

(4) In the case where there is a parenthetical addition to an allocation in the United States Table [example: FIXED-SATELLITE (space-to-earth)], that service allocation is restricted to the type of operation so indicated.

(5) The following symbols are used to designate footnotes in the United States Table:

(i) Any footnote consisting of “S5.” followed by one or more digits, *e.g.*, S5.53, or any footnote not prefixed by a letter, *e.g.*, 459, denotes an international footnote. Where an international footnote is applicable, without modification, to the United States Table, the footnote appears in the United States Table (columns 4 and 5) and denotes a stipulation affecting both the Federal Government Table and the Non-Federal Government Table. If, however, an international footnote pertains to a service allocated only for Federal government or non-Federal government use, the international footnote will be placed only in the affected Table. For example, “AMATEUR S5.142” shall be shown only in the Non-Federal Government Table.

(ii) Any footnote consisting of the letters US followed by one or more digits, *e.g.*, US7, denotes a stipulation affecting both the Federal Government Table and the Non-Federal Government Table.

(iii) Any footnote consisting of the letters NG followed by one or more dig-

its, *e.g.*, NG2, denotes a stipulation applicable only to the Non-Federal Government Table (column 5).

(iv) Any footnote consisting of the letter G following by one or more digits, *e.g.*, G2, denotes a stipulation applicable only to the Federal Government Table (column 4).

(6) If a frequency or frequency band has been allocated to a radiocommunication service in the Non-Federal Government Table, then a cross reference may be added for the pertinent FCC Rule part (column 6 of § 2.106). For example, the 849–851 MHz band is allocated to the non-Federal government aeronautical mobile service, rules for the use of the 849–851 MHz band have been added to Part 22—Public Mobile Services (47 CFR part 22), and a cross reference, Public Mobile (22), has been added in Column 6 of the Table. The exact use that can be made of any given frequency or frequency band (*e.g.*, channelling plans, allowable emissions, *etc.*) is given in the FCC Rule part(s) so indicated. The FCC Rule parts in this column are not allocations and are provided for informational purposes only. This column also may contain explanatory notes for informational purposes only.

[65 FR 4640, Jan. 31, 2000]

#### § 2.106 Table of Frequency Allocations.

EDITORIAL NOTE: The text of § 2.106 begins on the following page.



84-86 RADIO NAVIGATION 5.60	84-86 RADIO NAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59			
86-90 FIXED MARITIME MOBILE 5.57 RADIO NAVIGATION	86-90 FIXED MARITIME MOBILE 5.57 RADIO NAVIGATION 5.60			
90-110 RADIO NAVIGATION 5.62 Fixed 5.64	90-110 RADIO NAVIGATION 5.62 US294 90-110 RADIO NAVIGATION 5.62 US18 US104 US294			Aviation (87) Private Land Mobile (90)
110-112 FIXED MARITIME MOBILE RADIO NAVIGATION	110-112 FIXED MARITIME MOBILE RADIO NAVIGATION 5.60 5.64			Maritime (80) Private Land Mobile (90)
112-115 RADIO NAVIGATION 5.60	112-115 RADIO NAVIGATION 5.60			
115-117.6 RADIO NAVIGATION 5.60 Fixed Maritime mobile 5.64 5.66	115-117.6 RADIO NAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65			
117.6-126 FIXED MARITIME MOBILE RADIO NAVIGATION 5.60 5.64	117.6-126 FIXED MARITIME MOBILE RADIO NAVIGATION 5.60 5.64			
126-129 RADIO NAVIGATION 5.60	126-129 RADIO NAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65			
See next page for 129-130 MHz	See next page for 129-130 MHz	5.61 5.64	5.64 US294	

International Table		United States Table		FCC Rule Part(s)
130-505 kHz (LF/MF)		130-505 kHz (LF/MF)		Page 3
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government
129-130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60	See previous page for 110-130 kHz	129-130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60	See previous page for 110-130 kHz	See previous page for 110-130 kHz
5.64	130-160 FIXED MARITIME MOBILE	130-160 FIXED MARITIME MOBILE RADIONAVIGATION	130-160 FIXED MARITIME MOBILE	Maritime (80)
148.5-255 BROADCASTING	5.64 160-190 FIXED	5.64 160-190 FIXED Aeronautical radionavigation	5.64 US294 160-190 FIXED MARITIME MOBILE US294	
5.68-5.69 5.70 BROADCASTING AERONAUTICAL RADIONAVIGATION	190-200 AERONAUTICAL RADIONAVIGATION	190-200 AERONAUTICAL RADIONAVIGATION	190-200 AERONAUTICAL RADIONAVIGATION US18 US226 US294	Aviation (87)
285-283.5 BROADCASTING AERONAUTICAL RADIONAVIGATION	200-275 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-275 AERONAUTICAL RADIONAVIGATION US18 Aeronautical mobile US294	
5.70 5.71 283.5-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons) 285-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons) US18 US294 285-325 MARITIME RADIONAVIGATION (radiobeacons) Aeronautical radionavigation (radiobeacons)	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons) US18 US294 285-325 MARITIME RADIONAVIGATION (radiobeacons) Aeronautical radionavigation (radiobeacons)	

315-325 AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73	315-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73 Aeronautical radionavigation	315-325 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	
5.72 5.75			US18 US294 US364
325-405 AERONAUTICAL RADIONAVIGATION	325-335 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	325-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	Aeronautical mobile Maritime radionavigation (radiobeacons) US18 US294
5.72			335-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile US294
405-415 RADIONAVIGATION 5.76	405-415 RADIONAVIGATION 5.76 Aeronautical mobile		405-415 RADIONAVIGATION 5.76 US18 Aeronautical mobile US294
5.72			
415-435 MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	415-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.80		415-435 MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION US294
5.72			
435-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation	5.77 5.78 5.82		435-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.82 US231 US294
5.72 5.82			
495-505 MOBILE (distress and calling)			495-505 MOBILE (distress and calling) 5.83
5.83			

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505-2107 kHz (MF)		United States Table		FCC Rule Part(s)
International Table		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	505-510 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile	505-510 MARITIME MOBILE 5.79	Maritime (80)
5.72 526.5-1606.5 BROADCASTING	510-525 MOBILE 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	525-535 BROADCASTING 5.86 AERONAUTICAL RADIONAVIGATION	510-525 MARITIME MOBILE (ships only) 5.79A 5.84 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 US14 US225	Maritime (80) Aviation (87)
5.87 5.87A 1606.5-1625 FIXED MARITIME MOBILE 5.90 LAND MOBILE	525-535 BROADCASTING 5.88 AERONAUTICAL RADIONAVIGATION	526.5-535 BROADCASTING Mobile 5.88	525-535 AERONAUTICAL RADIONAVIGATION (radiobeacons) US16 MOBILE E US221 US239	Aviation (87) Private Land Mobile (90)
5.92 1625-1635 RADIOLOCATION 5.93 1635-1800 FIXED MARITIME MOBILE 5.90 LAND MOBILE	535-1605 BROADCASTING	535-1606.5 BROADCASTING	535-1605 BROADCASTING US321 1605-1615 MOBILE US221 US321 1615-1705	Radio Broadcast (AM) (73) Auxiliary Broadcast (74) Alaska Fixed (80)
	1605-1625 BROADCASTING 5.89	1606.5-1800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION	1605-1705 BROADCASTING 5.89	
	1625-1705 FIXED MOBILE BROADCASTING 5.89 Radiolocation			
	5.90		US238 US299 US321 US238 US299 US321 NG128	

5.92-5.96	1705-1800 FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIIONAVIGATION	5.91	1705-1800 FIXED MOBILE RADIOLOCATION US240	Maritime (80) Private Land Mobile (90)
1800-1810 RADIOLOCATION	1800-2000 AMATEUR	1800-2000 FIXED MOBILE except aeronautical mobile RADIIONAVIGATION Radiolocation	1800-1900 AMATEUR	Amateur (97)
5.93	1810-1850 AMATEUR			
1810-1850 AMATEUR				
5.98-5.99 5.100 5.101	1850-2000 FIXED MOBILE except aeronautical Mobile		1900-2000 RADIOLOCATION	Private Land Mobile (90) Amateur (97)
5.92-5.96 5.103	5.102	5.97	US290	
2000-2025 FIXED MOBILE except aeronautical mobile (R)	2000-2065 FIXED MOBILE		2000-2065 FIXED MOBILE	Maritime (80)
5.92-5.103				
2025-2045 FIXED MOBILE except aeronautical mobile (R)				
5.92-5.103				
2045-2160 FIXED MARITIME MOBILE LAND MOBILE	2065-2107 MARITIME MOBILE 5.105 5.106		US340 2065-2107 MARITIME MOBILE 5.105 US296 US340	
5.92	See next page for 2107-2170 kHz		See next page for 2107-2170 kHz	See next page

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2107-3230 kHz (M/FHF)		Page 7	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
See previous page for 2045-2160 kHz	2107-2170 FIXED MOBILE	2107-2170 FIXED MOBILE	2107-2170 FIXED LAND MOBILE MARITIME MOBILE NG19
2160-2170 RADIOLOCATION			
5.93 5.107		US340	US340
2170-2173.5 MARITIME MOBILE		2170-2173.5 MARITIME MOBILE (telephony)	2170-2173.5 MARITIME MOBILE
		US340	US340
2173.5-2190.5 MOBILE (distress and calling)		2173.5-2190.5 MOBILE (distress and calling)	
5.108 5.109 5.110 5.111		5.108 5.109 5.110 5.111	US279 US340
2190.5-2194 MARITIME MOBILE		2190.5-2194 MARITIME MOBILE (telephony)	2190.5-2194 MARITIME MOBILE
		US340	US340
2194-2300 FIXED MOBILE except aeronautical mobile (R)	2194-2300 FIXED MOBILE	2194-2495 FIXED MOBILE	2194-2495 FIXED LAND MOBILE MARITIME MOBILE NG19
5.92 5.103 5.112	5.112		
2300-2498 FIXED MOBILE except aeronautical mobile (R)	2300-2495 FIXED MOBILE BROADCASTING 5.113		
BROADCASTING 5.113	BROADCASTING 5.113		
5.103	2495-2501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)	US340	US340
2498-2501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)		2495-2501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)	
		US340	

2501-2502 STANDARD FREQUENCY AND TIME SIGNAL Space research	2501-2502 STANDARD FREQUENCY AND TIME SIGNAL US340 G106	2501-2502 STANDARD FREQUENCY AND TIME SIGNAL US340	
2502-2625 FIXED MOBILE except aeronautical mobile (F) 5.92 5.103 5.114	2502-2505 STANDARD FREQUENCY AND TIME SIGNAL US340	2502-2505 STANDARD FREQUENCY AND TIME SIGNAL US340	
2625-2850 MARITIME MOBILE RADIONAVIGATION 5.92	2605-2850 FIXED MOBILE	2605-2850 FIXED LAND MOBILE MARITIME MOBILE	Maritime (80) Aviation (87) Private Land Mobile (90)
2850-3025 FIXED MOBILE except aeronautical mobile (F) 5.92 5.103	2850-3025 AERONAUTICAL MOBILE (R) 5.111 5.115	US285 US340	
3025-3155 AERONAUTICAL MOBILE (OR)	2850-3025 AERONAUTICAL MOBILE (R) 5.111 5.115 US283 US340	US285 US340	Aviation (87)
3155-3200 FIXED MOBILE except aeronautical mobile (F) 5.116 5.117	3025-3155 AERONAUTICAL MOBILE (OR) US340		
3200-3230 FIXED MOBILE except aeronautical mobile (F) BROADCASTING 5.113 5.116	3155-3230 FIXED MOBILE except aeronautical mobile (R)	3155-3230 MOBILE except aeronautical mobile (R)	Maritime (80) Private Land Mobile (90)

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3230-5060 kHz (HF)		Page 9	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
3230-3400 FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 5.118	Region 3	3230-3400 FIXED MOBILE except aeronautical mobile Radiolocation US340	Maritime (80) Aviation (87) Private Land Mobile (90)
3400-3500 AERONAUTICAL MOBILE (F)		3400-3500 AERONAUTICAL MOBILE (F) US283 US340	Aviation (87)
3500-3800 AMATEUR FIXED MOBILE except aeronautical mobile 5.92	3500-3750 AMATEUR 5.119 3750-4000 AMATEUR FIXED MOBILE except aeronautical mobile (F)	3500-3800 AMATEUR FIXED MOBILE 3500-4000 AMATEUR	Amateur (97)
3800-3900 FIXED AERONAUTICAL MOBILE (OF) LAND MOBILE			
3900-3950 AERONAUTICAL MOBILE (OF)		3900-3950 AERONAUTICAL MOBILE BROADCASTING	
5.123 3950-4000 FIXED BROADCASTING		3950-4000 FIXED BROADCASTING 5.126	
4000-4063 FIXED MARITIME MOBILE 5.127 5.126		US340 4000-4063 FIXED MARITIME MOBILE US340	Maritime (80)
4063-4438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128 5.129		4063-4438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 US82 US296 US340	Maritime (80) Aviation (87)

4438-4650 FIXED MOBILE except aeronautical mobile (R)	4438-4650 FIXED MOBILE except aeronautical Mobile	4438-4650 FIXED MOBILE except aeronautical mobile (R) US340	Maritime (80) Aviation (87) Private Land Mobile (90)
4650-4700 AERONAUTICAL MOBILE (R)		4650-4700 AERONAUTICAL MOBILE (R) US282 US283 US340	Aviation (87)
4700-4750 AERONAUTICAL MOBILE (OR)		4700-4750 AERONAUTICAL MOBILE (OR) US340	
4750-4850 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	4750-4850 FIXED MOBILE except aeronautical BROADCASTING 5.113 Land mobile	4750-4850 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 US340	Maritime (80)
4850-4995 FIXED LAND MOBILE BROADCASTING 5.113		4850-4995 FIXED MOBILE US340	Aviation (87)
4995-5003 STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)		4995-5003 STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz) US340	
5003-5005 STANDARD FREQUENCY AND TIME SIGNAL Space research		5003-5005 STANDARD FREQUENCY AND TIME SIGNAL US340.G.106	
5005-5060 FIXED BROADCASTING 5.113		5005-5060 FIXED US340	Maritime (80) Aviation (87) Private Land Mobile (90)

5060-9040 kHz (HF)			Page 11	
International Table		United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government
5060-5250 FIXED Mobile except aeronautical mobile 5.133			5060-5450 FIXED Mobile except aeronautical mobile	Maritime (80) Aviation (87) Private Land Mobile (90) Amateur (97)
5250-5450 FIXED MOBILE except aeronautical mobile			US212 US340 US381	
5450-5480 FIXED AERONAUTICAL MOBILE (R) (OR) LAND MOBILE	5450-5480 FIXED AERONAUTICAL MOBILE (R) (OR) LAND MOBILE		5450-5680 AERONAUTICAL MOBILE (R)	Aviation (87)
5480-5680 AERONAUTICAL MOBILE (R)				
5.111.5.115			5.111.5.115 US283 US340	
5680-5730 AERONAUTICAL MOBILE (OR)			5680-5730 AERONAUTICAL MOBILE (OR)	
5.111.5.115			5.111.5.115 US340	
5730-5900 FIXED LAND MOBILE	5730-5900 FIXED MOBILE except aeronautical mobile (R)	5730-5900 FIXED Mobile except aeronautical mobile (R)	5730-5900 FIXED MOBILE except aeronautical mobile (R) US340	Maritime (80) Aviation (87)
5900-5950 BROADCASTING 5.134			5900-5950 BROADCASTING FIXED MOBILE except aeronautical mobile (R) US340 US366	Radio Broadcast (HF) (73) Maritime (80) Aviation (87)
5.136			5950-6200 BROADCASTING US340	Radio Broadcast (HF) (73)
6200-6525 MARTIME MOBILE 5.109 5.110 5.130 5.132			6200-6525 MARTIME MOBILE 5.109 5.110 5.130 5.132 US82 US296 US340	Maritime (80)
5.137			6525-6685 AERONAUTICAL MOBILE (R) US283 US340	Aviation (87)

6685-6765 AERONAUTICAL MOBILE (OR)	6685-6765 AERONAUTICAL MOBILE (OR)	
6765-7000 FIXED Land mobile 5.139 5.138	US340 6765-7000 FIXED Mobile 5.138 US340 7000-7100	ISM Equipment (18)
7000-7100 AMATEUR AMATEUR-SATELLITE 5.140 5.141	7000-7100 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
7100-7300 BROADCASTING 5.142	7100-7300 AMATEUR US340	
7300-7350 BROADCASTING 5.134	7300-7350 BROADCASTING Mobile US340, US366	Radio Broadcast (HF) (73) Maritime (80) Private Land Mobile (90)
5.143 7350-8100 FIXED Land mobile 5.144	7350-8100 FIXED Mobile US340	Maritime (80) Aviation (87) Private Land Mobile (90)
8100-8195 FIXED MARITIME MOBILE	8100-8195 FIXED MARITIME MOBILE US340	Maritime (80)
8195-8815 MARITIME MOBILE 5.109 5.110 5.132 5.145	8195-8815 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 5.111 US296 US340	Maritime (80) Aviation (87)
5.111 8815-8965 AERONAUTICAL MOBILE (R)	8815-8965 AERONAUTICAL MOBILE (R) US340	Aviation (87)
8965-9040 AERONAUTICAL MOBILE (OR)	8965-9040 AERONAUTICAL MOBILE (OR) US340	

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9040-13410 kHz (HF)		Page 13	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
9040-9400 FIXED	Region 3	9040-9400 FIXED US340	Maritime (80)
9400-9500 BROADCASTING 5.134		9400-9500 BROADCASTING FIXED US340 US366	Radio Broadcast (HF) (73) Maritime (80)
5.146		9500-9600 BROADCASTING	Radio Broadcast (HF) (73)
9600-9800 BROADCASTING		9600-9800 BROADCASTING 5.147 US340 US367	Radio Broadcast (HF) (73)
5.147		9800-9895 FIXED US340	
9800-9895 FIXED		9800-9895 FIXED US340	
9995-10003 STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz)		9995-10003 STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz)	
5.111		5.111 US340	
10003-10005 STANDARD FREQUENCY AND TIME SIGNAL Space research		10003-10005 STANDARD FREQUENCY AND TIME SIGNAL 10003-10005 STANDARD FREQUENCY AND TIME SIGNAL 5.111 US340 G106 5.111 US340	
5.111		5.111 US340 G106	
10005-10100 AERONAUTICAL MOBILE (R)		10005-10100 AERONAUTICAL MOBILE (R)	Aviation (87)
5.111		5.111 US283 US340	
10100-10150 FIXED Amateur		10100-10150 AMATEUR US247 US340	Amateur (97)
10150-11175 FIXED		10150-11175 FIXED	
Mobile except aeronautical mobile (R)		Mobile except aeronautical mobile (R) US340	
11175-11275 AERONAUTICAL MOBILE (OR)		11175-11275 AERONAUTICAL MOBILE (OR) US340	

11275-11400 AERONAUTICAL MOBILE (R)	11275-11400 AERONAUTICAL MOBILE (R)	Aviation (87)
11400-11600 FIXED	US283 US340 FIXED	
11600-11650 BROADCASTING 5.134	US340 11600-11650 BROADCASTING FIXED	Radio Broadcast (HF) (73)
5.146	US340 US366	
11650-12050 BROADCASTING	11650-12050 BROADCASTING	
5.147	US340 US367	
12050-12100 BROADCASTING 5.134	12050-12100 BROADCASTING FIXED	
5.146	US340 US366	
12100-12230 FIXED	12100-12230 FIXED	
12230-13200 MARITIME MOBILE 5.109 5.110 5.132 5.145	12230-13200 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82	Maritime (80)
13200-13260 AERONAUTICAL MOBILE (OR)	US296 US340 13200-13260 AERONAUTICAL MOBILE (OR) US340	
13260-13360 AERONAUTICAL MOBILE (R)	13260-13360 AERONAUTICAL MOBILE (R)	Aviation (87)
13360-13410 FIXED	US283 US340	
RADIO ASTRONOMY	13360-13410 RADIO ASTRONOMY	
5.149	US342 G115	
	US342	

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International Table		13410-17900 MHz (HF)		United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government		
13410-13570 FIXED Mobile except aeronautical mobile (R)			13410-13570 FIXED Mobile except aeronautical mobile (R)	13410-13570 FIXED		ISM Equipment (18)
5.150			5.150 US340	5.150 US340		
13570-13600 BROADCASTING 5.134			13570-13600 BROADCASTING FIXED Mobile except aeronautical mobile (R)	13570-13600 BROADCASTING FIXED		Radio Broadcast (HF) (73)
5.151			13600-13800 BROADCASTING	US340 US366		
13800-13870 BROADCASTING 5.134			13800-13870 BROADCASTING FIXED Mobile except aeronautical mobile (R)	13800-13870 BROADCASTING FIXED		
5.151			13870-14000 FIXED Mobile except aeronautical mobile (R)	US340 US366 13870-14000 FIXED		
14000-14250 AMATEUR AMATEUR-SATELLITE			14000-14350	US340 14000-14250 AMATEUR AMATEUR-SATELLITE		Amateur (97)
14250-14350 AMATEUR				US340		
5.152				14250-14350 AMATEUR		
14350-14990 FIXED Mobile except aeronautical mobile (R)			14350-14990 FIXED Mobile except aeronautical mobile (R)	US340 14350-14990 FIXED		
				US340		

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14990-15005 STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz)	14990-15005 STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz)		
5.111	5.111 US340		
15005-15010 STANDARD FREQUENCY AND TIME SIGNAL Space research	15005-15010 STANDARD FREQUENCY AND TIME SIGNAL	15005-15010 STANDARD FREQUENCY AND TIME SIGNAL	
	US340 G106	US340	
15010-15100 AERONAUTICAL MOBILE (OR)	15010-15100 AERONAUTICAL MOBILE (OR)		
	US340		
15100-15600 BROADCASTING	15100-15600 BROADCASTING		Radio Broadcast (HF) (73)
	US340		
15600-15800 BROADCASTING 5.134	15600-15800 BROADCASTING FIXED		
5.146	US340 US366		
15800-16360 FIXED	15800-16360 FIXED		
5.153	US340		
16360-17410 MARITIME MOBILE 5.109 5.110 5.132 5.145	16360-17410 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82		Maritime (80)
	US296 US340		
17410-17480 FIXED	17410-17480 FIXED		
	US340		
17480-17550 BROADCASTING 5.134	17480-17550 BROADCASTING FIXED		Radio Broadcast (HF) (73)
5.146	US340 US366		Aviation (87)
17550-17900 BROADCASTING	17550-17900 BROADCASTING		Radio Broadcast (HF) (73)
	US340		

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17900-22855 kHz (HF)		Page 17	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
Region 3			
17900-17970 AERONAUTICAL MOBILE (R)		17900-17970 AERONAUTICAL MOBILE (R)	Aviation (87)
17970-18030 AERONAUTICAL MOBILE (OR)		US283 US340	
18030-18052 FIXED		17970-18030 AERONAUTICAL MOBILE (OR)	
18052-18068 FIXED		US340	
Space research		18030-18068 FIXED	Maritime (80)
18068-18168 AMATEUR		US340	
AMATEUR-SATELLITE		18068-18168	Amateur (97)
5.154		US340	
18168-18780 FIXED		18168-18780 FIXED	Maritime (80)
Mobile except aeronautical mobile		Mobile	
18780-18900 MARITIME MOBILE		US340	
18900-19020 BROADCASTING 5.134		18780-18900 MARITIME MOBILE US82	
5.146		US296 US340	
19020-19680 FIXED		18900-19020 BROADCASTING	Radio Broadcast (HF) (73)
19680-19800 MARITIME MOBILE 5.132		FIXED	
19800-19990 FIXED		US340 US366	
		19020-19680 FIXED	
		US340	
		19680-19800 MARITIME MOBILE 5.132	Maritime (80)
		US340	
		19800-19990 FIXED	
		US340	

1990-1995 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	1990-20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz)	1990-20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz)	
1995-20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111	5.111 US340 G106 20010-21000 FIXED Mobile US340	5.111 US340 20010-21000 FIXED	
21000-21450 AMATEUR AMATEUR-SATELLITE	21000-21450 US340	21000-21450 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
21450-21850 BROADCASTING	21450-21850 BROADCASTING US340		Radio Broadcast (HF) (73)
21850-21870 FIXED 5.155A	21850-21924 FIXED		Aviation (87)
5.155			
21870-21924 FIXED 5.155B	US340		
21924-22000 AERONAUTICAL MOBILE (F)	21924-22000 AERONAUTICAL MOBILE (F) US340		
22000-22855 MARITIME MOBILE 5.132 5.156	22000-22855 MARITIME MOBILE 5.132 US82 US296 US340		Maritime (80)

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22855-26175 kHz (HF)		United States Table		FCC Rule Part(s)
International Table		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
22855-23000 FIXED			22855-23000 FIXED	
5.156			US340	
23000-23200 FIXED			23000-23200 FIXED	
Mobile except aeronautical mobile (R)			Mobile except aeronautical mobile (R)	
5.156			US340	
23200-23350 FIXED 5.156A			23200-23350 AERONAUTICAL MOBILE (OF)	
AERONAUTICAL MOBILE (OF)			US340	
23350-24000 FIXED			23350-24890 FIXED	
MOBILE except aeronautical mobile 5.157			MOBILE except aeronautical mobile	
24000-24890 FIXED			US340	
LAND MOBILE				
24890-24990 AMATEUR			24890-24990 AMATEUR	
AMATEUR-SATELLITE			AMATEUR-SATELLITE	Amateur (97)
24990-25005 STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz)			US340	
25005-25010 STANDARD FREQUENCY AND TIME SIGNAL Space research			24990-25005 STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz)	
			US340	
25010-25070 FIXED			25005-25010 STANDARD FREQUENCY AND TIME SIGNAL	
MOBILE except aeronautical mobile			AND TIME SIGNAL	
			US340 G106	
			25010-25070	
			US340	
			25010-25070 LAND MOBILE	Private Land Mobile (90)
			US340 NG112	

25070-25210 MARITIME MOBILE	25070-25210 MARITIME MOBILE US82 US281 US296 US340 25210-25330	25070-25210 MARITIME MOBILE US82 US281 US296 US340 25210-25330	25070-25210 MARITIME MOBILE US82 US281 US296 US340 25210-25330 LAND MOBILE US340 25330-25550	Maritime (80) Private Land Mobile (90)
25210-25550 FIXED MOBILE except aeronautical mobile	US340 25330-25550 FIXED MOBILE except aeronautical mobile US340	US340 25330-25550 FIXED MOBILE except aeronautical mobile US340	US340 25330-25550 FIXED MOBILE except aeronautical mobile US340	Private Land Mobile (90)
25550-25670 RADIO ASTRONOMY 5.149	25550-25670 RADIO ASTRONOMY US74 US342	25550-25670 RADIO ASTRONOMY US74 US342	25550-25670 RADIO ASTRONOMY US74 US342	
25670-26100 BROADCASTING	25670-26100 BROADCASTING US25 US340	25670-26100 BROADCASTING US25 US340	25670-26100 BROADCASTING US25 US340	Radio Broadcast (HF) (73) Remote Pickup (74D)
26100-26175 MARITIME MOBILE 5.132	26100-26175 MARITIME MOBILE 5.132 US25 US340	26100-26175 MARITIME MOBILE 5.132 US25 US340	26100-26175 MARITIME MOBILE 5.132 US25 US340	Remote Pickup (74D) Maritime (80)

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26175-28000 MHz (HF)		Page 21	
International Table		United States Table	
Region 1	Region 2	Region 3	FCC Rule Part(s)
26175-27500 FIXED MOBILE except aeronautical mobile	Federal Government 26175-26480	Non-Federal Government 26175-26480 LAND MOBILE	Remote Pickup (74D)
	US340 26480-26950 FIXED MOBILE except aeronautical mobile	US340 26480-26950	
	US10 US340 26950-27410	US10 US340 26950-26980 FIXED	ISM Equipment (18)
		5.150 US340 26980-27230 MOBILE except aeronautical mobile	ISM Equipment (18) Personal Radio (95)
		5.150 US340 27230-27410 FIXED MOBILE except aeronautical mobile	ISM Equipment (18) Private Land Mobile (90) Personal Radio (95)
5.150 27500-28000 METEOROLOGICAL AIDS FIXED MOBILE	5.150 US340 27410-27540	5.150 US340 27410-27540 FIXED LAND MOBILE	Private Land Mobile (90)
	US340 27540-28000 FIXED MOBILE	US340 27540-28000	
	US298 US340	US298 US340	

International Table		28-33 MHz (HF/VHF)		United States Table		FCC Rule Part(s)
		Region 1	Region 2	Region 3	Federal Government	
28-29.7 AMATEUR AMATEUR-SATELLITE					28-29.89 Federal Government	28-29.7 AMATEUR AMATEUR-SATELLITE Amateur (97)
29.7-30.005 FIXED MOBILE					US340 29.7-29.8 LAND MOBILE Private Land Mobile (90)	
					US340 29.8-29.89 FIXED	
					US340 29.89-29.91 FIXED MOBILE	
					US340 29.91-30 FIXED	
					US340 30-30.56 FIXED MOBILE	
30.005-30.01 SPACE OPERATION (satellite identification) FIXED MOBILE					US340 30-30.56 FIXED MOBILE	
30.01-37.5 FIXED MOBILE					30.56-32 FIXED LAND MOBILE Private Land Mobile (90)	
					NG124 32-33 FIXED MOBILE	
					See next page for 33-37.5 MHz	See next page for 33-37.5 MHz

33-50 MHz (VHF)		International Table		United States Table		FCC Rule Part(s)
		Region 1	Region 2	Federal Government	Non-Federal Government	
See previous page for 30.01-37.5 MHz		Region 3		33-34 FIXED LAND MOBILE	33-34 FIXED LAND MOBILE	Private Land Mobile (90)
				34-35 FIXED MOBILE	34-35 NG124	
				35-36 FIXED LAND MOBILE	35-36 FIXED LAND MOBILE	Public Mobile (22) Private Land Mobile (90)
				36-37 FIXED MOBILE	36-37	
				US220	US220	
				37-37.5 LAND MOBILE	37-37.5 LAND MOBILE	Private Land Mobile (90)
				37.5-38 Radio astronomy	37.5-38 LAND MOBILE Radio astronomy	
				US342	US342 NG59 NG124	
				38-38.25 FIXED MOBILE RADIO ASTRONOMY	38-38.25 RADIO ASTRONOMY	
				US81 US342	US81 US342	
				38.25-39 FIXED MOBILE	38.25-39	
				39-40	39-40 LAND MOBILE	Private Land Mobile (90)
				40-42 FIXED MOBILE	40-40.98 NG124	ISM Equipment (18) Private Land Mobile (90)





