)
- 5.195 and 5.196** Not used.
- 5.197** *Additional allocation:* in the Syrian Arab Republic, the band 108-111.975 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedures invoked under No. **9.21**. (WRC-12)
- 5.197A** *Additional allocation:* the band 108-117.975 MHz is also allocated on a primary basis to the aeronautical mobile (R) service, limited to systems operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **413 (Rev.WRC-07)**. The use of the band 108-112 MHz by the aeronautical mobile (R) service shall be limited to systems composed of ground-based transmitters and associated receivers that provide navigational information in support of air navigation functions in accordance with recognized international aeronautical standards. (WRC-07)
- 5.200** In the band 117.975-137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article **31** for distress and safety purposes with stations of the aeronautical mobile service. (WRC-07)
- 5.201** *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Latvia, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 132-136 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-97)
- 5.202** *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Latvia, Moldova, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, , , Romania, Tajikistan, Turkmenistan and Ukraine, the band 136-137 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-12)
- 5.203** (SUP - WRC-07)
- 5.203A** (SUP - WRC-07)

- 5.203B** (SUP - WRC-07)
- 5.204** *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Serbia, Singapore, Thailand and Yemen, the band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. **5.33**). (WRC-07)
- 5.205** *Different category of service:* in Israel and Jordan, the allocation of the band 137-138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**).
- 5.206** *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, the Russian Federation, Finland, France, Georgia, Greece, Kazakhstan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Syrian Arab Republic, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 137-138 MHz to the aeronautical mobile (OR) service is on a primary basis (see No. **5.33**). (WRC-2000)
- 5.207** *Additional allocation:* in Australia, the band 137-144 MHz is also allocated to the broadcasting service on a primary basis until that service can be accommodated within regional broadcasting allocations.
- 5.208** The use of the band 137-138 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-97)
- 5.208A** In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions. The threshold levels of interference detrimental to the radio astronomy service are shown in the relevant ITU-R Recommendation. (WRC-07)
- 5.208B^{1*}** In the bands:
 137-138 MHz,
 387-390 MHz,
 400.15-401 MHz,
 1 452-1 492 MHz,
 1 525-1 610 MHz,
 1 613.8-1 626.5 MHz,
 2 655-2 690 MHz,
 21.4-22 GHz,
 Resolution **739 (Rev.WRC-07)** applies. (WRC-07)
- 5.209** The use of the bands 137-138 MHz, 148-150.05 MHz, 399.9-400.05 MHz, 400.15-401 MHz, 454-456 MHz and 459-460 MHz by the mobile-satellite service is limited to non-geostationary-satellite systems. (WRC-97)
- 5.210** *Additional allocation:* in Italy, the Czech Rep. and the United Kingdom, the bands 138-143.6 MHz and 143.65-144 MHz are also allocated to the space research service (space-to-Earth) on a secondary basis. (WRC-07)

^{1*}This provision was previously numbered as No. 5.347A. It was renumbered to preserve the sequential order.

- 5.211** *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Liechtenstein, Luxembourg, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-12)
- 5.212** *Alternative allocation:* in Angola, Botswana, , Cameroon, the Central African Rep., Congo (Rep. of the), Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libya, Malawi, Mozambique, Namibia, Niger, Oman, Uganda, Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Swaziland, Chad, Togo, Zambia and Zimbabwe, the band 138-144 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.213** *Additional allocation:* in China, the band 138-144 MHz is also allocated to the radiolocation service on a primary basis.
- 5.214** *Additional allocation:* in Eritrea, Ethiopia, Kenya, The Former Yugoslav Republic of Macedon, Montenegro, Serbia, Somalia, Sudan, South Sudan, and Tanzania, the band 138-144 MHz is also allocated to the fixed service on a primary basis. (WRC-12)
- 5.225A** *Additional allocation:* in Algeria, Armenia, Azerbaijan, Belarus, China, the Russian Federation, France, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and Viet Nam, the frequency band 154-156 MHz is also allocated to the radiolocation service on a primary basis. The usage of the frequency band 154-156 MHz by the radiolocation service shall be limited to space-object detection systems operating from terrestrial locations. The operation of stations in the radiolocation service in the frequency band 154-156 MHz shall be subject to agreement obtained under No. **9.21**. For the identification of potentially affected administrations in Region 1, the instantaneous field-strength value of 12 dB(μ V/m) for 10% of the time produced at 10 m above ground level in the 25 kHz

reference frequency band at the border of the territory of any other administration shall be used. For the identification of potentially affected administrations in Region 3, the interference-to-noise ratio (I/N) value of -6 dB ($N = -161$ dBW/4 kHz), or -10 dB for applications with greater protection requirements, such as public protection and disaster relief (PPDR ($N = -161$ dBW/4 kHz)), for 1% of the time produced at 60 m above ground level at the border of the territory of any other administration shall be used. In the frequency bands 156.7625-156.8375 MHz, 156.5125-156.5375 MHz, 161.9625-161.9875 MHz, 162.0125-162.0375 MHz, out-of-band e.i.r.p. of space surveillance radars shall not exceed -16 dBW. Frequency assignments to the radiolocation service under this allocation in Ukraine shall not be used without the agreement of Moldova.

- 5.228** The use of the frequency bands 156.7625-156.7875 MHz and 156.8125-156.8375 MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system (AIS) emissions of long-range AIS broadcast messages (Message 27, see the most recent version of Recommendation ITU-R M.1371). With the exception of AIS emissions, emissions in these frequency bands by systems operating in the maritime mobile service for communications shall not exceed 1 W.

- 5.228A** The frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz may be used by aircraft stations for the purpose of search and rescue operations and other safety-related communications.
- 5.228B** The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the fixed and land mobile services shall not cause harmful interference to, or claim protection from, the maritime mobile service.
- 5.228C** The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the maritime mobile service and the mobile-satellite (Earth-to-space) service is limited to the automatic identification system (AIS). The use of these frequency bands by the aeronautical mobile (OR) service is limited to AIS emissions from search and rescue aircraft operations. The AIS operations in these frequency bands shall not constrain the development and use of the fixed and mobile services operating in the adjacent frequency bands.
- 5.228D** The frequency bands 161.9625-161.9875 MHz (AIS 1) and 162.0125-162.0375 MHz (AIS 2) may continue to be used by the fixed and mobile services on a primary basis until 1 January 2025, at which time this allocation shall no longer be valid. Administrations are encouraged to make all practicable efforts to discontinue the use of these bands by the fixed and mobile services prior to the transition date. During this transition period, the maritime mobile service in these frequency bands has priority over the fixed, land mobile and aeronautical mobile services.
- 5.228E** The use of the automatic identification system in the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the aeronautical mobile (OR) service is limited to aircraft stations for the purpose of search and rescue operations and other safety-related communications.
- 5.228F** The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system emissions from stations operating in the maritime mobile service.
- 5.215** Not used.
- 5.216** *Additional allocation:* in China, the band 144-146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.
- 5.217** *Alternative allocation:* in Afghanistan, Bangladesh, Cuba, Guyana and India, the band 146-148 MHz is allocated to the fixed and mobile services on a primary basis.
- 5.218** *Additional allocation:* the band 148-149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21**. The bandwidth of any individual transmission shall not exceed ± 25 kHz.
- 5.219** The use of the band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148-149.9 MHz.
- 5.220** The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9-150.05 MHz and 399.9-400.05 MHz. (WRC-97)

- 5.221** Stations of the mobile-satellite service in the band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, , Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-12)
- 5.222** Emissions of the radionavigation-satellite service in the bands 149.9-150.05 MHz and 399.9-400.05 MHz may also be used by receiving earth stations of the space research service.
- 5.223** Recognizing that the use of the band 149.9-150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application of No. **4.4**.
- 5.224** (SUP - WRC-97)
- 5.224A** The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service (Earth-to-space) is limited to the land mobile-satellite service (Earth-to-space) until 1 January 2015. (WRC-97)
- 5.224B** The allocation of the bands 149.9-150.05 MHz and 399.9-400.05 MHz to the radionavigation-satellite service shall be effective until 1 January 2015. (WRC-97)
- 5.225** *Additional allocation:* in Australia and India, the band 150.05-153 MHz is also allocated to the radio astronomy service on a primary basis.
- 5.226** The frequency 156.525 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service using digital selective calling (DSC). The conditions for the use of this frequency and the band 156.4875-156.5625 MHz are contained in Articles **31** and **52**, and in Appendix **18**.
The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency and the band 156.7625-156.8375 MHz are contained in Article **31** and Appendix **18**.
In the bands 156-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **31** and **52**, and Appendix **18**).
Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

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

- 5.227** *Additional allocation:* the bands 156.4875-156.5125 MHz and 156.5375-156.5625 MHz are also allocated to the fixed and land mobile services on a primary basis. The use of these bands by the fixed and land mobile services shall not cause harmful interference to nor claim protection from the maritime mobile VHF radiocommunication service. (WRC-07)
- 5.227A** (Sup WRC-12)
- 5.228** Not used.
- 5.229** *Alternative allocation:* in Morocco, the band 162-174 MHz is allocated to the broadcasting service on a primary basis. The use of this band shall be subject to agreement with administrations having services, operating or planned, in accordance with the Table which are likely to be affected. Stations in existence on 1 January 1981, with their technical characteristics as of that date, are not affected by such agreement.
- 5.230** *Additional allocation:* in China, the band 163-167 MHz is also allocated to the space operation service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21**.
- 5.231** *Additional allocation:* in Afghanistan, and China , the band 167-174 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service into this band shall be subject to agreement with the neighbouring countries in Region 3 whose services are likely to be affected. (WRC 12)
- 5.232** *Additional allocation:* in Japan, the band 170-174 MHz is also allocated to the broadcasting service on a primary basis.
- 5.233** *Additional allocation:* in China, the band 174-184 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis, subject to agreement obtained under No. **9.21**. These services shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations.
- 5.234** *Different category of service:* in Mexico, the allocation of the band 174-216 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**).
- 5.235** *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174-223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.
- 5.237** *Additional allocation:* in Congo (Rep. of the), Egypt, Eritrea, Ethiopia, Gambia, Guinea, the 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)

- 5.238** *Additional allocation:* in Bangladesh, India, Pakistan and the Philippines, the band 200-216 MHz is also allocated to the aeronautical radionavigation service on a primary basis.
- 5.239** Not used.
- 5.240** *Additional allocation:* in China and India, the band 216-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.
- 5.241** In Region 2, no new stations in the radiolocation service may be authorized in the band 216-225 MHz. Stations authorized prior to 1 January 1990 may continue to operate on a secondary basis.
- 5.242** *Additional allocation:* in Canada, the band 216-220 MHz is also allocated to the land mobile service on a primary basis.
- 5.243** *Additional allocation:* in Somalia, the band 216-225 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to not causing harmful interference to existing or planned broadcasting services in other countries.
- 5.244** (SUP - WRC-97)
- 5.245** *Additional allocation:* in Japan, the band 222-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.
- 5.246** *Alternative allocation:* in Spain, France, Israel and Monaco, the band 223-230 MHz is allocated to the broadcasting and land mobile services on a primary basis (see No. **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.
- 5.247** *Additional allocation:* 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.
- 5.248** and **5.249** Not used.
- 5.250** *Additional allocation:* in China, the band 225-235 MHz is also allocated to the radio astronomy service on a secondary basis.
- 5.251** *Additional allocation:* in Nigeria, the band 230-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to agreement obtained under No. **9.21**.
- 5.252** *Alternative allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the bands 230-238 MHz and 246-254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**.
- 5.253** Not used.

- 5.254** The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote No. **5.256A**. (WRC-03)
- 5.255** The bands 312-315 MHz (Earth-to-space) and 387-390 MHz (space-to-Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to coordination under No. **9.11A**.
- 5.256** The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes. (WRC-07)
- 5.256A** *Additional allocation:* in China, the Russian Federation, Kazakhstan and Ukraine, the band 258-261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, nor claim protection from, nor constrain the use and development of the mobile service systems and mobile-satellite service systems operating in the band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries. (WRC-03)
- 5.257** The band 267-272 MHz may be used by administrations for space telemetry in their countries on a primary basis, subject to agreement obtained under No. **9.21**.
- 5.258** The use of the band 328.6-335.4 MHz by the aeronautical radionavigation service is limited to Instrument Landing Systems (glide path).
- 5.259** *Additional allocation:* in Egypt, and the Syrian Arab Republic, the band 328.6-335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **9.21**. (WRC-12)
- 5.260** Recognizing that the use of the band 399.9-400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. **4.4**.
- 5.261** Emissions shall be confined in a band of ± 25 kHz about the standard frequency 400.1 MHz.
- 5.262** *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Botswana, Colombia, , Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Romania, Singapore, Somalia, Tajikistan, Chad, Turkmenistan and Ukraine, the band 400.05-401 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.263** The band 400.15-401 MHz is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service.