75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE	75.4-76 FIXED MOBILE	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
76-88 BROADCASTING	5.182 5.183 5.188	76-88 BROADCASTING	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
5.175 5.179 5.184 5.187	87-100 FIXED MOBILE BROADCASTING	NG3 NG49 NG56	
87.5-100 BROADCASTING	5.185	NG128 NG129 NG149	
5.190	88-100 BROADCASTING	88-108 BROADCASTING	Broadcast Radio (FM) (73) Auxiliary Broadcasting (74)
100-108 BROADCASTING		US93 NG2 NG128 NG129	
5.192 5.194		US93	
108-117.975		108-117.975	Aviation (87)
AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION	
5.197 5.197A		US93 US343	
117.975-137		117.975-121.9375	
AERONAUTICAL MOBILE (R)		AERONAUTICAL MOBILE (R)	
		5.111 5.198 5.199 5.200 US26 US28	
		121.9375-123.0875	121.9375-123.0875 AERONAUTICAL MOBILE
		5.198 US30 US31 US33	5.198 US30 US31 US33
		US80 US102 US213	US80 US102 US213
		123.0875-123.5875	123.0875-123.5875 AERONAUTICAL MOBILE
		5.198 5.200 US32 US33 US112	5.198 5.200 US32 US33 US112
5.111 5.198 5.199 5.200 5.201 5.202 5.203 5.203A 5.203B		See next page for 123.5875-137 MHz	See next page for 123.5875-137 MHz

123.5875-148 MHz (VHF)		Page 27	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
See previous page for 117.975-137 MHz	Region 3	123.5875-128.8125 AERONAUTICAL MOBILE (R)	
		5.198 US26	
		128.8125-132.0125	128.8125-132.0125 AERONAUTICAL MOBILE (R)
		5.198	5.198
		132.0125-136	
		5.198 US26	
		136-137	136-137 AERONAUTICAL MOBILE (R)
		US244	US244
137-137.025 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)	137.137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth)		Aviation (87)
5.204 5.205 5.206 5.207 5.208 Mobile except aeronautical mobile (R)		5.208	
137.025-137.175 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)		137.025-137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) US319 US320	
5.204 5.205 5.206 5.207 5.208 137.175-137.825 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		5.208 137.175-137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth)	Satellite Communications (25)

Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	137.825-138 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)	138-143.6 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	138-143.6 FIXED MOBILE Space research (space-to-Earth)	5.208	137.825-138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) US319 US320
5.204 5.205 5.206 5.207 5.208	138-143.6 AERONAUTICAL MOBILE (OR)	138-143.6 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	138-143.6 FIXED MOBILE Space research (space-to-Earth)	5.208	138-144 FIXED MOBILE
5.210 5.211 5.212 5.214	143.6-143.65 AERONAUTICAL MOBILE (OR)	143.6-143.65 FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)	5.207 5.213 FIXED MOBILE SPACE RESEARCH (space-to-Earth)	5.207 5.213	
5.211 5.212 5.214	143.65-144 AERONAUTICAL MOBILE (OR)	143.65-144 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	5.207 5.213 FIXED MOBILE Space research (space-to-Earth)	5.207 5.213	
5.210 5.211 5.212 5.214	144-146 AMATEUR AMATEUR-SATELLITE 5.216	144-146 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	5.207 5.213	G30	144-146 AMATEUR AMATEUR-SATELLITE
146-148 FIXED MOBILE except aeronautical mobile (R)	146-148 AMATEUR	146-148 AMATEUR FIXED MOBILE	146-148 AMATEUR FIXED MOBILE	144-148	146-148 AMATEUR
	5.217	5.217	5.217		Amateur (97)

International Table		United States Table		FCC Rule Part(s)
		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
148-149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209	148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209	148-149.9 FIXED MOBILE-SATELLITE (Earth-to-space) 5.209	148-149.9 MOBILE-SATELLITE (Earth-to-space) US319 US320 US323 US325	Satellite Communications (25)
5.218 5.219 5.221	5.218 5.219 5.221		5.218 5.219 G30	
149.9-150.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B	149.9-150.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B		149.9-150.05 MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIONAVIGATION-SATELLITE	
5.220 5.222 5.223	5.220 5.222 5.223		5.223	
150.05-153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY	150.05-156.7625 FIXED MOBILE		150.05-150.8 FIXED MOBILE	
5.149 153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids			US216 G30	
154-156.7625 FIXED MOBILE except aeronautical mobile (R)			150.8-152.855 FIXED LAND MOBILE NG112	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
			US216 152.855-154 LAND MOBILE	Auxiliary Broadcasting (74) Private Land Mobile (90)
5.226 5.227	5.225 5.226 5.227		154-156.2475 FIXED LAND MOBILE NG112 5.226 NG117 NG124 NG148	Maritime (80) Private Land Mobile (90) Personal Radio (95)
			156.2475-157.0375 MARTIME MOBILE	Aviation (87)

156.7625-156.8375 MARTIME MOBILE (distress and calling)				
5.111 5.226 156.8375-174 FIXED MOBILE except aeronautical mobile	5.226 5.227 US77 US106 US107 US266 157.0375-157.1875 MARTIME MOBILE	5.226 5.227 US77 US106 US107 US266 NG117 157.0375-157.1875		Private Land Mobile (90)
	5.226 US214 US266 G109 157.1875-157.45	5.226 US214 US266 157.1875-157.45 LAND MOBILE MARTIME MOBILE		Maritime (80) Private Land Mobile (90)
	5.226 US223 US266 157.45-161.575	5.226 US223 US266 NG111 FIXED LAND MOBILE		Public Mobile (22) Maritime (80) Private Land Mobile (90)
	5.226 US266 161.575-161.625	5.226 US266 NG6 NG28 NG70 NG111 NG112 NG124 NG148 NG155 161.575-161.625 MARTIME MOBILE		Public Mobile (22) Maritime (80)
	5.226 US77 161.625-161.775	5.226 US77 NG6 NG17 161.625-161.775 LAND MOBILE		Public Mobile (22) Auxiliary Broadcasting (74)
	5.226 161.775-162.0125	161.775-162.0125 LAND MOBILE MARTIME MOBILE		Public Mobile (22) Maritime (80) Private Land Mobile (90)
5.226 5.229	5.226 US266 See next page for 162.0125-174 MHz	5.226 US266 NG6 See next page for 162.0125-174 MHz		See next page for 162.0125-174 MHz

162.0125-322 MHz (VHF/UHF)		Page 31	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
See previous page for 156.8375-174 MHz	Region 3	162.0125-173.2 FIXED US13 MOBILE	162.0125-173.2
		5.226 US8 US11 US216 US223 US300 US312 G5	5.226 US8 US11 US13 US216 US223 US300 US312
		173.2-173.4	173.2-173.4 FIXED Land mobile
		173.4-174 FIXED MOBILE	173.4-174 Land mobile
		G5	
174-223 BROADCASTING	174-216 BROADCASTING	174-216	174-216 BROADCASTING
	174-223 FIXED MOBILE BROADCASTING		
	174-216 Fixed Mobile		
	5.234		
	216-220 FIXED MARITIME MOBILE Radiolocation 5.241		NG115 NG128 NG149 216-220 FIXED MOBILE except aeronautical mobile
	5.242		
	220-225 AMATEUR FIXED MOBILE Radiolocation 5.241		US210 US229 NG152 NG173 220-222 FIXED LAND MOBILE Radiolocation 5.241 G2
			US335
			US335
			222-225 Radiolocation 5.241 G2
			222-225 AMATEUR
5.235 5.237 5.243	5.233 5.238 5.240 5.245		Amateur (97)
			Auxiliary Broadcasting (74) Private Land Mobile (90)
			Private Land Mobile (90)
			Private Land Mobile (90)
			Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
			Maritime (80) Private Land Mobile (90) Personal Radio (95) Amateur (97)
			Private Land Mobile (90)
			Amateur (97)

223-230 BROADCASTING Fixed Mobile	225-235 FIXED MOBILE	223-230 FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.250 230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250	225-235 FIXED MOBILE	225-235
5.243 5.246 5.247				
230-235 FIXED MOBILE				
5.247 5.251 5.252				
235-267 FIXED MOBILE				235-267
5.111 5.199 5.252 5.254 5.256				5.111 5.199 5.256 G27 G100
267-272 FIXED MOBILE Space operation (space-to-Earth)				267-322 FIXED MOBILE
5.254 5.257				
272-273 SPACE OPERATION (space-to-Earth) FIXED MOBILE				
5.254				
273-312 FIXED MOBILE				
5.254				
312-315 FIXED MOBILE				
Mobile-satellite (Earth-to-space) 5.254 5.255				
315-322 FIXED MOBILE				
5.254				G27 G100



	SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth)	Space operation (space-to-Earth)
5.262 5.264		
401-402 METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	5.264 401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) EARTH EXPLORATION- SATELLITE (Earth-to-space) METEOROLOGICAL- SATELLITE (Earth-to-space) US384	5.264 401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US384
402-403 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	402-403 METEOROLOGICAL AIDS (radiosonde) US70 EARTH EXPLORATION- SATELLITE (Earth-to-space) METEOROLOGICAL- SATELLITE (Earth-to-space) US345 US384	402-403 METEOROLOGICAL AIDS (radiosonde) US70 Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US345 US384
403-406 METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US345 G6	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US345
406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267	406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267	406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267
406.1-410 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY	406.1-410 FIXED US13 MOBILE RADIO ASTRONOMY US74 US117 G5 G6	406.1-410 RADIO ASTRONOMY US74 US13 US117
5.149		

410-470 MHz (UHF)		Page 35	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
Region 3		FCC Rule Part(s)	
410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268		410-420 FIXED US13 MOBILE SPACE RESEARCH (space-to-space) 5.268	410-420 Private Land Mobile (90)
420-430 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271		G5 420-450 RADIOLOCATION US217 G2 G129	US13 420-450 Amateur US7 NG135 Amateur (97)
430-440 AMATEUR RADIOLOCATION 5.138 5.271 5.272 5.273 5.274 5.275 5.276 5.277 5.280 5.281 5.282 5.283	430-440 RADIOLOCATION Amateur		
440-450 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271 5.284 5.285 5.286	5.271 5.276 5.277 5.278 5.279 5.281 5.282		
450-455 FIXED MOBILE		5.286 US7 US87 US230 G8 450-454	5.282 5.286 US87 US217 US230 450-454 LAND MOBILE
5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E		5.286 US87 454-456	5.286 US87 NG112 NG124 454-455 FIXED LAND MOBILE
455-456 FIXED MOBILE	455-456 FIXED MOBILE		Auxiliary Broadcasting (74) Private Land Mobile (90)
5.209 5.271 5.286A 5.286B 5.286C 5.286E	5.209 5.271 5.286A 5.286B 5.286C 5.286E		Public Mobile (22) Maritime (80)
			Auxiliary Broadcasting (74)

<p>456-459 FIXED MOBILE 5.271 5.287 5.288</p>	<p>459-460 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209</p>	<p>459-460 FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E</p>	<p>456-460</p>	<p>456-460 FIXED LAND MOBILE</p>	<p>Public Mobile (22) Maritime (80) Private Land Mobile (90)</p>
<p>5.209 5.271 5.286A 5.286B 5.286C 5.286E</p>	<p>460-470 Meteorological-satellite (space-to-Earth)</p>	<p>460-470 Meteorological-satellite (space-to-Earth)</p>	<p>460-462.5375 FIXED LAND MOBILE</p>	<p>5.287 5.288 NG112 NG124 NG148</p>	<p>Private Land Mobile (90)</p>
<p>5.287 5.288 5.289 5.290</p>	<p>462.5375-467.5375 LAND MOBILE</p>	<p>462.5375-467.5375 LAND MOBILE</p>	<p>462.5375-467.5375 LAND MOBILE</p>	<p>462.5375-467.5375 LAND MOBILE</p>	<p>Personal Radio (95)</p>
<p>5.287 5.288 5.289 5.290</p>	<p>467.7375-470 FIXED LAND MOBILE</p>	<p>467.7375-470 FIXED LAND MOBILE</p>	<p>467.7375-470 FIXED LAND MOBILE</p>	<p>467.7375-470 FIXED LAND MOBILE</p>	<p>Private Land Mobile (90)</p>
<p>5.287 5.288 5.289 5.290</p>	<p>5.287 5.288 5.289 5.290 US209 US216</p>	<p>5.287 5.288 5.289 5.290 US201 US209 US216</p>	<p>5.287 5.289 US201 US209 US216 NG124</p>	<p>5.287 5.289 US201 US216 NG124</p>	<p>Personal Radio (95)</p>
<p>5.287 5.288 5.289 5.290</p>	<p>5.287 5.288 5.289 5.290 US201 US216</p>	<p>5.287 5.288 5.289 5.290 US201 US216</p>	<p>5.287 5.289 US201 US209 US216 NG124</p>	<p>5.287 5.289 US201 US216 NG124</p>	<p>Personal Radio (95)</p>

470-849 MHz (UHF)		Page 37	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
470-790 BROADCASTING	470-512 BROADCASTING Fixed Mobile	470-608	470-512 FIXED LAND MOBILE BROADCASTING
	5.292-5.293		NG66 NG115 NG128 NG149
	512-608 BROADCASTING		512-608 BROADCASTING
	5.297		
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical/mobile-satellite (Earth-to-space)	608-614 RADIO ASTRONOMY US74 LAND MOBILE US350	NG115 NG128 NG149
	614-806 BROADCASTING Fixed Mobile	US246 614-890	
			614-698 BROADCASTING
			NG115 NG128 NG149
			698-764 FIXED MOBILE BROADCASTING NG159
			NG115 NG128
			764-776 FIXED MOBILE
			NG115 NG128 NG158 NG159
			Public Mobile (22) Broadcast Radio (TV) (73) Auxiliary Broadcasting (74) Private Land Mobile (90)
			Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
			Personal (95)
			Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
			Wireless Communications (27) Broadcast Radio (TV) (73) Auxiliary Broadcasting (74) Private Land Mobile (90)
			Auxiliary Broadcasting (74) Private Land Mobile (90)

<p>5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311 5.312 790-862 FIXED BROADCASTING</p>	<p>776-794 FIXED MOBILE BROADCASTING</p>	<p>Wireless Communications (27) Broadcast Radio (TV) (73) Auxiliary Broadcast (74) Private Land Mobile (90)</p>
<p>5.293 5.309 5.311</p>	<p>NG115 NG128 NG159 794-806 FIXED MOBILE</p>	<p>Auxiliary Broadcasting (74) Private Land Mobile (90)</p>
<p>806-890 FIXED MOBILE BROADCASTING</p>	<p>806-821 FIXED LAND MOBILE</p>	<p>Public Mobile (22) Private Land Mobile (90)</p>
<p>5.312 5.314 5.315 5.316 5.319 5.321 See next page for 862-890 MHz</p>	<p>NG31 821-824 LAND MOBILE 824-849 FIXED LAND MOBILE NG151 See next page for 849-894 MHz</p>	<p>Private Land Mobile (90) Public Mobile (22)</p>
<p>5.317 5.318</p>	<p>5.149 5.305 5.306 5.307 5.311 5.320</p>	<p>See next page for 866-896 MHz</p>

849-941 MHz (UHF)		Page 39	
International Table		United States Table	
Region 1	Region 2	Region 3	FCC Rule Part(s)
See previous pages for 470-862 MHz	See previous pages for 614-890 MHz	See previous pages for 585-890 MHz	See previous pages for 614-849 MHz
			849-851 AERONAUTICAL MOBILE Public Mobile (22)
			851-866 FIXED LAND MOBILE Public Mobile (22) Private Land Mobile (90)
			NG31
862-890 FIXED MOBILE except aeronautical mobile BROADCASTING 5.322			866-869 LAND MOBILE Private Land Mobile (90)
5.319 5.323			
890-942 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation	890-902 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation	890-902 FIXED MOBILE 5.317A BROADCASTING Radiolocation	869-894 FIXED LAND MOBILE Public Mobile (22)
			US116 US268 NG151
			894-896 AERONAUTICAL MOBILE
			US116 US268
			896-901 FIXED LAND MOBILE Private Land Mobile (90)
			US116 US268
			901-902 FIXED MOBILE Personal Communications (24)
	5.318 5.325		US116 US268 G2

<p>902-928 FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation</p>	<p>902-928 RADIOLOCATION G59</p>	<p>902-928</p>	<p>ISM Equipment (18) Private Land Mobile (90) Amateur (97)</p>
<p>5.150 5.325 5.326</p>	<p>5.150 US215 US218 US267 US275 G11 928-932</p>	<p>5.150 US215 US218 US267 US275 928-929 FIXED US116 US215 US268 NG120 929-930 FIXED LAND MOBILE US116 US215 US268</p>	<p>Public Mobile (22) Private Land Mobile (90) Fixed Microwave (101) Private Land Mobile (90)</p>
<p>928-942 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation</p>	<p>US116 US215 US268 G2 932-935 FIXED US215 US268 G2 935-940</p>	<p>930-931 FIXED MOBILE US116 US215 US268 931-932 FIXED LAND MOBILE US116 US215 US268 932-935 FIXED US215 US268 NG120 935-940 FIXED LAND MOBILE</p>	<p>Personal Communications (24) Public Mobile (22)</p>
<p>5.325</p>	<p>US116 US215 US268 G2 940-941</p>	<p>US116 US215 US268 940-941 FIXED MOBILE US116 US268</p>	<p>Public Mobile (22) Fixed Microwave (101) Private Land Mobile (90) Personal Communications (24)</p>
<p>5.323</p>	<p>US116 US268 G2 See next page for 941-944 MHz</p>	<p>US116 US268 See next page for 941-944 MHz</p>	<p>See next page for 941-944 MHz</p>

941-1427 MHz (UHF)		United States Table		Page 41
International Table		Federal Government	Non-Federal Government	FCC Rule Part(s)
Region 1	Region 2	Region 3		
See previous page for 890-942 MHz	See previous page for 890-942 MHz	See previous page for 890-942 MHz	941-944 FIXED	Public Mobile (22) Fixed Microwave (101)
942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322	942-960 FIXED MOBILE 5.317A BROADCASTING	942-960 FIXED MOBILE 5.317A BROADCASTING	US268 US301 US302 G2 944-960	US268 US301 US302 NG120
5.323	5.320	5.320	960-1215 AERONAUTICAL RADIONAVIGATION 5.328	Public Mobile (22) Auxiliary Broadcast (74) Fixed Microwave (101)
5.328A			US224 US385	Aviation (87)
1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.329 5.329A SPACE RESEARCH (active)			1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) (active) SPACE RESEARCH (active)	
5.330 5.331 5.332			5.332	
1240-1260 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.329 5.329A SPACE RESEARCH (active) Amateur			1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 SPACE RESEARCH (active)	Amateur (97)
5.330 5.331 5.332 5.334 5.335			5.332 5.334 5.335	
1260-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.329 5.329A SPACE RESEARCH (active) Amateur			5.282 5.334 5.335	
5.282 5.330 5.331 5.334 5.335 5.335A			5.282 5.334 5.335	

<p>1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-to-space)</p>	<p>1300-1350 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation G2</p>	<p>1300-1350 AERONAUTICAL RADIO- NAVIGATION 5.337 US342</p>	<p>Aviation (87)</p>
<p>5.149 5.337A 1350-1400 FIXED MOBILE RADIOLOCATION</p>	<p>US342 1350-1390 FIXED MOBILE RADIOLOCATION G2</p>	<p>US342 1350-1390</p>	
<p>5.149 5.338 5.339 1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)</p>	<p>5.334 5.339 US311 US342 G27 G114 1390-1395</p>	<p>5.334 5.339 US311 US342 1390-1392 FIXED MOBILE except aeronautical mobile FIXED-SATELLITE (Earth-to-space) US368</p>	<p>Wireless Communications (27)</p>
<p>5.149 5.334 5.339</p>	<p>5.339 US311 US342 US351 1395-1400 LAND MOBILE US350 5.339 US311 US342 US351</p>	<p>5.339 US311 US342 US351 1392-1395 FIXED MOBILE except aeronautical Mobile</p>	<p>Personal (95)</p>
<p>5.340 5.341</p>	<p>5.341 US246</p>	<p>1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)</p>	

1427-1610 MHz (UHF)				Page 43
International Table		United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government
1427-1429 SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile			1427-1429.5 LAND MOBILE US350	1427-1429.5 LAND MOBILE Fixed (telemetry)
5.341			5.341 US352	5.341 US350 US352
1429-1452 FIXED MOBILE except aeronautical Mobile	1429-1452 FIXED MOBILE 5.343		1429.5-1432	1429.5-1430 FIXED (telemetry) LAND MOBILE (telemetry)
			5.341 US352	5.341 US350 US352
			5.341 US350 US352	1430-1432 FIXED (telemetry) LAND MOBILE (telemetry) FIXED-SATELLITE (space-to-Earth) US368
			1432-1435	5.341 US350 US352
			5.341 US361	1432-1435 FIXED MOBILE except aeronautical mobile
5.341 5.342			5.341 US361	5.341 US361
1452-1492 FIXED MOBILE except aeronautical mobile	1452-1492 FIXED MOBILE 5.343 BROADCASTING 5.345 5.347 BROADCASTING-SATELLITE 5.345 5.347		1435-1525 MOBILE (aeronautical telemetry)	
BROADCASTING- SATELLITE 5.345 5.347				
5.341 5.342	5.341 5.344			
1492-1525 FIXED MOBILE except aeronautical mobile	1492-1525 FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348A	1492-1525 FIXED MOBILE		
5.341 5.342	5.341 5.344 5.348	5.341 5.348A		

<p>1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.351A Earth exploration-satellite Fixed Mobile 5.343 Mobile except aeronautical mobile 5.349 5.341 5.342 5.350 5.351 5.352A 5.354</p>	<p>1525-1530 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.351A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.354</p>	<p>1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.351A Earth exploration-satellite Mobile 5.349 5.341 5.351 5.352A 5.354</p>	<p>1525-1535 MOBILE-SATELLITE (space-to-Earth) US315 US380</p>	<p>Satellite Communications (25) Maritime (80)</p>
<p>1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space- to-Earth) 5.351A 5.353A Fixed Mobile 5.343 Mobile except aeronautical mobile 5.341 5.342 5.351 5.354</p>	<p>1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.354</p>	<p>1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.351A 5.353A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.356</p>	<p>1535-1559 MOBILE-SATELLITE (space-to-Earth) US308 US309 US315 US380 5.341 5.351 5.356</p>	<p>Satellite Communications (25) Maritime (80) Aviation (87)</p>
<p>1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329A 5.341 5.362B 5.362C 5.363</p>	<p>1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329A 5.341 5.362B 5.362C 5.363</p>	<p>1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.341 US208 US260 US343</p>	<p>1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.341 US208 US260 US343</p>	<p>Aviation (87)</p>

1610-1670 MHz (UHF)		United States Table		FCC Rule Part(s)
International Table		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIO DETERMINATION- SATELLITE (Earth-to- space)	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-Satellite (Earth-to-space)	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) US319 US380 AERONAUTICAL RADIONAVIGATION US260 RADIO DETERMINATION-SATELLITE (Earth-to-space)	Satellite Communications (25) Aviation (67)
5.341 5.355 5.359 5.363 5.364 5.366 5.367 5.368 5.369 5.371 5.372	5.341 5.364 5.366 5.367 5.368 5.370 5.372	5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	5.341 5.364 5.366 5.367 5.368 5.372 US208	
1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIO DETERMINATION- SATELLITE (Earth-to- space)	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space)	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) US319 US380 RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION US260 RADIO DETERMINATION-SATELLITE (Earth-to-space)	
5.149 5.341 5.355 5.359 5.363 5.364 5.366 5.367 5.368 5.369 5.371 5.372	5.149 5.341 5.364 5.366 5.367 5.368 5.370 5.372	5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	5.341 5.364 5.366 5.367 5.368 5.372 US208 US342	
1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth)	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIO DETERMINATION- SATELLITE (Earth-to-space) Earth)	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to- Earth) Radiodetermination- satellite (Earth-to-space)	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) US319 US380 AERONAUTICAL RADIONAVIGATION US260 RADIO DETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth)	
5.341 5.355 5.359 5.363 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	5.341 5.364 5.365 5.366 5.367 5.368 5.370 5.372	5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.372	5.341 5.364 5.365 5.366 5.367 5.368 5.372 US208	

1626.5-1660 MOBILE-SATELLITE (Earth-to-space) 5.351A	1626.5-1660 MOBILE-SATELLITE (Earth-to-space) US308 US309 US315 US380	Satellite Communications (25) Maritime (60) Aviation (67)
5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376	5.341 5.351 5.375	
1660-1660.5 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY	1660-1660.5 MOBILE-SATELLITE (Earth-to-space) US308 US380 RADIO ASTRONOMY	Satellite Communications (25) Aviation (67)
5.149 5.341 5.351 5.354 5.362A 5.376A	5.341 5.351 US342	
1660.5-1668.4 RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile	1660.5-1668.4 RADIO ASTRONOMY US74 SPACE RESEARCH (passive)	
5.149 5.341 5.379 5.379A	5.341 US246	
1668.4-1670 METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY	1668.4-1670 METEOROLOGICAL AIDS (radiosonde) RADIO ASTRONOMY US74	
5.149 5.341	5.341 US99 US342	

1670-2110 MHz (UHF)			Page 47	
International Table		United States Table		
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government
1670-1675 FIXED METEOROLOGICAL-AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE 5.380				
5.341	5.341	5.341	5.341 US211 US362	5.341 US211 US362
1675-1690 FIXED METEOROLOGICAL-AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	1675-1690 FIXED METEOROLOGICAL-AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	1675-1690 FIXED METEOROLOGICAL-AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	1675-1700 METEOROLOGICAL-AIDS (radiosonde) METEOROLOGICAL-SATELLITE (space-to-Earth)	1675-1700 METEOROLOGICAL-AIDS (radiosonde) METEOROLOGICAL-SATELLITE (space-to-Earth)
5.341	5.341 5.377	5.341	5.341	5.341
1690-1700 FIXED METEOROLOGICAL-AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile				
5.289 5.341 5.382	5.289 5.341 5.377 5.381	5.289 5.341 5.381	5.289 5.341 5.381	5.289 5.341 5.381
1700-1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	1700-1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	1700-1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	1700-1710 FIXED G118 METEOROLOGICAL-SATELLITE (space-to-Earth)	1700-1710 METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed
5.289 5.341	5.289 5.341 5.377	5.289 5.341 5.384	5.289 5.341	5.289 5.341
1710-1930 FIXED MOBILE 5.380 5.384A 5.388A	1710-1930 FIXED MOBILE 5.380 5.384A 5.388A	1710-1930 FIXED MOBILE 5.380 5.384A 5.388A	1710-1755	1710-1755 FIXED MOBILE
			5.341 US311 US378	5.341 US311 US378 NG176

5.149 5.341 5.385 5.386 5.387 5.388	1755-1850 FIXED MOBILE	1755-1850	
1930-1970 FIXED MOBILE 5.388A	1850-2025 G42	1850-2000 FIXED MOBILE	RF Devices (15) Personal Communications (24) Fixed Microwave (101)
5.388			
1970-1980 FIXED MOBILE 5.388A			
5.388			
1930-1970 FIXED MOBILE 5.388A			
5.388			
1980-2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F		NG177 2000-2020 MOBILE-SATELLITE (Earth-to-space) US380	Satellite Communications (25)
2010-2025 FIXED MOBILE 5.388A		NG156 2020-2025 FIXED MOBILE	
5.388 5.389C 5.389D 5.389E 5.390		NG177	
2025-2110 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)	2025-2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION- SATELLITE (Earth-to- space) (space-to-space) SPACE RESEARCH (Earth- to-space) (space-to-space) US346 US347	2025-2110 FIXED NG118 MOBILE 5.391	TV Auxiliary Broadcasting (74F) Cable TV Relay (78) Local TV Transmission (101J)
5.392		5.392 US90 US222 US346 US347	

2110-2345 MHz (UHF)		Page 49	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
2110-2120 FIXED MOBILE 5.388A SPACE RESEARCH (deep space) (Earth-to-space)	Region 3	2110-2120	2110-2155 FIXED MOBILE
5.388		US252	US252
2120-2160 FIXED MOBILE 5.388A	2120-2170 FIXED MOBILE 5.388A	2120-2200	2155-2160 FIXED
5.388	5.388		2160-2180 FIXED NG153 MOBILE
2160-2170 FIXED MOBILE 5.388A	2160-2170 FIXED MOBILE 5.388A MOBILE-SATELLITE (space-to-Earth)		2180-2200 MOBILE-SATELLITE (space-to-Earth) US380
5.388 5.392A	5.388 5.389C 5.389D 5.389E 5.390		NG168
2170-2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A	5.388		2200-2290
5.388 5.389A 5.389F 5.392A		2200-2290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION- SATELLITE (space-to- Earth) (space-to-space) FIXED (line-of-sight only)	
2200-2290 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)			

FCC Rule Part(s)

Domestic Public Fixed (21)  
Public Mobile (22)  
Fixed Microwave (101)

Domestic Public Fixed (21)  
Fixed Microwave (101)

Domestic Public Fixed (21)  
Public Mobile (22)  
Fixed Microwave (101)

Satellite Communications (25)

<p>5.392 2290-2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)</p>	<p>MOBILE (line-of-sight only including aeronautical telemetry, but excluding flight testing of manned aircraft) 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space)</p>	<p>US303 2290-2300 SPACE RESEARCH (deep space) (space-to-Earth)</p>	
<p>5.392 2300-2305 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)</p>	<p>2300-2305 Amateur</p>	<p>2300-2305 Amateur</p>	<p>Amateur (97)</p>
<p>2300-2450 FIXED MOBILE Amateur Radiolocation</p>	<p>2300-2450 FIXED MOBILE RADIOLOCATION Amateur</p>	<p>2305-2310 FIXED MOBILE except aeronautical mobile RADIOLOCATION Amateur</p>	<p>Wireless Communications (27) Amateur (97)</p>
<p>5.150 5.282 5.395</p>	<p>5.150 5.282 5.393 5.394 5.396</p>	<p>US338 G123 2310-2320 FIXED Mobile US339 Radiolocation G2 G120 US327 2320-2345 FIXED Radiolocation G2 G120 US327</p>	<p>US338 2310-2320 FIXED MOBILE US339 RADIOLOCATION BROADCASTING- SATELLITE 5.396 US327 2320-2345 BROADCASTING- SATELLITE 5.396 US327</p> <p>Wireless Communications (27) Aviation (87)</p> <p>Satellite Communications (25)</p> <p>See next page for 2345-2360 MHz</p>

2345-2655 MHz (UHF)		Page 51	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
See previous page for 2300-2450 MHz	Region 3	2345-2360 Fixed Mobile US339 Radiolocation G2 G120 US327	2345-2360 FIXED MOBILE US339 RADIOLOCATION BROADCASTING- SATELLITE 5.396 US327
		2360-2385 MOBILE US276 RADIOLOCATION G2 G120 Fixed	2360-2385 MOBILE US276
		2385-2390	2385-2390 FIXED MOBILE NG174
		US363	US363
		2390-2400	2390-2400 AMATEUR
		G122	
		2400-2402	2400-2417 AMATEUR
		5.150 G123	
		2402-2417	
		5.150 G122	5.150 5.282
		2417-2450 Radiolocation G2	2417-2450 Amateur
		5.150 G124	5.150 5.282
		2450-2483.5	2450-2483.5 FIXED MOBILE RADIOLOCATION
2450-2483.5 FIXED MOBILE Radiolocation	2450-2483.5 FIXED MOBILE RADIOLOCATION	5.150 US41	5.150 US41
5.150 5.397	5.150 5.394		ISM Equipment (18) Private Land Mobile (90) Fixed Microwave (101)

2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A Radiolocation	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION- SATELLITE (space-to- Earth) 5.398	2483.5-2500 FIXED MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION Radiodetermination-satellite (space-to-Earth) 5.398	2483.5-2500 MOBILE-SATELLITE (space-to-Earth) US319 US380 US391 RADIODETERMINATION- SATELLITE (space-to- Earth) 5.398	2483.5-2495 MOBILE-SATELLITE (space-to-Earth) US319 US380 RADIODETERMINATION- SATELLITE (space-to- Earth) 5.398 5.150 5.402 US41 NG147 2495-2500 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) US319 US380 RADIODETERMINATION- SATELLITE (space-to- Earth) 5.398 5.150 5.402 US41 US391 NG147	ISM Equipment (18) Satellite Communications (25) Private Land Mobile (90) Fixed Microwave (101)
5.150 5.371 5.397 5.398 5.399 5.400 5.402	5.150 5.402	5.150 5.400 5.402	5.150 5.402 US41 2500-2655	2500-2655 FIXED US205 MOBILE except aeronautical mobile	Domestic Public Fixed (21) Instructional TV Fixed (74)
2500-2520 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space- to-Earth) 5.403 5.351A 5.405 5.407 5.412 5.414 5.404 5.407 5.414 5.415A	2500-2520 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.403 5.351A 5.404 5.407 5.414 5.415A	2500-2520 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.403 5.351A	2500-2655 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416	2500-2655 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416 5.403 5.415A 2535-2655 FIXED 5.409 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416 5.339 5.418 5.418A 5.418B 5.418C	
2520-2655 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416	2520-2655 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416	2520-2535 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416 5.403 5.415A 2535-2655 FIXED 5.409 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416 5.339 5.418 5.418A 5.418B 5.418C	5.339 US205	5.339	
5.339 5.403 5.405 5.412 5.418 5.418B 5.418C	5.339 5.403 5.418B 5.418C	5.339 5.418 5.418A 5.418B 5.418C	5.339 US205	5.339	

2655-3700 MHz (UHF/SHF)		United States Table		FCC Rule Part(s)
International Table		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
2655-2670 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING SATELLITE 5.413 5.416 (passive) Earth exploration-satellite Radio astronomy Space research (passive)	2655-2670 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416 (passive) Earth exploration-satellite Radio astronomy Space research (passive)	2655-2670 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)	2655-2690 Earth exploration-satellite (passive) Radio astronomy US269 Space research (passive)	Domestic Public Fixed (21) Instructional TV Fixed (74)
5.149 5.412 5.420	5.149 5.420	5.149 5.420		
2670-2690 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive)	2670-2690 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive)	2670-2690 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive)		
5.149 5.419 5.420	5.149 5.419 5.420	5.149 5.419 5.420 5.420A	US205	
2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)			2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive)	
5.340 5.421 5.422			US246	
2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation			2700-2900 AERONAUTICAL RADIO- NAVIGATION 5.337 METEOROLOGICAL AIDS Radiolocation G2	
5.423 5.424			5.423 US18 G15	5.423 US18

2900-3100 RADIIONAVIGATION 5.426 Radiolocation	2900-3100 MARITIME RADIIONAVIGATION Radiolocation US44	2900-3100 MARITIME RADIIONAVIGATION Radiolocation US44	Maritime (80) Private Land Mobile (90)
5.425 5.427	5.427 US44 US316	5.427 US44 US316	
3100-3300 RADIOLOCATION Earth exploration-satellite (active) Space research (active)	3100-3300 RADIOLOCATION G59 Earth exploration-satellite (active) Space research (active)	3100-3300 RADIOLOCATION G59 Earth exploration-satellite (active) Space research (active)	Private Land Mobile (90)
5.149 5.428	US342	US342	
3300-3400 RADIOLOCATION Amateur Fixed Mobile	3300-3400 RADIOLOCATION Amateur G31	3300-3500 Amateur Radiolocation US108	Private Land Mobile (90) Amateur (97)
5.149 5.429 5.430	5.149 5.430	5.149 5.429	
3400-3600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile Radiolocation 5.433		
5.431	5.282 5.432	US342	
3600-4200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	3500-3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433	3500-3650 RADIOLOCATION G59 AERONAUTICAL RADIIONAVIGATION (ground-based) G110 US245 3650-3700	Private Land Mobile (90)
5.435	See next page for 3700-4200 MHz	US245 US348 US349 See next page for 3700-4200 MHz	See next page for 3700-4200 MHz

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3700-5650 MHz (SHF)		Page 55	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
See previous page for 3600-4200 MHz	Region 3 3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	3700-4200	3700-4200 FIXED NG41 FIXED-SATELLITE (space-to-Earth)
4200-4400 AERONAUTICAL RADIONAVIGATION 5.438		4200-4400 AERONAUTICAL RADIONAVIGATION	Aviation (87)
5.439-5.440		5.440 US261	
4400-4500 FIXED MOBILE		4400-4500 FIXED MOBILE	4400-4500
4500-4800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE		4500-4800 FIXED MOBILE US245	4500-4800 FIXED-SATELLITE (space-to-Earth) 5.441 US245
4800-4990 FIXED MOBILE 5.442 Radio astronomy		4800-4940 FIXED MOBILE US203 US342 4940-4990	4800-4940 US203 US342 4940-4990 FIXED MOBILE except aeronautical mobile
5.149-5.339 5.443		5.339 US311 US342 G122	5.339 US311 US342
4990-5000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive)		4990-5000 RADIO ASTRONOMY US74 Space research (passive)	
5.149		US246	
5000-5150 AERONAUTICAL RADIONAVIGATION		5000-5250 AERONAUTICAL RADIO-NAVIGATION US260	5000-5150 AERONAUTICAL RADIO-NAVIGATION US260 5.367 5.444A US211 US344 US370
5.367 5.443A 5.443B 5.444 5.444A			Satellite Communications (25) Aviation (87)

5150-5250 AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B	5.367 US211 US307 US344 US370 5.447C US211 US307	5150-5250 AERONAUTICAL RADIO- NAVIGATION US260 FIXED-SATELLITE (Earth- to-space) 5.447A US344 5.447C US211 US307	RF Devices (15) Satellite Communications (25) Aviation (87)
5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F	5250-5255 EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.447D 5.448A	5250-5255 Earth exploration-satellite (active) Radiolocation Space research	RF Devices (15) Private Land Mobile (90)
5.448 5.448A 5.447E 5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F	5255-5350 EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.448A	5255-5350 Earth exploration-satellite (active) Radiolocation Space research (active) 5.448A	
5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D	5350-5460 EARTH EXPLORATION- SATELLITE (active) 5.448B SPACE RESEARCH (active) AERONAUTICAL RADIO- NAVIGATION 5.449 RADIOLOCATION G56 US390 G130	5350-5460 AERONAUTICAL RADIO- NAVIGATION 5.449 Earth exploration-satellite (active) 5.448B Space research (active) Radiolocation US390	Aviation (87) Private Land Mobile (90)
5460-5470 RADIONAVIGATION 5.449 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D	5460-5470 RADIONAVIGATION 5.449 US65 EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION G56 5.448B US49 G130	5460-5470 RADIONAVIGATION 5.449 US65 Earth exploration-satellite (active) Space research (active) Radiolocation 5.448B US49	Private Land Mobile (90)
5.448B 5470-5570 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.450 5.451 5.452 5.448B	5470-5570 MARITIME RADIONAVIGATION US65 EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION G56 5.448B US50 G131	5470-5570 MARITIME RADIONAVIGATION US65 RADIOLOCATION Earth exploration-satellite (active) Space research (active) US50	RF Devices (15) Maritime (80) Private Land Mobile (90)

5570-7250 MHz (SHF)		Page 57	
International Table		United States Table	
Region 1	Region 2	Federal Government	Non-Federal Government
5570-5650 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B	Region 3	5570-5600 MARITIME RADIONAVIGATION US65 RADIOLOCATION G56 US50 G131 5600-5650 MARITIME RADIONAVIGATION US65 METEOROLOGICAL AIDS RADIOLOCATION G56 5.452 US50 G131 5650-5925 RADIOLOCATION G2	5570-5600 MARITIME RADIONAVIGATION US65 RADIOLOCATION US50 5600-5650 MARITIME RADIONAVIGATION US65 METEOROLOGICAL AIDS RADIOLOCATION 5.452 US50 5650-5830 Amateur
5.450 5.451 5.452 5650-5725 RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space research (deep space)			
5.282 5.451 5.453 5.454 5.455 5725-5830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur			
5.150 5.451 5.453 5.455 5.456 5830-5850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth)			
5.150 5.451 5.453 5.455 5.456 5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation			
5.150 5925-6700 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE			
		5.150 US245 5925-6425	5.150 5925-6425 FIXED NG41 FIXED-SATELLITE (Earth-to-space)
			RF Devices (15) Maritime (80) Private Land Mobile (90)
			RF Devices (15) ISM Equipment (18) Amateur (97)
			ISM Equipment (18) Amateur (97)
			ISM Equipment (18) Private Land Mobile (90) Amateur (97)
			International Fixed (23) Satellite Commun. (25) Fixed Microwave (101)

6425-6525	6425-6525 FIXED-SATELLITE (Earth-to-space) MOBILE	5.440 5.458	Auxiliary Broadcasting (74) Cable TV Relay (78) Fixed Microwave (101)
6525-6700	6525-6700 FIXED FIXED-SATELLITE (Earth- to-space)	5.440 5.458	Satellite Communications (25) Fixed Microwave (101)
5.458 US342 6700-7125	5.458 US342 6700-6875 FIXED FIXED-SATELLITE (Earth-to- space)(space-to-Earth) 5.441 5.458 5.458A 5.458B	5.458 US342	
5.149 5.440 5.458 6700-7075	6875-7025 FIXED NG118 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE NG171 5.458 5.458A 5.458B	5.458 US342	Satellite Communications (25) Auxiliary Broadcasting (74) Cable TV Relay (78)
5.458 5.458A 5.458B 5.458C 7075-7250	7025-7075 FIXED NG118 FIXED-SATELLITE (Earth-to-space) NG172 MOBILE NG171 5.458 5.458A 5.458B	7075-7125	
5.458 5.458A 5.458B 5.458C 7075-7250	7075-7125 FIXED NG118 MOBILE NG171 5.458	7075-7125	Auxiliary Broadcasting (74) Cable TV Relay (78)
5.458 5.458A 5.458B 5.458C 7075-7250	7125-7190 FIXED 5.458 US252 G116 7190-7235 FIXED SPACE RESEARCH (Earth-to-space) 5.458 7235-7250 FIXED 5.458	7125-7190 5.458 US252 7190-7250	
5.458 5.458A 5.458B 5.458C 7075-7250	5.458	5.458	

7250-8215 MHz (SHF)			United States Table		FCC Rule Part(s)
International Table		Region 3	Federal Government	Non-Federal Government	
Region 1	Region 2				
7250-7300 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE			7250-7300 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Fixed	7250-8025	
5.461 7300-7450 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile			G117 7300-7450 FIXED FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth)		
5.461 7450-7550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile			G117 7450-7550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL- SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth)		
5.461A 7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile			G104 G117 7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth)		
7750-7850 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile			G117 7750-7850 FIXED METEOROLOGICAL- SATELLITE (space-to-Earth) 5.461B		
7850-7900 FIXED MOBILE except aeronautical mobile			7850-7900 FIXED		

<p>7900-8025 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE</p>	<p>7900-8025 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Fixed</p>		
<p>5.461 8025-8175 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463</p>	<p>G117 8025-8175 EARTH EXPLORATION- SATELLITE (space-to- Earth) FIXED FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to- space) (no airborne transmissions)</p>	<p>8025-8215</p>	
<p>5.462A 8175-8215 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463</p>	<p>US258 G117 8175-8215 EARTH EXPLORATION- SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL- SATELLITE (Earth-to-space) Mobile-satellite (Earth-to- space) (no airborne transmissions)</p>	<p>US258</p>	<p>US258 G104 G117</p>

8215-10000 MHz (SHF)		United States Table		FCC Rule Part(s)
International Table		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
8215-8400 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463		8215-8400 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) (no airborne transmissions)	8215-8400	
5.462A 8400-8500 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466		US258 G117 8400-8450 FIXED SPACE RESEARCH (space-to-Earth) (deep space only)	US258 8400-8450 Space research (space-to-Earth) (deep space only)	
5.467 8500-8550 RADIOLOCATION		8450-8500 FIXED SPACE RESEARCH (space-to-Earth)	8450-8500 SPACE RESEARCH (space-to-Earth)	
5.468 5.469 8550-8650 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)		8500-8550 RADIOLOCATION G59	8500-8550 Radiolocation	
5.468 5.469 5.469A 8650-8750 RADIOLOCATION		8550-8650 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active)	8550-8650 Earth exploration-satellite (active) Radiolocation Space research (active)	
5.468 5.469 8750-8850 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470		8650-9000 RADIOLOCATION G59	8650-9000 Radiolocation	
5.471				

8850-9000 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 G19 5.471	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation G2 US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 5.474	Aviation (87)
9000-9300 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.471	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation G2 US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation G2 US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 5.474	
9200-9300 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation G2 US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 5.474	
9300-9500 RADIONAVIGATION 5.476 Radiolocation 5.427 5.474 5.475	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation G2 US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 5.474	
9500-9800 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation G2 US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 5.474	
9800-10000 RADIOLOCATION Fixed 5.477 5.478 5.479	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation G2 US48 G19 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 G59 5.474	US53 9000-9200 AERONAUTICAL RADIO- NAVIGATION 5.337 Radiolocation US48 9200-9300 MARITIME RADIO- NAVIGATION 5.472 Radiolocation US110 5.474	

10-12.7 GHz (SHF)			United States Table		FCC Rule Part(s)
International Table			Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3			
10-10.45 FIXED MOBILE RADIOLOCATION Amateur	10-10.45 RADIOLOCATION Amateur	10-10.45 FIXED MOBILE RADIOLOCATION Amateur	10-10.45 RADIOLOCATION	10-10.45 Radiolocation Amateur	Private Land Mobile (90) Amateur (97)
5.479 10.45-10.5 RADIOLOCATION Amateur Amateur-satellite	5.479 5.480	5.479	5.479 US58 US108 G32 10.45-10.5 RADIOLOCATION	5.479 US58 US108 NG42 10.45-10.5 Radiolocation Amateur Amateur-satellite	
5.481 10.5-10.55 FIXED MOBILE Radiolocation	10.5-10.55 FIXED MOBILE RADIOLOCATION		US58 US108 G32 10.5-10.55 RADIOLOCATION	US58 US108 NG42 NG134	Private Land Mobile (90)
10.55-10.6 FIXED MOBILE except aeronautical mobile Radiolocation			US59 10.55-10.6	10.55-10.6 FIXED	Fixed Microwave (101)
10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation			10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)	10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED US265 SPACE RESEARCH (passive)	
5.149 5.482 10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)			US265 US277 10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive)	US277	
5.340 5.483			US246 US355		

10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	Satellite Communications (25) Fixed Microwave (101)
11.7-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING- SATELLITE	11.7-12.1 FIXED 5.486 (space-to-Earth) 5.484A MOBILE except aeronautical mobile 5.485 5.488	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING- SATELLITE	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING- SATELLITE	11.7-12.2 FIXED-SATELLITE (space- to-Earth) NG143 NG145 MOBILE except aeronautical mobile	US211 US355
5.487 5.487A 5.482 12.5-12.75 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space)	12.1-12.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.485 5.488 5.489	12.2-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING- SATELLITE	12.2-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING- SATELLITE	5.486 5.488 12.2-12.7 FIXED BROADCASTING- SATELLITE	5.486 5.488 12.2-12.7 FIXED BROADCASTING- SATELLITE
5.494 5.495 5.496	5.487A 5.488 5.490 5.492 See next page for 12.7-12.75 GHz	5.487 5.487A 5.492 12.5-12.75 FIXED MOBILE except aeronautical mobile BROADCASTING- SATELLITE 5.493	5.487 5.487A 5.492 12.5-12.75 FIXED MOBILE except aeronautical mobile BROADCASTING- SATELLITE 5.493	5.487A 5.488 5.490 See next page for 12.7-12.75 GHz	See next page for 12.7-12.75 GHz

12.7-14.5 GHz (SHF)		United States Table		FCC Rule Part(s)
International Table		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
See previous page for 12.5-12.75 GHz	12.7-12.75 GHz FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	See previous page for 12.5-12.75 GHz	12.7-12.75 GHz FIXED-SATELLITE (Earth-to-space) MOBILE	Satellite Communications (25) Auxiliary Broadcasting (74) Cable TV Relay (78) Fixed Microwave (101)
12.75-13.25 GHz FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)			12.75-13.25 GHz FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE NG53	
13.25-13.4 GHz EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active)			US251 13.25-13.4 GHz EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active)	Aviation (87)
5.498A 5.499 GHz			5.498A	
13.4-13.75 GHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space)			13.4-13.75 GHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.501A Standard frequency and time signal-satellite (Earth-to-space)	Private Land Mobile (90)
5.499 5.500 5.501 5.501B GHz			5.501B	
13.75-14 GHz FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION Standard frequency and time signal-satellite (Earth-to-space) Space research			13.75-14 GHz RADIOLOCATION G59 Standard frequency and time signal-satellite (Earth-to-space) Space research US337	Satellite Communications (25) Private Land Mobile (90)
5.499 5.500 5.501 5.502 5.503 5.503A GHz			5.503A US356 US357	

<p>14-14.25 FIXED-SATELLITE (Earth-to-space) 5.484A 5.506 5.457A 5.506B 5.457B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504C 5.506A Space research</p>	<p>14-14.2 RADIONAVIGATION US292 Space research</p>	<p>14-14.2 FIXED-SATELLITE (Earth-to-space) RADIONAVIGATION US292 Mobile-satellite (Earth-to- space) Space research</p>	<p>Satellite Communications (25) Maritime (80) Aviation (87)</p>
<p>5.504A 5.505 14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.484A 5.506 5.457A 5.457B 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.506A 5.508A Space research</p>	<p>14.2-14.4</p>	<p>14.2-14.4 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to- space) Mobile except aeronautical mobile</p>	<p>Satellite Communications (25) Fixed Microwave (101)</p>
<p>5.504A 5.505 5.508 5.509 14.3-14.4 FIXED FIXED-SATELLITE (Earth- to-space) 5.484A 5.506 5.457A 5.506B Mobile-satellite (Earth-to- space) 5.506A Radionavigation-satellite</p>	<p>14.3-14.4 FIXED FIXED-SATELLITE (Earth- to-space) 5.484A 5.506 5.457A 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to- space) 5.506A 5.509A Radionavigation-satellite</p>	<p>14.3-14.4 FIXED FIXED-SATELLITE (Earth- to-space) 5.484A 5.506 5.457A 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to- space) 5.506A 5.509A Radionavigation-satellite</p>	<p>Satellite Communications (25) Fixed Microwave (101)</p>
<p>5.504A 14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A 5.509A Space research (space-to-Earth)</p>	<p>14.4-14.47 Fixed Mobile</p>	<p>14.4-14.47 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to- space)</p>	<p>Satellite Communications (25)</p>
<p>5.504A 14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy</p>	<p>14.47-14.5 Fixed Mobile</p>	<p>14.47-14.5 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to- space)</p>	<p>Satellite Communications (25)</p>

14.5-18.3 GHz (SHF)		United States Table		FCC Rule Part(s)
International Table		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
14.5-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE			14.5-14.7145 FIXED Mobile Space research	
14.8-15.35 Space research MOBILE FIXED MOBILE Space research			14.7145-15.1365 MOBILE Fixed Space research US310	14.7145-15.1365
5.339 15.35-15.4 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)			15.1365-15.35 FIXED Mobile Space research 5.339 US211	15.1365-15.35
15.4-15.43 AERONAUTICAL RADIONAVIGATION 5.511D			15.35-15.4 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246	5.339 US211
15.43-15.63 FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION			15.4-15.43 AERONAUTICAL RADIONAVIGATION US260 US211	Aviation (87)
5.511C 15.63-15.7 AERONAUTICAL RADIONAVIGATION 5.511D			15.43-15.63 AERONAUTICAL RADIO- NAVIGATION US260	Satellite Communications (25) Aviation (87)
15.7-16.6 RADIOLOCATION 5.512 5.513			5.511C US211 US359 15.63-15.7 AERONAUTICAL RADIONAVIGATION US260 US211 15.7-16.6 RADIOLOCATION G59	Aviation (87)
			15.7-17.2 Radiolocation	Private Land Mobile (90)

16.6-17.1 RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513	16.6-17.1 RADIOLOCATION G59 Space research (deep space) (Earth-to-space)			
17.1-17.2 RADIOLOCATION 5.512 5.513	17.1-17.2 RADIOLOCATION G59			
17.2-17.3 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A	17.2-17.3 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active)	17.2-17.3 Radiolocation Earth exploration-satellite (active) Space research (active)		
17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation	17.3-17.7 FIXED-SATELLITE (Earth-to-space) US271 BROADCASTING-SATELLITE NG163 NG167	Satellite Communications (25)
5.514	5.514 5.515 5.517	5.514	US259	
17.7-18.1 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-17.8 FIXED-SATELLITE (space-to-Earth) 5.516 BROADCASTING-SATELLITE Mobile 5.518 5.515 5.517	17.7-18.1 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-17.8 FIXED-SATELLITE (Earth-to-space) US271	Satellite Communications (25) Auxiliary Broadcasting (74) Cable TV Relay (78) Fixed Microwave (101)
17.8-18.1 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.8-18.1 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.8-18.3 FIXED-SATELLITE (space-to-Earth) G117	NG144 17.8-18.3 FIXED	Auxiliary Broadcasting (74) Cable TV Relay (78) Fixed Microwave (101)
18.1-18.4 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.520 MOBILE 5.519 5.521	5.519 US334 See next page for 18.3-18.6 GHz	5.519 US334 See next page for 18.3-18.6 GHz	5.519 US334 NG144 See next page for 18.3-18.58 GHz	See next page for 18.3-18.58 GHz

18.3-22.5 GHz (SHF)		United States Table		FCC Rule Part(s)
International Table		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
See previous page for 18.1-18.4 GHz				
18.4-18.6 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile SPACE RESEARCH (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	18.3-18.6 FIXED-SATELLITE (space-to-Earth) NG164 US334 NG144	Satellite Communications (25)
5.522A 5.522C 18.8-19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.523A MOBILE	5.522A	5.522A 5.522C	US254 US334 NG144 18.8-19.3 FIXED-SATELLITE (space-to-Earth) NG165 US334 NG144	
19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-space) 5.523B 5.523C 5.523D 5.523E MOBILE			19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) NG166 US334 NG144	Satellite Communications (25) Auxiliary Broadcast, (74) Cable TV Relay (76) Fixed Microwave (101)
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A Mobile-satellite (space-to-Earth)	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE-SATELLITE (space-to-Earth) 5.524 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A Mobile-satellite (space-to-Earth) 5.524 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 5.529 US334	Satellite Communications (25)

<p>20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE-SATELLITE (space-to-Earth)</p>	<p>20.1-20.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 US334</p>	<p>20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE-SATELLITE (space-to-Earth)</p>	<p>20.1-20.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 US334</p>	<p>20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth)</p>	<p>20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) G117</p>	<p>20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth)</p>	<p>20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) G117</p>	<p>21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)</p>	<p>21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US263</p>	<p>21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)</p>	<p>21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US263</p>	<p>21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.530</p>	<p>21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.530</p>	<p>21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.530</p>	<p>21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.530 5.531</p>	<p>22-22.21 FIXED MOBILE except aeronautical mobile</p>	<p>22-22.21 FIXED MOBILE except aeronautical mobile US342</p>	<p>22-22.21 FIXED MOBILE except aeronautical mobile</p>	<p>22-22.21 FIXED MOBILE except aeronautical mobile US342</p>	<p>22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive)</p>	<p>22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) US342 US263</p>	<p>22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive)</p>	<p>22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) US342 US263</p>	<p>Fixed Microwave (101)</p>
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22.5-27.5 GHz (SHF)		International Table		United States Table		FCC Rule Part(s)
		Region 1	Region 2	Region 3	Federal Government	
22.5-22.55 FIXED MOBILE					22.5-22.55 FIXED MOBILE	Fixed Microwave (101)
22.55-23.55 FIXED INTER-SATELLITE MOBILE					US211 22.55-23.55 FIXED INTER-SATELLITE US278 MOBILE	Satellite Communications (25) Fixed Microwave (101)
5.149 FIXED MOBILE					US342 23.55-23.6 FIXED MOBILE	Fixed Microwave (101)
5.340 24-24.05 AMATEUR AMATEUR-SATELLITE					US246 24-24.05	ISM Equipment (18) Amateur (97)
5.150 24.05-24.25 RADIOLOCATION Amateur Earth exploration-satellite (active)					5.150 US211 24.05-24.25 RADIOLOCATION G59 Earth exploration-satellite (active)	ISM Equipment (18) Private Land Mobile (90) Amateur (97)
5.150 24.25-24.45 FIXED	24.25-24.45 RADIO NAVIGATION	24.25-24.45 RADIO NAVIGATION FIXED MOBILE			5.150 24.25-24.45	Fixed Microwave (101)

22.5-27.5 GHz (SHF)

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24.45-24.75 FIXED INTER-SATELLITE	24.45-24.65 INTER-SATELLITE RADIO NAVIGATION	24.45-24.65 FIXED INTER-SATELLITE MOBILE RADIO NAVIGATION	24.45-24.65 INTER-SATELLITE RADIO NAVIGATION	Satellite Communications (25)
	5.533	5.533	5.533	
	24.65-24.75 INTER-SATELLITE RADIOLOCATION- SATELLITE (Earth-to-space)	24.65-24.75 FIXED INTER-SATELLITE MOBILE	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)	
24.75-25.25 FIXED	24.75-25.25 FIXED-SATELLITE (Earth-to-space) 5.535	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE	24.75-25.05 RADIO NAVIGATION	Satellite Communications (25) Aviation (87)
25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.25-25.5 Earth exploration-satellite (space-to-space) Standard frequency and time signal-satellite (Earth-to-space)	Satellite Communications (25) Fixed Microwave (101)
25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536A 5.536B FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536A 5.536B FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536A 5.536B FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.5-27 Earth exploration-satellite (space-to-Earth) 5.536A (space-to-space) Standard frequency and time signal-satellite (Earth-to-space)	
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE	27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 Earth exploration-satellite (space-to-space)	

27.5-32 GHz (SHF/EHF)			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.539 MOBILE			27.5-30	27.5-29.5 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	Satellite Communications (25) Fixed Microwave (101)
5.538 5.540 28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541					
5.540 29.1-29.5 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					
5.540 29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space)	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space)	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space)	29.5-29.9	29.5-29.9 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space)	Satellite Communications (25)
5.540 5.542 29.9-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543	5.525 5.526 5.527 5.529 5.540 5.542	5.540 5.542	5.525 5.526 5.527 5.529 5.540 5.542	5.525 5.526 5.527 5.529 29.9-30 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space)	
5.525 5.526 5.527 5.538 5.540 5.542				5.525 5.526 5.527 5.543	

<p>30-31 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth)</p>	<p>30-31 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth)</p>	<p>30-31 Standard frequency and time signal-satellite (space-to-Earth)</p>
<p>5.542 31-31.3 FIXED 5.543A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545</p>	<p>G117 31-31.3 Standard frequency and time signal-satellite (space-to-Earth)</p>	<p>31-31.3 FIXED MOBILE Standard frequency and time signal-satellite (space-to-Earth) Fixed Microwave (101)</p>
<p>5.149 31.3-31.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)</p>	<p>US211 US342 31.3-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive)</p>	<p>US211 US342</p>
<p>5.340 31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile</p>	<p>31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile</p>	<p>US246</p>
<p>5.149 5.546 31.8-32 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548</p>	<p>5.149 31.8-32 RADIONAVIGATION US69 SPACE RESEARCH (deep space) (space-to-Earth) US262 5.548 US211</p>	<p>31.8-32 SPACE RESEARCH (deep space) (space-to-Earth) US262 5.548 US211</p>

32-40 GHz (EHF)		United States Table		FCC Rule Part(s)
International Table		Federal Government	Non-Federal Government	
Region 1	Region 2	Region 3		
5.547 5.547C 5.548			32-32.3 RADIATION NAVIGATION US69 SPACE RESEARCH (deep space) (space-to-Earth) US262	
32-33.3 FIXED 5.547A RADIATION NAVIGATION SPACE RESEARCH (deep space) (space-to-Earth)			32-32.3 SPACE RESEARCH (deep space) (space-to-Earth) US262	
5.548			5.548	
32-33.3 FIXED 5.547A INTER-SATELLITE RADIATION NAVIGATION			32-33.3 INTER-SATELLITE US278 RADIATION NAVIGATION US69	Aviation (87)
5.547 5.547D 5.548			5.548	
33-33.4 FIXED 5.547A RADIATION NAVIGATION			33-33.4 RADIATION NAVIGATION US69	
5.547 5.547E			US360 G117	
33-4-34.2 RADIOLOCATION			33-4-34.2 RADIOLOCATION US360 G117	Private Land Mobile (90)
5.549			33-4-34.2 RADIOLOCATION US360	
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241-248 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite			241-248 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite ISM Equipment (18) Amateur (97)
5.138-5.149 AMATEUR AMATEUR-SATELLITE Radio astronomy			5.138-5.149 US342 Radio astronomy AMATEUR AMATEUR-SATELLITE Radio astronomy Amateur (97)
5.149			US342
250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)			250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US/4 SPACE RESEARCH (passive)
5.340-5.563A FIXED			5.563A US246
252-265 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIO NAVIGATION RADIO NAVIGATION-SATELLITE			252-265 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIO NAVIGATION RADIO NAVIGATION-SATELLITE
5.149-5.554 FIXED			5.554 US211 US342
265-275 FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY			265-275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY
5.149-5.563A 275-1000 (Not allocated), 5.565			5.563A US342 275-1000 (Not allocated), 5.565

INTERNATIONAL FOOTNOTES

5.53 Administrations authorizing the use of frequencies below 9 kHz shall ensure that no harmful interference is caused thereby to

the services to which the bands above 9 kHz are allocated.

5.54 Administrations conducting scientific research using frequencies below 9

kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.

5.55 *Additional allocation:* in Armenia, Azerbaijan, Bulgaria, Georgia, Kyrgyzstan, the Russian Federation, Tajikistan and Turkmenistan, the band 14–17 kHz is also allocated to the radionavigation service on a primary basis.

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

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, Georgia, Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan and Turkmenistan, the band 67–70 kHz is also allocated to the radionavigation service on a primary basis.

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).

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.

5.64 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).

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 Azerbaijan, Bulgaria, Mongolia, Kyrgyzstan, Romania 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.

5.68 *Alternative allocation:* in Angola, Botswana, Burundi, the Congo, Malawi, Dem. Rep. of the Congo, Rwanda and South Africa, the band 160–200 kHz is allocated to the fixed service on a primary basis.

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, Cameroon, the Central African Rep., the Congo, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, 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.

5.71 *Alternative allocation:* in Tunisia, the band 255–283.5 kHz is allocated to the broadcasting service on a primary basis.

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

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

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, Georgia, Moldova, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and the Black Sea areas of Bulgaria and 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.

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 Territories of Region 3, India, Indonesia (until 1 January 2005), 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. 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 (see No. 52.39).

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-97)).

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.

5.82 In the maritime mobile service, the frequency 490 kHz is, from the date of full implementation of the GMDSS (see Resolution 331 (Rev.WRC-97)), to be used exclusively for the transmission by coast stations of navigational and meteorological warnings

and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles 31 and 52. In using the band 415–495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz.