- 5.264** The use of the band 400.15-401 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The power flux-density limit indicated in Annex 1 of Appendix **5** shall apply until such time as a competent world radiocommunication conference revises it.
- 5.265** Not used.
- 5.266** The use of the band 406-406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article **31**). (WRC-07)
- 5.267** Any emission capable of causing harmful interference to the authorized uses of the band 406-406.1 MHz is prohibited.
- 5.268** Use of the band 410-420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed $-153 \text{ dB(W/m}^2\text{)}$ for $0^\circ \leq \delta \leq 5^\circ$, $-153 + 0.077 (d - 5) \text{ dB(W/m}^2\text{)}$ for $5^\circ \leq \delta \leq 70^\circ$ and $-148 \text{ dB(W/m}^2\text{)}$ for $70^\circ \leq \delta \leq 90^\circ$, where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. No. **4.10** does not apply to extra-vehicular activities. In this frequency band the space research (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. (WRC-97)
- 5.269** *Different category of service:* in Australia, the United States, India, Japan and the United Kingdom, the allocation of the bands 420-430 MHz and 440-450 MHz to the radiolocation service is on a primary basis (see No. **5.33**).
- 5.270** *Additional allocation:* in Australia, the United States, Jamaica and the Philippines, the bands 420-430 MHz and 440-450 MHz are also allocated to the amateur service on a secondary basis.
- 5.271** *Additional allocation:* in Belarus, China, India, Kyrgyzstan and Turkmenistan, the band 420-460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis. (WRC-07)(Sup WRC12)
- 5.272** (Sup WRC-12)
- 5.273** (Sup WRC-12)
- 5.274** *Alternative allocation:* in Denmark, Norway, , Sweden, and Chad the bands 430-432 MHz and 438-440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC12)
- 5.275** *Additional allocation:* in Croatia, Estonia, Finland, Libyan Arab Jamahiriya, The Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Slovenia, the bands 430-432 MHz and 438-440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)
- 5.276** *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, , Djibouti, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, , Jordan, Kenya, Kuwait, , Malaysia, ,Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Switzerland, Tanzania, Thailand, Togo, Turkey and

Yemen, the band 430-440 MHz is also allocated to the fixed service on a primary basis and the bands 430-435 MHz and 438-440 MHz are also allocated to the mobile, except aeronautical mobile, service on a primary basis. (WRC-12)

- 5.277** *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, , Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430-440 MHz is also allocated to the fixed service on a primary basis. (WRC-12)
- 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 232 (WRC-12). See also Resolution 224 (Rev.WRC-12).
- 5.278** *Different category of service:* in Argentina, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama and Venezuela, the allocation of the band 430-440 MHz to the amateur service is on a primary basis (see No. **5.33**).
- 5.279** *Additional allocation:* in Mexico, the bands 430-435 MHz and 438-440 MHz are also allocated on a primary basis to the land mobile service, subject to agreement obtained under No. **9.21**.
- 5.279A** The use of this band by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R RS.1260-1. Additionally, the Earth exploration-satellite service (active) in the band 432-438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. **5.29** and **5.30**. (WRC-03)
- 5.280** In Germany, Austria, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Montenegro, Portugal, Serbia, Slovenia and Switzerland, the band 433.05-434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. **15.13**. (WRC-07)
- 5.281** *Additional allocation:* in the French overseas departments and communities in Region 2 and India, the band 433.75-434.25 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis. In France and in Brazil, the band is allocated to the same service on a secondary basis.
- 5.282** In the bands 435-438 MHz, 1 260-1 270 MHz, 2 400-2 450 MHz, 3 400-3 410 MHz (in Regions 2 and 3 only) and 5 650-5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. **5.43**). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. **25.11**. The use of the bands 1 260-1 270 MHz and 5 650-5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.
- 5.283** *Additional allocation:* in Austria, the band 438-440 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

- 5.284** *Additional allocation:* in Canada, the band 440-450 MHz is also allocated to the amateur service on a secondary basis.
- 5.285** *Different category of service:* in Canada, the allocation of the band 440-450 MHz to the radiolocation service is on a primary basis (see No. **5.33**).
- 5.286** The band 449.75-450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. **9.21**.
- 5.286A** The use of the bands 454-456 MHz and 459-460 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-97)
- 5.286AA** The band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution **224 (Rev. WRC-07)**. This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-07)
- 5.286B** The use of the band 454-455 MHz in the countries listed in No. **5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)
- 5.286C** The use of the band 454-455 MHz in the countries listed in No. **5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not constrain the development and use of the fixed and mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)
- 5.286D** *Additional allocation:* in Canada, the United States and Panama, the band 454-455 MHz is also allocated to the mobile-satellite service (Earth-to-space) on a primary basis. (WRC-07)
- 5.286E** *Additional allocation:* in Cape Verde, Nepal and Nigeria, the bands 454-456 MHz and 459-460 MHz are also allocated to the mobile-satellite (Earth-to-space) service on a primary basis. (WRC-07)
- 5.287** In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (WRC-07)
- 5.288** In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (WRC-03)

- 5.289** Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460-470 MHz and 1 690-1 710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.
- 5.290** *Different category of service:* in Afghanistan, Azerbaijan, Belarus, China, the Russian Federation, Japan, Kyrgyzstan, Tajikistan and, Turkmenistan the allocation of the band 460-470 MHz to the meteorological-satellite service (space-to-Earth) is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-12)
- 5.291** *Additional allocation:* in China, the band 470-485 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis subject to agreement obtained under No. **9.21** and subject to not causing harmful interference to existing and planned broadcasting stations.
- 5.291A** *Additional allocation:* in Germany, Austria, Denmark, Estonia, Finland, Liechtenstein, Norway, Netherlands, the Czech Rep. and Switzerland, the band 470-494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**. (WRC-97)
- 5.292** *Different category of service:* in Mexico, the allocation of the band 470-512 MHz to the fixed and mobile services, and in Argentina, Uruguay and Venezuela to the mobile service, is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-07)
- 5.293** *Different category of service:* in Canada, Chile, , Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In Canada, Chile, , Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-698 MHz to the mobile service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In Argentina and Ecuador, the allocation of the band 470-512 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-12)
- 5.294** *Additional allocation:* in Saudi Arabia, , Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, Kenya,Libya, , the Syrian Arab Republic, South Sudan, Chad and Yemen, the band 470-582 MHz is also allocated to the fixed service on a secondary basis. (WRC-12)
- 5.295** Not used.
- 5.296** *Additional allocation:* in Albania,Germany, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Burkina Faso, Cameroon, Congo (Rep. of the),Côte d'Ivoire, Croatia ,Denmark, Egypt, Spain, Finland, France, Gabon ,Ghana, Ireland Iceland Israel, Italy, , Jordan, Kuwait,Latvia The Former Yugoslav Republic of Macedonia, Libya, Liechtenstein,Luxembourg Lithuania, Mali,Malta, Morocco,Moldova, Monaco, Norway, Oman, the Netherlands, Portugal, the Syrian Arab Republic, the United Kingdom, Sweden, Switzerland, Swaziland, Chad, Togo and Tunisia, and Turkey, in Angola, Botswana,Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, South Africa, Tanzania, Zambia and Zimbabwe, the band 470-698 MHz are also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land

mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-12)

- 5.297** *Additional allocation:* in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, Honduras, Jamaica and Mexico, the band 512-608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-07)
- 5.298** *Additional allocation:* in India, the band 549.75-550.25 MHz is also allocated to the space operation service (space-to-Earth) on a secondary basis.
- 5.299** Not used.
- 5.300** *Additional allocation:* in Saudi Arabia, Cameroon, Egypt, United Arab Emirates, Israel, , Jordan, Libya, Oman, Qatar, the Syrian Arab Republic Sudan, and South Sudan the band 582-790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-12)
- 5.301** Not used.
- 5.302** (Sup WRC12)
- 5.303** Not used.
- 5.304** *Additional allocation:* 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.
- 5.305** *Additional allocation:* in China, the band 606-614 MHz is also allocated to the radio astronomy service on a primary basis.
- 5.306** *Additional allocation:* in Region 1, except in the African Broadcasting Area (see Nos. **5.10** to **5.13**), and in Region 3, the band 608-614 MHz is also allocated to the radio astronomy service on a secondary basis.
- 5.307** *Additional allocation:* in India, the band 608-614 MHz is also allocated to the radio astronomy service on a primary basis.
- 5.308** Not used.
- 5.309** *Different category of service:* in Costa Rica, El Salvador and Honduras, the allocation of the band 614-806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**.
- 5.310** (SUP - WRC-97)
- 5.311** (SUP - WRC-07)
- 5.311A** For the frequency band 620-790 MHz, see also Resolution **549 (WRC-07)**. (WRC-07)
- 5.312** *Additional allocation:* in Armenia, Azerbaijan, Belarus, , the Russian Federation, Georgia, Hungary, Kazakhstan, , Mongolia, Uzbekistan, , Kyrgyzstan, , Tajikistan, Turkmenistan and Ukraine, the band 645-862 MHz in Bulgaria the bands 646-686

MHz, 726-758 MHz, 766-814 MHz and 822-862 MHz, in Romania the band 830-862 MHz, and in Poland, the band 830-860 MHz until 31 December 2012 and the band 860-862 MHz until 31 December 2017, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)

5.313 (SUP - WRC-97)

5.313A The band, or portions of the band 698-790 MHz, in Bangladesh, China, Korea (Rep. of), India, Japan, New Zealand, Pakistan, Papua New Guinea, Philippines and Singapore are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. In China, the use of IMT in this band will not start until 2015. (WRC-12)

5.313B *Different category of service:* in Brazil, the allocation of the band 698-806 MHz to the mobile service is on a secondary basis (see No. **5.32**). (WRC-07)

5.314 *Additional allocation:* in Austria, Italy, Moldova, Uzbekistan, Kyrgyzstan, and the United Kingdom , the band 790-862 MHz is also allocated to the land mobile service on a secondary basis. (WRC-12)

5.315 *Alternative allocation:* in Greece, the band 790-838 MHz is allocated to the broadcasting service on a primary basis. (WRC-12)

5.316 *Additional allocation:* in Germany, Saudi Arabia, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Greece, Israel, the Libyan Arab Jamahiriya, Jordan, Kenya, The Former Yugoslav Republic of Macedonia, Liechtenstein, Mali, Monaco, Montenegro, Norway, the Netherlands, Portugal, the United Kingdom, the Syrian Arab Republic, Serbia, Sweden and Switzerland, the band 790-830 MHz, and in these same countries and in Spain, France, Gabon and Malta, the band 830-862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band. This allocation is effective until 16 June 2015. (WRC-07)

5.316A *Additional allocation:* in Spain, France, Gabon and Malta, the band 790-830 MHz, in Angola, Albania, Bahrain, Benin, Botswana, Burundi, Congo (Rep. of the), Egypt, United Arab of Emirates , Estonia, Gambia, Ghana, Guinea, Guinea Bissau, Hungary, Iraq, Kuwait, Lesotho, Latvia, Lebanon, Lithuania , Luxembourg , Malawi, Morocco, Mauritania, Mozambique, Namibia, Niger, Oman, Uganda, Poland, Qatar, Slovakia, Czech Rep, Romania , Rwanda, Senegal, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Yemen, Zambia and Zimbabwe, and French overseas departments and communities of Region 1, the band 790-862 MHz, in Georgia, the band 806-862 MHz, and are also allocated to the mobile, except aeronautical mobile, service on a primary basis subject to the agreement by the administrations concerned obtained under No. **9.21** and under the GE06 Agreement, as appropriate, including those administrations mentioned in No. **5.312** where appropriate. . See resolution 224 REV(WRC12) and 749 (REV WRC 12) This allocation is effective until 16 June 2015. (WRC 12)

5.316B In Region 1, the allocation to the mobile, except aeronautical mobile, service on a primary basis in the frequency band 790-862 MHz shall come into effect from 17

June 2015 and shall be 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-12)** and **749 (WRC-12)** shall apply. (WRC-12)

- 5.317** *Additional allocation:* in Region 2 (except Brazil and the United States), the band 806-890 MHz is also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21**. The use of this service is intended for operation within national boundaries.
- 5.317A** Those parts of the band 698-960 MHz in Region 2 and the band 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolutions **224 (Rev.WRC-12)** and **749 (WRC-12)**. 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-12)
- 5.318** *Additional allocation:* in Canada, the United States and Mexico, the bands 849-851 MHz and 894-896 MHz are also allocated to the aeronautical mobile service on a primary basis, for public correspondence with aircraft. The use of the band 849-851 MHz is limited to transmissions from aeronautical stations and the use of the band 894-896 MHz is limited to transmissions from aircraft stations.
- 5.319** *Additional allocation:* 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.
- 5.320** *Additional allocation:* in Region 3, the bands 806-890 MHz and 942-960 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service on a primary basis, subject to agreement obtained under No. **9.21**. The use of this service is limited to operation within national boundaries. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.
- 5.321** (SUP - WRC-07)
- 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** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Hungary, 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 radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-12)

- 5.324** Not used.
- 5.325** *Different category of service:* in the United States, the allocation of the band 890-942 MHz to the radiolocation service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**.
- 5.325A** *Different category of service:* in Cuba, the allocation of the band 902-915 MHz to the land mobile service is on a primary basis. (WRC-2000)
- 5.326** *Different category of service:* in Chile, the band 903-905 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21**.
- 5.327** *Different category of service:* in Australia, the allocation of the band 915-928 MHz to the radiolocation service is on a primary basis (see No. **5.33**).
- 5.327A** The use of the band 960-1 164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **417 (WRC-12)**. (WRC-12)
- 5.328** The use of the band 960-1 215 MHz by the aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities. (WRC-2000)
- 5.328A** Stations in the radionavigation-satellite service in the band 1 164-1 215 MHz shall operate in accordance with the provisions of Resolution **609 (Rev.WRC-07)** and shall not claim protection from stations in the aeronautical radionavigation service in the band 960-1 215 MHz. No. **5.43A** does not apply. The provisions of No. **21.18** shall apply. (WRC-07)
- 5.328B** The use of the bands 1 164-1 300 MHz, 1 559-1 610 MHz and 5 010-5 030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radio-communication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. **9.12**, **9.12A** and **9.13**. Resolution **610 (WRC-03)** shall also apply; however, in the case of radionavigation-satellite service (space-to-space) networks and systems, Resolution **610 (WRC-03)** shall only apply to transmitting space stations. In accordance with No. **5.329A**, for systems and networks in the radionavigation-satellite service (space-to-space) in the bands 1 215-1 300 MHz and 1 559-1 610 MHz, the provisions of Nos. **9.7**, **9.12**, **9.12A** and **9.13** shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space). (WRC-07)
- 5.329** Use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. **5.331**. Furthermore, the use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. **5.43** shall not apply in respect of the radiolocation service. Resolution **608 (WRC-03)** shall apply. (WRC-03)
- 5.329A** Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1 215-1 300 MHz and 1 559-1 610 MHz is not intended to provide safety service applications, and shall not impose any additional constraints on radionav-

igation-satellite service (space-to-Earth) systems or on other services operating in accordance with the Table of Frequency Allocations. (WRC-07)

- 5.330** *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Nepal, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the band 1 215-1 300 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.331** *Additional allocation:* in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-12)
- 5.332** In the band 1 215-1 260 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis. (WRC-2000)
- 5.333** (SUP - WRC-97)
- 5.334** *Additional allocation:* in Canada and the United States, the band 1 350-1 370 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-03)
- 5.335** In Canada and the United States in the band 1 240-1 300 MHz, active spaceborne sensors in the earth exploration-satellite and space research services shall not cause interference to, claim protection from, or otherwise impose constraints on operation or development of the aeronautical radionavigation service. (WRC-97)
- 5.335A** In the band 1 260-1 300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service and other services allocated by footnotes on a primary basis. (WRC-2000)
- 5.336** Not used.
- 5.337** The use of the bands 1 300-1 350 MHz, 2 700-2 900 MHz and 9 000-9 200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.