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

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

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, South Africa, Swaziland, Zambia and Zimbabwe, the band 526.5–535 kHz is also allocated to the mobile service on a secondary basis.

5.87A *Additional allocation:* in Uzbekistan, the band 526.5–1606.5 kHz is also allocated to the radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime.

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 1605–1705 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 1625–1705 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 1605–1705 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 1606.5–1705 kHz is also allocated to the broadcasting service on a secondary basis.

5.92 Some countries of Region 1 use radio-determination systems in the bands 1606.5–1625 kHz, 1635–1800 kHz, 1850–2160 kHz, 2194–2300 kHz, 2502–2850 kHz and 3500–3800 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, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the Russian Federation, Tajikistan, Chad, Turkmenistan and Ukraine, the bands 1625–1635 kHz, 1800–1810 kHz and 2160–2170 kHz and, in Bulgaria, the bands 1625–1635 kHz and 1800–1810 kHz, are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under No. 9.21.

5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Denmark, Estonia, Finland, Georgia, Hungary, Ireland, Israel, Jordan, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, the Russian Federation, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1715–1800 kHz and 1850–2000 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.

5.97 In Region 3, the Loran system operates either on 1850 kHz or 1950 kHz, the bands occupied being 1825–1875 kHz and 1925–1975 kHz respectively. Other services to which the band 1800–2000 kHz is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1850 kHz or 1950 kHz.

5.98 *Alternative allocation:* in Angola, Armenia, Azerbaijan, Belarus, Belgium, Bulgaria, Cameroon, the Congo, Denmark, Egypt, Eritrea, Spain, Ethiopia, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, Moldova, the Netherlands, Syria, Kyrgyzstan, the Russian Federation, Somalia, Tajikistan, Tunisia, Turkmenistan, Turkey and Ukraine, the band 1810–1830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.99 *Additional allocation:* in Saudi Arabia, Austria, Bosnia and Herzegovina, Iraq, Libya, Uzbekistan, Slovakia, the Czech Rep., Romania, Slovenia, Chad, Togo and Yugoslavia, the band 1810–1830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.100 In Region 1, the authorization to use the band 1810–1830 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 inter-

ference between amateur stations and stations of other services operating in accordance with Nos. 5.98 and 5.99.

5.101 *Alternative allocation:* in Burundi and Lesotho, the band 1810–1850 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.102 *Alternative allocation:* in Argentina, Bolivia, Chile, Mexico, Paraguay, Peru, Uruguay and Venezuela, the band 1850–2000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radio-navigation services on a primary basis.

5.103 In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1850–2045 kHz, 2194–2498 kHz, 2502–2625 kHz and 2650–2850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.

5.104 In Region 1, the use of the band 2025–2045 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 2065–2107 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: 2065.0 kHz, 2079.0 kHz, 2082.5 kHz, 2086.0 kHz, 2093.0 kHz, 2096.5 kHz, 2100.0 kHz and 2103.5 kHz. In Argentina and Uruguay, the carrier frequencies 2068.5 kHz and 2075.5 kHz are also used for this purpose, while the frequencies within the band 2072–2075.5 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 2065 kHz and 2107 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, Botswana, Eritrea, Ethiopia, Iraq, Lesotho, Libya, Somalia and Swaziland, the band 2160–2170 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.

5.108 The carrier frequency 2182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2173.5–2190.5 kHz are prescribed in Articles 31 and 52 and in Appendix 13.

5.109 The frequencies 2187.5 kHz, 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12577 kHz and 16804.5 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 2174.5 kHz, 4177.5 kHz, 6268 kHz, 8376.5 kHz, 12520 kHz and 16695

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 2182 kHz, 3023 kHz, 5680 kHz, 8364 kHz and the frequencies 121.5 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article 31 and in Appendix 13.

The same applies to the frequencies 10003 kHz, 14993 kHz and 19993 kHz, but in each of these cases emissions must be confined in a band of  $\pm 3$  kHz about the frequency.

5.112 *Alternative allocation:* in Bosnia and Herzegovina, Cyprus, Denmark, Greece, Iceland, Malta, Sri Lanka and Yugoslavia, the band 2194-2300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.113 For the conditions for the use of the bands 2300-2495 kHz (2498 kHz in Region 1), 3200-3400 kHz, 4750-4995 kHz and 5005-5060 kHz by the broadcasting service, see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10.

5.114 *Alternative allocation:* in Bosnia and Herzegovina, Cyprus, Denmark, Greece, Iraq, Malta, and Yugoslavia, the band 2502-2625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.115 The carrier (reference) frequencies 3023 kHz and 5680 kHz may also be used, in accordance with Article 31 and Appendix 13 by stations of the maritime mobile service engaged in coordinated search and rescue operations.

5.116 Administrations are urged to authorize the use of the band 3155-3195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3155 kHz and 3400 kHz to suit local needs.

It should be noted that frequencies in the range 3000 kHz to 4000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.

5.117 *Alternative allocation:* in Bosnia and Herzegovina, Cyprus, Côte d'Ivoire, Denmark, Egypt, Greece, Iceland, Liberia, Malta, Sri Lanka, Togo and Yugoslavia, the band 3155-3200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.118 *Additional allocation:* in the United States, Japan, Mexico, Peru and Uruguay, the band 3230-3400 kHz is also allocated to the radiolocation service on a secondary basis.

5.119 *Additional allocation:* in Honduras, Mexico, Peru and Venezuela, the band 3500-

3750 kHz is also allocated to the fixed and mobile services on a primary basis.

5.122 *Alternative allocation:* in Argentina, Bolivia, Chile, Ecuador, Paraguay, Peru and Uruguay, the band 3750-4000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.123 *Additional allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 3900-3950 kHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21.

5.125 *Additional allocation:* in Greenland, the band 3950-4000 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 3995-4005 kHz is allocated may transmit standard frequency and time signals.

5.127 The use of the band 4000-4063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. 52.220 and Appendix 17).

5.128 In Afghanistan, Argentina, Armenia, Azerbaijan, Belarus, Botswana, Burkina Faso, the Central African Rep., China, Georgia, India, Kazakstan, Mali, Niger, Kyrgyzstan, Russian Federation, Tajikistan, Chad, Turkmenistan and Ukraine, in the bands 4063-4123 kHz, 4130-4133 kHz and 4408-4438 kHz, stations of limited power in the fixed service which are situated at least 600 km from the coast may operate on condition that harmful interference is not caused to the maritime mobile service.

5.129 On condition that harmful interference is not caused to the maritime mobile service, the frequencies in the bands 4063-4123 kHz and 4130-4438 kHz may be used exceptionally by stations in the fixed service communicating only within the boundary of the country in which they are located with a mean power not exceeding 50 W.

5.130 The conditions for the use of the carrier frequencies 4125 kHz and 6215 kHz are prescribed in Articles 31 and 52 and in Appendix 13.

5.131 The frequency 4209.5 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.

5.132 The frequencies 4210 kHz, 6314 kHz, 8416.5 kHz, 12579 kHz, 16806.5 kHz, 19680.5 kHz, 22376 kHz and 26100.5 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, Georgia,

Kazakstan, Latvia, Lithuania, Moldova, Uzbekistan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5130–5250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 5.33).

5.134 The use of the bands 5900–5950 kHz, 7300–7350 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13570–13600 kHz, 13800–13870 kHz, 15600–15800 kHz, 17480–17550 kHz and 18900–19020 kHz by the broadcasting service is limited to single-sideband emissions with the characteristics specified in Appendix 11 or to any other spectrum-efficient modulation techniques recommended by ITU-R. Access to these bands shall be subject to the decisions of a competent conference.

5.136 The band 5900–5950 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis, as well as to the following services: in Region 1 to the land mobile service on a primary basis, in Region 2 to the mobile except aeronautical mobile (R) service on a primary basis, and in Region 3 to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution 21 (Rev.WRC-95). After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.137 On condition that harmful interference is not caused to the maritime mobile service, the bands 6200–6213.5 kHz and 6220.5–6525 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:  
6765–6795 kHz (centre frequency 6780 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 af-

ected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.

5.139 *Different category of service:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 6765–7000 kHz to the land mobile service is on a primary basis (see No. 5.33).

5.140 *Additional allocation:* in Angola, Iraq, Rwanda, Somalia and Togo, the band 7000–7050 kHz is also allocated to the fixed service on a primary basis.

5.141 *Alternative allocation:* in Egypt, Eritrea, Ethiopia, Guinea, Libya and Madagascar, the band 7000–7050 kHz is allocated to the fixed service on a primary basis.

5.142 The use of the band 7100–7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

5.143 The band 7300–7350 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis and to the land mobile service on a secondary basis, subject to application of the procedure referred to in Resolution 21 (Rev.WRC-95). After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.144 In Region 3, the stations of those services to which the band 7995–8005 kHz is allocated may transmit standard frequency and time signals.

5.145 The conditions for the use of the carrier frequencies 8291 kHz, 12290 kHz and 16420 kHz are prescribed in Articles 31 and 52 and in Appendix 13.

5.146 The bands 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 15600–15800 kHz, 17480–17550 kHz and 18900–19020 kHz are allocated to the fixed service on a primary basis until 1 April 2007, subject to application of the procedure referred to in Resolution 21 (Rev.WRC-95). After 1 April 2007, frequencies in these bands may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by

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the broadcasting service published in accordance with the Radio Regulations.

5.147 On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9775–9900 kHz, 11650–11700 kHz and 11975–12050 kHz may be used by stations in the fixed service com-

municating 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:

13360–13410 kHz,	4990–5000 MHz,	94.1–100 GHz,
25550–25670 kHz,	6650–6675.2 MHz,	102–109.5 GHz,
37.5–38.25 MHz,	10.6–10.68 GHz,	111.8–114.25 GHz,
73–74.6 MHz in Regions 1 and 3,	14.47–14.5 GHz,	128.33–128.59 GHz,
150.05–153 MHz in Region 1,	22.01–22.21 GHz,	129.23–129.49 GHz,
322–328.6 MHz,	22.21–22.5 GHz,	130–134 GHz,
406.1–410 MHz,	22.81–22.86 GHz,	136–148.5 GHz,
608–614 MHz in Regions 1 and 3,	23.07–23.12 GHz,	151.5–158.5 GHz,
1330–1400 MHz,	31.2–31.3 GHz,	168.59–168.93 GHz,
1610.6–1613.8 MHz,	31.5–31.8 GHz in Regions 1 and 3,	171.11–171.45 GHz,
1660–1670 MHz,	36.43–36.5 GHz,	172.31–172.65 GHz,
1718.8–1722.2 MHz,	42.5–43.5 GHz,	173.52–173.85 GHz,
2655–2690 MHz,	42.77–42.87 GHz,	195.75–196.15 GHz,
3260–3267 MHz,	43.07–43.17 GHz,	209–226 GHz,
3332–3339 MHz,	43.37–43.47 GHz,	241–250 GHz,
3345.8–3352.5 MHz,	48.94–49.04 GHz,	252–275 GHz
4825–4835 MHz,	76–86 GHz,	
4950–4990 MHz,	92–94 GHz,	

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

5.150 The following bands:

13553–13567 kHz (centre frequency 13560 kHz),  
 26957–27283 kHz (centre frequency 27120 kHz),  
 40.66–40.70 MHz (centre frequency 40.68 MHz),  
 902–928 MHz in Region 2 (centre frequency 915 MHz),  
 2400–2500 MHz (centre frequency 2450 MHz),  
 5725–5875 MHz (centre frequency 5800 MHz),  
 and  
 24–24.25 GHz (centre frequency 24.125 GHz)

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

5.151 The bands 13570–13600 kHz and 13800–13870 kHz are allocated, until 1 April 2007, to the fixed service on a primary basis and to the mobile except aeronautical mobile (R) service on a secondary basis, subject to ap-

plication of the procedure referred to in Resolution 21 (Rev.WRC-95). After 1 April 2007, frequencies in these bands may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.152 *Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, Georgia, Iran (Islamic Republic of), Kazakstan, Moldova, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 14250–14350 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.

5.153 In Region 3, the stations of those services to which the band 15995–16005 kHz is allocated may transmit standard frequency and time signals.

5.154 *Additional allocation:* in Armenia, Azerbaijan, Georgia, Kazakstan, Moldova, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan and Ukraine, the

band 18068–18168 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.

5.155 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 21850–21870 kHz is also allocated to the aeronautical mobile (R) services on a primary basis.

5.155A In Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., the Russian Federation, Tajikistan, Turkmenistan and Ukraine, the use of the band 21850–21870 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

5.155B The band 21870–21924 kHz is used by the fixed service for provision of services related to aircraft flight safety.

5.156 *Additional allocation:* in Nigeria, the band 22720–23200 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.

5.156A The use of the band 23200–23350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

5.157 The use of the band 23350–24000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.

5.160 *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Dem. Rep. of the Congo, Rwanda and Swaziland, the band 41–44 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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 and New Zealand, 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, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Moldova, Monaco, Norway, the Netherlands, Poland, Portugal, Slovakia, the Czech Rep., the United Kingdom, the Russian Federation, Sweden and Switzerland the band 46–68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution 217 (WRC-97).

5.163 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Estonia, Georgia, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., Russian Federa-

tion, 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.

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

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

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, Indonesia, Iran (Islamic Republic of), Malaysia, Pakistan, Singapore and Thailand, the band 50–54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis.

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, 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, Burundi, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland and Zimbabwe, the band 54–68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.172 *Different category of service:* in the French Overseas Departments in Region 2,

Guyana, Jamaica and Mexico, the allocation of the band 54–68 MHz to the fixed and mobile services is on a primary basis (see No. 5.33).

5.173 *Different category of service:* in the French Overseas Departments in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 68–72 MHz to the fixed and mobile services is on a primary basis (see No. 5.33).

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

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

5.176 *Additional allocation:* in Australia, China, Korea (Rep. of), Estonia (subject to agreement obtained under No. 9.21), 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.

5.177 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Latvia, Moldova, Uzbekistan, Poland, Kyrgyzstan, the Russian Federation, 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.

5.178 *Additional allocation:* in Colombia, Costa Rica, 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.

5.179 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, China, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Kyrgyzstan, Slovakia, the Czech Rep., Russian Federation, 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.

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 re-

ceivers 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, Japan, and Syria, 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.

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

5.185 *Different category of service:* in the United States, the French Overseas Departments 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).

5.187 *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.

5.190 *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.

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.

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

5.197 *Additional allocation:* in Japan, Pakistan and Syria, 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.

5.197A The band 108–117.975 MHz may also be used by the aeronautical mobile (R) service on a primary basis, limited to systems that transmit navigational information in support of air navigation and surveillance functions in accordance with recognized international aviation standards. Such use shall be in accordance with Resolution 413 (WRC-03) and shall not cause harmful interference to nor claim protection from stations operating in the aeronautical radionavigation service which operate in accordance with international aeronautical standards.

5.198 *Additional allocation:* the band 117.975–136 MHz is also allocated to the aeronautical mobile-satellite (R) service on a secondary basis, subject to agreement obtained under No. 9.21.

5.199 The bands 121.45–121.55 MHz and 242.95–243.05 MHz are also allocated to the mobile-satellite service for the reception on board satellites of emissions from emergency position-indicating radiobeacons transmitting at 121.5 MHz and 243 MHz (see Appendix 13).

5.200 In the band 117.975–136 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article 31 and Appendix 13 for distress and safety purposes with stations of the aeronautical mobile service.

5.201 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Japan, Kazakstan, Latvia, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Russian Federation, 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.

5.202 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Jordan, Latvia, Moldova, Oman, Uzbekistan, Poland, Syria, Kyrgyzstan, Slovakia, the Czech Rep., Roma-

nia, the Russian Federation, 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.

5.203 In the band 136–137 MHz, existing operational meteorological satellites may continue to operate, under the conditions defined in No. 4.4 with respect to the aeronautical mobile service, until 1 January 2002. Administrations shall not authorize new frequency assignments in this band to stations in the meteorological-satellite service.

5.203A *Additional allocation:* in Israel, Mauritania, Qatar and Zimbabwe, the band 136–137 MHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a secondary basis until 1 January 2005.

5.203B *Additional allocation:* in Saudi Arabia, United Arab Emirates, Jordan, Oman and Syria, the band 136–137 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis until 1 January 2005.

5.204 *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Malaysia, Oman, Pakistan, Philippines, Qatar, Singapore, Sri Lanka, Thailand, Yemen and Yugoslavia, the band 137–138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. 5.33).

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, Finland, France, Georgia, Greece, Kazakstan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Syria, Slovakia, the Czech Rep., Romania, the Russian Federation, 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).

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.

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

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

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.

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

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

5.212 *Alternative allocation:* in Angola, Botswana, Burundi, Cameroon, the Central African Rep., the Congo, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libya, Malawi, Mozambique, Namibia, Nigeria, Oman, 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.

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 Bosnia and Herzegovina, Croatia, Eritrea, Ethiopia, Kenya, The Former Yugoslav Republic of Macedonia, Malta, Somalia, Sudan, Tanzania and Yugoslavia, the band 138–144 MHz is also allocated to the fixed service on a primary basis.

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  $\pm 25$  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.

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, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo, Korea (Rep. of), Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, Syria, Kyrgyzstan, Slovakia, Romania, the United Kingdom, the Russian Federation, Senegal, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Yugoslavia, Zambia, and Zimbabwe.

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

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

5.224A The use of the bands 149.9–150.05 MHz and 399.9–400.05 MHz by the mobile-satellite service (Earth-to-space) is limited to the land mobile-satellite service (Earth-to-space) until 1 January 2015.

5.224B The allocation of the bands 149.9–150.05 MHz and 399.9–400.05 MHz to the radio-navigation-satellite service shall be effective until 1 January 2015.

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

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

Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

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

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

5.229 *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, China and Pakistan, 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.

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 the Congo, Eritrea, Ethiopia, Gambia, Guinea, Libya, Malawi, Mali, Senegal, Sierra Leone, Somalia, Tanzania and Zimbabwe, the band 174–223 MHz is also allocated to the fixed and mobile services on a secondary basis.

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.

5.240 *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.

5.245 *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 Syria, the band 223–235 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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.

5.254 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.

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

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

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

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

5.259 *Additional allocation:* in Egypt, Israel, Japan, and Syria, 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 radio-

navigation service by any administration which may be identified in the application of the procedure invoked under No. 9.21.

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  $\pm 25$  kHz about the standard frequency 400.1 MHz.

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

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

5.264 The use of the band 400.15–401 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. The power flux-density limit indicated in Annex 1 of Appendix 5 shall apply until such time as a competent world radiocommunication conference revises it.

5.266 The use of the band 406–406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article 31 and Appendix 13).

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

5.268 Use of the band 410–420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed  $-153$  dB(W/m<sup>2</sup>) for  $0^\circ \leq \delta \leq 5^\circ$ ,  $-153 + 0.077(\delta - 5)$  dB(W/m<sup>2</sup>) for  $5^\circ \leq \delta \leq 70^\circ$  and  $-148$  dB(W/m<sup>2</sup>) for  $70^\circ \leq \delta \leq 90^\circ$ , where  $\delta$  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.

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 Azerbaijan, Belarus, China, Estonia, India, Latvia, Lithuania, Kyrgyzstan and Turkmenistan, the band 420–460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis.

5.272 *Different category of service:* in France, the allocation of the band 430–434 MHz to the amateur service is on a secondary basis (see No. 5.32).

5.273 *Different category of service:* in Denmark, Libya and Norway, the allocation of the bands 430–432 MHz and 438–440 MHz to the radiolocation service is on a secondary basis (see No. 5.32).

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

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

5.276 *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Burundi, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Liechtenstein, Malaysia, Malta, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, 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.

5.277 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo, Djibouti, Georgia, Hungary, Israel, Kazakstan, Latvia, Mali, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, the Russian Federation, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430–440 MHz is also allocated to the fixed service on a primary basis.

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 ama-

teur 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. 5.280 In Germany, Austria, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Portugal, Slovenia, Switzerland and Yugoslavia, the band 433.05–434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. 15.13.

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

5.282 In the bands 435–438 MHz, 1260–1270 MHz, 2400–2450 MHz, 3400–3410 MHz (in Regions 2 and 3 only) and 5650–5670 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 1260–1270 MHz and 5650–5670 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.

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.

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.

5.286D *Additional allocation:* in Canada, the United States, Mexico and Panama, the band 454–455 MHz is also allocated to the mobile-satellite service (Earth-to-space) on a primary basis.

5.286E *Additional allocation:* in Cape Verde, Indonesia, Nepal, Nigeria and Papua New Guinea, the bands 454–456 MHz and 459–460 MHz are also allocated to the mobile-satellite service (Earth-to-space) on a primary basis.

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

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.

5.289 Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460–470 MHz and 1690–1710 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, Japan, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 460–470 MHz to the meteorological-satellite service (space-to-Earth) is on a primary basis (see No. 5.33),

subject to agreement obtained under No. 9.21.

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).

5.292 *Different category of service:* in Mexico and Venezuela, the allocation of the band 470–512 MHz to the fixed and mobile services, and in Argentina and Uruguay to the mobile service, is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21.

5.293 *Different category of service:* in Canada, Chile, Colombia, 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 and mobile services 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.

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

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

5.297 *Additional allocation:* in 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.

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.

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

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

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.

5.309 *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.

5.311 Within the frequency band 620–790 MHz, assignments may be made to television stations using frequency modulation in the broadcasting-satellite service subject to agreement between the administrations concerned and those having services, operating in accordance with the Table, which may be affected (see Resolutions 33 (Rev.WRC-97) and 507). Such stations shall not produce a power flux-density in excess of the value  $-129$  dB(W/m<sup>2</sup>) for angles of arrival less than 20° (see Recommendation 705) within the territories of other countries without the consent of the administrations of those countries.

5.312 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakhstan, Latvia, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 645–862 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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

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

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

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 Administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000) may use those parts of the band 806–960 MHz which are allocated to the mobile service on a primary basis and are used or planned to be used for mobile systems (see Resolution 224 (WRC-2000)). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations.

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

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

5.323 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Hungary, Kazakistan, Latvia, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 862-960 MHz is also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime.

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.

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).

5.328 The use of the band 960-1215 MHz by the aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities.

5.328A *Additional allocation:* the band 1164-1215 MHz is also allocated to the radionavigation-satellite service (space-to-Earth) (space-to-space) on a primary basis. The ag-

gregate power flux-density produced by all the space stations of all radionavigation-satellite systems at the Earth's surface shall not exceed the provisional value of  $-115$  dB(W/m<sup>2</sup>) in any 1 MHz band for all angles of arrival. Stations in the radionavigation-satellite service shall not cause harmful interference to, nor claim protection from, stations of the aeronautical-radionavigation service. The provisions of Resolution 605 (WRC-2000) apply.

5.328B The use of the bands 1164-1300 MHz, 1559-1610 MHz and 5010-5030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. 9.12, 9.12A and 9.13. Resolution 610 (WRC-03) shall also apply.

5.329 Use of the radionavigation-satellite service in the band 1215-1300 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. See also Resolution 606 (WRC-2000).

5.329A Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1215-1300 MHz and 1559-1610 MHz is not intended to provide safety service applications, and shall not impose any additional constraints on other systems or services operating in accordance with the Table.

5.330 *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Morocco, Mozambique, Nepal, Nigeria, Pakistan, the Philippines, Qatar, Syria, Somalia, Sudan, Sri Lanka, Chad, Togo and Yemen, the band 1215-1300 MHz is also allocated to the fixed and mobile services on a primary basis.

5.331 *Additional allocation:* in Algeria, Germany, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Burundi, Cameroon, China, Croatia, Denmark, the United Arab Emirates, France, Greece, India, Iran (Islamic Republic of), Iraq, Kenya, The Former Yugoslav Republic of Macedonia, Liechtenstein, Luxembourg, Mali, Mauritania, Norway, Oman, the Netherlands, Portugal, Qatar, Senegal, Slovenia, Somalia, Sudan, Sri Lanka, Sweden, Switzerland, Turkey and Yugoslavia, the band 1215-1300 MHz is also allocated to the radionavigation service on a primary basis.

5.332 In the band 1215-1260 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall

not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis.

5.334 *Additional allocation:* in Canada and the United States, the bands 1240–1300 MHz and 1350–1370 MHz are also allocated to the aeronautical radionavigation service on a primary basis.

5.335 In Canada and the United States in the band 1240–1300 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.

5.335A In the band 1260–1300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service and other services allocated by footnotes on a primary basis.

5.337 The use of the bands 1300–1350 MHz, 2700–2900 MHz and 9000–9200 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 1300–1350 MHz by earth stations in the radionavigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to, nor constrain the operation and development of, the aeronautical-radionavigation service.

5.338 In Azerbaijan, Bulgaria, Mongolia, Kyrgyzstan, Slovakia, the Czech Rep., Romania and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1350–1400 MHz.

5.339 The bands 1370–1400 MHz, 2640–2655 MHz, 4950–4990 MHz and 15.20–15.35 GHz are also allocated to the space research (passive) and earth exploration-satellite (passive) services on a secondary basis.

5.340 All emissions are prohibited in the following bands:

1400–1427 MHz,  
2690–2700 MHz, except those provided for by No. 5.422,  
10.68–10.7 GHz, except those provided for by No. 5.483,  
15.35–15.4 GHz, except those provided for by No. 5.511,  
23.6–24 GHz,  
31.3–31.5 GHz,  
31.5–31.8 GHz, in Region 2,  
48.94–49.04 GHz, from airborne stations,  
50.2–50.4 GHz<sup>2</sup>,  
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.

<sup>2</sup>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.

5.341 In the bands 1400–1727 MHz, 101–120 GHz and 197–220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

5.342 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Uzbekistan, Kyrgyzstan, the Russian Federation and Ukraine, the band 1429–1535 MHz is also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the band 1452–1492 MHz is subject to agreement between the administrations concerned.

5.343 In Region 2, the use of the band 1435–1535 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 1452–1525 MHz is allocated to the fixed and mobile services on a primary basis (see also No. 5.343).

5.345 Use of the band 1452–1492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (WARC-92).

5.347 *Different category of service:* in Bangladesh, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cuba, Denmark, Egypt, Greece, Ireland, Italy, Kenya, Mozambique, Portugal, Sri Lanka, Swaziland, Yemen, Yugoslavia and Zimbabwe, the allocation of the band 1452–1492 MHz to the broadcasting-satellite service and the broadcasting service is on a secondary basis until 1 April 2007.

5.348 The use of the band 1492–1525 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. However, no coordination threshold in Article 21 for space stations of the mobile-satellite service with respect to terrestrial services shall apply to the situation referred to in No. 5.343. With respect to the situation referred to in No. 5.343, the requirement for coordination in the band 1492–1525 MHz will be determined by band overlap.

5.348A In the band 1492–1525 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/m<sup>2</sup>) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix 5. The above threshold level of the power flux-density shall apply until it is changed by a competent world radiocommunication conference.

5.349 *Different category of service:* in Saudi Arabia, Azerbaijan, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, France, Iran (Islamic Republic of), Iraq, Israel, Kazakstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Qatar, Syria, Kyrgyzstan, Romania, Turkmenistan, Yemen and Yugoslavia, the allocation of the band 1525–1530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 5.33).

5.350 *Additional allocation:* in Azerbaijan, Kyrgyzstan and Turkmenistan, the band 1525–1530 MHz is also allocated to the aeronautical mobile service on a primary basis.

5.351 The bands 1525–1544 MHz, 1545–1559 MHz, 1626.5–1645.5 MHz and 1646.5–1660.5 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 1525–1544 MHz, 1545–1559 MHz, 1610–1626.5 MHz, 1626.5–1645.5 MHz, 1646.5–1660.5 MHz, 1980–2010 MHz, 2170–2200 MHz, 2483.5–2500 MHz, 2500–2520 MHz and 2670–2690 MHz by the mobile-satellite service, see Resolutions 212 (Rev.WRC-97) and 225 (WRC-2000).

5.352A In the band 1525–1530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in France and French overseas territories in Region 3, Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Malta, Morocco, Mauritania, Nigeria, Oman, Pakistan, Philippines, Qatar, Syria, Tanzania, Viet Nam and Yemen notified prior to 1 April 1998.

5.353A In applying the procedures of Section II of Article 9 to the mobile-satellite service in the bands 1530–1544 MHz and 1626.5–1645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications

shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution 222 (WRC-2000) shall apply.)

5.354 The use of the bands 1525–1559 MHz and 1626.5–1660.5 MHz by the mobile-satellite services is subject to coordination under No. 9.11A.

5.355 *Additional allocation:* in Bahrain, Bangladesh, Congo, Egypt, Eritrea, Iraq, Israel, Jordan, Kuwait, Lebanon, Malta, Morocco, Qatar, Syria, Somalia, Sudan, Chad, Togo and Yemen, the bands 1540–1559 MHz, 1610–1645.5 MHz and 1646.5–1660 MHz are also allocated to the fixed service on a secondary basis.

5.356 The use of the band 1544–1545 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 1545–1555 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 1545–1555 MHz and 1646.5–1656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article 44. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44 shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution 222 (WRC-2000) shall apply.)

5.359 *Additional allocation:* in Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Bosnia and Herzegovina, Bulgaria, Cameroon, Spain, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, Hungary, Jordan, Kazakstan, Kuwait, Latvia, Lebanon, Libya, Lithuania, Mali, Morocco, Mauritania, Moldova, Mongolia, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Syria, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, the Russian Federation,

Senegal, Swaziland, Tajikistan, Tanzania, Tunisia, Turkmenistan and Ukraine, the bands 1550–1559 MHz, 1610–1645.5 MHz and 1646.5–1660 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.

5.362A In the United States, in the bands 1555–1559 MHz and 1656.5–1660.5 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.

5.362B *Additional allocation:* The band 1559–1610 MHz is also allocated to the fixed service on a primary basis until 1 January 2005 in Germany, Armenia, Azerbaijan, Belarus, Benin, Bosnia and Herzegovina, Bulgaria, Spain, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, the Russian Federation, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan and Ukraine, and until 1 January 2010 in Saudi Arabia, Cameroon, Jordan, Kuwait, Lebanon, Libya, Mali, Morocco, Mauritania, Syria and Tunisia. After these dates, 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. 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.

5.362C *Additional allocation:* in Bahrain, Bangladesh, Congo, Egypt, Eritrea, Iraq, Israel, Jordan, Kuwait, Lebanon, Malta, Morocco, Qatar, Syria, Somalia, Sudan, Chad, Togo and Yemen, the band 1559–1610 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.

5.363 *Alternative allocation:* in Sweden, the band 1590–1626.5 MHz is allocated to the aeronautical radionavigation service on a primary basis.

5.364 The use of the band 1610–1626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-sat-

ellite 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 1613.8–1626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. 9.11A.

5.366 The band 1610–1626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. 9.21.

5.367 *Additional allocation:* The bands 1610–1626.5 MHz and 5000–5150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21.

5.368 With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. 4.10 do not apply in the band 1610–1626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.

5.369 *Different category of service:* in Angola, Australia, Burundi, China, Côte d'Ivoire, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Dem. Rep. of the Congo, Syria, Senegal, Sudan, Swaziland, Togo and Zambia, the allocation of the band 1610–1626.5 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.

5.370 *Different category of service:* in Venezuela, the allocation to the radiodetermination-satellite service in the band 1610–1626.5 MHz (Earth-to-space) is on a secondary basis.