- 5.337A** The use of the band 1 300-1 350 MHz by earth stations in the radionavigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to, nor constrain the operation and development of, the aeronautical-radionavigation service. (WRC-2000)
- 5.338** In Kyrgyzstan, Slovakia, . and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1 350-1 400 MHz. (WRC-12)
- 5.338A** In the bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz and 51.4-52.6 GHz, Resolution **750 (WRC-12)** applies. (WRC-12)
- 5.339** The bands 1 370-1 400 MHz, 2 640-2 655 MHz, 4 950-4 990 MHz and 15.20-15.35 GHz are also allocated to the space research (passive) and Earth exploration-satellite (passive) services on a secondary basis.
- 5.339A** (SUP - WRC-07)
- 5.340** All emissions are prohibited in the following bands:
 1 400-1 427 MHz,
 2 690-2 700 MHz, except those provided for by No. **5.422**,
 10.68-10.7 GHz, except those provided for by No. **5.483**,
 15.35-15.4 GHz, except those provided for by No. **5.511**,
 23.6-24 GHz,
 31.3-31.5 GHz,
 31.5-31.8 GHz, in Region 2,
 48.94-49.04 GHz, from airborne stations
 50.2-50.4 GHz²,
 52.6-54.25 GHz,
 86-92 GHz,
 100-102 GHz,
 109.5-111.8 GHz,

 114.25-116 GHz,
 148.5-151.5 GHz,
 164-167 GHz,
 182-185 GHz,
 190-191.8 GHz,
 200-209 GHz,
 226-231.5 GHz,
 250-252 GHz. (WRC-03)
- 5.341** In the bands 1 400-1 727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.
- 5.342** *Additional allocation:* in Armenia, Azerbaijan, Belarus, , the Russian Federation, Uzbekistan, Kyrgyzstan and Ukraine, the band 1 429-1 535 MHz and in Bulgaria the band 1 525-1 535 MHz, are also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the

²**5.340.1** The allocation to the Earth exploration-satellite service (passive) and the space research service (passive) in the band 50.2-50.4 GHz should not impose undue constraints on the use of the adjacent bands by the primary allocated services in those bands. (WRC-97)

national territory. As of 1 April 2007, the use of the band 1 452-1 492 MHz is subject to agreement between the administrations concerned. (WRC-12)

- 5.343** In Region 2, the use of the band 1 435-1 535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.
- 5.344** *Alternative allocation:* in the United States, the band 1 452-1 525 MHz is allocated to the fixed and mobile services on a primary basis (see also No. **5.343**).
- 5.345** Use of the band 1 452-1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (WARC-92)**^{3*}.
- 5.348** The use of the band 1 518-1 525 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. **5.43A** does not apply. (WRC-03)
- 5.348A** In the band 1 518-1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. **9.11A** for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be -150 dB(W/m²) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix **5**. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. **5.43A** does not apply. (WRC-03)
- 5.348B** In the band 1 518-1 525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. **5.343** and **5.344**) and in the countries listed in No. **5.342**. No. **5.43A** does not apply. (WRC-03)
- 5.349** *Different category of service:* in Saudi Arabia, Azerbaijan, Bahrain, Cameroon, Egypt, France, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the band 1 525-1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-07)
- 5.350** *Additional allocation:* in Azerbaijan, Kyrgyzstan and Turkmenistan, the band 1 525-1 530 MHz is also allocated to the aeronautical mobile service on a primary basis. (WRC-2000)
- 5.351** The bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 626.5-1 645.5 MHz and 1 646.5-1 660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.
- 5.351A** For the use of the bands 1 518-1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660.5 MHz, 1 668-1 675 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz, 2 483.5-2 520 MHz and 2 670-2 690 MHz by the mobile-satellite service, see Resolutions **212 (Rev.WRC-07)** and **225 (Rev.WRC-07)**. (WRC-07)

^{3*} Note by the Secretariat: This Resolution was revised by WRC-03.

- 5.352** (SUP - WRC-97)
- 5.352A** In the band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in France and French overseas communities of Region 3, Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Tanzania, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-12)
- 5.353** (SUP - WRC-97)
- 5.353A** In applying the procedures of Section II of Article **9** to the mobile-satellite service in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution **222 (WRC-2000)**^{4*} shall apply.) (WRC-2000)
- 5.354** The use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite services is subject to coordination under No. **9.11A**.
- 5.355** *Additional allocation:* in Bahrain, Bangladesh, Congo (Rep. of the), Djibouti, Egypt, Eritrea, Iraq, Israel, Kuwait, , Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the bands 1 540-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a secondary basis. (WRC-12)
- 5.356** The use of the band 1 544-1 545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article **31**).
- 5.357** Transmissions in the band 1 545-1 555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.
- 5.357A** In applying the procedures of Section II of Article **9** to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution **222 (WRC-12)** * shall apply.) (WRC-12)

^{4*} Note by the Secretariat: This Resolution was revised by WRC-07.

- 5.359** *Additional allocation:* in Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Cameroon, the Russian Federation, France,, Georgia, Greece, Guinea, Guinea-Bissau, , Jordan, Kazakhstan, Kuwait, , Lithuania, Mauritania, , Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, , Tajikistan, Tanzania, Tunisia, Turkmenistan and Ukraine, the bands 1 550-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these bands. (WRC-12)
- 5.362A** In the United States, in the bands 1 555-1 559 MHz and 1 656.5-1 660.5 MHz, the aeronautical mobile-satellite (R) service shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (WRC-97)
- 5.362B** *Additional allocation:* The band 1 559-1 610 MHz is also allocated to the fixed service on a primary basis until 1 January 2010 in Algeria, Saudi Arabia, Cameroon, , Jordan, Mali, Mauritania, Syrian Arab Republic and Tunisia. After this date, the fixed service may continue to operate on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. The band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis in Algeria, , Armenia, Azerbaijan, Belarus, Benin, Russian Federation, , Gabon, Georgia, Guinea, Guinea-Bissau, Kazakhstan, Lithuania, Nigeria, , Uzbekistan, Pakistan, Poland, Kyrgyzstan, Dem. People's Rep. of Korea, Romania, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan and Ukraine until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and the aeronautical radionavigation service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-12)
- 5.362C** *Additional allocation:* in Congo (Rep. of the), , Eritrea, Iraq, Israel, Jordan, Malta, Qatar, the Syrian Arab Republic, Somalia, Sudan, South Sudan,, Chad, Togo and Yemen, the band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-12)
- 5.364** The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. 9.11A. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. 5.366 (to which No. 4.10 applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed -3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 5.366 and stations in the fixed service operating in accordance with the provisions of No. 5.359. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. 5.366.

- 5.365** The use of the band 1 613.8-1 626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. **9.11A**.
- 5.366** The band 1 610-1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. **9.21**.
- 5.367** *Additional allocation:* The frequency bands 1 610-1 626.5 MHz is also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. **9.21**.
- 5.368** With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. **4.10** do not apply in the band 1 610-1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.
- 5.369** *Different category of service:* in Angola, Australia, , China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, , Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, the Dem. Rep. of the Congo, Sudan, South Sudan , Togo and Zambia, the allocation of the band 1 610-1 626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21** from countries not listed in this provision. (WRC-12)
- 5.370** *Different category of service:* in Venezuela, the allocation to the radiodetermination-satellite service in the band 1 610-1 626.5 MHz (Earth-to-space) is on a secondary basis.
- 5.371** *Additional allocation:* in Region 1, the bands 1 610-1 626.5 MHz (Earth-to-space) (space-to-Earth) is also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. **9.21**.(WRC 12)
- 5.372** Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6-1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. **29.13** applies).
- 5.374** Mobile earth stations in the mobile-satellite service operating in the bands 1 631.5-1 634.5 MHz and 1 656.5-1 660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. **5.359**. (WRC-97)
- 5.375** The use of the band 1 645.5-1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article **31**).
- 5.376** Transmissions in the band 1 646.5-1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.
- 5.376A** Mobile earth stations operating in the band 1 660-1 660.5 MHz shall not cause harmful interference to stations in the radio astronomy service. (WRC-97)
- 5.379** *Additional allocation:* in Bangladesh, India, Indonesia, Nigeria and Pakistan, the band 1 660.5-1 668.4 MHz is also allocated to the meteorological aids service on a secondary basis.

- 5.379A** Administrations are urged to give all practicable protection in the band 1 660.5-1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4-1 668.4 MHz as soon as practicable.
- 5.379B** The use of the band 1 668-1 675 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. In the band 1 668-1 668.4 MHz, Resolution **904 (WRC-07)** shall apply. (WRC-07)
- 5.379C** In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed -181 dB(W/m²) in 10 MHz and -194 dB(W/m²) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2 000 s. (WRC-03)
- 5.379D** For sharing of the band 1 668.4-1 675 MHz between the mobile-satellite service and the fixed and mobile services, Resolution **744 (Rev.WRC-07)** shall apply. (WRC-07)
- 5.379E** In the band 1 668.4-1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to stations in the meteorological aids service in China, Iran (Islamic Republic of), Japan and Uzbekistan. In the band 1 668.4-1 675 MHz, administrations are urged not to implement new systems in the meteorological aids service and are encouraged to migrate existing meteorological aids service operations to other bands as soon as practicable. (WRC-03)
- 5.380A** In the band 1 670-1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified before 1 January 2004. Any new assignment to these earth stations in this band shall also be protected from harmful interference from stations in the mobile-satellite service. (WRC-07)
- 5.381** *Additional allocation:* in Afghanistan, , Cuba, India, Iran (Islamic Republic of) and Pakistan, the band 1 690-1 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.382** *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine and Yemen, the allocation of the band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**), and in the Dem. People's Rep. of Korea, the allocation of the band 1 690-1 700 MHz to the fixed service is on a primary basis (see No. **5.33**) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-12)
- 5.384** *Additional allocation:* in India, Indonesia and Japan, the band 1 700-1 710 MHz is also allocated to the space research service (space-to-Earth) on a primary basis. (WRC-97)
- 5.384A** The bands, or portions of the bands, 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223**

- (**Rev.WRC-07**). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-07)
- 5.385** *Additional allocation:* the band 1 718.8-1 722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations. (WRC-2000)
- 5.386** *Additional allocation:* the band 1 750-1 850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2, 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-03)
- 5.387** *Additional allocation:* in Belarus, Georgia, Kazakhstan, , Kyrgyzstan, , Romania, Tajikistan and Turkmenistan, the band 1 770-1 790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-12)
- 5.388** The bands 1 885-2 025 MHz and 2 110-2 200 MHz are intended for use, on a world-wide basis, by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of these bands by other services to which they are allocated. The bands should be made available for IMT-2000 in accordance with Resolution **212 (Rev.WRC-97)**^{5*}. (See also Resolution **223 (WRC-2000)**^{*}.) (WRC-2000)
- 5.388A** In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz and, in Region 2, the bands 1 885-1 980 MHz and 2 110-2 160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT-2000), in accordance with Resolution **221 (Rev.WRC-03)**^{*}. Their use by IMT-2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-03)
- 5.388B** In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, , Jordan, Kenya, Kuwait, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT-2000 mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT-2000 base station in neighbouring countries, in the bands referred to in No. **5.388A**, shall not exceed a co-channel power flux-density of $-127 \text{ dB(W)/(m}^2 \cdot \text{MHz)}$ at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS. (WRC-12)
- 5.398A** *Different category of service:* In Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Ukraine, the band 2 483.5-2 500 MHz is allocated on a primary basis to the radiolocation service. The

^{5*} Note by the Secretariat: This Resolution was revised by WRC-07.

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 2 483.5-2 500 MHz. (WRC-12)

- 5.401** In Angola, Australia, Bangladesh, Burundi, 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 band 2 483.5-2 500 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-12)
- 5.389A** The use of the bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev.WRC-2000)**. (WRC-07)
- 5.389B** The use of the band 1 980-1 990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela.
- 5.389C** The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev.WRC-2000)**. (WRC-07)
- 5.389E** The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz by the mobile-satellite service in Region 2 shall not cause harmful interference to or constrain the development of the fixed and mobile services in Regions 1 and 3.
- 5.389F** In Algeria, Benin, Cape Verde, Egypt, Iran (Islamic Republic of), Mali, Syrian Arab Republic and Tunisia, the use of the bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services. (WRC-2000)
- 5.390** (SUP - WRC-07)
- 5.391** In making assignments to the mobile service in the bands 2 025-2 110 MHz and 2 200-2 290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154, and shall take that Recommendation into account for the introduction of any other type of mobile system. (WRC-97)
- 5.392** Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2 025-2 110 MHz and 2 200-2 290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.
- 5.393** *Additional allocation:* in Canada, the United States, India and Mexico, the band 2 310-2 360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use

is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-03)**, with the exception of *resolves* 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. (WRC-07)

- 5.394** In the United States, the use of the band 2 300-2 390 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the band 2 360-2 400 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. (WRC-07)
- 5.395** In France and Turkey, the use of the band 2 310-2 360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service. (WRC-03)
- 5.396** Space stations of the broadcasting-satellite service in the band 2 310-2 360 MHz operating in accordance with No. **5.393** that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution **33 (Rev.WRC-97)**^{6*}. Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use (Sup WRC-12)
- 5.398** In respect of the radiodetermination-satellite service in the band 2 483.5-2 500 MHz, the provisions of No. **4.10** do not apply.
- 5.399** Except for cases referred to in No. **5.401**, stations of the radiodetermination-satellite service operating in the frequency band 2 483.5-2 500 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
- 5.401** (Sup WRC-12)
- 5.402** The use of the band 2 483.5-2 500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under No. **9.11A**. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2 483.5-2 500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4 990-5 000 MHz band allocated to the radio astronomy service worldwide.
- 5.403** Subject to agreement obtained under No. **9.21**, the band 2 520-2 535 MHz 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)
- 5.404** *Additional allocation:* in India and Iran (Islamic Republic of), the band 2 500-2 516.5 MHz may also be used for the radiodetermination-satellite service (space-to-Earth) for operation limited to within national boundaries, subject to agreement obtained under No. **9.21** (Sup WRC-12)
- 5.407** In the band 2 500-2 520 MHz, the power flux-density at the surface of the Earth from space stations operating in the mobile-satellite (space-to-Earth) service shall not exceed $-152 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ in Argentina, unless otherwise agreed by the administrations concerned.

^{6*} Note by the Secretariat: This Resolution was revised by WRC-03.

- 5.410** The band 2 500-2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. **9.21**. 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** *Alternative allocation:* in , Kyrgyzstan and Turkmenistan, the band 2 500-2 690 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 2 690-2 700 MHz.
- 5.414** The allocation of the frequency band 2 500-2 520 MHz to the mobile-satellite service (space-to-Earth) is subject to coordination under No. **9.11A**. (WRC-07)
- 5.414A** In Japan and India, the use of the bands 2 500-2 520 MHz and 2 520-2 535 MHz, under No. **5.403**, by a satellite network in the mobile-satellite service (space-to-Earth) is limited to operation within national boundaries and subject to the application of No. **9.11A**. The following pfd values shall be used as a threshold for coordination under No. **9.11A**, for all conditions and for all methods of modulation, in an area of 1 000 km around the territory of the administration notifying the mobile-satellite service network:
- | | |
|--|-------------------|
| -136 dB(W/(m ² · MHz)) | for 0° ≤ Θ ≤ 5° |
| -136 + 0.55 (Θ - 5) dB(W/(m ² · MHz)) | for 5° < Θ ≤ 25° |
| -125 dB(W/(m ² · MHz)) | for 25° < Θ ≤ 90° |
- where q is the angle of arrival of the incident wave above the horizontal plane, in degrees. Outside this area Table **21-4** of Article **21** shall apply. Furthermore, the coordination thresholds in Table 5-2 of Annex 1 to Appendix **5** of the Radio Regulations (Edition of 2004), in conjunction with the applicable provisions of Articles **9** and **11** associated with No. **9.11A**, shall apply to systems for which complete notification information has been received by the Radiocommunication Bureau by 14 November 2007 and that have been brought into use by that date. (WRC-07)
- 5.415** The use of the bands 2 500-2 690 MHz in Region 2 and 2 500-2 535 MHz and 2 655-2 690 MHz in Region 3 by the fixed-satellite service is limited to national and regional systems, subject to agreement obtained under No. **9.21**, giving particular attention to the broadcasting-satellite service in Region 1. (WRC-07)
- 5.415A** *Additional allocation:* in India and Japan, subject to agreement obtained under No. **9.21**, the band 2 515-2 535 MHz may also be used for the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within their national boundaries. (WRC-2000)
- 5.416** The use of the band 2 520-2 670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. **9.21**. The provisions of No. **9.19** shall be applied by administrations in this band in their bilateral and multilateral negotiations. (WRC-07)
- 5.417** (SUP - WRC-2000)

- 5.417A** In applying provision No. **5.418**, in Korea (Rep. of) and Japan, *resolves* 3 of Resolution **528 (Rev.WRC-03)** is relaxed to allow the broadcasting-satellite service (sound) and the complementary terrestrial broadcasting service to additionally operate on a primary basis in the band 2 605-2 630 MHz. This use is limited to systems intended for national coverage. An administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. **5.416**. The provisions of No. **5.416** and Table **21-4** of Article **21** do not apply. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) in the band 2 605-2 630 MHz is subject to the provisions of Resolution **539 (Rev.WRC-03)**. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2 605-2 630 MHz for which complete Appendix **4** coordination information, or notification information, has been received after 4 July 2003, for all conditions and for all methods of modulation, shall not exceed the following limits:
- | | |
|---|-------------------|
| -130 dB(W/(m ² · MHz)) | for 0° ≤ Θ ≤ 5° |
| -130 + 0.4 (Θ - 5) dB(W/(m ² · MHz)) | for 5° < Θ ≤ 25° |
| -122 dB(W/(m ² · MHz)) | for 25° < Θ ≤ 90° |
- where q is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. In the case of the broadcasting-satellite service (sound) networks of Korea (Rep. of), as an exception to the limits above, the power flux-density value of -122 dB(W/(m² · MHz)) shall be used as a threshold for coordination under No. **9.11** in an area of 1 000 km around the territory of the administration notifying the broadcasting-satellite service (sound) system, for angles of arrival greater than 35°. (WRC-03)
- 5.417B** In Korea (Rep. of) and Japan, use of the band 2 605-2 630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. **5.417A**, for which complete Appendix **4** coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. **9.12A**, in respect of geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received after 4 July 2003, and No. **22.2** does not apply. No. **22.2** shall continue to apply with respect to geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received before 5 July 2003. (WRC-03)
- 5.417C** Use of the band 2 605-2 630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. **5.417A**, for which complete Appendix **4** coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. **9.12**. (WRC-03)
- 5.417D** Use of the band 2 605-2 630 MHz by geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, has been received after 4 July 2003 is subject to the application of the provisions of No. **9.13** with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. **5.417A**, and No. **22.2** does not apply. (WRC-03)
- 5.418** *Additional allocation:* in Korea (Rep. of), India, Japan, and Thailand, the band 2 535-2 655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528**

(Rev.WRC-03). The provisions of No. **5.416** and Table **21-4** of Article **21**, do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution **539 (Rev.WRC-03)**. Geostationary broadcasting-satellite service (sound) systems for which complete Appendix **4** coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2 630-2 655 MHz, and for which complete Appendix **4** coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

-130 dB(W/(m ² · MHz))	for 0° ≤ Θ ≤ 5°
-130 + 0.4 (Θ - 5) dB(W/(m ² · MHz))	for 5° < Θ ≤ 25°
-122 dB(W/(m ² · MHz))	for 25° < Θ ≤ 90°

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value of -122 dB(W/(m² · MHz)) shall be used as a threshold for coordination under No. **9.11** in an area of 1 500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system.

In addition, an administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. **5.416** for systems for which complete Appendix **4** coordination information has been received after 1 June 2005. (WRC-12)

5.418A In certain Region 3 countries listed in No. **5.418**, use of the band 2 630-2 655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) for which complete Appendix **4** coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. **9.12A**, in respect of geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received after 2 June 2000, and No. **22.2** does not apply. No. **22.2** shall continue to apply with respect to geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received before 3 June 2000. (WRC-03)

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

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

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

- 5.420** The band 2 655-2 670 MHz may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. **9.21**. The coordination under No. **9.11A** applies. (WRC-07)
- 5.422** *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Mauritania, , Mongolia, Montenegro, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2 690-2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-12)
- 5.423** In the band 2 700-2 900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.
- 5.424** *Additional allocation:* in Canada, the band 2 850-2 900 MHz is also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars.
- 5.424A** In the band 2 900-3 100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service. (WRC-03)
- 5.425** In the band 2 900-3 100 MHz, the use of the shipborne interrogator-transponder (SIT) system shall be confined to the sub-band 2 930 -2 950 MHz.
- 5.426** The use of the band 2 900-3 100 MHz by the aeronautical radionavigation service is limited to ground-based radars.
- 5.427** In the bands 2 900-3 100 MHz and 9 300-9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. **4.9**.
- 5.428** *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, and Turkmenistan, the band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-12)
- 5.429** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, , Japan, Jordan, Kenya, Kuwait, Lebanon,Libya, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic ,the Dem. People's Rep. Of Congo,, the Dem. People's Rep. of Korea and Yemen, the band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-12)
- 5.430** *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, and Turkmenistan, the band 3 300-3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

- 5.430A** *Different category of service:* in Albania, Algeria, Germany, Andorra, Saudi Arabia, Austria, Azerbaijan, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Cyprus, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Egypt, Spain, Estonia, Finland, France and French overseas departments and communities in Region 1, Gabon, Georgia, Greece, Guinea, Hungary, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Malawi, Mali, Malta, Morocco, Mauritania, Moldova, Monaco, Mongolia, Montenegro, Mozambique, Namibia, Niger, Norway, Oman, Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Senegal, Serbia, Sierra Leone, Slovenia, South Africa, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the band 3 400-3 600 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis subject to agreement obtained under No. **9.21** with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W/(m}^2 \times 4 \text{ kHz))}$ 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), with the assistance of the Bureau if so requested. In case of disagreement, the 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 band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010. (WRC-12)**5.431**
Additional allocation: in Germany, Israel and the United Kingdom, the band 3 400-3 475 MHz is also allocated to the amateur service on a secondary basis. (WRC-03)
- 5.431A** *Different category of service:* in Argentina, Brazil, Chile, Costa Rica, Cuba, Dominican Republic, El Salvador, Guatemala, Mexico, Paraguay, Suriname, Uruguay, Venezuela and French overseas departments and communities in Region 2, the band 3 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21**. Stations of the mobile service in the band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-07)
- 5.432** *Different category of service:* in Korea (Rep. of), Japan and Pakistan, the allocation of the band 3 400-3 500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-2000)
- 5.432A** In Korea (Rep. of), Japan and Pakistan, the band 3 400-3 500 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that

the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dB(W/(m² × 4 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), with the assistance of the Bureau if so requested. In case of disagreement, the 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 band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-07)

5.432B *Different category of service:* in Bangladesh, China, India, Iran (Islamic Republic of), New Zealand, Singapore and French overseas communities in Region 3, the band 3 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. 9.21 with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dB(W/(m² × 4 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) with the assistance of the Bureau if so requested. In case of disagreement, the 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 band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010. (WRC-07)

5.433 In Regions 2 and 3, in the band 3 400-3 600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985. Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.

5.433A In Bangladesh, China, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, New Zealand, Pakistan and French overseas communities in Region 3, the band 3 500-3 600 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dB(W/(m² × 4 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), with the assistance of the Bureau if so requested. In case of disagreement, the 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 band 3 500-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-07)

- 5.438** Use of the band 4 200-4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the Earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).
- 5.439** *Additional allocation:* in Iran (Islamic Republic of) , the band 4 200-4 400 MHz is also allocated to the fixed service on a secondary basis. (WRC-12)
- 5.443AA** In the frequency bands 5 000-5 030 MHz and 5 091-5 150 MHz, the aeronautical mobile-satellite (R) service is subject to agreement obtained under No. **9.21**. The use of these bands by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems.
- 5.443C** The use of the frequency band 5 030-5 091 MHz by the aeronautical mobile (R) service is limited to internationally standardized aeronautical systems. Unwanted emissions from the aeronautical mobile (R) service in the frequency band 5 030-5 091 MHz shall be limited to protect RNSS system downlinks in the adjacent 5 010-5 030 MHz band. Until such time that an appropriate value is established in a relevant ITU-R Recommendation, the e.i.r.p. density limit of -75 dBW/MHz in the frequency band 5 010-5 030 MHz for any AM(R)S station unwanted emission should be used. (WRC-12)
- 5.443D** In the frequency band 5 030-5 091 MHz, the aeronautical mobile-satellite (R) service is subject to coordination under No. 9.11A. The use of this frequency band by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems.
- 5.440** The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of ± 2 MHz of these frequencies, subject to agreement obtained under No. **9.21**.
- 5.440A** In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4 400-4 940 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416** (WRC-07) and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-07)
- 5.441** The use of the bands 4 500-4 800 MHz (space-to-Earth), 6 725-7 025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of

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

- 5.442** In the bands 4 825-4 835 MHz and 4 950-4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4 825-4 835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to the fixed service. (WRC-07)
- 5.443** *Different category of service:* in Argentina, Australia and Canada, the allocation of the bands 4 825-4 835 MHz and 4 950-4 990 MHz to the radio astronomy service is on a primary basis (see No. **5.33**).
- 5.443A** (SUP - WRC-03)
- 5.443B** In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5 010-5 030 MHz shall not exceed -124.5 dB(W/m²) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4 990-5 000 MHz, radionavigation-satellite service systems operating in the band 5 010-5 030 MHz shall comply with the limits in the band 4 990-5 000 MHz defined in Resolution **741 (WRC-12)**. (WRC-12)
- 5.444** The band 5 030-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the band 5 030-5 091 MHz, the requirements of this system shall take precedence over other uses of this band. For the use of the band 5 091-5 150 MHz, No. **5.444A** and Resolution **114 (Rev.WRC-12)** apply. (WRC-12)
- 5.444A** *Additional allocation:* the band 5 091-5 150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of non-geostationary satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**.
In the band 5 091-5 150 MHz, the following conditions also apply:
- prior to 1 January 2018, the use of the band 5 091-5 150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution **114 (Rev.WRC-03)**;

- after 1 January 2016, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;
- after 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service. (WRC-07)

5.444B The use of the band 5 091-5 150 MHz by the aeronautical mobile service is limited to:

- systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (WRC-12)**;
- aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (WRC-12)**;
- aeronautical security transmissions. Such use shall be in accordance with Resolution **419 (WRC-12)**. (WRC-07)

5.446 *Additional allocation:* in the countries listed in Nos. **5.369** and **5.400**, the band 5 150-5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21**. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. **5.369** and **Bangladesh**, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1 610-1 626.5 MHz and/or 2 483.5-2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed -159 dB(W/m²) in any 4 kHz band for all angles of arrival.(WRC12)

5.446A The use of the bands 5 150-5 350 MHz and 5 470-5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution **229 (WRC-12)**. (WRC-12)

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

5.446C *Additional allocation:* in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan, and Tunisia) and in Brazil, the band 5 150-5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. **1.83**), in accordance with Resolution **418 (WRC-07)**. These stations shall not claim protection from other stations operating in accordance with Article 5. No. **5.43A** does not apply. (WRC-12)

5.447 *Additional allocation:* in Côte d'Ivoire, Egypt, Israel, Lebanon, Pakistan, the Syrian Arab Republic and Tunisia, the band 5 150-5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. **9.21**. In this case, the provisions of Resolution **229 (WRC-12)** do not apply. (WRC-12)

5.447A The allocation to the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**.