5.371 *Additional allocation:* in Region 1, the bands 1610–1626.5 MHz (Earth-to-space) and 2483.5–2500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite

service on a secondary basis, subject to agreement obtained under No. 9.21.

5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the band 1610.6–1613.8 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 1631.5–1634.5 MHz and 1656.5–1660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. 5.359.

5.375 The use of the band 1645.5–1646.5 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 1646.5–1656.5 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 1660–1660.5 MHz shall not cause harmful interference to stations in the radio astronomy service.

5.377 In the band 1675–1710 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, the meteorological-satellite and meteorological aids services (see Resolution 213 (Rev.WRC-95)<sup>3</sup>) and the use of this band shall be subject to coordination under No. 9.11A.

5.379 *Additional allocation:* in Bangladesh, India, Indonesia, Nigeria and Pakistan, the band 1660.5–1668.4 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 1660.5–1668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1664.4–1668.4 MHz as soon as practicable.

5.380 The bands 1670–1675 MHz and 1800–1805 MHz are intended for use, on a world-wide basis, by administrations wishing to implement aeronautical public correspondence. The use of the band 1670–1675 MHz by stations in the systems for public correspondence with aircraft is limited to transmissions from aeronautical stations and the use of the band 1800–1805 MHz is limited to transmissions from aircraft stations.

5.381 *Additional allocation:* in Afghanistan, Costa Rica, Cuba, India, Iran (Islamic Republic of), Malaysia, Pakistan and Sri Lanka,

<sup>3</sup>Note by the Secretariat: This Resolution was abrogated by WRC-2000.

the band 1690–1700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.382 *Different category of service:* in Saudi Arabia, Armenia, Austria, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, the Congo, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, Hungary, Iraq, Israel, Jordan, Kazakstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, Syria, Kyrgyzstan, Romania, Russian Federation, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine, Yemen and Yugoslavia, the allocation of the band 1690–1700 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 1690–1700 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.

5.384 *Additional allocation:* in India, Indonesia and Japan, the band 1700–1710 MHz is also allocated to the space research service (space-to-Earth) on a primary basis.

5.384A The bands, or portions of the bands, 1710–1885 MHz and 2500–2690 MHz, are identified for use by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000) in accordance with Resolution 223 (WRC-2000). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations.

5.385 *Additional allocation:* the band 1718.8–1722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations.

5.386 *Additional allocation:* the band 1750–1850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2, in Australia, India, Indonesia and Japan on a primary basis, subject to agreement obtained under No. 9.21, having particular regard to troposcatter systems.

5.387 *Additional allocation:* in Azerbaijan, Belarus, Georgia, Kazakstan, Mali, Mongolia, Kyrgyzstan, Slovakia, Romania, Tajikistan and Turkmenistan, the band 1770–1790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. 9.21.

5.388 The bands 1885–2025 MHz and 2110–2200 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). (See also Resolution 223 (WRC-2000).)

5.388A In Regions 1 and 3, the bands 1885–1980 MHz, 2010–2025 MHz and 2110–2170 MHz and, in Region 2, the bands 1885–1980 MHz and 2110–2160 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 (WRC-2000). The use by IMT-2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations.

5.389A The use of the bands 1980–2010 MHz and 2170–2200 MHz by the mobile-satellite service is subject to coordination under No. 9.11A and to the provisions of Resolution 716 (WRC-95)<sup>4</sup>. The use of these bands shall not commence before 1 January 2000; however the use of the band 1980–1990 MHz in Region 2 shall not commence before 1 January 2005.

5.389B The use of the band 1980–1990 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 2010–2025 MHz and 2160–2170 MHz in Region 2 by the mobile-satellite service shall not commence before 1 January 2002 and is subject to coordination under No. 9.11A and to the provisions of Resolution 716 (WRC-95)<sup>4</sup>.

5.389D In Canada and the United States the use of the bands 2010–2025 MHz and 2160–2170 MHz by the mobile-satellite service shall not commence before 1 January 2000.

5.389E The use of the bands 2010–2025 MHz and 2160–2170 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, Syria and Tunisia, the use of the bands 1980–2010 MHz and 2170–2200 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.

5.390 In Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Suriname and Uruguay, the use of the bands 2010–2025 MHz and 2160–2170 MHz by the mobile-satellite services shall not cause harmful interference to stations in the fixed and mobile services before

1 January 2005. After this date, the use of these bands is subject to coordination under No. 9.11A and to the provisions of Resolution 716 (WRC-95).<sup>5</sup>

5.391 In making assignments to the mobile service in the bands 2025–2110 MHz and 2200–2290 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.

5.392 Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2025–2110 MHz and 2200–2290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

5.392A *Additional allocation:* in Russian Federation, the band 2160–2200 MHz is also allocated to the space research service (space-to-Earth) on a primary basis until 1 January 2005. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services operating in this frequency band.

5.393 *Additional allocation:* in the United States, India and Mexico, the band 2310–2360 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 (WARC-92), with the exception of resolves 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz.

5.394 In the United States, the use of the band 2300–2390 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the band 2300–2483.5 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services.

5.395 In France, the use of the band 2310–2360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

5.396 Space stations of the broadcasting-satellite service in the band 2310–2360 MHz operating in accordance with No. 5.393 that may affect the services to which this band is

<sup>4</sup>Note by the Secretariat: This Resolution was revised by WRC-2000.

<sup>5</sup>Note by the Secretariat: This Resolution was revised by WRC-2000.

allocated in other countries shall be coordinated and notified in accordance with Resolution 33 (Rev.WRC-97). Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use.

5.397 *Different category of service:* in France, the band 2450-2500 MHz is allocated on a primary basis to the radiolocation service (see No. 5.33). Such use is subject to agreement with administrations having services operating or planned to operate in accordance with the Table of Frequency Allocations which may be affected.

5.398 In respect of the radiodetermination-satellite service in the band 2483.5-2500 MHz, the provisions of No. 4.10 do not apply.

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

5.400 *Different category of service:* in Angola, Australia, Bangladesh, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Jordan, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Dem. Rep. of the Congo, Syria, Sudan, Swaziland, Togo and Zambia, the allocation of the band 2483.5-2500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision.

5.402 The use of the band 2483.5-2500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under No. 9.11A. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2483.5-2500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4990-5000 MHz band allocated to the radio astronomy service worldwide.

5.403 Subject to agreement obtained under No. 9.21, the band 2520-2535 MHz (until 1 January 2005 the band 2500-2535 MHz) may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of No. 9.11A apply.

5.404 *Additional allocation:* in India and Iran (Islamic Republic of), the band 2500-2516.5 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.

5.405 *Additional allocation:* in France, the band 2500-2550 MHz is also allocated to the radiolocation service on a primary basis. Such use is subject to agreement with the

administrations having services operating or planned to operate in accordance with the Table which may be affected.

5.407 In the band 2500-2520 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  $-152$  dB(W/(m<sup>2</sup> 4 kHz)) in Argentina, unless otherwise agreed by the administrations concerned.

5.409 Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in the band 2500-2690 MHz.

5.410 The band 2500-2690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. 9.21.

5.411 When planning new tropospheric scatter radio-relay links in the band 2500-2690 MHz, all possible measures shall be taken to avoid directing the antennae of these links towards the geostationary-satellite orbit.

5.412 *Alternative allocation:* in Azerbaijan, Bulgaria, Kyrgyzstan and Turkmenistan, the band 2500-2690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.413 In the design of systems in the broadcasting-satellite service in the bands between 2500 MHz and 2690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2690-2700 MHz.

5.414 The allocation of the frequency band 2500-2520 MHz to the mobile-satellite service (space-to-Earth) shall be effective on 1 January 2005 and is subject to coordination under No. 9.11A.

5.415 The use of the bands 2500-2690 MHz in Region 2 and 2500-2535 MHz and 2655-2690 MHz in Region 3 by the fixed-satellite service is limited to national and regional systems, subject to agreement obtained under No. 9.21, giving particular attention to the broadcasting-satellite service in Region 1. In the direction space-to-Earth, the power flux-density at the Earth's surface shall not exceed the values given in Article 21, Table 21-4.

5.415A *Additional allocation:* in India and Japan, subject to agreement obtained under No. 9.21, the band 2515-2535 MHz may also be used for the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within their national boundaries.

5.416 The use of the band 2520-2670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. 9.21. The power flux-density at the Earth's surface shall not exceed the values given in Article 21, Table 21-4.

5.418 *Additional allocation:* in Bangladesh, Belarus, Korea (Rep. of), India, Japan, Pakistan, Singapore, Sri Lanka and Thailand, the

band 2535–2655 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 (WARC-92). 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 (WRC-2000).

5.418A In certain Region 3 countries listed in No. 5.418, use of the band 2630–2655 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. Use of the band by non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to the provisions of Resolution 539 (WRC-2000), and such systems shall be in accordance with Resolution 528 (WARC-92).

5.418B Use of the band 2630–2655 MHz by non-geostationary-satellite systems 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. Resolution 539 (WRC-2000) applies.

5.418C Use of the band 2630–2655 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. 9.13 with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), and No. 22.2 does not apply. Resolution 539 (WRC-2000) applies.

5.419 The allocation of the frequency band 2670–2690 MHz to the mobile-satellite service shall be effective from 1 January 2005. When introducing systems of the mobile-satellite service in this band, administrations shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with No. 9.11A.

5.420 The band 2655–2670 MHz (until 1 January 2005 the band 2655–2690 MHz) may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite,

service for operation limited to within national boundaries, subject to agreement obtained under No. 9.21. The coordination under No. 9.11A applies.

5.420A *Additional allocation:* in India and Japan, subject to agreement obtained under No. 9.21, the band 2670–2690 MHz may also be used for the aeronautical mobile-satellite service (Earth-to-space) for operation limited to within their national boundaries.

5.421 *Additional allocation:* in Germany and Austria, the band 2690–2695 MHz is also allocated to the fixed service on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

5.422 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Brunei Darussalam, Congo, Cote d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Lebanon, Malaysia, Mali, Mauritania, Moldova, Mongolia, Nigeria, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, the Russian Federation, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine, Yemen and Yugoslavia, the band 2690–2700 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.

5.423 In the band 2700–2900 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 2850–2900 MHz is also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars.

5.425 In the band 2900–3100 MHz, the use of the shipborne interrogator-transponder system (SIT) shall be confined to the sub-band 2930–2950 MHz.

5.426 The use of the band 2900–3100 MHz by the aeronautical radionavigation service is limited to ground-based radars.

5.427 In the bands 2900–3100 MHz and 9300–9500 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, Bulgaria, Cuba, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3100–3300 MHz is also allocated to the radionavigation service on a primary basis.

5.429 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, the Congo, Korea (Rep.

of), the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Malaysia, Oman, Pakistan, Qatar, Syria, Dem. People's Rep. of Korea and Yemen, the band 3300-3400 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.

5.430 *Additional allocation:* in Azerbaijan, Bulgaria, Cuba, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3300-3400 MHz is also allocated to the radionavigation service on a primary basis.

5.431 *Additional allocation:* in Germany, Israel, Nigeria and the United Kingdom, the band 3400-3475 MHz is also allocated to the amateur service on a secondary basis.

5.432 *Different category of service:* in Korea (Rep. of), Japan and Pakistan, the allocation of the band 3400-3500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 5.33).

5.433 In Regions 2 and 3, in the band 3400-3600 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.

5.435 In Japan, in the band 3620-3700 MHz, the radiolocation service is excluded.

5.438 Use of the band 4200-4400 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) and Libya, the band 4200-4400 MHz is also allocated to the fixed service on a secondary basis.

5.440 The standard frequency and time signal-satellite service may be authorized to use the frequency 4202 MHz for space-to-Earth transmissions and the frequency 6427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of  $\pm 2$  MHz of these frequencies, subject to agreement obtained under No. 9.21.

5.441 The use of the bands 4500-4800 MHz (space-to-Earth), 6725-7025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix 30B. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service shall be in accordance

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

5.442 In the bands 4825-4835 MHz and 4950-4990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service.

5.443 *Different category of service:* in Argentina, Australia and Canada, the allocation of the bands 4825-4835 MHz and 4950-4990 MHz to the radio astronomy service is on a primary basis (see No. 5.33).

5.443A *Additional allocation:* The band 5000-5010 MHz is also allocated to the radionavigation-satellite service (Earth-to-space) on a primary basis. See Resolution 603 (WRC-2000).

5.443B *Additional allocation:* The band 5010-5030 MHz is also allocated to the radionavigation-satellite service (space-to-Earth) (space-to-space) on a primary basis. In order not to cause harmful interference to the microwave landing system operating above 5030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5030-5150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5010-5030 MHz shall not exceed "124.5 dB(W/m<sup>2</sup>) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4990-5000 MHz, the aggregate power flux-density produced in the 4990-5000 MHz band by all the space stations within any radionavigation-satellite service (space-to-Earth) system operating in the 5010-5030 MHz band shall not exceed the provisional value of -171 dB(W/m<sup>2</sup>) in a 10 MHz band at any radio astronomy observatory site for more than 2% of the time. For the use of this band, Resolution 604 (WRC-2000) applies.

5.444 The band 5030–5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band. For the use of this band, No. 5.444A and Resolution 114 (WRC-95) apply.

5.444A *Additional allocation:* the band 5091–5150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of non-geostationary mobile-satellite systems and is subject to coordination under No. 9.11A.

In the band 5091–5150 MHz, the following conditions also apply:

- Prior to 1 January 2010, the use of the band 5091–5150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution 114 (WRC-95);
- Prior to 1 January 2010, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5000–5091 MHz band, shall take precedence over other uses of this band;
- After 1 January 2008, no new assignments shall be made to stations providing feeder links of non-geostationary mobile-satellite systems;
- After 1 January 2010, the fixed-satellite service will become secondary to the aeronautical radionavigation service.

5.446 *Additional allocation:* in the countries listed in Nos. 5.369 and 5.400, the band 5150–5216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. 9.21. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. 5.369 and 5.400, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1610–1626.5 MHz and/or 2483.5–2500 MHz. The total power flux-density at the Earth's surface shall in no case exceed  $-159$  dB(W/m<sup>2</sup>) in any 4 kHz band for all angles of arrival.

5.446A The use of the bands 5150–5350 MHz and 5470–5725 MHz by the stations in the mobile service shall be in accordance with Resolution 229 (WRC-03).

5.446B In the band 5150–5250 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.

5.447 *Additional allocation:* In Israel, Lebanon, Pakistan, the Syrian Arab Republic and Tunisia, the band 5150–5250 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-03) do not apply.

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 5150–5216 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 5150–5216 MHz shall in no case exceed  $-164$  dB(W/m<sup>2</sup>) in any 4 kHz band for all angles of arrival.

5.447C Administrations responsible for fixed-satellite service networks in the band 5150–5250 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 5250–5255 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.

5.447E *Additional allocation:* The band 5250–5350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, Philippines, Sri Lanka, Thailand and Viet Nam. The use of this band by the fixed service is intended for the implementation of fixed wireless access (FWA) systems and shall comply with Recommendation ITU-R F.1613. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. 5.43A do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of FWA systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the

FWA systems by future radiodetermination implementations.

5.447F In the band 5250–5350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU-R M.1638 and ITU-R SA.1632.

5.448 *Additional allocation:* In Azerbaijan, Libyan Arab Jamahiriya, Mongolia, Kyrgyzstan, Slovakia, Romania and Turkmenistan, the band 5250–5350 MHz is also allocated to the radionavigation service on a primary basis.

5.448A The Earth exploration-satellite (active) and space research (active) services in the frequency band 5250–5350 MHz shall not claim protection from the radiolocation service. No. 5.43A does not apply.

5.448B The Earth exploration-satellite service (active) operating in the band 5350–5570 MHz and space research service (active) operating in the band 5460–5570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5350–5460 MHz, the radionavigation service in the band 5460–5470 MHz and the maritime radionavigation service in the band 5470–5570 MHz.

5.448C The space research service (active) operating in the band 5350–5460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated.

5.448D In the frequency band 5350–5470 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.

5.449 The use of the band 5350–5470 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), Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 5470–5650 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.450A In the band 5470–5725 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.

5.450B In the frequency band 5470–5650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological

logical purposes in the band 5600–5650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service.

5.451 *Additional allocation:* in the United Kingdom, the band 5470–5850 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 5725–5850 MHz.

5.452 Between 5600 MHz and 5650 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, Côte d'Ivoire, Korea (Rep. of), Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, the Libyan Arab Jamahiriya, Madagascar, Malaysia, Nigeria, Oman, 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 5650–5850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution 229 (WRC-03) do not apply.

5.454 *Different category of service:* In Azerbaijan, Georgia, Mongolia, Uzbekistan, Kyrgyzstan, the Russian Federation, Tajikistan and Turkmenistan, the allocation of the band 5670–5725 MHz to the space research service is on a primary basis (see No. 5.33).

5.455 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Cuba, Georgia, Hungary, Kazakhstan, Latvia, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 5670–5850 MHz is also allocated to the fixed service on a primary basis.

5.456 *Additional allocation:* in Germany and in Cameroon, the band 5755–5850 MHz is also allocated to the fixed service on a primary basis.

5.457A In the bands 5925–6425 MHz and 14–14.5 GHz, earth stations on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution 902 (WRC-03).

5.457B In the bands 5925–6425 MHz and 14–14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution 902 (WRC-03) in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Jordan, Kuwait, Libyan Arab Jamahiriya, Morocco, Mauritania, Oman, Qatar, Syrian Arab Republic, Sudan, Tunisia and Yemen, in the maritime mobile-satellite service on a secondary basis. Such use shall

be in accordance with Resolution 902 (WRC-03).

5.458 In the band 6425–7075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7075–7250 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 6425–7025 MHz and 7075–7250 MHz.

5.458A In making assignments in the band 6700–7075 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 6650–6675.2 MHz from harmful interference from unwanted emissions.

5.458B The space-to-Earth allocation to the fixed-satellite service in the band 6700–7075 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 6700–7075 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 7025–7075 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 Russian Federation, the frequency bands 7100–7155 MHz and 7190–7235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. 9.21.

5.460 *Additional allocation:* the band 7145–7235 MHz is also allocated to the space research (Earth-to-space) service on a primary basis, subject to agreement obtained under No. 9.21. The use of the band 7145–7190 MHz is restricted to deep space; no emissions to deep space shall be effected in the band 7190–7235 MHz.

5.461 *Additional allocation:* the bands 7250–7375 MHz (space-to-Earth) and 7900–8025 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 7450–7550 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.

5.461B The use of the band 7750–7850 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems.

5.462A In Regions 1 and 3 (except for Japan), in the band 8025–8400 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 ( $\theta$ ), without the consent of the affected administration:

- 174 dB(W/m<sup>2</sup>) in a 4 kHz band for  $0 \leq \theta < 5^\circ$
- $174 + 0.5 (\theta - 5)$  dB(W/m<sup>2</sup>) in a 4 kHz band for  $5 \leq \theta < 25^\circ$
- 164 dB(W/m<sup>2</sup>) in a 4 kHz band for  $25 \leq \theta \leq 90^\circ$

These values are subject to study under Resolution 124 (WRC-97).<sup>6</sup>

5.463 Aircraft stations are not permitted to transmit in the band 8025–8400 MHz.

5.465 In the space research service, the use of the band 8400–8450 MHz is limited to deep space.

5.466 *Different category of service:* in Israel, Malaysia, Singapore and Sri Lanka, the allocation of the band 8400–8500 MHz to the space research service is on a secondary basis (see No. 5.32).

5.467 *Alternative allocation:* in the United Kingdom, the band 8400–8500 MHz is allocated to the radiolocation and space research services on a primary basis.

5.468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, the Congo, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, Qatar, Syria, Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8500–8750 MHz is also allocated to the fixed and mobile services on a primary basis.

5.469 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, the Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 8500–8750 MHz is also allocated to the land mobile and radionavigation services on a primary basis.

<sup>6</sup>Note by the Secretariat: This Resolution was revised by WRC-2000.

5.469A In the band 8550–8650 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.

5.470 The use of the band 8750–8850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8800 MHz.

5.471 *Additional allocation:* in Algeria, Germany, Bahrain, Belgium, China, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya, the Netherlands, Qatar and Sudan, the bands 8825–8850 MHz and 9000–9200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only.

5.472 In the bands 8850–9000 MHz and 9200–9225 MHz, the maritime radionavigation service is limited to shore-based radars.

5.473 *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Cuba, Georgia, Hungary, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, the Russian Federation, Tajikistan, Turkmenistan and Ukraine, the bands 8850–9000 MHz and 9200–9300 MHz are also allocated to the radionavigation service on a primary basis.

5.474 In the band 9200–9500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article 31).

5.475 The use of the band 9300–9500 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 9300–9320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. In the band 9300–9500 MHz, ground-based radars used for meteorological purposes have priority over other radiolocation devices.

5.476 In the band 9300–9320 MHz in the radionavigation service, the use of shipborne radars, other than those existing on 1 January 1976, is not permitted until 1 January 2001.

5.476A In the band 9500–9800 MHz, stations in the earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radionavigation and radiolocation services.

5.477 *Different category of service:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, 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, the Dem.

People's Rep. of Korea, Singapore, Somalia, Sudan, Sweden, Trinidad and Tobago, and Yemen, the allocation of the band 9800–10000 MHz to the fixed service is on a primary basis (see No. 5.33).

5.478 *Additional allocation:* in Azerbaijan, Bulgaria, Mongolia, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Turkmenistan and Ukraine, the band 9800–10000 MHz is also allocated to the radionavigation service on a primary basis.

5.479 The band 9975–10025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.

5.480 *Additional allocation:* in Argentina, Brazil, Chile, Costa Rica, Cuba, El Salvador, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Peru, Uruguay and Venezuela, the band 10–10.45 GHz is also allocated to the fixed and mobile services on a primary basis.

5.481 *Additional allocation:* in Germany, Angola, Brazil, China, Costa Rica, El Salvador, Ecuador, Spain, Guatemala, Japan, Morocco, Nigeria, Oman, Uzbekistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Sweden, Tanzania, Thailand and Uruguay, the band 10.45–10.5 GHz is also allocated to the fixed and mobile services on a primary basis.

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

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

5.484 In Region 1, the use of the band 10.7–11.7 GHz by the fixed-satellite service (Earth-

to-space) is limited to feeder links for the broadcasting-satellite service.

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

5.485 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 provisions of the Regions 1 and 3 Plan in Appendix 30.

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.

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 the provisions of Resolution 77 (WRC-2000). For the use of the band 12.2–12.7 GHz by the broadcasting-satellite service in Region 2, see Appendix 30.

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.

5.491 *Additional allocation:* in Region 3, the band 12.2–12.5 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. The power flux-density limits in Table 21-4 of Article 21 shall apply to this frequency band. The introduction of the service in relation to the broadcasting-satellite service in Region 1 shall follow the procedures specified in Article 7 of Appendix 30, with the applicable frequency band extended to cover 12.2–12.5 GHz.

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

5.493 The broadcasting-satellite service in the band 12.5–12.75 GHz in Region 3 is limited to a power flux-density not exceeding  $-111$  dB(W/m<sup>2</sup> · 27 MHz) for all conditions and for all methods of modulation at the edge of the service area.

5.494 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., the Congo, Côte d'Ivoire, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Qatar, Dem. Rep. of the Congo, Syria, Senegal, Somalia, 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.

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

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.

5.497 The use of the band 13.25–13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.

5.498A The Earth exploration-satellite (active) and space research (active) services operating in the band 13.25–13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service.

5.499 *Additional allocation:* in Bangladesh, India and Pakistan, the band 13.25–14 GHz is also allocated to the fixed service on a primary basis.

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, Malta, Morocco, Mauritania, Nigeria, Pakistan, Qatar, Syria, Senegal, Singapore, Sudan, Chad and Tunisia, the band 13.4–14 GHz is also allocated to the fixed and mobile services on a primary basis.

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

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

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 radionavigation service.

5.502 In the band 13.75–14 GHz, an earth station in the fixed-satellite service shall have a minimum antenna diameter of 4.5 m and the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW. In addition the e.i.r.p., averaged over one second, radiated by a station in the radionavigation or radionavigation services shall not exceed 59 dBW. The protection of assignments to receiving space stations in the fixed-satellite service operating with earth stations that, individually, have an e.i.r.p. of less than 68 dBW shall not impose constraints on the operation of the radionavigation and radionavigation stations operating in accordance with the Radio Regulations, No. 5.43A does not apply. See Resolution 733 (WRC-2000).

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:

—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 71 dBW in the 6 MHz band from 13.772 to 13.778 GHz;

—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 the 6 MHz band in this frequency range to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. of 71 dBW or 51 dBW, as appropriate, in the 6 MHz band in clear-sky conditions.

5.503A Until 1 January 2000, stations in the fixed-satellite service shall not cause

harmful interference to non-geostationary space stations in the space research and Earth exploration-satellite services. After that date, these non-geostationary space stations will operate on a secondary basis in relation to the fixed-satellite service. Additionally, when planning earth stations in the fixed-satellite service to be brought into service between 1 January 2000 and 1 January 2001, in order to accommodate the needs of spaceborne precipitation radars operating in the band 13.793–13.805 GHz, advantage should be taken of the consultation process and the information given in Recommendation ITU-R SA.1071.

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.

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.

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

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

5.506 The band 14–14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination

with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.

5.506A In the band 14–14.5 GHz, ship earth stations with an e.i.r.p. greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution 902 (WRC-03). This footnote shall not apply to ship earth stations for which the complete Appendix 4 information has been received by the Radiocommunication Bureau prior to 5 July 2003.

5.506B Earth stations 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.

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

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

5.509 *Additional allocation:* in Japan the band 14.25–14.3 GHz is also allocated to the mobile, except aeronautical mobile, service on a primary basis.

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

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, Bosnia and Herzegovina, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, Kuwait, Lebanon, Libya, Pakistan, Qatar, Syria, Slovenia, Somalia and Yugoslavia, the band 15.35–15.4 GHz is also allocated to the fixed and mobile services on a secondary basis.

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/m<sup>2</sup>) in a 50 MHz bandwidth, into any radio astronomy observatory site for more than 2% of the time.

5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. 4.10 applies) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340.

5.511D Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4–15.43 GHz and 15.63–15.7 GHz in the space-to-Earth direction and 15.63–15.65 GHz in the Earth-to-space direction. In the bands 15.4–15.43 GHz and 15.65–15.7 GHz, emissions from a non-geostationary space station shall

not exceed the power flux-density limits at the Earth's surface of  $-146$  dB(W/(m<sup>2</sup> · MHz)) for any angle of arrival. In the band 15.63–15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed  $-146$  dB(W/(m<sup>2</sup> · 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).

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

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.

5.514 *Additional allocation:* in Algeria, Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Libya, Nepal, Nicaragua, Oman, Pakistan, Qatar, Slovenia, Sudan and Yugoslavia, the band 17.3–17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. 21.3 and 21.5 shall apply.

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.

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

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

This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these Regulations among users of the bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution 143 (WRC-03).

5.517 In Region 2, the allocation to the broadcasting-satellite service in the band 17.3–17.8 GHz shall come into effect on 1 April 2007. After that date, use of the fixed-satellite (space-to-Earth) service in the band

17.7–17.8 GHz shall not claim protection from and shall not cause harmful interference to operating systems in the broadcasting-satellite service.

5.518 *Different category of service:* in Region 2, the allocation of the band 17.7–17.8 GHz to the mobile service is on a primary basis until 31 March 2007.

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

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

5.521 *Alternative allocation:* in Germany, Denmark, the United Arab Emirates, Greece and Slovakia, 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.

5.522A The emissions of the fixed service and the fixed-satellite service in the band 18.6–18.8 GHz are limited to the values given in Nos. 21.5A and 21.16.2, respectively.

5.522B The use of the band 18.6–18.8 GHz by the fixed-satellite service is limited to geostationary systems and systems with an orbit of apogee greater than 20 000 km.

5.522C In the band 18.6–18.8 GHz, in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, Jordan, Lebanon, Libya, Morocco, Oman, Qatar, Syria, 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.

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.

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.

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.

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.

5.524 *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, the Congo, 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 Dem. Rep. of the Congo, Syria, the Dem. People's Rep. of Korea, Singapore, Somalia, 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.

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.

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

5.531 *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 *Additional allocation:* in Japan, the band 24.65–25.25 GHz is also allocated to the radionavigation service on a primary basis until 2008.

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.

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

5.536B In Germany, Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Spain, 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 Philippines, Poland, Portugal, Syria, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Sweden, Switzerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the band 25.5–27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services.

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

5.537A In Bhutan, Indonesia, Iran (Islamic Republic of), Japan, Maldives, Mongolia, Myanmar, Pakistan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.5–28.35 GHz may also be used by high altitude platform stations (HAPS). The use of the band 27.5–28.35 GHz by HAPS is 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.

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 trans-

missions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of 10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. In the band 27.500–27.501 GHz, such space-to-Earth transmissions shall not produce a power flux-density in excess of the values specified in Article 21, Table 21-4 on the Earth's surface.

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

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

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

5.541A Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the band 29.1–29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix 4 coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix 4 information for coordination before this date are encouraged to utilize these techniques to the extent practicable.

5.542 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Pakistan, the Philippines, Qatar, Syria, the Dem. People's Rep. of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5–31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. 21.3 and 21.5 shall apply.

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, Indonesia, Iran (Islamic Republic of), Japan, Maldives, Mongolia, Myanmar, Pakistan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam,

the allocation to the fixed service in the band 31–31.3 GHz may also be used by high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the band 31–31.3 GHz by systems using HAPS shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services, taking into account No. 5.545. The use of HAPS in the band 31–31.3 GHz shall not cause harmful interference to the passive services having a primary allocation in the band 31.3–31.8 GHz, taking into account the interference criteria given in Recommendations ITU-R SA.1029 and ITU-R RA.769. The administrations of the countries listed above are urged to limit the deployment of HAPS in the band 31–31.3 GHz to the lower half of this band (31–31.15 GHz) until WRC-03.

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, Azerbaijan, Belarus, Georgia, Mongolia, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 31–31.3 GHz to the space research service is on a primary basis (see No. 5.33).

5.546 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, Finland, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Syria, Kyrgyzstan, Romania, the United Kingdom, the Russian Federation, Tajikistan, Turkmenistan, Turkey and Ukraine, the allocation of the band 31.5–31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33).

5.547 The bands 31.8–33.4 GHz, 37–40 GHz, 40.5–43.5 GHz, 51.4–52.6 GHz, 55.78–59 GHz and 64–66 GHz are available for high-density applications in the fixed service (see Resolutions 75 (WRC-2000) and 79 (WRC-2000)). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5–40 GHz and 40.5–42 GHz (see No. 5.516B), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate.

5.547A Administrations should take practical measures to minimize the potential interference between stations in the fixed service and airborne stations in the radionavigation service in the 31.8–33.4 GHz band, taking into account the operational needs of the airborne radar systems.

5.547B *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.

5.547C *Alternative allocation:* in the United States, the band 32–32.3 GHz is allocated to the inter-satellite, radionavigation and space research (deep space) (space-to-Earth) services on a primary basis.

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.

5.547E *Alternative allocation:* in the United States, the band 33–33.4 GHz is allocated to the radionavigation service on a primary basis.

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

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, Malta, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, Dem. Rep. of the Congo, Syria, Senegal, Singapore, Somalia, 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.

5.550 *Different category of service:* in Armenia, Azerbaijan, Belarus, Georgia, Mongolia, Uzbekistan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 34.7–35.2 GHz to the space research service is on a primary basis (see No. 5.33).