5.447B *Additional allocation:* the band 5 150-5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is

subject to provisions of No. **9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed -164 dB(W/m²) in any 4 kHz band for all angles of arrival.

- 5.447C** Administrations responsible for fixed-satellite service networks in the band 5 150-5 250 MHz operated under Nos. **5.447A** and **5.447B** shall coordinate on an equal basis in accordance with No. **9.11A** with administrations responsible for non-geostationary-satellite networks operated under No. **5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **5.447A** and **5.447B**.
- 5.447D** The allocation of the band 5 250-5 255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)
- 5.447E** *Additional allocation:* The band 5 250-5 350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, the Philippines, Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam. The use of this band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU-R F.1613. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. **5.43A** do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations. (WRC-07)
- 5.447F** In the band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU-R M.1638 and ITU-R RS.1632. (WRC-03)
- 5.448** *Additional allocation:* in Azerbaijan,, Kyrgyzstan, Slovakia, Romania and Turkmenistan, the band 5 250-5 350 MHz is also allocated to the radionavigation service on a primary basis. (WRC-12)
- 5.448A** The Earth exploration-satellite (active) and space research (active) services in the frequency band 5 250-5 350 MHz shall not claim protection from the radiolocation service. No. **5.43A** does not apply. (WRC-03)
- 5.448B** The Earth exploration-satellite service (active) operating in the band 5 350-5 570 MHz and space research service (active) operating in the band 5 460-5 570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5 350-5 460 MHz, the radionavigation service in the band 5 460-5 470 MHz and the maritime radionavigation service in the band 5 470-5 570 MHz. (WRC-03)
- 5.448C** The space research service (active) operating in the band 5 350-5 460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated. (WRC-03)

- 5.448D** In the frequency band 5 350-5 470 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the aeronautical radionavigation service operating in accordance with No. **5.449**. (WRC-03)
- 5.449** The use of the band 5 350-5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.
- 5.450** *Additional allocation:* in Austria, Azerbaijan, Iran (Islamic Republic of), , Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 5 470-5 650 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)
- 5.457** In Australia, Burkina Faso, Cote d'Ivoire, Mali and Nigeria, the allocation to the fixed service in the bands 6 440-6 520 MHz (HAPS-to-ground direction) and 6 560-6 640 MHz (ground-to-HAPS direction) may also be used by gateway links for high-altitude platform stations (HAPS) within the territory of these countries. Such use is limited to operation in HAPS gateway links and shall not cause harmful interference to, and shall not claim protection from, existing services, and shall be in compliance with Resolution **150 (WRC-12)**. Existing services shall not be constrained in future development by HAPS gateway links. The use of HAPS gateway links in these bands requires explicit agreement with other administrations whose territories are located within 1 000 kilometres from the border of an administration intending to use the HAPS gateway links.
- 5.450A** In the band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638. (WRC-03)
- 5.450B** In the frequency band 5 470-5 650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5 600-5 650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service. (WRC-03)
- 5.451** *Additional allocation:* in the United Kingdom, the band 5 470-5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. **21.2**, **21.3**, **21.4** and **21.5** shall apply in the band 5 725-5 850 MHz.
- 5.452** Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.
- 5.453** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, , Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution **229 (WRC-12)** do not apply. (WRC-12)
- 5.454** *Different category of service:* in Azerbaijan, the Russian Federation, Georgia, , Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 5 670-5 725 MHz to the space research service is on a primary basis (see No. **5.33**). (WRC-12)

- 5.455** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 5 670-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-07)
- 5.456** *Additional allocation:* in Cameroon, the band 5 755-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-03)
- 5.457A** In the bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution **902 (WRC-03)**. (WRC-03)
- 5.457B** In the bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902 (WRC-03)** in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Jordan, Kuwait, Libya, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, South Sudan, Tunisia and Yemen, in the maritime mobile-satellite service on a secondary basis. Such use shall be in accordance with Resolution **902 (WRC-03)**. (WRC-12)
- 5.457C** In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), the band 5 925-6 700 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-07)
- 5.458** In the band 6 425-7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075-7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425-7 025 MHz and 7 075-7 250 MHz.
- 5.458A** In making assignments in the band 6 700-7 075 MHz to space stations of the fixed-satellite service, administrations are urged to take all practicable steps to protect spectral line observations of the radio astronomy service in the band 6 650-6 675.2 MHz from harmful interference from unwanted emissions.
- 5.458B** The space-to-Earth allocation to the fixed-satellite service in the band 6 700-7 075 MHz is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service and is subject to coordination under No. **9.11A**. The use of the band 6 700-7 075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to No. **22.2**.
- 5.458C** Administrations making submissions in the band 7 025-7 075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.

- 5.459** *Additional allocation:* in the Russian Federation, the frequency bands 7 100-7 155 MHz and 7 190-7 235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-97)
- 5.460** The use of the band 7 145-7 190 MHz by the space research service (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7 190-7 235 MHz. Geostationary satellites in the space research service operating in the band 7 190-7 235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. **5.43A** does not apply. (WRC-03)
- 5.461** *Additional allocation:* the bands 7 250-7 375 MHz (space-to-Earth) and 7 900-8 025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21**.
- 5.461A** The use of the band 7 450-7 550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary-satellite systems. Non-geostationary meteorological-satellite systems in this band notified before 30 November 1997 may continue to operate on a primary basis until the end of their lifetime. (WRC-97)
- 5.461B** The use of the band 7 750-7 900 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems. (WRC-12)
- 5.462** (SUP - WRC-97)
- 5.462A** In Regions 1 and 3 (except for Japan), in the band 8 025-8 400 MHz, the Earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following provisional values for angles of arrival (θ), without the consent of the affected administration:
- | | |
|---|--|
| -135 dB(W/m ²) in a 4 kHz band | for $0^\circ \leq \theta < 5^\circ$ |
| -135 + 0.5 ($\theta - 5$) dB(W/m ²) in a 4 kHz band | for $5^\circ \leq \theta < 25^\circ$ |
| -125 dB(W/m ²) in a 1 MHz band | for $25^\circ \leq \theta \leq 90^\circ$ |
- (WRC-12)
- 5.463** Aircraft stations are not permitted to transmit in the band 8 025-8 400 MHz. (WRC-97)
- 5.465** In the space research service, the use of the band 8 400-8 450 MHz is limited to deep space.
- 5.466** *Different category of service:* in , Singapore and Sri Lanka, the allocation of the band 8 400-8 500 MHz to the space research service is on a secondary basis (see No. **5.32**). (WRC-12)
- 5.468** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Costa Rica, Djibouti Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, , Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

- 5.469** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, , Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 8 500-8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis. (WRC-12)
- 5.469A** In the band 8 550-8 650 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service. (WRC-97)
- 5.470** The use of the band 8 750-8 850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz.
- 5.471** *Additional allocation:* in Algeria, Germany, Bahrain, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya the Netherlands, Qatar, Sudan and South Sudan, the bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only. (WRC-12)
- 5.472** In the bands 8 850-9 000 MHz and 9 200-9 225 MHz, the maritime radionavigation service is limited to shore-based radars.
- 5.473** *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the bands 8 850-9 000 MHz and 9 200-9 300 MHz are also allocated to the radionavigation service on a primary basis. (WRC-07)
- 5.473A** In the band 9 000-9 200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. **5.337** operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. **5.471**. (WRC-07)
- 5.474** In the band 9 200-9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article **31**).
- 5.475** The use of the band 9 300-9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300-9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. (WRC-07)
- 5.475A** The use of the band 9 300-9 500 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9 500-9 800 MHz band. (WRC-07)
- 5.475B** In the band 9 300-9 500 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the radionavigation service in conformity with the Radio Regulations. Ground-based radars used for meteorological purposes have priority over other radiolocation uses. (WRC-07)

- 5.476** (SUP - WRC-07)
- 5.476A** In the band 9 300-9 800 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from, stations of the radionavigation and radiolocation services. (WRC-07)
- 5.477** *Different category of service:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan South Sudan, Trinidad and Tobago, and Yemen, the allocation of the band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. **5.33**). (WRC-12)
- 5.478** *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 9 800-10 000 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)
- 5.478A** The use of the band 9 800-9 900 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9 300-9 800 MHz band. (WRC-07)
- 5.478B** In the band 9 800-9 900 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis. (WRC-07)
- 5.479** The band 9 975-10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.
- 5.480** *Additional allocation:* in Argentina, Brazil, Chile, Costa Rica, Cuba, El Salvador, Ecuador, Guatemala, Honduras, Mexico, Paraguay, the Netherlands Antilles, Peru and Uruguay, the band 10-10.45 GHz is also allocated to the fixed and mobile services on a primary basis. In Venezuela, the band 10-10.45 GHz is also allocated to the fixed service on a primary basis. (WRC-07)
- 5.481** *Additional allocation:* in Germany, Angola, Brazil, China, Costa Rica, 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, Tanzania, Thailand and Uruguay, the band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 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)
- 5.483** *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Costa Rica, Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, , Tajikistan, Turkmenistan and Yemen, the band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-12)
- 5.484** In Region 1, the use of the band 10.7-11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.
- 5.484A** The use of the bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)
- 5.485** In Region 2, in the band 11.7-12.2 GHz, transponders on space stations in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided that such transmissions do not have a maximum e.i.r.p. greater than 53 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service.
- 5.486** *Different category of service:* in Mexico and the United States, the allocation of the band 11.7-12.1 GHz to the fixed service is on a secondary basis (see No. **5.32**).
- 5.487** In the band 11.7-12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to, or claim protection from, broadcasting-satellite stations operating in accordance with the Regions 1 and 3 Plan in Appendix **30**. (WRC-03)
- 5.487A** *Additional allocation:* in Region 1, the band 11.7-12.5 GHz, in Region 2, the band 12.2-12.7 GHz and, in Region 3, the band 11.7-12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim

protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-03)

- 5.488** The use of the band 11.7-12.2 GHz by geostationary-satellite networks in the fixed-satellite service in Region 2 is subject to application of the provisions of No. **9.14** for coordination with stations of terrestrial services in Regions 1, 2 and 3. For the use of the band 12.2-12.7 GHz by the broadcasting-satellite service in Region 2, see Appendix **30**. (WRC-03)
- 5.489** *Additional allocation:* in Peru, the band 12.1-12.2 GHz is also allocated to the fixed service on a primary basis.
- 5.490** In Region 2, in the band 12.2-12.7 GHz, existing and future terrestrial radiocommunication services shall not cause harmful interference to the space services operating in conformity with the broadcasting-satellite Plan for Region 2 contained in Appendix **30**.
- 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)
- 5.493** The broadcasting-satellite service in the band 12.5-12.75 GHz in Region 3 is limited to a power flux-density not exceeding $-111 \text{ dB(W/(m}^2 \cdot 27 \text{ MHz))}$ for all conditions and for all methods of modulation at the edge of the service area. (WRC-97)
- 5.494** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, , Jordan, Kuwait, Lebanon,Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Oman ,Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan,South Sudan, Chad, Togo and Yemen, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.495** *Additional allocation:* in , France, Greece, , Monaco, Montenegro, Uganda, Romania,, Tanzania and Tunisia, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-12)
- 5.496** *Additional allocation:* in Austria, Azerbaijan, Kyrgyzstan and Turkmenistan, the band 12.5-12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those listed in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries listed in this footnote. The power flux-density limit at the Earth's surface given in

Table 21-4 of Article 21, for the fixed-satellite service shall apply on the territory of the countries listed in this footnote. (WRC-2000)

- 5.497** The use of the band 13.25-13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.
- 5.498** (SUP - WRC-97)
- 5.498A** The Earth exploration-satellite (active) and space research (active) services operating in the band 13.25-13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service. (WRC-97)
- 5.499** *Additional allocation:* in Bangladesh, and India, the band 13.25-14 GHz is also allocated to the fixed service on a primary basis. In Pakistan, the band 13.25-13.75 GHz is allocated to the fixed service on a primary basis. (WRC-12)
- 5.500** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Morocco, Mauritania, Nigeria, Oman, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Chad and Tunisia, the band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis. In Pakistan, the band 13.4-13.75 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.501** *Additional allocation:* in Azerbaijan, Hungary, Japan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 13.4-14 GHz is also allocated to the radionavigation service on a primary basis. (WRC-12)
- 5.501A** The allocation of the band 13.4-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)
- 5.501B** In the band 13.4-13.75 GHz, the Earth exploration-satellite (active) and space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service. (WRC-97)
- 5.502** In the band 13.75-14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2 m and an earth station of a non-geostationary fixed-satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services shall not exceed 59 dBW for elevation angles above 2° and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna diameter smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed:
- –115 dB(W/(m² · 10 MHz)) for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal State;
 - –115 dB(W/(m² · 10 MHz)) for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.
- For earth stations within the fixed-satellite service having an antenna diameter greater than or equal to 4.5 m, the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW. (WRC-03)

- 5.503** In the band 13.75-14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band:
- in the band 13.77-13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed:
 - i) $4.7D + 28$ dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 m;
 - ii) $49.2 + 20 \log(D/4.5)$ dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m;
 - iii) 66.2 dB(W/40 kHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m;
 - iv) 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater;
 - the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz. Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions. (WRC-03)
- 5.504** The use of the band 14-14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service.
- 5.504A** In the band 14-14.5 GHz, aircraft earth stations in the secondary aeronautical mobile-satellite service may also communicate with space stations in the fixed-satellite service. The provisions of Nos. **5.29**, **5.30** and **5.31** apply. (WRC-03)
- 5.504B** Aircraft earth stations operating in the aeronautical mobile-satellite service in the band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC-03)
- 5.504C** In the band 14-14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, , Nigeria, Oman, the Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-12)
- 5.505** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of),

Iraq, Israel, Japan, Jordan, Kuwait, , Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, , the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Swaziland, Tanzania, Chad, Viet Nam and Yemen, the band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-12)

- 5.506** The band 14-14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.
- 5.506A** In the band 14-14.5 GHz, ship earth stations with an e.i.r.p. greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution **902 (WRC-03)**. This footnote shall not apply to ship earth stations for which the complete Appendix 4 information has been received by the Bureau prior to 5 July 2003. (WRC-03)
- 5.506B** Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14-14.5 GHz without the need for prior agreement from Cyprus, Greece and Malta, within the minimum distance given in Resolution **902 (WRC-03)** from these countries. (WRC-03)
- 5.508** *Additional allocation:* in Germany, France, Italy, Libya, The Former Yugoslav Rep. of Macedonia and the United Kingdom, the band 14.25-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-12)
- 5.508A** In the band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-12)
- 5.509** (SUP - WRC-07)
- 5.509A** In the band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, , Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-12)
- 5.510** The use of the band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe.
- 5.511** *Additional allocation:* in Saudi Arabia, Bahrain, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, , Kuwait, Lebanon, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)

- 5.511E** In the frequency band 15.4-15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the aeronautical radionavigation service.
- 5.511F** In order to protect the radio astronomy service in the frequency band 15.35-15.4 GHz, radiolocation stations operating in the frequency band 15.4-15.7 GHz shall not exceed the power flux-density level of -156 dB(W/m²) in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time.
- 5.511A** The band 15.43-15.63 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. Use of the band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. **9.11A**. The use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links of non-geostationary systems in the mobile-satellite service for which advance publication information has been received by the Bureau prior to 2 June 2000. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station from harmful interference shall be in accordance with Recommendation ITU-R S.1341. In order to protect the radio astronomy service in the band 15.35-15.4 GHz, the aggregate power flux-density radiated in the 15.35-15.4 GHz band by all the space stations within any feeder-link of a non-geostationary system in the mobile-satellite service (space-to-Earth) operating in the 15.43-15.63 GHz band shall not exceed the level of -156 dB(W/m²) in a 50 MHz bandwidth, into any radio astronomy observatory site for more than 2% of the time. (WRC-2000)
- 5.511C** Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. **4.10** applies) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340. (WRC-97)
- 5.511D** Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4-15.43 GHz and 15.63-15.7 GHz in the space-to-Earth direction and 15.63-15.65 GHz in the Earth-to-space direction. In the bands 15.4-15.43 GHz and 15.65-15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of -146 dB(W/(m² · MHz)) for any angle of arrival. In the band 15.63-15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed -146 dB(W/(m²·MHz)) for any angle of arrival, it shall coordinate under No. **9.11A** with the affected administrations. Stations in the fixed-satellite service operating in the band 15.63-15.65 GHz in the Earth-to-space direction shall not cause harmful interference to stations in the aeronautical radionavigation service (No. **4.10** applies). (WRC-97)
- 5.512** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Costa Rica, Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), , Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Montenegro, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. Rep. of the Congo, Serbia, Singapore, Somalia, Sudan, South Sudan, Swaziland, Tanzania, Chad, Togo and Yemen,

the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

- 5.513** *Additional allocation:* in Israel, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. These services shall not claim protection from or cause harmful interference to services operating in accordance with the Table in countries other than those included in No. **5.512**.
- 5.513A** Spaceborne active sensors operating in the band 17.2-17.3 GHz shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis. (WRC-97)
- 5.514** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, , El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, , Japan, Jordan, Kuwait, Libya, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Sudan and South Sudan, the band 17.3-17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **21.3** and **21.5** shall apply. (WRC-12)
- 5.530A** 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 $-120.4 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ 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 Recommendation ITU-R BO.1898). (WRC 12)
- 5.530B** 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)
- 5.530C** The use of the band 21.4-22 GHz is subject to the provisions of Resolution **755(WRC-12)**. (WRC-12)
- 5.530D** See Resolution **555 (WRC-12)**.(WRC 12)
- 5.515 In the band 17.3-17.8 GHz, sharing between the fixed-satellite service (Earth-to-space) and the broadcasting-satellite service shall also be in accordance with the provisions of § 1 of Annex 4 of Appendix **30A**.
- 5.516** The use of the band 17.3-18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. The use of the band 17.3-17.8 GHz in Region 2 by systems in the fixed-satellite service (Earth-to-space) is limited to geostationary satellites. For the use of the band 17.3-17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2-12.7 GHz, see Article **11**. The use of the bands 17.3-18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8-18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete

coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

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

17.3-17.7 GHz	(space-to-Earth) in Region 1,
18.3-19.3 GHz	(space-to-Earth) in Region 2,
19.7-20.2 GHz	(space-to-Earth) in all Regions,
39.5-40 GHz	(space-to-Earth) in Region 1,
40-40.5 GHz	(space-to-Earth) in all Regions,
40.5-42 GHz	(space-to-Earth) in Region 2,
47.5-47.9 GHz	(space-to-Earth) in Region 1,
48.2-48.54 GHz	(space-to-Earth) in Region 1,
49.44-50.2 GHz	(space-to-Earth) in Region 1,
and	
27.5-27.82 GHz	(Earth-to-space) in Region 1,
28.35-28.45 GHz	(Earth-to-space) in Region 2,
28.45-28.94 GHz	(Earth-to-space) in all Regions,
28.94-29.1 GHz	(Earth-to-space) in Region 2 and 3,
29.25-29.46 GHz	(Earth-to-space) in Region 2,
29.46-30 GHz	(Earth-to-space) in all Regions,
48.2-50.2 GHz	(Earth-to-space) in Region 2.

This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these 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)^{7*}. (WRC-03)

5.517 In Region 2, use of the fixed-satellite (space-to-Earth) service in the band 17.7-17.8 GHz shall not cause harmful interference to nor claim protection from assignments in the broadcasting-satellite service operating in conformity with the Radio Regulations. (WRC-07)

5.518 (SUP - WRC-07)

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

5.520 The use of the band 18.1-18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of geostationary-satellite systems in the broadcasting-satellite service. (WRC-2000)

^{7*} Note by the Secretariat: This Resolution was revised by WRC-07.

- 5.521** *Alternative allocation:* in Germany, Denmark, the United Arab Emirates and Greece, the band 18.1-18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. **5.33**). The provisions of No. **5.519** also apply. (WRC-03)
- 5.522** (SUP - WRC-2000)
- 5.522A** The emissions of the fixed service and the fixed-satellite service in the band 18.6-18.8 GHz are limited to the values given in Nos. **21.5A** and **21.16.2**, respectively. (WRC-2000)
- 5.522B** The use of the band 18.6-18.8 GHz by the fixed-satellite service is limited to geostationary systems and systems with an orbit of apogee greater than 20 000 km. (WRC-2000)
- 5.522C** In the band 18.6-18.8 GHz, in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, the Libyan Arab Jamahiriya, Jordan, Lebanon, Morocco, Oman, Qatar, the Syrian Arab Republic, Tunisia and Yemen, fixed-service systems in operation at the date of entry into force of the Final Acts of WRC-2000 are not subject to the limits of No. **21.5A**. (WRC-2000)
- 5.523** (SUP - WRC-2000)
- 5.523A** The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. **9.11A** and No. **22.2** does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. **9.11A** with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix 4 notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)
- 5.523B** The use of the band 19.3-19.6 GHz (Earth-to-space) by the fixed-satellite service is limited to feeder links for non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A**, and No. **22.2** does not apply.
- 5.523C** No. **22.2** shall continue to apply in the bands 19.3-19.6 GHz and 29.1-29.4 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix 4 coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)
- 5.523D** The use of the band 19.3-19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of No. **9.11A**, but not subject to the provisions of No. **22.2**. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. **5.523C** and **5.523E**, is not subject to the provisions of No. **9.11A** and shall continue to be subject to Articles 9 (except No. **9.11A**) and 11 procedures, and to the provisions of No. **22.2**. (WRC-97)

- 5.523E** No. **22.2** shall continue to apply in the bands 19.6-19.7 GHz and 29.4-29.5 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **4** coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997. (WRC-97)
- 5.524** *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Tanzania, Chad, Togo and Tunisia, the band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the band 19.7-21.2 GHz and of space stations in the mobile-satellite service in the band 19.7-20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter band. (WRC-12)
- 5.525** In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7-20.2 GHz and 29.5-30 GHz.
- 5.526** In the bands 19.7-20.2 GHz and 29.5-30 GHz in Region 2, and in the bands 20.1-20.2 GHz and 29.9-30 GHz in Regions 1 and 3, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point-to-point and point-to-multipoint communications.
- 5.527** In the bands 19.7-20.2 GHz and 29.5-30 GHz, the provisions of No. **4.10** do not apply with respect to the mobile-satellite service.
- 5.528** The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7-20.1 GHz in Region 2 and in the band 20.1-20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. **5.524**.
- 5.529** The use of the bands 19.7-20.1 GHz and 29.5-29.9 GHz by the mobile-satellite service in Region 2 is limited to satellite networks which are both in the fixed-satellite service and in the mobile-satellite service as described in No. **5.526**. (Sup WRC-12)
- 5.532A** The location of earth stations in the space research service shall maintain a separation distance of at least 54 km from the respective border(s) of neighbouring countries to protect the existing and future deployment of fixed and mobile services unless a shorter distance is otherwise agreed between the corresponding administrations. Nos. 9.17 and 9.18 do not apply. (WRC 12)
- 5.532B** Use of the band 24.65-25.25 GHz in Region 1 and the band 24.65-24.75 GHz in Region 3 by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m. (WRC-12)
- 5.531** *Additional allocation:* in Japan, the band 21.4-22 GHz is also allocated to the broadcasting service on a primary basis.

- 5.532** The use of the band 22.21-22.5 GHz by the Earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services.
- 5.533** The inter-satellite service shall not claim protection from harmful interference from airport surface detection equipment stations of the radionavigation service.
- 5.534** (SUP - WRC-03)
- 5.535** In the band 24.75-25.25 GHz, feeder links to stations of the broadcasting-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.
- 5.535A** The use of the band 29.1-29.5 GHz (Earth-to-space) by the fixed-satellite service is limited to geostationary-satellite systems and feeder links to non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A**, but not subject to the provisions of No. **22.2**, except as indicated in Nos. **5.523C** and **5.523E** where such use is not subject to the provisions of No. **9.11A** and shall continue to be subject to Articles **9** (except No. **9.11A**) and **11** procedures, and to the provisions of No. **22.2**. (WRC-97)
- 5.536** Use of the 25.25-27.5 GHz band by the inter-satellite service is limited to space research and Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space.
- 5.536A** Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account Recommendations ITU-R SA. 1862 respectively. (WRC-12)
- 5.536B** In , Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, , Estonia, Finland, France, Hungary, India, Iran (Islamic Republic of), Ireland, Israel, Italy,, Jordan, Kenya, Kuwait, Lebanon,Libya, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philip-pines, Poland, Portugal, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Sweden, Swit-zerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the band 25.5-27 GHz shall not claim protec-tion from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-12)
- 5.536C** In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan,Tanzania, Tunisia, Uru-guay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-12)
- 5.537** Space services using non-geostationary satellites operating in the inter-satellite serv-ice in the band 27-27.5 GHz are exempt from the provisions of No. **22.2**.

- 5.537A** In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, , Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.9-28.2 GHz may also be used by high altitude platform stations (HAPS) within the territory of these countries. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution **145 (Rev.WRC-12)** . (WRC-07)
- 5.538** *Additional allocation:* the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. (WRC-07)
- 5.539** The band 27.5-30 GHz may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.
- 5.540** *Additional allocation:* the band 27.501-29.999 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control.
- 5.541** In the band 28.5-30 GHz, the earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors.
- 5.541A** Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the band 29.1-29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix 4 coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix 4 information for coordination before this date are encouraged to utilize these techniques to the extent practicable. (WRC-2000)
- 5.542** *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Oman, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, South Sudan Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply. (WRC-12)
- 5.543** The band 29.95-30 GHz may be used for space-to-space links in the Earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.

- 5.543A** In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, , Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 31-31.3 GHz may also be used by systems using high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the band 31-31.3 GHz by systems using HAPS is limited to the territory of the countries listed above and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems, systems in the mobile service and systems operated under No. **5.545**. Furthermore, the development of these services shall not be constrained by HAPS. Systems using HAPS in the band 31-31.3 GHz shall not cause harmful interference to the radio astronomy service having a primary allocation in the band 31.3-31.8 GHz, taking into account the protection criterion as given in Recommendation ITU-R RA.769. In order to ensure the protection of satellite passive services, the level of unwanted power density into a HAPS ground station antenna in the band 31.3-31.8 GHz shall be limited to -106 dB(W/MHz) under clear-sky conditions, and may be increased up to -100 dB(W/MHz) under rainy conditions to mitigate fading due to rain, provided the effective impact on the passive satellite does not exceed the impact under clear-sky conditions. See Resolution **145 (Rev.WRC-12)**. (WRC-12)
- 5.544** In the band 31-31.3 GHz the power flux-density limits specified in Article **21**, Table **21-4** shall apply to the space research service.
- 5.545** *Different category of service:* in Armenia, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 31-31.3 GHz to the space research service is on a primary basis (see No. **5.33**). (WRC-07)
- 5.546** *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**). (WRC-07)
- 5.547** The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolution **75 (WRC-2000)**). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5-40 GHz and 40.5-42 GHz (see No. **5.516B**), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. (WRC-07)
- 5.547A** Administrations should take practical measures to minimize the potential interference between stations in the fixed service and airborne stations in the radionavigation service in the 31.8-33.4 GHz band, taking into account the operational needs of the airborne radar systems. (WRC-2000)
- 5.547B** *Alternative allocation:* in the United States, the band 31.8-32 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-97)
- 5.547C** *Alternative allocation:* in the United States, the band 32-32.3 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-03)

- 5.547D** *Alternative allocation:* in the United States, the band 32.3-33 GHz is allocated to the inter-satellite and radionavigation services on a primary basis. (WRC-97)
- 5.547E** *Alternative allocation:* in the United States, the band 33-33.4 GHz is allocated to the radionavigation service on a primary basis. (WRC-97)
- 5.548** In designing systems for the inter-satellite service in the band 32.3-33 GHz, for the radionavigation service in the band 32-33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation **707**). (WRC-03)
- 5.549** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, , Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, , Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.549A** In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed -73.3 dB(W/m²) in this band. (WRC-03)
- 5.550** *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, , Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 34.7-35.2 GHz to the space research service is on a primary basis (see No. **5.33**). (WRC-12)
- 5.550A** For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **752 (WRC-07)** shall apply. (WRC-07)
- 5.551B** (SUP - WRC-2000)
- 5.551C** (SUP - WRC-2000)
- 5.551D** (SUP - WRC-2000)
- 5.551E** (SUP - WRC-2000)
- 5.551F** *Different category of service:* in Japan, the allocation of the band 41.5-42.5 GHz to the mobile service is on a primary basis (see No. **5.33**). (WRC-97)
- 5.551G** (SUP - WRC-03)
- 5.551H** The equivalent power flux-density (epfd) produced in the band 42.5-43.5 GHz by all space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time:
- 230 dB(W/m²) in 1 GHz and -246 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

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

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

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

- was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or
- was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply.