5.551A In the band 35.5–36.0 GHz, active spaceborne sensors in the earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the meteorological aids service and other services allocated on a primary basis.

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).

5.551H The equivalent power flux-density (epfd) produced in the band 42.5–43.5 GHz by all space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service (space-to-Earth) operating in the 42–42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time:

– 230 dB(W/m<sup>2</sup>) in 1 GHz and –246 dB(W/m<sup>2</sup>) in any 500 kHz of the 42.5–43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

– 209 dB(W/m<sup>2</sup>) 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 e<sub>pf</sub> values shall be evaluated using the methodology given in Recommendation ITU-R S.1586 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU-R RA.1631 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle  $\theta_{min}$  of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).

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

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

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

5.551I The power flux-density in the band 42.5–43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service (space-to-Earth) operating in the 42–42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station:

– 137 dB(W/m<sup>2</sup>) in 1 GHz and –153 dB(W/m<sup>2</sup>) in any 500 kHz of the 42.5–43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

– 116 dB(W/m<sup>2</sup>) in any 500 kHz of the 42.5–43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

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

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

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

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

5.552A The allocation to the fixed service in the bands 47.2–47.5 GHz and 47.9–48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2–47.5 GHz and 47.9–48.2 GHz is subject to the provisions of Resolution 122 (WRC-97)<sup>7</sup>

5.553 In the bands 43.5–47 GHz and 66–71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. 5.43).

5.554 In the bands 43.5–47 GHz, 66–71 GHz, 95–100 GHz, 123–130 GHz, 191.8–200 GHz and 252–265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radio-navigation-satellite service.

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

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

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

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

5.556A Use of the bands 54.25–56.9 GHz, 57–58.2 GHz and 59–59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes

<sup>7</sup>Note by the Secretariat: This Resolution was revised by WRC-2000.

from 0 km to 1000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed  $-147 \text{ dB(W/(m}^2 \cdot 100 \text{ MHz))}$  for all angles of arrival.

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.

5.557 *Additional allocation:* in Japan, the band 55.78–58.2 GHz is also allocated to the radiolocation service on a primary basis.

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  $-26 \text{ dB(W/MHz)}$ .

5.558 In the bands 55.78–58.2 GHz, 59–64 GHz, 66–71 GHz, 122.25–123 GHz, 130–134 GHz, 167–174.8 GHz and 191.8–200 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. 5.43).

5.558A Use of the band 56.9–57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed  $-147 \text{ dB(W/(m}^2 \cdot 100 \text{ MHz))}$  for all angles of arrival.

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

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

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

5.561 In the band 74–76 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to stations of the fixed-satellite service or stations of the broadcasting-satellite service operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service.

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

5.561B In Japan, use of the band 84–86 GHz, by the fixed-satellite service (Earth-to-space) is limited to feeder links in the broad-

casting-satellite service using the geostationary-satellite orbit.

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.

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

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

5.562C Use of the band 116–122.25 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 km to 1000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed  $-148 \text{ dB(W/(m}^2 \cdot \text{MHz))}$  for all angles of arrival.

5.562D *Additional allocation:* In Korea (Rep. of), the bands 128–130 GHz, 171–171.6 GHz, 172.2–172.8 GHz and 173.3–174 GHz are also allocated to the radio astronomy service on a primary basis until 2015.

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

5.562F In the band 155.5–158.5 GHz, the allocation to the Earth exploration-satellite (passive) and space research (passive) services shall terminate on 1 January 2018.

5.562G The date of entry into force of the allocation to the fixed and mobile services in the band 155.5–158.5 GHz shall be 1 January 2018.

5.562H Use of the bands 174.8–182 GHz and 185–190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed  $-144 \text{ dB(W/(m}^2 \cdot \text{MHz))}$  for all angles of arrival.

5.563A In the bands 200–209 GHz, 235–238 GHz, 250–252 GHz and 265–275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents.

5.563B The band 237.9–238 GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for spaceborne cloud radars only.

5.565 The frequency band 275–1000 GHz may be used by administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services:

- Radio astronomy service: 275–323 GHz, 327–371 GHz, 388–424 GHz, 426–442 GHz, 453–510 GHz, 623–711 GHz, 795–909 GHz and 926–945 GHz;
- Earth exploration-satellite service (passive) and space research service (passive): 275–277 GHz, 294–306 GHz, 316–334 GHz, 342–349 GHz, 363–365 GHz, 371–389 GHz, 416–434 GHz, 442–444 GHz, 496–506 GHz, 546–568 GHz, 624–629 GHz, 634–654 GHz, 659–661 GHz, 684–692 GHz, 730–732 GHz, 851–853 GHz and 951–956 GHz.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the date when the allocation Table is established in the above-mentioned frequency band.

#### UNITED STATES (US) FOOTNOTES

(These footnotes, each consisting of the letters US followed by one or more digits, denote stipulations applicable to both Government and non-Government stations.)

US7 In the band 420–450 MHz and within the following areas, the peak envelope power output of a transmitter employed in the amateur service shall not exceed 50 watts, unless expressly authorized by the Commission after mutual agreement, on a case-by-case basis, between the Federal Communications Commission Engineer in Charge at the applicable district office and the military area frequency coordinator at the applicable military base. For areas (e) through (j), the appropriate military coordinator is located at Peterson AFB, CO.

(a) The entire State of New Mexico and Texas west of longitude 104°00' West;

(b) The entire State of Florida including the Key West area and the areas enclosed within a 322-kilometer (200-mile) radius of Patrick Air Force Base, Florida (latitude 28°21' North, longitude 80°43' West), and within a 322-kilometer (200-mile) radius of Eglin Air Force Base, Florida (latitude 30°30' North, longitude 86°30' West);

(c) The entire State of Arizona;

(d) Those portions of California and Nevada south of latitude 37°10' North, and the areas enclosed within a 322-kilometer (200-mile) radius of the Pacific Missile Test Center, Point

Mugu, California (latitude 34°09' North, longitude 119°11' West).

(e) In the State of Massachusetts within a 160-kilometer (100-mile) radius around locations at Otis Air Force Base, Massachusetts (latitude 41°45' North, longitude 70°32' West).

(f) In the State of California within a 240-kilometer (150-mile) radius around locations at Beale Air Force Base, California (latitude 39°08' North, longitude 121°26' West).

(g) In the State of Alaska within a 160-kilometer (100-mile) radius of Clear, Alaska (latitude 64°17' North, longitude 149°10' West).

(h) In the State of North Dakota within a 160-kilometer (100-mile) radius of Concrete, North Dakota (latitude 48°43' North, longitude 97°54' West).

(i) In the States of Alabama, Georgia and South Carolina within a 200-kilometer (124-mile) radius of Warner Robins Air Force Base, Georgia (latitude 32°38' North, longitude 83°35' West).

(j) In the State of Texas within a 200-kilometer (124-mile) radius of Goodfellow Air Force Base, Texas (latitude 31°25' North, longitude 100°24' West).

US8 The use of the frequencies 170.475, 171.425, 171.575, and 172.275 MHz east of the Mississippi River, and 170.425, 170.575, 171.475, 172.225 and 172.375 MHz west of the Mississippi River may be authorized to fixed, land and mobile stations operated by non-Federal forest firefighting agencies. In addition, land stations and mobile stations operated by non-Federal conservation agencies, for mobile relay operation only, may be authorized to use the frequency 172.275 MHz east of the Mississippi River and the frequency 171.475 MHz west of the Mississippi River. The use of any of the foregoing nine frequencies shall be on the condition that no harmful interference will be caused to Government stations.

US11 The use of the frequencies 166.25 and 170.15 MHz may be authorized to non-Federal Government remote pickup broadcast base and land mobile stations and to non-Federal Government base, fixed and land mobile stations in the public safety radio services on the condition that harmful interference shall not be caused to present or future Federal Government stations in the band 162–174 MHz. Authorization on these frequencies shall be in the lower 48 contiguous States only, except within the area bounded on the west by the Mississippi River, on the north by the parallel of latitude 37°30' N., and on the east and south by that arc of the circle with center at Springfield, Illinois, and radius equal to the airline distance between Springfield, Illinois, and Montgomery, Alabama, subtended between the foregoing west and north boundaries. The use of these frequencies by remote pickup broadcast stations shall not be authorized for locations within 150 miles (241.4 km) of New York City; and use of these frequencies by the public

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safety radio services shall not be authorized except for locations within 150 miles of New York City.

US13 For the specific purpose of transmitting hydrological and meteorological data in co-operation with agencies of the Federal Government, the following frequencies may be authorized to non-Government fixed stations on the condition that harmful interference will not be caused to Government stations.

	MHZ
169.425	171.125
169.450	171.825
169.475	171.850
169.500	171.875
169.525	171.900
170.225	171.925
170.250	406.125
170.275	406.175
170.300	409.675
170.325	409.725
171.025	412.625
171.050	412.675
171.075	412.725
171.100	412.775

Licensees holding a valid authorization on June 11, 1962, to operate on the frequencies 169.575, 170.375 or 171.975 MHz may continue to be authorized for such operations on the condition that harmful interference will not be caused to Government stations.

US14 When 500 kHz is being used for distress purposes, ship and coast stations using morse telegraph may use 512 kHz for calling.

US18 Navigation aids in the U.S. and its insular areas in the bands 9-14 kHz, 90-110 kHz, 190-415 kHz, 510-535 kHz, and 2700-2900 MHz are normally operated by the Federal Government. However, authorizations may be made by the FCC for non-Federal Government operations in these bands subject to the conclusion of appropriate arrangements between the FCC and the Federal agencies concerned and upon special showing of need for service which the Federal Government is not yet prepared to render.

US25 The use of frequencies 26110 kHz, 26130 kHz, 26151 kHz, and 26172 kHz may be authorized to non-Federal Government remote pickup broadcast base and mobile stations on the condition that harmful interference is not caused to the reception of either international broadcast stations transmitting in the band 25850-26100 kHz or to coast stations transmitting in the band 26100-26175 kHz.

US26 The bands 117.975-121.4125 MHz, 123.5875-128.8125 MHz and 132.0125-136.0 MHz are for air traffic control communications.

US28 The band 121.5875-121.9375 MHz is for use by aeronautical utility land and mobile stations, and for air traffic control communications.

US30 The band 121.9375-123.0875 MHz is available to FAA aircraft for communications pursuant to flight inspection functions in accordance with the Federal Aviation Act of 1958.

US31 The frequencies 122.700, 122.725, 122.750, 122.800, 122.950, 122.975, 123.000, 123.050 and 123.075 MHz may be assigned to aeronautical advisory stations. In addition, at landing areas having a part-time or no air-drome control tower or FAA flight service station, these frequencies may be assigned on a secondary non-interference basis to aeronautical utility mobile stations, and may be used by FAA ground vehicles for safety related communications during inspections conducted at such landing areas.

The frequencies 122.850, 122.900 and 122.925 MHz may be assigned to aeronautical multicom stations. In addition, 122.850 MHz may be assigned on a secondary noninterference basis to aeronautical utility mobile stations. In case of 122.925 MHz, US213 applies.

Air carrier aircraft stations may use 122.000 and 122.050 MHz for communication with aeronautical stations of the Federal Aviation Administration and 122.700, 122.800, 122.900 and 123.000 MHz for communications with aeronautical stations pertaining to safety of flight with and in the vicinity of landing areas not served by a control tower.

Frequencies in the band 121.9375-122.6875 MHz may be used by aeronautical stations of the Federal Aviation Administration for communication with aircraft stations.

US32 Except for the frequencies 123.3 and 123.5 MHz, which are not authorized for Government use, the band 123.1125-123.5875 MHz is available for FAA communications incident to flight test and inspection activities pertinent to aircraft and facility certification on a secondary noninterference basis.

US33 The band 123.1125-123.5875 MHz is for use by flight test and aviation instructional stations. The frequency 121.950 MHz is available for aviation instructional stations.

US41 The Government radiolocation service is permitted in the band 2450-2500 MHz on condition that harmful interference is not caused to non-Government services.

US44 The non-Government radiolocation service may be authorized in the band 2900-3100 MHz on the condition that no harmful interference is caused to Government services.

US48 In the band 9000-9200 MHz, the use of the radiolocation service by non-Federal Government licensees may be authorized on the condition that harmful interference is not caused to the aeronautical radio-navigation service or to the Federal Government radiolocation service.

US49 The non-Government radiolocation service may be authorized in the band 5460-5470 MHz on the condition that it does not

cause harmful interference to the aeronautical or maritime radionavigation services or to the Government radiolocation service.

US50 In the band 5470–5650 MHz, the radiolocation service may be authorized for non-Federal Government use on the condition that harmful interference is not caused to the maritime radionavigation service or to the Federal Government radiolocation service.

US51 In the band 9300–9500 MHz, the radiolocation service may be authorized for non-Federal Government use on the condition that harmful interference is not caused to the Federal Government radiolocation service.

US53 In view of the fact that the band 13.25–13.4 GHz is allocated to doppler navigation aids, Government, and non-Government airborne doppler radars in the aeronautical radionavigation service are permitted in the band 8750–8850 MHz only on the condition that they must accept any interference that may be experienced from stations in the radiolocation service in the band 8500–10000 MHz.

US58 In the band 10000–10500 MHz, pulsed emissions are prohibited, except for weather radars on board meteorological satellites in the band 10000–10025 MHz. The amateur service and the non-Government radiolocation service, which shall not cause harmful interference to the Government radiolocation service, are the only non-Government services permitted in this band. The non-Government radiolocation service is limited to survey operations as specified in footnote US108.

US59 The band 10.5–10.55 GHz is restricted to systems using type NON (AO) emission with a power not to exceed 40 watts into the antenna.

US65 The use of the band 5460–5650 MHz by the maritime radionavigation service is limited to shipborne radars.

US66 The use of the band 9300–9500 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9300–9320 MHz on the condition that harmful interference is not caused to the maritime radionavigation service.

US67 The use of the band 9300–9500 MHz by the meteorological aids service is limited to ground-based radars. Radiolocation installations will be coordinated with the meteorological aids service and, insofar as practicable, will be adjusted to meet the requirements of the meteorological aids service.

US69 In the band 31.8–33.4 GHz, ground-based radionavigation aids are not permitted except where they operate in cooperation with airborne or shipborne radionavigation devices.

US70 The meteorological aids service allocation in the band 400.15–406.0 MHz does not preclude the operation therein of associated ground transmitters.

US71 In the band 9300–9320 MHz, low-powered maritime radionavigation stations shall be protected from harmful interference caused by the operation of land-based equipment.

US74 In the bands 25.55–25.67, 73.0–74.6, 406.1–410.0, 608–614, 1400–1427, 1660.5–1670.0, 2690–2700, and 4990–5000 MHz, and in the bands 10.68–10.7, 15.35–15.4, 23.6–24.0, 31.3–31.5, 86–92, 100–102, 109.5–111.8, 114.25–116, 148.5–151.5, 164–167, 200–209, and 250–252 GHz, the radio astronomy service shall be protected from extraband radiation only to the extent that such radiation exceeds the level which would be present if the offending station were operating in compliance with the technical standards or criteria applicable to the service in which it operates. Radio astronomy observations in these bands are performed at the locations listed in US311.

US77 Government stations may also be authorized:

(a) Port operations use on a simplex basis by coast and ship stations of the frequencies 156.6 and 156.7 MHz;

(b) Duplex port operations use of the frequency 157.0 MHz for ship stations and 161.6 MHz for coast stations;

(c) Inter-ship use of 156.3 MHz on a simplex basis; and

(d) Vessel traffic services under the control of the U.S. Coast Guard on a simplex basis by coast and ship stations on the frequencies 156.25, 156.55, 156.6 and 156.7 MHz.

(e) Navigational bridge-to-bridge and navigational communications on a simplex basis by coast and ship stations on the frequencies 156.375 and 156.65 MHz.

US78 In the mobile service, the frequencies between 1435 and 1525 MHz will be assigned for aeronautical telemetry and associated telecommand operations for flight testing of manned or unmanned aircraft and missiles, or their major components. Permissible usage includes telemetry associated with launching and reentry into the Earth's atmosphere as well as any incidental orbiting prior to reentry of manned objects undergoing flight tests. The following frequencies are shared with flight telemetry mobile stations: 1444.5, 1453.5, 1501.5, 1515.5, and 1524.5 MHz.

US80 Government stations may use the frequency 122.9 MHz subject to the following conditions:

(a) All operations by Government stations shall be restricted to the purpose for which the frequency is authorized to non-Government stations, and shall be in accordance with the appropriate provisions of the Commission's Rules and Regulations, Part 87, Aviation Services;

(b) Use of the frequency is required for coordination of activities with Commission licensees operating on this frequency; and

(c) Government stations will not be authorized for operation at fixed locations.

US81 The band 38.0-38.25 MHz is used by both Government and non-Government radio astronomy observatories. No new fixed or mobile assignments are to be made and Government stations in the band 38.0-38.25 MHz will be moved to other bands on a case-by-case basis, as required, to protect radio astronomy observations from harmful interference. As an exception, however, low powered military transportable and mobile stations used for tactical and training purposes will continue to use the band. To the extent practicable, the latter operations will be adjusted to relieve such interference as may be caused to radio astronomy observations. In the event of harmful interference from such local operations, radio astronomy observatories may contact local military commands directly, with a view to effecting relief. A list of military commands, areas of coordination, and points of contact for purposes of relieving interference may be obtained upon request from the Office of the Chief Engineer, Federal Communications Commission, Washington, D.C. 20554.

US82 The assignable frequencies in the bands 4146-4152 kHz, 6224-6233 kHz, 8294-8300 kHz, 12353-12368 kHz, 16528-16549 kHz, 18825-18846 kHz, 22159-22180 kHz, and 25100-25121 kHz may be authorized on a shared non-priority basis to Federal and non-Federal Government ship and coast stations (SSB telephony, with peak envelope power not to exceed 1 kW).

US87 The frequency 450 MHz, with maximum emission bandwidth of 500 kHz, may be used by Government and non-Government stations for space telecommand at specific locations, subject to such conditions as may be applied on a case-by-case basis.

US90 In the band 2025-2110 MHz, the power flux-density at the Earth's surface produced by emissions from a space station in the space operation, Earth exploration-satellite, or space research services that is transmitting in the space-to-space direction, for all conditions and all methods of modulation, shall not exceed the following values in any 4 kHz sub-band:

(a) -154 dBW/m<sup>2</sup> for angles of arrival above the horizontal plane ( $\delta$ ) of 0° to 5°,

(b)  $-154 + 0.5(\delta - 5)$  dBW/m<sup>2</sup> for  $\delta$  of 5° to 25°, and

(c) -144 dBW/m<sup>2</sup> for  $\delta$  of 25° to 90°.

US93 In the conterminous United States, the frequency 108.0 MHz may be authorized for use by VOR test facilities, the operation of which is not essential for the safety of life or property, subject to the condition that no interference is caused to the reception of FM broadcasting stations operating in the band 88-108 MHz. In the event that such inter-

ference does occur, the licensee or other agency authorized to operate the facility shall discontinue operation on 108 MHz and shall not resume operation until the interference has been eliminated or the complaint otherwise satisfied. VOR test facilities operating on 108 MHz will not be protected against interference caused by FM broadcasting stations operating in the band 88-108 MHz not shall the authorization of a VOR test facility on 108 MHz preclude the Commission from authorizing additional FM broadcasting stations.

US99 In the band 1668.4-1670.0 MHz, the meteorological aids service (radiosonde) will avoid operations to the maximum extent practicable. Whenever it is necessary to operate radiosondes in the band 1668.4-1670 MHz within the United States, notification of the operations shall be sent as far in advance as possible to the Electromagnetic Management Unit, National Science Foundation, Washington, D.C. 20550.

US102 In Alaska only, the frequency 122.1 MHz may also be used for air carrier air traffic control purposes at locations where other frequencies are not available to air carrier aircraft stations for air traffic control.

US104 The LORAN Radionavigation System has priority in the band 90-110 kHz in the United States and its insular areas. Radiolocation land stations making use of LORAN-type equipment may be authorized to both Federal and non-Federal Government licensees on a secondary basis for offshore radiolocation activities only at specific locations and subject to such technical and operational conditions (*e.g.*, power, emission, pulse rate and phase code, hours of operation), including on-the-air testing, as may be required on a case-by-case basis to ensure protection of the LORAN radionavigation system from harmful interference and to ensure mutual compatibility among radiolocation operators. Such authorizations to stations in the radiolocation service are further subject to showing of need for service which is not currently provided and which the Federal Government is not yet prepared to render by way of the radionavigation service.

US106 The frequency 156.75 MHz is available for assignment to non-Government and Government stations for environmental communications in accordance with an agreed plan.

US107 The frequency 156.8 MHz is the national distress, safety and calling frequency for the maritime mobile VHF radiotelephone service for use by Government and non-Government ship and coast stations. Guard bands of 156.7625-156.7875 and 156.8125-156.8375 MHz are maintained.

US108 Within the bands 3300-3500 MHz and 10000-10500 MHz, survey operations, using

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transmitters with a peak power not to exceed five watts into the antenna, may be authorized for Government and non-Government use on a secondary basis to other Government radiolocation operations.

US110 In the band 9200-9300 MHz, the use of the radiolocation service by non-Federal Government licensees may be authorized on the condition that harmful interference is not caused to the maritime radionavigation service or to the Federal Government radiolocation service.

US112 The frequency 123.1 MHz is for search and rescue communications. This frequency may be assigned for air traffic control communications at special aeronautical events on the condition that no harmful interference is caused to search and rescue communications during any period of search and rescue operations in the locale involved.

US116 In the bands 890-902 MHz and 935-941 MHz, no new assignments are to be made to Government radio stations after July 10, 1970 except on case-by-case basis, to experimental stations and to additional stations of existing networks in Alaska. Government assignments existing prior to July 10 1970 to stations in Alaska may be continued. All other existing Government assignments shall be on a secondary basis to stations in the non-Government land mobile service and shall be subject to adjustment or removal from the bands 890-902 MHz, 928-932 MHz and 935-941 MHz at the request of the FCC.

US117 In the band 406.1-410 MHz, all new authorizations will be limited to a maximum 7 watts per kHz of necessary bandwidth; existing authorizations as of November 30, 1970 exceeding this power are permitted to continue in use.

New authorizations in this band stations, other than mobile stations, within the following areas are subject to prior coordination by the applicant through the Electromagnetic Spectrum Management Unit, National Science Foundation, Washington, D.C. 20550, (202-357-9696):

Arecibo Observatory:

Rectangle between latitudes 17°30'N. and 19°00'N. and between longitudes 65°10' W. and 68°00'W.

Owens Valley Radio Observatory:

Two contiguous rectangles, one between latitudes 36°N. and 37°N. and longitudes 117°40'W. and 118°30'W. and the second between latitudes 37°N. and 38°N. and longitudes 118°W. and 118°50'W.

Sagamore Hill Radio Observatory:

Rectangle between latitudes 42°10'N. and 43°00'N. and longitudes 70°31'W. and 71°31'W.

Table Mountain Solar Observatory (NOAA), Boulder, Colorado (407-409 MHz only):

Rectangle between latitudes 39°30'N. and 40°30'N. and longitudes 104°30'W. and 106°00'W. or the Continental Divide whichever is farther east.

The non-Government use of this band is limited to the radio astronomy service and as provided by footnote US13.

US201 In the band 460-470 MHz, space stations in the earth exploration-satellite service may be authorized for space-to-earth transmissions on a secondary basis with respect to the fixed and mobile services. When operating in the meteorological-satellite service, such stations shall be protected from harmful interference from other applications of the earth exploration-satellite service. The power flux produced at the earth's surface by any space station in this band shall not exceed -152 dBW/m<sup>2</sup>/kHz.

US203 Radio astronomy observations of the formaldehyde line frequencies 4825-4835 MHz and 14.470-14.500 GHz may be made at certain radio astronomy observatories as indicated below:

BANDS TO BE OBSERVED

4 GHz	14 GHz	Observatory
X .....	.....	National Astronomy and Ionosphere Center, Arecibo, Puerto Rico.
X .....	X .....	National Radio Astronomy Observatory, Green Bank, W. Va.
X .....	X .....	National Radio Astronomy Observatory, Socorro, New Mexico.
X .....	X .....	Hat Creek Observatory (U of Calif.), Hat Creek, Cal.
X .....	X .....	Haystack Radio Observatory (MIT-Lincoln Lab), Tyngsboro, Mass.
X .....	X .....	Owens Valley Radio Observatory (Cal. Tech.), Big Pine, Cal.
.....	X .....	Five College Radio Astronomy Observatory Quabbin Reservoir (near Amherst), Massachusetts.

Every practicable effort will be made to avoid the assignment of frequencies to stations in the fixed or mobile services in these bands. Should such assignments result in harmful interference to these observations, the situation will be remedied to the extent practicable.

US205 Tropospheric scatter systems are prohibited in the band 2500-2690 MHz.

US208 Planning and use of the band 1559-1626.5 MHz necessitate the development of technical and/or operational sharing criteria to ensure the maximum degree of electromagnetic compatibility with existing and planned systems within the band.

US209 The use of frequencies 460.6625, 460.6875, 460.7125, 460.7375, 460.7625, 460.7875, 460.8125, 460.8375, 460.8625, 465.6625, 465.6875, 465.7125, 465.7375, 465.7625, 465.7875, 465.8125, 465.8375, and 465.8625 MHz may be authorized, with 100 mW or less output power, to Government and non-Government radio stations for one-way, non-voice bio-medical telemetry operations in hospitals, or medical or convalescent centers.

US210 In the sub-band 40.66-40.7 MHz and 216-220 MHz, frequencies may be authorized

to Government and non-Government stations on a secondary basis for the tracking of, and telemetering of scientific data from, ocean buoys and wildlife. Operation in these bands is subject to the technical standards specified in: (a) Section 8.2.42 of the NTIA Manual for Government use, or (b) 47 CFR 90.248 for non-Government use. After January 1, 2002, no new assignments shall be authorized in the band 216–217 MHz.

US211 In the bands 1670–1690, 5000–5250 MHz and 10.7–11.7, 15.1365–15.35, 15.4–15.7, 22.5–22.55, 24–24.05, 31.0–31.3, 31.8–32.0, 40.5–42.5, 116–122.25, 123–130, 158.5–164, 167–168, 191.8–200, and 252–265 GHz, applicants for airborne or space station assignments are urged to take all practicable steps to protect radio astronomy observations in the adjacent bands from harmful interference; however, US74 applies.

US212 In the State of Alaska, the carrier frequency 5167.5 kHz (assigned frequency 5168.9 kHz) is designated for emergency communications. This frequency may also be used in the Alaska-Private Fixed Service for calling and listening, but only for establishing communications before switching to another frequency. The maximum power is limited to 150 watts peak envelope power (PEP).

US213 The frequency 122.925 MHz is for use only for communications with or between aircraft when coordinating natural resources programs of Federal or State natural resources, agencies, including forestry management and fire suppression, fish and game management and protection and environmental monitoring and protection.

US214 The frequency 157.1 MHz is the primary frequency for liaison communications between ship stations and stations of the United States Coast Guard.

US215 Emissions from microwave ovens manufactured on and after January 1, 1980, for operation on the frequency 915 MHz must be confined within the band 902–928 MHz. Emissions from microwave ovens manufactured prior to January 1, 1980, for operation on the frequency 915 MHz must be confined within the band 902–940 MHz. Radiocommunications services operating in the band 928–940 MHz must accept any harmful interference from the operation of microwave ovens manufactured before January 1, 1980.

US216 The frequencies 150.775 and 150,790, and the bands 152–152.0150, 163.2375–163.2625, 462.9375–463.1875 and 467.9375–468.1875 MHz are authorized for Government/non-Government operations in medical radio communications systems.

US217 In the band 420–450 MHz, pulse-ranging radiolocation systems may be authorized for Federal and non-Federal Government use along the shorelines of the contiguous 48 States and Alaska. In the Sub-band 420–435 MHz, spread spectrum radiolocation systems may be authorized for Federal and

non-Federal Government use within the contiguous 48 States and Alaska. All stations operating in accordance with this provision shall be secondary to stations operating in accordance with the Table of Frequency Allocations. Authorizations shall be granted on a case-by-case basis; however, operations proposed to be located within the following geographic areas should not expect to be accommodated:

(a) The entire State of New Mexico and Texas west of longitude 104°00' West;

(b) The entire State of Florida including the Key West area and the areas enclosed within a 322-kilometer (200-mile) radius of Patrick Air Force Base, Florida (latitude 28°21' North, longitude 80°43' West), and within a 322-kilometer (200-mile) radius of Eglin Air Force Base, Florida (latitude 30°30' North, longitude 86°30' West);

(c) The entire State of Arizona;

(d) Those portions of California and Nevada south of latitude 37°10' North, and the areas enclosed within a 322-kilometer (200-mile) radius of the Pacific Missile Test Center, Point Mugu, California (latitude 34°09' North, longitude 119°11' West).

(e) In the State of Massachusetts within a 160-kilometer (100-mile) radius around locations at Otis Air Force Base, Massachusetts (latitude 41°45' North, longitude 70°32' West).

(f) In the State of California within a 240-kilometer (150-mile) radius around locations at Beale Air Force Base, California (latitude 39°08' North, longitude 121°26' West).

(g) In the State of Alaska within a 160-kilometer (100-mile) radius of Clear, Alaska (latitude 64°17' North, longitude 149°10' West).

(h) In the State of North Dakota within a 160-kilometer (100-mile) radius of Concrete, North Dakota (latitude 48°43' North, longitude 97°54' West).

(i) In the States of Alabama, Georgia and South Carolina within a 200-kilometer (124-mile) radius of Warner Robins Air Force Base, Georgia (latitude 32°38' North, longitude 83°35' West).

(j) In the State of Texas within a 200-kilometer (124-mile) radius of Goodfellow Air Force Base, Texas (latitude 31°25' North, longitude 100°24' West).

US218 The band 902–928 MHz is available for Location and Monitoring Service (LMS) systems subject to not causing harmful interference to the operation of all Government stations authorized in these bands. These systems must tolerate interference from the operation of industrial, scientific, and medical (ISM) devices and the operation of Government stations authorized in these bands.

US220 The frequencies 36.25 and 41.71 MHz may be authorized to Government stations and non-Government stations in the petroleum radio service, for oil spill containment and cleanup operations. The use of these frequencies for oil spill containment or cleanup

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operations is limited to the inland and coastal waterway regions.

US221 Use of the mobile service in the bands 525–535 kHz and 1605–1615 kHz is limited to distribution of public service information from Travelers Information stations operating on 530 kHz and 1610 kHz.

US222 In the band 2025–2035 MHz geostationary operational environmental satellite Earth stations in the space research and Earth exploration-satellite services may be authorized on a coequal basis for Earth-to-space transmissions for tracking, telemetry, and telecommand at the sites listed below:

Wallops Is., Va. 37°50'48" N., 75°27'33" W.  
 Seattle, Wash. 47°34'15" N., 122°33'10" W.  
 Honolulu, Hawaii 21°21'12"N., 157°52'36"W.

US223 Within 75 miles of the United States/Canada border on the Great Lakes, the St. Lawrence Seaway, and the Puget Sound and the Strait of Juan de Fuca and its approaches, use of coast transmit frequency 162.025 MHz and ship station transmit frequency 157.425 MHz (VHF maritime mobile service Channel 88) may be authorized for use by the maritime service for public correspondence.