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-07)

5.551I

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

- 137 dB(W/m²) in 1 GHz and –153 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and
- 116 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

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

- was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or
- was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply.

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

5.552

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

5.552A

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

- 5.553** In the bands 43.5-47 GHz and 66-71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **5.43**). (WRC-2000)
- 5.554** In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 123-130 GHz, 191.8-200 GHz and 252-265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service. (WRC-2000)
- 5.554A** The use of the bands 47.5-47.9 GHz, 48.2-48.54 GHz and 49.44-50.2 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary satellites. (WRC-03)
- 5.555** *Additional allocation:* the band 48.94-49.04 GHz is also allocated to the radio astronomy service on a primary basis. (WRC-2000)
- 5.555A** (SUP - WRC-03)
- 5.555B** The power flux-density in the band 48.94-49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2-48.54 GHz and 49.44-50.2 GHz shall not exceed -151.8 dB(W/m²) in any 500 kHz band at the site of any radio astronomy station. (WRC-03)
- 5.556** In the bands 51.4-54.25 GHz, 58.2-59 GHz and 64-65 GHz, radio astronomy observations may be carried out under national arrangements. (WRC-2000)
- 5.556A** Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/(m²·100 MHz)) for all angles of arrival. (WRC-97)
- 5.556B** *Additional allocation:* in Japan, the band 54.25-55.78 GHz is also allocated to the mobile service on a primary basis for low-density use. (WRC-97)
- 5.557** *Additional allocation:* in Japan, the band 55.78-58.2 GHz is also allocated to the radiolocation service on a primary basis. (WRC-97)
- 5.557A** In the band 55.78-56.26 GHz, in order to protect stations in the Earth exploration-satellite service (passive), the maximum power density delivered by a transmitter to the antenna of a fixed service station is limited to -26 dB(W/MHz). (WRC-2000)
- 5.558** In the bands 55.78-58.2 GHz, 59-64 GHz, 66-71 GHz, 122.25-123 GHz, 130-134 GHz, 167-174.8 GHz and 191.8-200 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **5.43**). (WRC-2000)
- 5.558A** Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/(m² · 100 MHz)) for all angles of arrival. (WRC-97)

- 5.559** In the band 59-64 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **5.43**). (WRC-2000)
- 5.559A** (SUP - WRC-07)
- 5.560** In the band 78-79 GHz radars located on space stations may be operated on a primary basis in the Earth exploration-satellite service and in the space research service.
- 5.561** In the band 74-76 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to stations of the fixed-satellite service or stations of the broadcasting-satellite service operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service. (WRC-2000)
- 5.561A** The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis. (WRC-2000)
- 5.561B** In Japan, use of the band 84-86 GHz, by the fixed-satellite service (Earth-to-space) is limited to feeder links in the broadcasting-satellite service using the geostationary-satellite orbit. (WRC-2000)
- 5.562** The use of the band 94-94.1 GHz by the Earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars. (WRC-97)
- 5.562A** In the bands 94-94.1 GHz and 130-134 GHz, transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible. (WRC-2000)

COMMUNICATIONS REGULATORY AUTHORITY OF NAMIBIA

No. 192

2013

NOTICE OF INTENTION TO MAKE REGULATIONS IN RESPECT OF TYPE APPROVAL AND TECHNICAL STANDARDS FOR ELECTRONIC TELECOMMUNICATIONS EQUIPMENT: COMMUNICATIONS ACT, 2009

The Communications Regulatory Authority of Namibia, in terms of regulation 4(3) of the Regulations Regarding Rule-Making Procedures published as General Notice No. 334 of 17 December 2010 publishes this Notice of Intention to Make Regulations in respect of Telecommunications Equipment Requiring Type Approval, which contains the following:

1. A draft of the proposed Regulations as set out in Schedule 1;
2. A concise statement of the purpose for the proposed Regulations as set out in Schedule 2.

The public may make oral submissions on the proposed regulations to the Authority, at a time, date and place notified by the Authority by subsequent notice in the *Gazette*.

The public may also make written submissions to the Authority within thirty (30) days from the date of publication of this notice in the *Gazette*, in the manner set out below for making written submissions.

Reply comments to written submissions may be submitted to the Authority-

- (a) Within a period of fourteen (14) days from the date of notification of written comments by the Authority; or
- (b) if the opportunity for the submission of reply comments is published in a subsequent *Gazette*, after the lapse of fourteen (14) days from the date of such publication.

All written submissions must-

- (a) contain the name and contact details of the person making the written submissions and the name and contact details of the person for whom the written submission is made, if different; and
- (b) be clear and concise.

All written submissions must be send or given in any of the following manner:

1. By hand to the head offices of the Authority, namely Communication House, No 56 Robert Mugabe Avenue, Windhoek.
2. By post to the head offices of the Authority; namely Private Bag 13309, Windhoek, 9000;
3. By electronic mail to the following address: legal@cran.na;
4. By facsimile to the following facsimile number: + 264 61 222 790

L. N. JACOBS
CHAIRPERSON OF THE BOARD
COMMUNICATIONS REGULATORY AUTHORITY

SCHEDULE 1

PROPOSED REGULATIONS IN RESPECT OF TELECOMMUNICATIONS EQUIPMENT REQUIRING TYPE APPROVAL: COMMUNICATIONS ACT, 2009

The Communications Regulatory Authority, in terms of section 80 read with section 129 of the Communications Act, 2009 (Act No. 8 of 2009), makes the regulations set out in the Schedule.

Definitions

1. In these regulations, any word or expression to which a meaning is assigned in the Act, shall have the same meaning and –

“**accredited test laboratory**” means any laboratory accredited by its own national accreditation body or another recognised accreditation body in terms of ISO/IEC 17025 requirements;

“**Act**” means the Communications Act, 2009 (Act No. 8 of 2009);

“**applicant**” means a person applying for type approval in accordance with these regulations;

“**declaration of conformity**” means a written declaration issued by an applicant or manufacturer or supplier of telecommunications equipment in accordance with ISO/IEC 17050 that telecommunications equipment for which type approval is sought conforms to these regulations and applicable technical standards;

“electronic communications” means any emission, transmission or reception of sound, pictures, text or any other information by wire, radio waves, optical media, electromagnetic systems or any other means of a like nature;

“electronic communications network” means any system of electronic communications facilities, including without limitation—

- (a) satellite systems;
- (b) fixed systems (circuit- and packet-switched);
- (c) mobile systems;
- (d) fibre optic cables (undersea and land-based);
- (e) electricity cable systems (to the extent used for electronic communications services); and
- (f) other transmission systems, used for conveyance of electronic communications;

“electronic communications service” means a service provided to the public, sections of the public, the State, or the subscribers to such service, which consists wholly or mainly of the conveyance by any means of electronic communications over an electronic communications network;

“foreign regulatory authority” means a regulatory authority outside Namibia, which performs the same or substantially the same functions as the Authority and whose standards are acceptable to the Authority;

“telecommunications Communications equipment” means telecommunications equipment, telecommunications terminal equipment, information technology equipment, radio communication equipment power by means of electrical AC/DC energy, the source being internal or external or electronic communications network.

“the website” means the website of the Authority with URL: www.cran.na.

“type approval” means –

- (a) The process undertaken by the Authority of authorising the use of telecommunications equipment in Namibia, involving the verification of such equipment’s conformity to and compatibility with the Act, applicable technical standards and other regulatory requirements; or
- (b) the process undertaken by the Authority of examination and testing telecommunications equipment so as to determine whether such equipment has passed performance tests and quality assurance tests, and meets qualification criteria in accordance with applicable technical standards and other regulatory requirements.

“type approval fees” means fees relating to type approval as set out in Annexure 2 of these regulations;

“type approval certificate” means a certificate issued by the Authority to an applicant confirming that such applicant’s telecommunications equipment has been type approved;

“type approval register” means a register that contains basic technical and compliance information on all type approved telecommunications equipment, including any conditions the Authority attached to such type approval.

Purpose

2. (1) The purpose of these regulations is to establish a type approval procedure to ensure that-
- (a) telecommunications equipment used in Namibia comply with international standards applicable in Namibia;
 - (b) no sub-standard equipment which may represent health and safety hazards to consumers in general are operated in Namibia;
 - (c) consumers are protected from products that are incompatible with local networks; and
 - (d) the operating frequency of telecommunications equipment, generally and radio apparatus in particular are in conformance with the national frequency band plan in Namibia so that no harmful interference is caused to essential services.

Applicability

3. (1) These regulations apply to-
- (a) all persons (whether legal or natural persons) who use, sell, offer for sale or connect telecommunications equipment to an electronic communications network in Namibia; and
 - (b) all telecommunications equipment used, sold, offered for sale or connected to an electronic communications network in Namibia.

Telecommunication equipment requiring type approval

4. (1) Any person or entity who intends to -
- (a) connect telecommunications equipment to an electronic communication network in Namibia for purposes of electronic communications;
 - (b) use, sell or offer for sale telecommunications equipment in Namibia, except where such person purchased such equipment outside Namibia and personally imported it for own use,

must apply for type approval from the Authority in respect of such equipment prior to the use thereof in Namibia.

(2) Notwithstanding sub-regulation (1), telecommunications equipment that is temporarily imported into Namibia for re-export does not require type approval.

(3) All telecommunications equipment used, sold, or offered for sale or connected to an electronic communication network before these regulations enter into force, which require type approval, must be type approved in accordance with these regulations.

Registration of supplier

5. (1) An applicant will be registered as a supplier of telecommunications equipment on the database of the Authority upon approval of such Applicant's application for type approval.

(2) Registration of an applicant as supplier will happen once suppliers of telecommunications equipment apply for type approval for such equipment.

(3) Suppliers must inform the Authority forthwith if any of their registration details change.

Application procedures

6. (1) An applicant must submit an application on Form 1 set out in Annexure 1 in respect of telecommunications equipment requiring type approval.

(2) An application for type approval must be accompanied by-

- (a) personal identification, a certificate of incorporation or a valid trade licence in the name of the applicant;
- (b) a declaration of conformity in accordance with regulation 6;
- (c) technical, physical, operational, installation and user information;

software and firmware numbers of the telecommunications equipment being type approved;

(d) all other documentation as required by Part 5 of the application form;

(e) proof of payment of the applicable type approval fees as stipulated in Annexure 2.

(3) The Authority may require an applicant to submit additional information as proof of complying with the applicable technical standards.

(4) An application form is not complete unless accompanied by the documents required in terms of sub-regulation (1) and where applicable, sub-regulation (2).

(5) In addition to the requirements of sub-regulation (2), the Authority may request an applicant for a sample of the telecommunications equipment requiring type approval for examination and testing to determine whether such equipment has passed performance tests and quality assurance tests, and meets qualification criteria in accordance with applicable technical standards and other regulatory requirements.

(6) Samples of telecommunications communications equipment referred to in sub-regulation (5) must be-

- (a) in good and proper working condition;
- (b) properly configured for testing complete with the necessary test adaptors, and
- (c) clearly marked with trade name, model and serial number.

(7) If the Authority requires clarification in respect of technical details or other specifications of the telecommunications equipment requiring type approval, the Authority must require the applicant to provide such clarification within the timeframe specified by the Authority.

(8) An application for type approval may be rejected by the Authority if the applicant fails to respond to a request for clarification contemplated by sub-regulation (7) or fails to respond within the timeframe specified.

(9) If the Authority is not satisfied regarding any aspect of an application for type approval, the Authority must reject the application and notify the applicant in which respects the application is non-compliant.

(10) An unsuccessful applicant may address any non-compliance and submit a new application for type approval.

(11) If the Authority is satisfied that all the requirements of these regulations have been met, the Authority may issue a type approval certificate to the successful applicant, subject to such conditions that the Authority may impose.

(12) The type approval certificate referred to in sub-regulation (11) must contain a registration number.

(13) All type approved telecommunications equipment must be entered on the type approval register which the Authority will publish on the website from time to time.

(14) If type approved telecommunications equipment undergoes a change of model, design, function or specifications, the type approval certificate will not be valid for the telecommunications equipment that experienced such change of model, design or specifications.

(15) If in terms of sub-regulation (14) a type approval certificate is no longer valid, the telecommunications equipment that experienced a change of model, design, function or specifications requires type approval in terms of these regulations.

Declaration of conformity

7. (1) The Authority may accept a declaration of conformity by an applicant if accompanied by test reports and data issued by an accredited test laboratory confirming conformity of the telecommunications equipment for which type approval is sought with the applicable technical standards.

(2) In an application for type approval, the applicant must submit the test reports and data referred to in sub-regulation (1) without any modification whatsoever.

(3) In assessing an application for type approval, the Authority will take into account whether the test reports and data referred to in sub-regulation (1) were submitted and accepted by a foreign regulatory authority.

(4) The Authority shall not have regard to any test report and data accompanying a declaration of conformity in terms of sub-regulation (1) if such report and data are older than 5 years.