US224 Government systems utilizing spread spectrum techniques for terrestrial communication, navigation and identification may be authorized to operate in the band 960–1215 MHz on the condition that harmful interference will not be caused to the aeronautical radionavigation service. These systems will be handled on a case-by-

case basis. Such systems shall be subject to a review at the national level for operational requirements and electromagnetic compatibility prior to development, procurement or modification.

US225 In addition to its present Federal Government use, the band 510–525 kHz is available to Federal and non-Federal Government aeronautical radionavigation stations inland of the Territorial Base Line as coordinated with the military services. In addition, the frequency 510 kHz is available for non-Federal Government ship-helicopter operations when beyond 100 nautical miles from shore and required for aeronautical radionavigation.

US226 In the State of Hawaii, stations in the aeronautical radionavigation service shall not cause harmful interference to U.S. Navy reception from its station at Honolulu on 198 kHz.

US229 In the band 216–220 MHz, the fixed, aeronautical mobile, land mobile, and radiolocation services are allocated on a secondary basis for Government operations. The use of the fixed, aeronautical mobile, and land mobile services shall be limited to telemetering and associated telecommand operations. After January 1, 2002, no new assignments shall be authorized in the band 216–217 MHz. Further, Government and non-Government assignments in the sub-band 216.88–217.08 MHz shall protect the Navy's SPASUR system, which operates on a primary basis at the following sites:

Transmit frequency of 216.98 MHz			Receive frequencies of 216.965–216.995 MHz		
Location	North latitude/west longitude	Protection radius	Location	North latitude/west longitude	Protection radius
Lake Kickapoo, TX .....	33°32'/098°45'	250 km	San Diego, CA .....	32°34'/116°58'	50 km
Jordan Lake, AL .....	32°39'/086°15'	150 km	Elephant Butte, NM .....	33°26'/106°59'	50 km
Gila River, AZ .....	33°06'/112°01'	150 km	Red River, AR .....	33°19'/093°33'	50 km
			Silver Lake, MO .....	33°08'/091°01'	50 km
			Hawkinsville, GA .....	32°17'/083°32'	50 km
			Fort Stewart, GA .....	31°58'/081°30'	50 km

US230 Non-government land mobile service is allocated on a primary basis in the bands 422.1875–425.4875 and 427.1875–429.9875 MHz within 50 statute miles of Detroit, MI, and Cleveland, OH, and in the bands 423.8125–425.4875 and 428.8125–429.9875 MHz within 50 statute miles of Buffalo, NY.

US231 When an assignment cannot be obtained in the bands between 200 kHz and 525 kHz, which are allocated to aeronautical radionavigation, assignments may be made to aeronautical radiobeacons in the maritime mobile band 435–490 kHz, on a secondary basis, subject to the coordination and agreement of those agencies having assignments within the maritime mobile band which may be affected. Assignments to Federal Govern-

ment aeronautical radionavigation radiobeacons in the band 435–490 kHz shall not be a bar to any required changes to the maritime mobile radio service and shall be limited to non-voice emissions.

US238 On the condition that harmful interference is not caused to the reception of AM broadcast stations or to travelers' information stations, Federal Government stations in the band 1615–1705 kHz may continue operations until February 25, 2004.

US239 Aeronautical radionavigation stations (radiobeacons) may be authorized, primarily for off-shore use, in the band 525–535 kHz on a non-interference basis to travelers information stations.

US240 The bands 1715–1725 and 1740–1750 kHz are allocated on a primary basis and the bands 1705–1715 kHz and 1725–1740 kHz on a secondary basis to the aeronautical radio-navigation service, (radiobeacons).

US244 The band 136–137 MHz is allocated to the non-Federal Government aeronautical mobile (R) service on a primary basis, and is subject to pertinent international treaties and agreements. The frequencies 136, 136.025, 136.05, 136.075, 136.1, 136.125, 136.15, 136.175, 136.2, 136.225, 136.25, 136.275, 136.3, 136.325, 136.35, 136.375, 136.4, 136.425, 136.45, and 136.475 MHz are available on a shared basis to the Federal Aviation Administration for air traffic control purposes, such as automatic weather observation stations (AWOS), automatic terminal information services (ATIS), flight information services-broadcast (FIS-B), and airport control tower communications.

US245 The fixed-satellite service is limited to international inter-continental systems and subject to case-by-case electromagnetic compatibility analysis.

US246 No station shall be authorized to transmit in the following bands: 73–74.6 MHz, 608–614 MHz, except for medical telemetry equipment,<sup>1</sup> 1400–1427 MHz, 1660.5–1668.4 MHz, 2690–2700 MHz, 4990–5000 MHz, 10.68–10.7 GHz, 15.35–15.4 GHz, 23.6–24 GHz, 31.3–31.8 GHz, 50.2–50.4 GHz, 52.6–54.25 GHz, 86–92 GHz, 100–102 GHz, 109.5–111.8 GHz, 114.25–116 GHz, 148.5–151.5 GHz, 164–167 GHz, 182–185 GHz, 190–191.8 GHz, 200–209 GHz, 226–231.5 GHz, 250–252 GHz.

US247 The band 10100–10150 kHz is allocated to the fixed service on a primary basis outside the United States and possessions. Transmissions of stations in the amateur service shall not cause harmful interference to this fixed service use and stations in the amateur service shall make all necessary adjustments (including termination of transmission) if harmful interference is caused.

US251 The band 12.75–13.25 GHz is also allocated to the space research, (deep space) (space-to-earth) service for reception only at Goldstone, California. 35°18 N. 116°54–W.

US252 The bands 2110–2120 MHz and 7145–7190 MHz are also allocated for Earth-to-space transmissions in the space research service, limited to deep space communications at Goldstone, California.

US254 In the band 18.6–18.8 GHz the fixed and mobile services shall be limited to a maximum equivalent isotropically radiated power of +35 dBW and the power delivered to the antenna shall not exceed –3 dBW.

US255 In addition to any other applicable limits, the power flux-density across the 200

MHz band 18.6–18.8 GHz produced at the surface of the Earth by emissions from a space station under assumed free-space propagation conditions shall not exceed –95 dB(W/m<sup>2</sup>) for all angles of arrival. This limit may be exceeded by up to 3 dB for no more than 5% of the time.

US258 In the band 8025–8400 MHz, the Earth exploration-satellite service (space-to-Earth) is allocated on a primary basis for non-Federal Government use. Authorizations are subject to a case-by-case electromagnetic compatibility analysis.

US259 Stations in the radiolocation service in the band 17.3–17.7 GHz, shall be restricted to operating powers of less than 51 dBW eirp after feeder link stations for the broadcasting-satellite service are authorized and brought into use.

US260 Aeronautical mobile communications which are an integral part of aeronautical radionavigation systems may be satisfied in the bands 1559–1626.5 MHz, 5000–5250 MHz and 15.4–15.7 GHz.

US261 The use of the band 4200–4400 MHz by the aeronautical radionavigation service is reserved exclusively for airborne radio altimeters. Experimental stations will not be authorized to develop equipment for operational use in this band other than equipment related to altimeter stations. 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 from the radio altimeters).

US262 The use of the band 31.8–32.3 GHz by the space research service (deep space) (space-to-Earth) and of the band 34.2–34.7 GHz by the space research service (deep space) (Earth-to-space) are limited to Goldstone, California.

US263 In the bands 21.2–21.4 GHz, 22.21–22.5 GHz, 36–37 GHz, and 56.26–58.2 GHz, the space research and Earth exploration-satellite services shall not receive protection from the fixed and mobile services operating in accordance with the Table of Frequency Allocations.

US264 In the band 48.94–49.04 GHz, airborne stations shall not be authorized.

US265 In the band 10.6–10.68 GHz, the fixed service shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna shall not exceed –3dBW per 250 kHz.

US266 Licensees in the public safety radio services holding a valid authorization on June 30, 1958, to operate in the frequency band 156.27–157.47 MHz or on the frequencies 161.85, 161.91 or 161.97 MHz may, upon proper application, continue to be authorized for such operation, including expansion of existing systems, until such time as harmful interference is caused to the operation of any authorized station other than those licensed in the public safety radio service.

<sup>1</sup>Medical telemetry equipment shall not cause harmful interference to radio astronomy operations in the band 608–614 MHz and shall be coordinated under the requirements found in 47 CFR 95.1119.

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US267 In the band 902–928 MHz, amateur radio stations shall not operate within the States of Colorado and Wyoming, bounded by the area of: latitude 39°N. to 42°N. and longitude 103°W. to 108°W.

US268 The bands 890–902 MHz and 928–942 MHz are also allocated to the radiolocation service for Government ship stations (off-shore ocean areas) on the condition that harmful interference is not caused to non-Government land mobile stations. The provisions of footnote US116 apply.

US269 In the band 2655–2690 MHz, radio astronomy observations are performed at the locations listed in US311. Licensees are urged to coordinate their systems through the Electromagnetic Spectrum Management Unit, Division of Astronomical Sciences, National Science Foundation, Room 1030, 4201 Wilson Blvd., Arlington, VA 2230.

US271 The use of the band 17.3–17.8 GHz by the fixed-satellite service (earth-to-space) is limited to feeder links for broadcasting-satellite service.

US273 In the 74.6–74.8 MHz and 75.2–75.4 MHz bands stations in the fixed and mobile services are limited to a maximum power of 1 watt from the transmitter into the antenna transmission line.

US275 The band 902–928 MHz is allocated on a secondary basis to the amateur service subject to not causing harmful interference to the operations of Government stations authorized in this band or to Location and Monitoring Service (LMS) systems. Stations in the Amateur service must tolerate any interference from the operations of industrial, scientific, and medical (ISM) devices, LMS systems, and the operations of Government stations authorized in this band. Further, the Amateur Service is prohibited in those portions of Texas and New Mexico bounded on the south by latitude 31°41' North, on the east by longitude 104°11' West, and on the north by latitude 34°30' North, and on the west by longitude 107°30' West; in addition, outside this area but within 150 miles of these boundaries of White Sands Missile Range the service is restricted to a maximum transmitter peak envelope power output of 50 watts.

US276 Except as otherwise provided for herein, use of the band 2360–2385 MHz by the mobile service is limited to aeronautical telemetering and associated telecommand operations for flight testing of manned or unmanned aircraft, missiles or major components thereof. The following three frequencies are shared on a co-equal basis by Federal Government and non-Federal Government stations for telemetering and associated telecommand operations of expendable and reusable launch vehicles whether or not such operations involve flight testing: 2364.5 MHz, 2370.5 MHz, and 2382.5 MHz. All other mobile telemetering uses shall be secondary to the above uses.

US277 The band 10.6–10.68 GHz is also allocated on a primary basis to the radio astronomy service. However, the radio astronomy service shall not receive protection from stations in the fixed service which are licensed to operate in the one hundred most populous urbanized areas as defined by the 1990 U.S. Census. For the list of observatories operating in this band see 47 CFR 2.106, footnote US355.

US278 In the bands 22.55–23.55 GHz and 32.3–33 GHz, non-geostationary inter-satellite links may operate on a secondary basis to geostationary inter-satellite links.

US279 The frequency 2182 kHz may be authorized to fixed stations associated with the maritime mobile service for the sole purpose of transmitting distress calls and distress traffic, and urgency and safety signals and messages.

US281 In the band 25070–25210 kHz, non-Federal Government stations in the Industrial/Business Pool shall not cause harmful interference to, and must accept interference from, stations in the maritime mobile service operating in accordance with the Table of Frequency Allocations.

US282 In the band 4650–4700 kHz, frequencies may be authorized for non-Federal Government communication with helicopters in support of off-shore drilling operations on the condition that harmful interference will not be caused to services operating in accordance with the Table of Frequency Allocations.

US283 In the bands 2850–3025 kHz, 3400–3500 kHz, 4650–4700 kHz, 5450–5680 kHz, 6525–6685 kHz, 10005–10100 kHz, 11275–11400 kHz, 13260–13360 kHz, and 17900–17970 kHz, frequencies may be authorized for non-Federal Government flight test purposes on the condition that harmful interference will not be caused to services operating in accordance with the Table of Frequency Allocations.

US285 Under exceptional circumstances, the carrier frequency 2635, 2638, and 2738 kHz may be authorized to coast stations.

US290 In the band 1900–2000 kHz amateur stations may continue to operate on a secondary basis to the radiolocation service, pending a decision as to their disposition through a future rule making proceeding in conjunction with the implementation of the standard broadcasting service in the 1625–1705 kHz band.

US292 In the band 14.0–14.2 GHz stations in the radionavigation service shall operate on a secondary basis to the fixed-satellite service.

US294 In the spectrum below 490 kHz electric utilities operate Power Line Carrier (PLC) systems on power transmission lines for communications important to the reliability and security of electric service to the public. These PLC systems operate under the

provisions of Part 15 of the Federal Communications Commission's Rules and Regulations or Chapter 7 of the National Telecommunications and Information Administration's Manual of Regulations and Procedures for Federal Radio Frequency Management, on an unprotected and noninterference basis with respect to authorized radio users. Notification of intent to place new or revised radio frequency assignments or PLC frequency uses in the bands below 490 kHz is to be made in accordance with the Rules and Regulations of the FCC and NTIA, and users are urged to minimize potential interference to the degree practicable. This footnote does not provide any allocation status to PLC radio frequency uses.

US296 In the bands designated for ship wide-band telegraphy, facsimile and special transmission systems, the following assignable frequencies are available to non-Federal Government stations on a shared basis with Federal Government stations: 2070.5 kHz, 2072.5 kHz, 2074.5 kHz, 2076.5 kHz, 4154 kHz, 4170 kHz, 6235 kHz, 6259 kHz, 8302 kHz, 8338 kHz, 12370 kHz, 12418 kHz, 16551 kHz, 16615 kHz, 18848 kHz, 18868 kHz, 22182 kHz, 22238 kHz, 25123 kHz, and 25159 kHz.

US297 The bands 47.2–49.2 GHz and 81–82.5 GHz are also available for feeder links for the broadcasting-satellite service.

US298 Channels 27555 kHz, 27615 kHz, 27635 kHz, 27655 kHz, 27765 kHz, and 27860 kHz are available for use by forest product licensees on a secondary basis to Federal Government operations including experimental stations. Non-Federal Government operations on these channels will not exceed 150 watts output power and are limited to the states of Washington, Oregon, Maine, North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas (eastern portion).

US299 The 1615–1705 kHz band in Alaska is also allocated to the maritime mobile services and the Alaska fixed service on a secondary basis to Region 2 broadcast operations.

US300 The frequencies 169.445, 169.505, 170.245, 170.305, 171.045, 171.105, 171.845 and 171.905 MHz are available for wireless microphone operations on a secondary basis to Government and non-Government operations.

US301 Except as provided in US302, broadcast auxiliary stations licensed as of November 21, 1984, to operate in the band 942–944 MHz may continue to operate on a co-equal primary basis to other stations and services operating in the band in accordance with the Table of Frequency Allocations.

US302 The band 942–944 MHz in Puerto Rico is allocated as an alternative allocation to the fixed service for broadcast auxiliary stations only.

US303 In the band 2285–2290 MHz, non-Federal government space stations in the space

research, space operations and Earth exploration-satellite services may be authorized to transmit to the Tracking and Data Relay Satellite System subject to such conditions as may be applied on a case-by-case basis. Such transmissions shall not cause harmful interference to authorized Federal Government stations. The power flux density at the Earth's surface from such non-Federal Government stations shall not exceed  $-144$  to  $-154$  dBW/m<sup>2</sup>/4 kHz, depending on angle of arrival, in accordance with ITU Radio Regulation 21.16.

US307 The sub-band 5150–5216 MHz is also allocated for space-to-Earth transmissions in the fixed satellite service for feeder links in conjunction with the radiodetermination satellite service operating in the bands 1610–1626.5 MHz and 2483.5–2500 MHz. The total power flux density at the earth's surface shall in no case exceed  $-159$  dBW/m per 4 kHz for all angles of arrival.

US308 In the frequency bands 1549.5–1558.5 MHz and 1651–1660 MHz, the Aeronautical-Mobile-Satellite (R) requirements that cannot be accommodated in the 1545–1549.5 MHz, 1558.5–1559 MHz, 1646.5–1651 MHz and 1660–1660.5 MHz bands shall have priority access with real-time preemptive capability for communications in the mobile satellite service. Systems not interoperable with the aeronautical mobile-satellite (R) service shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the mobile-satellite service.

US309 Transmissions in the bands 1545–1559 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. Transmissions in the band 1646.5–1660.5 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.

US310 In the band 14.896–15.121 GHz, non-Federal Government space stations in the space research service may be authorized on a secondary basis to transmit to Tracking and Data Relay Satellites subject to such conditions as may be applied on a case-by-case basis. Such transmissions shall not cause harmful interference to authorized Federal Government stations. The power flux-density produced by such non-Federal Government stations at the Earth's surface in any 4 kHz band for all conditions and methods of modulation shall not exceed:

- 148 dB(W/m<sup>2</sup>) for  $0^\circ < \theta \leq 5^\circ$
- $148 + (\theta - 5)/2$  dB(W/m<sup>2</sup>) for  $5^\circ < \theta \leq 25^\circ$
- 138 dB(W/m<sup>2</sup>) for  $25^\circ < \theta \leq 90^\circ$

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where  $\theta$  is the angle of arrival of the radio-frequency wave (degrees above the horizontal). These limits relate to the power flux-density and angles of arrival which would be obtained under free-space propagation conditions.

US311 Radio astronomy observations may be made in the bands 1350–1400 MHz, 1718.8–1722.2 MHz, and 4950–4990 MHz on an unprotected basis at the following radio astronomy observatories:

Allen Telescope Array, Hat Creek, California.	Rectangle between latitudes 40°00' N and 42°00' N and between longitudes 120°15' W and 122°15' W.	
NASA Goldstone Deep Space Communications Complex, Goldstone, California.	80 kilometers (50 mile) radius centered on latitude 35°18' N, longitude 116°54' W.	
National Astronomy and Ionosphere Center, Arecibo, Puerto Rico.	Rectangle between latitudes 17°30' N and 19°00' N and between longitudes 65°10' W and 68°00' W.	
National Radio Astronomy Observatory, Socorro, New Mexico.	Rectangle between latitudes 32°30' N and 35°30' N and between longitudes 106°00' W and 109°00' W.	
National Radio Astronomy Observatory, Green Bank, West Virginia.	Rectangle between latitudes 37°30' N and 39°15' N and between longitudes 78°30' W and 80°30' W.	
National Radio Astronomy Observatory, Very Long Baseline Array Stations.	80 kilometer radius centered on:	
	Latitude (North)	Longitude (West)
Brewster, WA .....	48°08'	119°41'
Fort Davis, TX .....	30°38'	103°57'
Hancock, NH .....	42°56'	71°59'
Kitt Peak, AZ .....	31°57'	111°37'
Los Alamos, NM .....	35°47'	106°15'
Mauna Kea, HI .....	19°48'	155°27'
North Liberty, IA .....	41°46'	91°34'
Owens Valley, CA .....	37°14'	118°17'
Pie Town, NM .....	34°18'	108°07'
Saint Croix, VI .....	17°46'	64°35'
Owens Valley Radio Observatory, Big Pine, California.	Two contiguous rectangles, one between latitudes 36°00' N and 37°00' N and between longitudes 117°40' W and 118°30' W and the second between latitudes 37°00' N and 38°00' N and between longitudes 118°00' W and 118°50' W.	

In the bands 1350–1400 MHz and 4950–4990 MHz, every practicable effort will be made to avoid the assignment of frequencies to stations in the fixed and mobile services that could interfere with radio astronomy observations within the geographic areas given above. In addition, every practicable effort will be made to avoid assignment of fre-

quencies in these bands to stations in the aeronautical mobile service which operate outside of those geographic areas, but which may cause harmful interference to the listed observatories. Should such assignments result in harmful interference to these observatories, the situation will be remedied to the extent practicable.

US312 The frequency 173.075 MHz may also be authorized on a primary basis to non-Government stations in the Police Radio Service (with a maximum authorized bandwidth of 20 kHz) for stolen vehicle recovery systems.

US315 In the frequency bands 1530–1544 MHz and 1626.5–1645.5 MHz maritime mobile-satellite distress and safety communications, e.g., GMDSS, shall have priority access with real-time preemptive capability in the mobile-satellite service. Communications of mobile-satellite system stations not participating in the GMDSS shall operate on a secondary basis to distress and safety communications of stations operating in the GMDSS. Account shall be taken of the priority of safety-related communications in the mobile-satellite service.

US316 The band 2900–3000 MHz is also allocated on a primary basis to the meteorological aids service. Operations in this service are limited to Federal Government Next Generation Weather Radar (NEXRAD) systems where accommodation in the 2700–2900 MHz band is not technically practical and are subject to coordination with existing authorized stations.

US319 In the bands 137–138 MHz, 148–149.9 MHz, 149.9–150.05 MHz, 399.9–400.05 MHz, 400.15–401 MHz, 1610–1626.5 MHz, and 2483.5–2500 MHz, Federal government stations in the mobile-satellite service shall be limited to earth stations operating with non-Federal government space stations.

US320 The use of the bands 137–138 MHz, 148–150.05 MHz, and 400.15–401 MHz by the mobile-satellite service is limited to non-voice, non-geostationary satellite systems and may include satellite links between land earth stations at fixed locations.

US321 The band 535–1705 kHz is also allocated to the non-Federal Government mobile service on a secondary basis for the distribution of public service information from Travelers' Information Stations operating in accordance with the provisions of 47 CFR 90.242 on 10 kilohertz spaced channels from 540 kHz to 1700 kHz.

US323 In the 148–149.9 MHz band, no individual mobile earth station shall transmit, on the same frequency being actively used by fixed and mobile stations and shall transmit no more than 1% of the time during any 15 minute period; except, individual mobile earth stations in this band that do not avoid frequencies actively being used by the fixed and mobile services shall not exceed a power density of  $-16$  dBW/4kHz and shall transmit no more than 0.25% of the time during any 15 minute period. Any single transmission from any individual mobile earth station operating in this band shall not exceed 450 ms in duration and consecutive transmissions from a single mobile earth station on the same frequency shall be separated by at least 15 seconds. Land earth stations in this band

shall be subject to electromagnetic compatibility analysis and coordination with terrestrial fixed and mobile stations.

US324 Government and non-Government satellite systems in the 400.15–401 MHz band shall be subject to electromagnetic compatibility analysis and coordination.

US325 In the band 148–149.9 MHz fixed and mobile stations shall not claim protection from land earth stations in the mobile-satellite service that have been previously coordinated; Government fixed and mobile stations exceeding 27 dBW EIRP, or an emission bandwidth greater than 38 kHz, will be coordinated with existing mobile-satellite service space stations.

US327 The band 2310–2360 MHz is 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.

US334 In the band 17.8–20.2 GHz, Government space stations in both geostationary (GSO) and non-geostationary satellite orbits (NGSO) and associated earth stations in the fixed-satellite service (space-to-Earth) may be authorized on a primary basis. For a Government geostationary satellite network to operate on a primary basis, the space station shall be located outside the arc, measured from east to west, 70 West Longitude to 120 West Longitude. Coordination between Government fixed-satellite systems and non-Government space and terrestrial systems operating in accordance with the United States Table of Frequency Allocations is required.

(a) In the sub-band 17.8–19.7 GHz, the power flux-density at the surface of the Earth produced by emissions from a Government GSO space station or from a Government space station in a NGSO constellation of 50 or fewer satellites, for all conditions and for all methods of modulation, shall not exceed the following values in any 1 MHz band:

(1)  $-115$  dB(W/m<sup>2</sup>) for angles of arrival above the horizontal plane ( $\delta$ ) between 0° and 5°,

(2)  $-115 + 0.5(\delta - 5)$  dB(W/m<sup>2</sup>) for  $\delta$  between 5° and 25°, and

(3)  $-105$  dB(W/m<sup>2</sup>) for  $\delta$  between 25° and 90°.

(b) In the sub-band 17.8–19.3 GHz, the power flux-density at the surface of the Earth produced by emissions from a Government space station in a NGSO constellation of 51 or more satellites, for all conditions and for all methods of modulation, shall not exceed the following values in any 1 MHz band:

(1)  $-115 - X$  dB(W/m<sup>2</sup>) for  $\delta$  between 0° and 5°,

(2)  $-115 - X + ((10 + X)/20)(\delta - 5)$  dB(W/m<sup>2</sup>) for  $\delta$  between 5° and 25°, and

(3)  $-105$  dB(W/m<sup>2</sup>) for  $\delta$  between 25° and 90°; where X is defined as a function of the number of satellites, n, in a NGSO constellation as follows:

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For  $n \leq 288$ ,  $X = (5/119)(n - 50)$  dB; and  
 For  $n > 288$ ,  $X = (1/69)(n + 402)$  dB.

US335 The primary Government and non-Government allocations for the various segments of the 220-222 MHz band are divided as follows: (1) the 220.0-220.55/221.0-221.55, 220.6-220.8/221.6-221.8, 220.85-220.90/221.85-221.90 and 220.925-221.0/221.925-222.0 MHz bands (Channels 1-110, 121-160, 171-180 and 186-200, respectively) are available for exclusive non-Government use; (2) the 220.55-220.60/221.55-221.60 MHz bands (Channels 111-120) are available for exclusive Government use; and (3) the 220.80-220.85/221.80-221.85 and 220.900-220.925/221.900-221.925 MHz bands (Channels 161-170 and 181-185, respectively) are available for shared Government and non-Government use. The exclusive non-Government band segments are also available for temporary fixed geophysical telemetry operations on a secondary basis to the fixed and mobile services.

US337 In the band 13.75-13.80 GHz, earth stations in the fixed-satellite service shall be coordinated on a case-by-case basis through the frequency assignment subcommittee in order to minimize harmful interference to the Tracking and Data Relay Satellite System's forward space-to-space link (TDRSS forward link-to-LEO).

US338 In the 2305-2310 MHz band, space-to-Earth operations are prohibited. Additionally, in the 2305-2320 MHz band, all Wireless Communications Service (WCS) operations within 50 kilometers of 35°20' North Latitude and 116°53' West Longitude shall be coordinated through the Frequency Assignment Subcommittee of the Interdepartment Radio

Advisory Committee in order to minimize harmful interference to NASA's Goldstone Deep Space facility.

US339 The bands 2310-2320 and 2345-2360 MHz are also available for aeronautical telemetering and associated telecommand operations for flight testing of manned or unmanned aircraft, missiles or major components thereof on a secondary basis to the Wireless Communications Service. The following two frequencies are shared on a co-equal basis by Government and non-Government stations for telemetering and associated telecommand operations of expendable and re-usable launch vehicles whether or not such operations involve flight testing: 2312.5 and 2352.5 MHz. Other mobile telemetering uses may be provided on a non-interference basis to the above uses. The broadcasting-satellite (sound) service during implementation should also take cognizance of the expendable and reusable launch vehicle frequencies 2312.5 and 2352.5 MHz, to minimize the impact on this mobile service use to the extent possible.

US340 The band 2-30 MHz is available on a non-interference basis to Federal and non-Federal Government maritime and aeronautical stations for the purposes of measuring the quality of reception on radio channels. See 47 CFR 87.149 for the list of protected frequencies and bands within this frequency range. Actual communications shall be limited to those frequencies specifically allocated to the maritime mobile and aeronautical mobile services.

US342 In making assignments to stations of other services to which the bands:

13360-13410 kHz	14.47-14.5 GHz	128.33-128.59 GHz
25550-25670 kHz	22.01-22.21 GHz	129.23-129.49 GHz
37.5-38.25 MHz	22.21-22.5 GHz	130-134 GHz
322-328.6 MHz	22.81-22.86 GHz	136-148.5 GHz
1330-1400 MHz	23.07-23.12 GHz	151.5-158.5 GHz
1610.6-1613.8 MHz	31.2-31.3 GHz	168.59-168.93 GHz
1660-1660.5 MHz	36.43-36.5 GHz	171.11-171.45 GHz
1668.4-1670 MHz	42.5-43.5 GHz	172.31-172.65 GHz
3260-3267 MHz	48.94-49.04 GHz	173.52-173.85 GHz
3332-3339 MHz	76-86 GHz	195.75-196.15 GHz
3345.8-3352.5 MHz	92-94 GHz	209-226 GHz
4825-4835 MHz	94.1-100 GHz	241-250 GHz
4950-4990 MHz	102-109.5 GHz	252-275 GHz
6650-6675.2 MHz	111.8-114.25 GHz	

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

US343 Differential-Global-Positioning-System (DGPS) Stations, limited to ground-based transmitters, may be authorized on a primary basis in the bands 108-117.975 and 1559-1610 MHz for the specific purpose of transmitting DGPS information intended for aircraft navigation. Such use shall be in accordance with ITU Resolution 413 (WRC-03).

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US344 In the band 5091-5250 MHz, non-Government earth stations in the fixed-satellite service (Earth-to-space) shall be coordinated through the Frequency Assignment Subcommittee (see Recommendation ITU-R S.1342). In order to better protect the operation of the international standard system (microwave landing system) in the band 5000-5091 MHz, non-Government tracking and telecommand operations should be conducted in the band 5150-5250 MHz.

US345 In the band 402-405 MHz, the mobile, except mobile aeronautical, service is allocated on a secondary basis and is limited to, with the exception of military tactical mobile stations, Medical Implant Communications Service (MICS) operations. MICS stations are authorized by rule on the condition that harmful interference is not caused to stations in the meteorological aids, meteorological-satellite, and earth exploration-satellite services, and that MICS stations accept interference from stations in the meteorological aids, meteorological-satellite, and earth exploration-satellite services.

US346 Except as provided by footnote US222, the use of the band 2025-2110 MHz by the Government space operation service (Earth-to-space), Earth exploration-satellite service (Earth-to-space), and space research service (Earth-to-space) shall not constrain the deployment of the Television Broadcast Auxiliary Service, the Cable Television Relay Service, or the Local Television Transmission Service. To facilitate compatible operations between non-Government terrestrial receiving stations at fixed sites and Government earth station transmitters, coordination is required. To facilitate compatible operations between non-government terrestrial transmitting stations and Gov-

ernment spacecraft receivers, the terrestrial transmitters shall not be high-density systems (see Recommendations ITU-R SA.1154 and ITU-R F.1247).

US347 In the band 2025-2110 MHz, non-Government Earth-to-space and space-to-space transmissions may be authorized in the space research and Earth exploration-satellite services subject to such conditions as may be applied on a case-by-case basis. Such transmissions shall not cause harmful interference to Government and non-Government stations operating in accordance with the Table of Frequency Allocations.

US348 The band 3650-3700 MHz is also allocated to the Government radiolocation service on a primary basis at the following sites: St. Inigoes, MD (38°10' N., 76°23' W.); Pascagoula, MS (30°22' N., 88°29' W.); and Pensacola, FL (30°21'28" N., 87°16'26" W.). All fixed and fixed satellite operations within 80 kilometers of these sites shall be coordinated through the Frequency Assignment Subcommittee of the Interdepartmental Radio Advisory Committee on a case-by-case basis.

US349 The band 3650-3700 MHz is also allocated to the Government radiolocation service on a non-interference basis for use by ship stations located at least 44 nautical miles in off-shore ocean areas on the condition that harmful interference is not caused to non-Government operations.