(5) The Authority may regard a declaration of conformity and its accompanying test reports and data as valid if such declaration, test report and data were prepared for the telecommunications equipment for which application for type approval is made and if no modification to the equipment was made following the completion of the test reports.

Effect of successful application for type approval

8. (1) The exclusive right to use the registration number for type approved telecommunications equipment belongs to the person or entity to whom a type approval certificate has been issued.

(2) Any other person may import or sell telecommunications equipment of the same brand name and model number as type approved telecommunications equipment only if such person

obtained the prior written consent of the holder of the type approval certificate in respect of such type approved equipment or such person obtained a type approval certificate therefor.

(3) The holder of a type approval certificate may only use, sell, offer for sale or connect telecommunications equipment to an electronic communications network which are identical in all material respects to the type approved telecommunications equipment in respect of which the type approval certificate has been issued.

(4) A type approval certificate is not transferable to any other person except with the prior written approval of the Authority.

(5) After registration, any telecommunications equipment sample submitted at the request of the Authority may be returned to the applicant but the Authority may retain any related documents for reference purposes.

(6) A type approval certificate is ordinarily valid for a period of three years and may be renewed by the Authority at the written request of the holder of such certificate upon the submission of such documents as the Authority may require subject thereto that-

(a) no modification in respect of the model, design, function, or other information recorded in the type approval certificate or type approval register is made to the type approved telecommunications equipment;

no significant changes are made to the technical specifications of the type approved telecommunications equipment, including but not limited to –

(i) the operating frequency band; and

(ii) RF power and technical standards upon which the telecommunications equipment was type approved.

(7) The grant of type approval in terms of these regulations may not be construed as a guarantee by the Authority for the proper functioning, performance or quality of the type approved telecommunications equipment.

(8) The holder of a type approval certificate must ensure that the type approved telecommunications equipment inter-connects properly with electronic communication networks in Namibia.

(9) The Authority shall not be liable for interference caused to other equipment, injury, loss of life or damage to property arising from the direct or indirect use of the type approved telecommunications equipment.

(10) A network operator may not refuse connection of type approved telecommunications equipment.

Monitoring compliance and inspections

9. (1) The Authority may perform market surveillance activities from time to time in accordance with the provisions of Chapter X of the Act.

(2) The holders of type approval certificates must cooperate in such activities and may be required by the Authority to provide without charge to the Authority samples of telecommunications equipment and documentation.

(3) If any person is found to be in non-compliance with these regulations or the applicable technical standards, the person must forthwith cease to use, sell or offer for sell or connect the telecommunications equipment to an electronic communications network or type of telecommunications equipment concerned and dispose thereof at their own expense as directed by the Authority.

(4) The Authority may seize type approved telecommunications equipment that does not comply with applicable technical standards or these regulations or that belongs to a category of telecommunications equipment for which type approval is required as contemplated in these regulations and that has not been so approved.

Cancellation of type approval certificate

10. (1) Where the Authority is satisfied upon an investigation conducted in terms of Chapter X of the Act that-

- (a) any information provided to the Authority by the holder of a type approval certificate is found to be counterfeited or false;
- (b) type approved telecommunications equipment does not comply with applicable technical standards or these regulations;
- (c) there is a breach of any condition endorsed on the type approval certificate;
- (d) type approved telecommunications equipment is causing or likely to cause harmful interference to an electronic communications network or is a risk to human health or the environment,

the Authority may by written notice to the holder of a type approval certificate inform such holder that the Authority intends to cancel the type approval certificate, and in such notice state the grounds for such intended action.

(2) A holder of a type approval certificate may, within 15 days from the date of receipt of a notice referred to in sub-regulation (1), make written representations to the Authority in connection with the matter.

(3) After consideration of the representations referred to in sub-regulation (2) or, if no such representations have been made, upon the expiry of the period mentioned in that sub-regulation, the Authority may-

- (a) if the Authority is satisfied that it is just and equitable to do so in the particular case, by written notice to the registered insurer or reinsurer withdraw the notice referred to in sub-regulation (1); or
- (b) by written notice to the holder of the type approval certificate cancel the certificate.

(4) All telecommunications equipment that is the subject of a cancelled type approval certificate must be withdrawn from the market at the costs of the holder of the cancelled certificate within 30 days of the written notice referred to in paragraph (b) of sub-regulation (3).

Fees

11. (1) The Authority will charge type approval fees in accordance with Annexure 2 to these regulations.

(2) All fees are payable in advance and are non-refundable.

(3) The fees set out in Annexure 2 will be adjusted in accordance with the Consumer Price Index as published by the Namibia Statistics Agency from time to time or such other percentage determined by the Authority.

(4) Fees adjusted annually as contemplated in sub-regulation (3) must be published annually in the Government Gazette by the Authority.

Prohibited telecommunications equipment

12. (1) The Authority may from time to time publish a list of prohibited communications equipment on the website.

(2) No person may import, sell, offer for sale or connect telecommunications equipment appearing on the list referred to in sub-regulation (1).

(3) The Authority may in conjunction with relevant Government agencies restrict the importation of any telecommunications equipment into Namibia, where the Authority is satisfied that such equipment may cause damage or harmful interference to electronic communications networks or poses a risk to public health and safety or the environment.

Amendment of technical standards

13. (1) Whenever technical standards are amended, the holder of type approved telecommunications equipment must ensure that such equipment are reassessed to determine if due to the amended standard, the equipment requires further type approval in terms of these regulations.

(2) If the equipment referred to in sub-regulation (1) requires a new application for type approval, such application must be made before the date when the amended technical standard comes into operation.

Offence and Penalties

14. (1) It shall be the duty of every person who uses, sells, offers for sale or connects to an electronic communication network any telecommunications equipment requiring type approval in terms of these regulations to ensure that such equipment is type approved by the Authority.

(2) If a person fails to comply with the duty referred to in sub-regulation (1), the Authority may enforce such duty in the manner provided for in section 116 of the Act.

(3) Any person who uses, sells, offers for sale or connects to an electronic communication network any telecommunications equipment requiring type approval in terms of these regulations without the Authority having type approved such equipment commits an offence and is on conviction liable to imprisonment for a period not exceeding 2 years or a fine not exceeding N\$100 000 or both such fine and such imprisonment.

(4) Any duty imposed in terms of these regulations upon any person to do something or to omit from doing something shall be a duty enforceable by the Authority in accordance with section 116 of the Act.

(5) Any person who contravenes any provision of these regulations imposing a duty upon such person as contemplated in sub-regulation (4) commits an offence and is on conviction liable to imprisonment for a period not exceeding 1 year or a fine not exceeding N\$50 000 or both such fine and such imprisonment.

**ANNEXURE 1
FORM 1**

**APPLICATION FORM
COMMUNICATIONS EQUIPMENT TYPE APPROVAL**

In terms of Regulation 6 of the Regulations in respect of Telecommunications Equipment Requiring Type Approval a person intending to provide a broadcasting service is required to complete this application for type approval.

After completing the form, sign it and submit it to the Authority as required by Regulation 6, along with the relevant application fee or proof that the application fee has been paid to the Authority.

1. **APPLICANT**

Name of Original Equipment Manufacturer	
Postal Address:	
Physical Address:	
Contact Person:	
Email Address:	
Telephone No:	
Facsimile No:	
Website:	

2. **DETAILS OF ANY PERSON ACTING AS REPRESENTATIVE OF ORIGINAL EQUIPMENT MANUFACTURER**

(Letter of authorization from original equipment manufacturer must be attached to application)

Name of Agent/Representative	
Postal Address:	
Physical Address:	
Contact Person:	
Email Address:	
Telephone No:	
Facsimile No:	
Website:	

3. **APPLICATION CATEGORY**

Type Approval (proof of adherence to applicable technical standards, certificate of conformance test reports and other data must be attached- refer regulations 6 and 7 to be attached)	

4. ORIGINAL EQUIPMENT DETAILS

4.1 Please indicate the appropriate equipment category -

Call Monitoring Equipment	Call Metering Unit	
	Call Monitoring Unit	
	Call Barring Unit	
	Call Recording Unit	
	Subscriber Private Meter	
Data Equipment	Modem	
	Router	
	Switch	
	PAD	
	MUX	
Facsimile Equipment	All Types	
Network Equipment	Microwave Transmitter	
	Base Station Transmitter	
	Network Management System	
Paging Equipment	All Types	
Payphone Terminal Equipment	All Types	
Private Exchange Equipment	PMBX	
	PABX	
	Voice Messaging System	
	Switchboard Equipment	
	Media Convergence Server	
Radio Communications Equipment	HF	
	VHF	
	UHF	
	Radio Alarm Transmitter	
	Citizen Band Radio	
	Amateur Radio	
Satellite Earth Terminal	GMPCS terminal (with ITU MoU Mark)	
	GMPCS terminal (without ITU MoU Mark)	
	VSAT	
Short Range Devices/ Low Power terminals	Access Control (including door and gate openers)	
	Alarms and movement detectors	
	Closed circuit television (CCTV)	
	Cordless audio devices including wireless microphones	
	Industrial control devices	
	Local Area Networks	
	Medical Devices	
	UWB sensors and radars (such as ground probing radar)	
	Remote controls	
	Radio frequency identification (RFID)	
	Road Transport telematics	
	Telemetry	
	Car Radios	
Bluetooth devices		

Telephone Terminal Equipment	Ordinary telephone	
	Executive telephone	
	Cordless telephone	
	Answer machine integrated into the telephone	
	2-line executive telephone	
	Cordless executive telephone	
	Intelligent executive telephone	
	Answering machine unit	
	GSM phone	
	CDMA terminal	
TV Set-Top Box	All types	
VOIP network equipment	E1 interface card	
	VOIP gateway	
	IP terminal	
Wimax terminal	All types	

4.2 Equipment details

Model:	
Frequency Range:	
ITU Emission Code:	
Modulation:	
Power Output:	

4.3 Indicate whether the equipment is intended for use as:

Stand-Alone	
Dual Interface equipment (RF and Telecommunications)	
Plug-in Card	
Other (Please specify below)	

5. REQUIRED DOCUMENTATION TO BE ATTACHED TO APPLICATION

2x Identifying postcard size colour photographs of equipment submitted for type approval	
A functional description of the equipment, at least at block diagram level	
Operating instructions	
Certified copy of declaration of conformity by applicant, manufacturer or supplier of telecommunications equipment including test report (both RF and EMC), issued by an accredited test laboratory	
Certified copies of test reports and certificate of compliance with Radio regulations issued by an accredited test laboratory	
Certified copy of test report for Safety Regulations issued by an accredited test laboratory	
Receipt issued by CRAN as per applicable fees	
Physical sample equipment if type approval of untested equipment is requested	

Signed by _____ at
_____ in his/her capacity as
_____, duly authorised and warranting such authority
and warranting that the information provided herein is true and correct, on the _____
day of _____ 20_____.

Signature

ACKNOWLEDGEMENT OR RECEIPT BY CRAN

Name	
Date	
Place	
Signature	

**ANNEXURE 2
TYPE APPROVAL FEES**

EQUIPMENT CATEGORY	EQUIPMENT INCLUDED IN THIS CATEGORY	FEES (N\$)
Radio Transmitter Equipment	Community Radio Transmitter	1,000.00
Call Monitoring Equipment	Call metering unit	250.00
	Call monitoring unit	250.00
	Call barring unit	250.00
	Call recording unit	250.00
	Subscriber private meter	250.00
Data Equipment	Modem	450.00
	Router	450.00
	Switch	450.00
	PAD	450.00
	MUX	450.00
Facsimile Equipment	All types	450.00
Network Equipment	Microwave transmitter	3,000.00
	Base Station transmitter	3,000.00
	Network Management System	3,000.00
Paging Equipment	All types	450.00
Payphone Terminal Equipment	All types	450.00
Private Exchange Equipment	PMBX	1,500.00
	PABX	1,500.00
	Voice messaging system	1,500.00
	Switchboard equipment	1,500.00
	Media convergence server	1,500.00
Radio Communications Equipment	HF	450.00
	VHF	450.00
	UHF	450.00
	Radio alarm transmitter	450.00
	Citizen band	450.00
	Amateur	450.00
Satellite Earth Terminal	GMPCS terminal (with ITU MoU Mark)	100.00
	GMPCS terminal (without ITU MoU Mark)	450.00
	VSAT	1,500.00
Short Range Devices/ Low power terminals	Access control (including door and gate openers)	250.00
	Alarms and movement detectors	250.00
	Closed-circuit television (CCTV)	250.00
	Cordless audio devices, including wireless micro-phones	250.00
	Industrial control	350.00
	Local Area Networks	350.00
	Medical implants	350.00
	UWB Sensors & Radars (such as ground probing radar)	250.00
	Remote control	250.00

	Radio frequency identification (RFID)	250.00
	Road Transport Telematics	250.00
	Bluetooth Devices	250.00
	Car Radios	250.00
	Telemetry.	250.00
Telephone Terminal Equipment	Ordinary telephone	250.00
	Executive telephone	250.00
	Cordless telephone	250.00
	Answer machine integrated into the telephone	250.00
	2 line Executive telephone	450.00
	Cordless executive telephone	450.00
	Intelligent executive telephone	450.00
	Answering machine unit	450.00
	GSM terminal	450.00
	CDMA terminal	450.00
TV Set-Top Box	All types	450.00
VOIP Network Equipment	E1 interface card	2,500.00
	VoIP gateway	2,500.00
	IP terminal	2,500.00
WiMAX terminal	All types	450.00

SCHEDULE 2**CONCISE STATEMENT OF THE PURPOSE OF THE PROPOSED REGULATIONS**

The purpose of the draft regulations in respect of Telecommunications Equipment Requiring Type Approval is to establish a type approval procedure to ensure that-

- (a) telecommunications equipment used in Namibia comply with international standards applicable in Namibia;
 - (b) no sub-standard equipment which may represent health and safety hazards to consumers in general are operated in Namibia;
 - (c) consumers are protected from products that are incompatible with local networks; and
 - (d) the operating frequency of telecommunications equipment, generally and radio apparatus in particular are in conformance with the national frequency band plan in Namibia so that no harmful interference is caused to essential services.
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