US350 In the bands 608-614 MHz and 1395-1400 MHz the Government and non-Government land mobile service is limited to medical telemetry and medical telecommand operations. Availability and use of medical telemetry and telecommand and non-medical telemetry and telecommand in the band 1427-1432 MHz are described further:

Location (see §§90.259(b)(4) and 95.630(b) of this chapter for a detailed description)	1427-1429 MHz 1431.5-1432 MHz	1429-1431.5 MHz
Austin/Georgetown, Texas ..... Battle Creek, Michigan ..... Detroit, Michigan ..... Pittsburgh, Pennsylvania ..... Richmond/Norfolk, Virginia ..... Spokane, Washington ..... Washington, DC metropolitan area .....	Non-Government land mobile service is limited to telemetry and telecommand operations.	Government and non-Government land mobile service is limited to medical telemetry and telecommand operations.
Rest of U.S. ....	Government and non-Government land mobile service is limited to medical telemetry and telecommand operations. Non-Government telemetry and telecommand use is permitted on a secondary basis.	Non-Government telemetry and telecommand use is permitted on a secondary basis. Non-Government land mobile service is limited to telemetry and telecommand operations.

US351 In the band 1390-1400 MHz, Government operations, except for medical telemetry operations in the sub-band 1395-1400 MHz, are on a non-interference basis to authorized non-Government operations and shall not hinder implementation of any non-

Government operations. However, Government operations authorized as of March 22, 1995 at 17 sites identified below will be continued on a fully protected basis until January 1, 2009.

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Sites	Lat/Long	Radius (km)	Sites	Lat/Long	Radius (km)
Eglin AFB, FL .....	30°28'N/086°31'W	80	Ft. Greely, AK .....	63°47'N/145°52'W	80
Dugway PG, UT .....	40°11'N/112°53'W	80	Ft. Rucker, AL .....	31°13'N/085°49'W	80
China Lake, CA .....	35°41'N/117°41'W	80	Redstone, AL .....	34°35'N/086°35'W	80
Ft. Huachuca, AZ .....	31°33'N/110°18'W	80	Utah Test Range, UT .....	40°57'N/113°05'W	80
Cherry Point, NC .....	34°57'N/076°56'W	80	WSM Range, NM .....	32°10'N/106°21'W	80
Patuxent River, MD .....	38°17'N/076°25'W	80	Holloman AFB, NM .....	33°29'N/106°50'W	80
Aberdeen PG, MD .....	39°29'N/076°08'W	80	Yuma, AZ .....	32°29'N/114°20'W	80
Wright-Patterson AFB, OH .....	39°50'N/084°03'W	80	Pacific Missile Range, CA .....	34°07'N/119°30'W	80
Edwards AFB, CA .....	34°54'N/117°53'W	80			

US352 In the band 1427-1432 MHz, Government operations, except for medical telemetry and medical telecommand operations, are on a non-interference basis to authorized non-Government operations and shall not hinder the implementation of any non-Gov-

ernment operations. However, Government operations authorized as of March 22, 1995 at the 14 sites identified in the following table may continue on a fully protected basis until January 1, 2004:

Location	North latitude/west longitude	Operating radius	Location	North latitude/west longitude	Operating radius
Patuxent River, MD .....	38°17'/076°25'	70 km	Mountain Home AFB, ID ..	43°01'/115°50'	160 km
NAS Oceana, VA .....	36°49'/076°02'	100 km	NAS Fallon, NV .....	39°24'/118°43'	100 km
MCAS Cherry Point, NC .....	34°54'/076°52'	100 km	Nellis AFB, NV .....	36°14'/115°02'	100 km
Beaufort MCAS, SC .....	32°26'/080°40'	160 km	NAS Lemore, CA .....	36°18'/119°47'	120 km
NAS Cecil Field, FL .....	30°13'/081°52'	160 km	Yuma MCAS, AZ .....	32°39'/114°35'	160 km
NAS Whidbey IS., WA .....	48°19'/122°24'	70 km	China Lake, CA .....	35°29'/117°16'	80 km
Yakima Firing Ctr AAF, WA	46°40'/120°15'	70 km	MCAS Twenty Nine Palms, CA.	34°15'/116°03'	80 km

US353 In the sub-bands 56.24-56.29 GHz, 58.422-58.472 GHz, 59.139-59.189 GHz, 59.566-59.616 GHz, 60.281-60.331 GHz, 60.41-60.46 GHz, and 62.461-62.511 GHz, space-based radio astronomy observations may be made on an unprotected basis.

US355 In the band 10.7-11.7 GHz, non-geostationary satellite orbit licensees in the fixed-satellite service (space-to-Earth), prior to commencing operations, shall coordinate with the following radio astronomy observatories to achieve a mutually acceptable agreement regarding the protection of the radio telescope facilities operating in the band 10.6-10.7 GHz:

US354 In the sub-band 58.422-58.472 GHz, airborne stations and space stations in the space-to-Earth direction shall not be authorized.

Observatory	West longitude	North latitude	Elevation (in meters)
Arecibo Observatory .....	66°45'11"	18°20'46"	496
Green Bank Telescope (GBT) .....	79°50'24"	38°25'59"	825
Very Large Array (VLA) .....	107°37'04"	34°04'44"	2126
Very Long Baseline Array (VLBA) Stations:			
Brewster, WA .....	119°40'55"	48°07'53"	255
Fort Davis, TX .....	103°56'39"	30°38'06"	1615
Hancock, NH .....	71°59'12"	42°56'01"	309
Kitt Peak, AZ .....	111°36'42"	31°57'22"	1916
Los Alamos, NM .....	106°14'42"	35°46'30"	1967
Mauna Kea, HI .....	155°27'29"	19°48'16"	3720
North Liberty, IA .....	91°34'26"	41°46'17"	241
Owens Valley, CA .....	118°16'34"	37°13'54"	1207
Pie Town, NM .....	108°07'07"	34°18'04"	2371
St. Croix, VI .....	64°35'03"	17°45'31"	16

US356 In the band 13.75-14 GHz, an earth station in the fixed-satellite service shall have a minimum antenna diameter of 4.5 m and the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW. In addition the e.i.r.p., averaged over one

second, radiated by a station in the radiolocation service shall not exceed 59 dBW. Receiving space stations in the fixed-satellite service shall not claim protection from radiolocation transmitting stations operating in accordance with the United States

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Table of Frequency Allocations. ITU Radio Regulation No. 5.43A does not apply.

US357 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 ITU Radiocommunication Bureau (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:

a. 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 71 dBW in any 6 MHz band from 13.77 to 13.78 GHz;

b. 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 any 6 MHz band from 13.77 to 13.78 GHz.

Automatic power control may be used to increase the e.i.r.p. density in any 6 MHz band 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. of 71 dBW or 51 dBW, as appropriate, in any 6 MHz band in clear-sky conditions.

US359 In the band 15.43-15.63 GHz, use of the fixed-satellite service (Earth-to-space) is limited to non-Government feeder links of non-geostationary systems in the mobile-satellite service. These non-Government earth stations shall be coordinated through the Frequency Assignment Subcommittee (see Annex 3 of Recommendation ITU-R S.1340).

US360 In the band 33-36 GHz, the Government fixed-satellite service (space-to-Earth) is also allocated on a primary basis. Coordination between Government fixed-satellite service systems and non-Government systems operating in accordance with the United States Table of Frequency Allocations is required.

US361 In the band 1432-1435 MHz, Government stations in the fixed and mobile services may operate indefinitely on a primary basis at the 23 sites listed in the following table. All other Government stations in the fixed and mobile services shall operate in the band 1432-1435 MHz on a primary basis until re-accommodated in accordance with the National Defense Authorization Act of 1999. The table follows:

Location	North Latitude/West Longitude	Operating Radius	Location	North Latitude/West Longitude	Operating Radius
China Lake/Edwards AFB, CA.	35°29' / 117°16'	100 km	AUTEC .....	24°30' / 078°00'	80 km
White Sands Missile Range/Holloman AFB, NM.	32°11' / 106°20'	160 km	Beaufort MCAS, SC .....	32°26' / 080°40'	160 km
Utah Test and Training Range/Dugway Proving Ground, Hill AFB, UT.	40°57' / 113°05'	160 km	MCAS Cherry Point, NC ...	34°54' / 076°53'	100 km
Patuxent River, MD .....	38°17' / 076°24'	70 km	NAS Cecil Field, FL .....	30°13' / 081°52'	160 km
Nellis AFB, NV .....	37°29' / 114°14'	130 km	NAS Fallon, NV .....	39°30' / 118°46'	100 km
Fort Huachuca, AZ .....	31°33' / 110°18'	80 km	NAS Oceana, VA .....	36°49' / 076°01'	100 km
Eglin AFB/Gulfport ANG Range, MS/Fort Rucker, AL.	30°28' / 086°31'	140 km	NAS Whidbey Island, WA	48°21' / 122°39'	70 km
Yuma Proving Ground, AZ	32°29' / 114°20'	160 km	NCTAMS, GUM .....	1°13'35" / 144°51'	80 km
Fort Greely, AK .....	63°47' / 145°52'	80 km	Lemoore, CA .....	36°20' / 119°57'	120 km
Redstone Arsenal, AL .....	34°35' / 086°35'	80 km	Savannah River, SC .....	33°15' / 081°39'	3 km
Alpena Range, MI .....	44°23' / 083°20'	80 km	Naval Space Operations Center, ME.	44°24' / 068°01'	80 km
Camp Shelby, MS .....	31°20' / 089°18'	80 km	.....	.....	.....

<sup>1</sup> East.

US362 The band 1670-1675 MHz is allocated to the meteorological-satellite service (space-to-Earth) on a primary basis for Government use. Earth station use of this allocation is limited to Wallops Island, VA (37°56'47" N, 75°27'37" W), Fairbanks, AK (64°58'36" N, 147°31'03" W), and Greenbelt, MD (39°00'02" N, 76°50'31" W). Applicants for non-Government stations within 100 kilometers

of the Wallops Island or Fairbanks coordinates and within 65 kilometers of the Greenbelt coordinates shall notify NOAA in accordance with the procedures specified in 47 CFR 1.924.

US363 (a) Until January 1, 2005, the band 2385-2390 MHz is allocated to the Government mobile and radiolocation services on a primary basis and to the Government fixed

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service on a secondary basis. Use of the mobile service is limited to aeronautical telemetry and associated telecommand operations for flight testing of manned or unmanned aircraft, missiles or major components thereof. Use of the radiolocation service is limited to the military services.

(b) After January 1, 2005, Government stations in the mobile and radiolocation serv-

ices shall continue to operate on a primary basis until re-accommodated in accordance with the National Defense Authorization Act of 1999, except at the sites identified in the following table where Government stations may not be re-accommodated until January 1, 2007:

Location	North Latitude/West Longitude	Location	North Latitude/West Longitude
Protection Radius for Each of the Following Sites is 160 km:			
Barking Sands, HI .....	22°07' / 159°40'	Roswell, NM .....	33°18' / 104°32'
Cape Canaveral, FL .....	28°33' / 080°34'	Seattle, WA .....	47°32' / 122°18'
China Lake, CA .....	35°40' / 117°41'	St. Louis, MO .....	38°45' / 090°22'
Eglin AFB, FL .....	30°30' / 086°30'	Utah Test Range, UT .....	40°12' / 112°54'
Glasgow, MT .....	48°25' / 106°32'	White Sands Missile Range, NM ....	32°58' / 106°23'
Nellis AFB, NV .....	37°48' / 116°28'	Wichita, KS .....	37°40' / 097°26'
Palm Beach County, FL .....	26°54' / 080°19'	Yuma Proving Ground, AZ .....	32°54' / 114°20'
Roosevelt Roads, PR .....	18°14' / 065°38'		
Protection Radius for Each of the Following Sites is 100 km:			
Edwards AFB, CA .....	34°54' / 117°53'	Patuxent River, MD .....	38°17' / 076°25'

(c) In addition, non-Government flight test operations may continue at the sites identi-

fied in the following table on a primary basis until January 1, 2007:

Location	North Latitude/West Longitude	Location	North Latitude/West Longitude
Protection Radius for Each of the Following Sites is 160 km:			
Alamosa, CO .....	37°26'04" / 105°52'03"	Thermal, CA .....	33°37'35" / 116°09'36"
Albuquerque, NM .....	35°11'03" / 106°34'30"	Phoenix, AZ .....	33°18'28" / 111°39'19"
Amarillo, TX .....	35°12'49" / 101°42'31"	Marietta, GA .....	33°54'24" / 084°31'09"
Arlington, TX .....	32°40'00" / 097°05'53"	Greenville, TX .....	33°04'01" / 096°03'09"
Leadville, CO .....	39°13'13" / 106°19'03"		

US364 Consistent with US18, stations may be authorized on a primary basis in the band 285-325 kHz for the specific purpose of transmitting differential global positioning system information.

US366 On April 1, 2007, the bands 5900-5950 kHz, 7300-7350 kHz, 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 13570-13600 kHz, 13800-13870 kHz, 15600-15800 kHz, 17480-17550 kHz, and 18900-19020 kHz shall be allocated exclusively to the broadcasting service. Beginning April 1, 2007, frequencies in these bands may be used by stations in the fixed and mobile services, communicating only within the United States and its insular areas, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies for fixed and mobile services, licensees shall be limited to the minimum power needed to achieve communications and shall take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU *Radio Regulations*.

US367 On the condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9775-9900 kHz, 11650-11700 kHz, and 11975-12050 kHz

may be used by Federal Government stations in the fixed service communicating within the United States and its insular areas that are authorized as of [effective date of the Report and Order published in the FEDERAL REGISTER]. Each such station shall be limited to a total radiated power of 24 dBW.

US368 The band 1390-1392 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis and the band 1430-1432 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to feeder links for the Non-Voice Non-Geostationary Mobile-Satellite Service, and contingent on (1) the completion of sharing studies including the measurement of emissions from equipment that would be employed in operational systems and demonstrations to validate the studies as called for in Resolution 127 (WRC-2000), (2) the adoption of worldwide feeder link allocations at the 2003 World Radiocommunication Conference (WRC-03), and (3) compliance with any technical and operational requirements that may be imposed at WRC-03 to protect passive services in the 1400-1427 MHz band from unwanted emissions associated

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with such allocations. These allocations become effective upon adoption of worldwide allocations at WRC-03. If no such allocations are adopted by WRC-03, these allocations shall be considered null and void, with no grandfathering of rights. Individual assignments shall be coordinated with the Interdepartmental Radio Advisory Committee's (IRAC) Frequency Assignment Subcommittee (FAS) (see, for example, Recommendations ITU-R RA.769-1 and ITU R SA.1029-1) to ensure the protection of passive services in the 1400-1427 MHz band. Coordination shall not be completed until the feeder downlink system is tested and certified to be in conformance with the technical and operational requirements for the protection of passive services in the 1400-1427 MHz band. Certification and all supporting documentation shall be submitted to the Commission and FAS prior to launch.

US370 The band 5000-5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band. For the use of this band, ITU Radio Regulation No. 5.444A and Resolution 114 (WRC-95) apply.

US378 In the band 1710-1755 MHz, Federal government stations in the fixed and mobile services shall operate on a primary basis until reaccommodated in accordance with the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999. Further, Federal government stations may continue to operate in the band 1710-1755 MHz as provided below:

(a) Federal fixed microwave and tactical radio relay stations may operate indefinitely on a primary basis at the sites listed below:

Location	Coordinates	Radius of operation (km)
Cherry Point, NC .....	34°58' N 076°56' W	80
Yuma, AZ .....	32°32' N 113°58' W	80

(b) Federal fixed microwave and tactical radio relay stations may operate on a secondary basis, and shall not cause harmful in-

terference to, and must accept harmful interference from, primary non-Federal government operations at the sites listed below:

Location	Coordinates	Radius of operation (km)
China Lake, CA .....	35°41' N 117°41' W	80
Eglin AFB, FL .....	30°29' N 086°31' W	80
Pacific Missile Test Range/Point Mugu, CA .....	34°07' N 119°30' W	80
Nellis AFB, NV .....	36°14' N 115°02' W	80
Hill AFB, UT .....	41°07' N 111°58' W	80
Patuxent River, MD .....	38°17' N 076°25' W	80
White Sands Missile Range, NM .....	33°00' N 106°30' W	80
Fort Irwin, CA .....	35°16' N 116°41' W	50
Fort Rucker, AL .....	31°13' N 085°49' W	50
Fort Bragg, NC .....	35°09' N 079°01' W	50
Fort Campbell, KY .....	36°41' N 087°28' W	50
Fort Lewis, WA .....	47°05' N 122°36' W	50
Fort Benning, GA .....	32°22' N 084°56' W	50
Fort Stewart, GA .....	31°52' N 081°37' W	50

(c) In the sub-band 1710-1720 MHz, precision guided munitions shall operate on a primary basis until inventory is exhausted or until December 31, 2008, whichever is earlier.

US379 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 -28.5 dB(W/MHz).

US380 In the bands 1525-1544 MHz, 1545-1559 MHz, 1610-1645.5 MHz, 1646.5-1660.5 MHz, 2000-2020 MHz, 2180-2200 MHz, and 2483.5-2500 MHz, a non-Federal Government licensee in the mobile-satellite service (MSS) may also op-

erate an ancillary terrestrial component in conjunction with its MSS network, subject to the Commission's rules for ancillary terrestrial components and subject to all applicable conditions and provisions of its MSS authorization.

US381 The frequencies 5332 kHz, 5348 kHz, 5368 kHz, 5373 kHz, and 5405 kHz are allocated to the amateur service on a secondary basis. Amateur use of these frequencies shall be limited to: (1) A maximum effective radiated power (e.r.p.) of 50 W; and, (2) single sideband suppressed carrier modulation (emission designator 2K8J3E), upper sideband voice transmissions only.

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US382 In the band 39.5-40 GHz, Federal Government earth stations in the mobile-satellite service (space-to-Earth) shall not claim protection from non-Federal Government stations in the fixed and mobile services. ITU Radio Regulation No. 5.43A does not apply.

US384 In the band 401-403 MHz, the non-Federal Government Earth exploration-satellite (Earth-to-space) and meteorological-satellite (Earth-to-space) services are limited to earth stations transmitting to Federal Government space stations.

US385 The band 1164-1215 MHz is also allocated to the radionavigation-satellite service (space-to-Earth, space-to-space) on a primary basis. In this band, stations in the radionavigation-satellite service shall not cause harmful interference to, nor claim protection from, stations of the aeronautical radionavigation service.

US386 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) (space-to-Earth) in the band 31.8-32.3 GHz, all necessary measures shall be taken to prevent harmful interference between

these services, bearing in mind the safety aspects of the radionavigation service.

US387 The band 75.5-76 GHz is also allocated to the amateur and amateur-satellite services on a secondary basis until January 1, 2006. After that date, the band 75.5-76 GHz shall no longer be available for use by the amateur service or the amateur-satellite service.

US388 In the bands 81-86 GHz, 92-94 GHz, and 94.1-95 GHz and within the coordination distances indicated below, assignments to allocated services shall be coordinated with the following radio astronomy observatories. New observatories shall not receive protection from fixed stations that are licensed to operate in the one hundred most populous urbanized areas as defined by the U.S. Census Bureau for the year 2000. The coordinates listed below are specified in terms of the North American Datum of 1983.

NOTE: Satisfactory completion of the coordination procedure utilizing the automated mechanism, see §101.1523, will be deemed to establish sufficient separation from radio astronomy observatories, regardless of whether the distances set forth above are met.

Telescope and site	150 kilometer (93 mile) radius centered on:	
	North latitude	West longitude
National Radio Astronomy Observatory (NRAO), Robert C. Byrd Telescope, Green Bank, WV.	38°25'59"	79°50'24"
NRAO, Very Large Array, Socorro, NM	34°04'44"	107°37'06"
University of Arizona 12-m Telescope, Kitt Peak, AZ.	31°57'10"	111°36'50"
BIMA Telescope, Hat Creek, CA	40°49'04"	121°28'24"
Caltech Telescope, Owens Valley, CA	37°13'54"	118°17'36"
Five Colleges Observatory, Amherst, MA	42°23'33"	72°20'40"
Haystack Observatory, Westford, MA	42°37'23"	71°29'19"
James Clerk Maxwell Telescope, Mauna Kea, HI.	19°49'33"	155°28'20"
Combined Array for Research in Millimeter-wave Astronomy (CARMA), CA.	(1) CARMA will be located at a new, high-altitude site in eastern California, expected to be operational in 2004.	

NRAO, very long baseline array stations	25 kilometer (15.5 mile) radius centered on:	
	North latitude	West longitude
Brewster, WA	48°07'52"	119°41'00"
Fort Davis, TX	30°38'06"	103°56'41"
Hancock, NH	42°56'01"	71°59'12"
Kitt Peak, AZ	31°57'23"	111°36'45"
Los Alamos, NM	35°46'31"	106°14'44"
Mauna Kea, HI	19°48'05"	155°27'19"
North Liberty, IA	41°46'17"	91°34'27"
Owens Valley, CA	37°13'54"	118°16'37"
Pie Town, NM	34°18'04"	108°07'09"
Saint Croix, VI	17°45'24"	64°35'01"

satellite service at any of the following 28 military installations:

Military installation	State	Nearby city
Redstone Arsenal	AL	Huntsville.
Fort Huachuca	AZ	Sierra Vista.
Yuma Proving Ground	AZ	Yuma.
Beale AFB	CA	Marysville.
Camp Parks Reserve Forces Training Area.	CA	Dublin.
China Lake Naval Air Weapons Station.	CA	Ridgecrest.
Edwards AFB	CA	Rosamond.
Fort Irwin	CA	Barstow.
Marine Corps Air Ground Combat Center.	CA	Twentynine Palms.
Buckley AFB	CO	Aurora (Denver).
Schriever AFB	CO	Colorado Springs.
Fort Gordon	GA	Augusta.

US389 In the bands 71-76 GHz and 81-86 GHz, stations in the fixed, mobile, and broadcasting services shall not cause harmful interference to, nor claim protection from, Federal Government stations in the fixed-

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Military installation	State	Nearby city
Naval Satellite Operations Center ....	GU	Finegayan (Territory of Guam).
Naval Computer and Telecommunications Area Master Station, Pacific.	HI	Wahiawa (Oahu Is.).
Fort Detrick .....	MD	Frederick.
Nellis AFB .....	NV	Las Vegas.
Nevada Test Site .....	NV	Amargosa Valley.
Tonapah Test Range Airfield .....	NV	Tonapah.
Cannon AFB .....	NM	Clovis.
White Sands Missile Range .....	NM	White Sands.
Dyess AFB .....	TX	Abilene.
Fort Bliss .....	TX	El Paso.
Fort Sam Houston .....	TX	San Antonio.
Goodfellow AFB .....	TX	San Angelo.
Kelly AFB .....	TX	San Antonio.
Utah Test and Training Range .....	UT	
Fort Belvoir .....	VA	Alexandria.
Naval Satellite Operations Center ....	VA	Chesapeake.

US390 Federal Government stations in the space research service (active) operating in the band 5350-5460 MHz shall not cause harmful interference to, nor claim protection from, Federal and non-Federal Government stations in the aeronautical radio-navigation service nor Federal Government stations in the radiolocation service.

US391 In the band 2495-2500 MHz, the mobile-satellite service (space-to-Earth) shall not receive protection from non-Federal Government stations in the fixed and mobile except aeronautical mobile services operating in that band.

NON-FEDERAL GOVERNMENT (NG) FOOTNOTES

(These footnotes, each consisting of the letters "NG" followed by one or more digits, denote stipulations applicable only to the non-Federal Government.)

NG2 Facsimile broadcasting stations may be authorized in the band 88-108 MHz.

NG3 Control stations in the domestic public mobile radio service may be authorized frequencies in the band 72-73 and 75.4-76 MHz on the condition that harmful interference will not be caused to operational fixed stations.

NG4 The use of the frequencies in the band 152.84-153.38 MHz may be authorized, in any area, to remote pickup broadcast base and mobile stations on the condition that harmful interference will not be caused to stations operating in accordance with the Table of Frequency Allocations.

NG6 Stations in the public safety radio services authorized as of June 30, 1958, to use frequencies in the band 159.51-161.79 MHz in areas other than Puerto Rico and the Virgin Islands may continue such operation, including expansion of existing systems, on the condition that harmful interference will not be caused to stations in the services to which these bands are allocated. In Puerto Rico and the Virgin Islands this authority is limited to frequencies in the band 160.05-161.37 MHz. No new public radio service system will be authorized to operate on these frequencies.

NG12 Frequencies in the bands 454.40-455 MHz and 459.40-460 MHz may be assigned to domestic public land and mobile stations to provide a two-way air-ground public radio-telephone service.

NG17 Stations in the land transportation radio services authorized as of May 15, 1958 to operate on the frequency 161.61 MHz may, upon proper application, continue to be authorized for such operation, including expansion of existing systems, on the condition that harmful interference will not be caused to the operation of any authorized station in the maritime mobile service. No new land transportation radio service system will be authorized to operate on 161.61 MHz.

NG19 Fixed stations associated with the maritime mobile service may be authorized, for purposes of communication with coast stations, to use frequencies assignable to ship stations in this band on the condition that harmful interference will not be caused to services operating in accordance with the Table of Frequency Allocations.

NG28 The frequency band 160.86-161.40 MHz is available for assignment to remote pickup base and remote pickup mobile stations in Puerto Rico and the Virgin Islands only on a shared basis with the land transportation radio service.

NG31 Stations in the Rural Radio Service licensed for Basic Exchange Telecommunications Radio Service may be authorized to use some frequencies in the bands 816-820 MHz (fixed subscriber) and 861-865 MHz (central office or base), on a co-primary basis with private land mobile radio licensees, pursuant to part 22 subpart H.

NG41 Frequencies in the bands 3700-4200 MHz and 5925-6425 MHz, may also be assigned to stations in the international fixed public and international control services located in Puerto Rico, the U.S. Virgin Islands, and Navassa Island.

NG42 Non-Government stations in the radiolocation service shall not cause harmful interference to the amateur service.

NG49 The following frequencies may be authorized for mobile operations in the Manufacturers Radio Service subject to the condition that no interference is caused to the reception of television stations operating on channels 4 and 5 and that their use is limited to a manufacturing facility:

MHZ	
72.02	72.14
72.04	72.16
72.06	72.18
72.08	72.20
72.10	72.22
72.12	72.24

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72.26	72.34
72.28	72.36
72.30	72.38
72.32	72.40

Further, the following frequencies may be authorized for mobile operations in the Special Industrial Radio Service, Manufacturers Radio Service, Railroad Radio Service and Forest Products Radio Service subject to the condition that no interference is caused to the reception of television stations operating on channels 4 and 5; and that their use is limited to a railroad yard, manufacturing plant, logging site, mill, or similar industrial facility.

	MHZ
72.44	75.44
72.48	75.48
72.52	75.52
72.56	75.56
72.60	75.60

NG51 In Puerto Rico and the Virgin Islands only, the bands 150.8-150.98 MHz and 150.98-151.49 MHz are allocated exclusively to the business radio service.

NG53 The band 13.15-13.20 GHz is reserved for television pickup and CARS pickup stations inside a 50 km radius of the 100 television markets delineated in §76.51 of this chapter. Outside a 50 km radius of the 100 television markets delineated in §76.51 of this chapter, television pickup stations, CARS stations and NGSO FSS gateway earth stations shall operate on a primary co-equal basis. The band 13.20-13.2125 GHz is reserved for television pickup stations on a primary basis and CARS pickup stations on a secondary basis inside a 50 km radius of the 100 television markets delineated in §76.51 of this chapter. Outside a 50 km radius of the 100 markets delineated in §76.51 of this chapter, television pickup stations and NGSO FSS gateway earth stations shall operate on a co-primary basis, CARS stations shall operate on a secondary basis. Fixed television auxiliary stations licensed pursuant to applications accepted for filing before September 1, 1979, may continue operation on channels in the 13.15-13.25 GHz band, subject to periodic license renewals. NGSO FSS gateway uplink transmissions in the 13.15-13.2125 GHz segment shall be limited to a maximum EIRP of 3.2 dBW towards 0 degrees on the radio horizon. These provisions shall not apply to GSO FSS operations in the 12.75-13.25 GHz band.

NG56 In the bands 72.0-73.0 and 75.4-76.0 MHz, the use of mobile radio remote control of models is on a secondary basis to all other fixed and mobile operations. Such operations are subject to the condition that interference will not be caused to common carrier domestic public stations, to remote control of industrial equipment operating in the 72-76 MHz band, or to the reception of television

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signal on channels 4 (66-72 MHz) or 5 (76-82 MHz). Television interference shall be considered to occur whenever reception of regularly used television signals is impaired or destroyed, regardless of the strength of the television signal or the distance to the television station.

NG59 The frequencies 37.60 and 37.85 MHz may be authorized only for use by base, mobile, and operational fixed stations participating in an interconnected or coordinated power service utility system.

NG66 The band 470-512 MHz (TV channels 14-20) is allocated to the broadcasting service on an exclusive basis throughout the United States and its insular areas, except as described below:

(a) In the urbanized areas listed in the table below, the indicated frequency bands are allocated to the land are allocated to the land mobile service on an exclusive basis for assignment to eligibles in the Public Mobile Services, the Public Safety Radio Pool, and the Industrial/Business Radio Pool, except that:

(1) Licensees in the land mobile service that are regulated as Commercial Mobile Radio Service (CMRS) providers may also use their assigned spectrum to provide fixed service on a primary basis.

(2) The use of the band 482-488 MHz (TV channel 16) is limited to eligibles in the Public Safety Radio Pool in or near (i) the Los Angeles urbanized area; and (ii) New York City; Nassau, Suffolk, and Westchester Counties in New York State; and Bergen County, New Jersey.

Urbanized area	Bands (MHz)	TV channels
Boston, MA .....	470-476, 482-488	14, 16
Chicago, IL-Northwestern Indiana.	470-476, 476-482	14, 15
Cleveland, OH .....	470-476, 476-482	14, 15
Dallas-Fort Worth, TX.	482-488 .....	16
Detroit, MI .....	476-482, 482-488	15, 16
Houston, TX .....	488-494 .....	17
Los Angeles, CA ...	470-476, 482-488, 506-512.	14, 16, 20
Miami, FL .....	470-476 .....	14
New York, NY-Northeastern New Jersey.	470-476, 476-482, 482-488.	14, 15, 16
Philadelphia, PA-New Jersey.	500-506, 506-512	19, 20
Pittsburgh, PA .....	470-476, 494-500	14, 18
San Francisco-Oakland, CA.	482-488, 488-494	16, 17
Washington, DC-Maryland-Virginia.	488-494, 494-500	17, 18

(b) In the Gulf of Mexico offshore from the Louisiana-Texas coast, the band 476-494 MHz (TV channels 15-17) is allocated to the fixed and mobile services on a primary basis for assignment to eligibles in the Public Mobile and Private Land Mobile Radio Services.

(c) In Hawaii, the band 488-494 MHz (TV channel 17) is allocated exclusively to the

fixed service for use by common carrier control and repeater stations for point-to-point inter-island communications only.

(d) The use of these allocations is further subject to the conditions set forth in 47 CFR parts 22 and 90.

NG70 In Puerto Rico and the Virgin Islands only, the bands 159.240-159.435 and 160.410-160.620 MHz are also available for assignment to base stations and mobile stations in the special industrial radio service.

NG104 The use of the bands 10.7-11.7 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by the fixed-satellite service in the geostationary-satellite orbit shall be limited to international systems, *i.e.*, other than domestic systems.

NG111 The band 157.4375-157.4625 MHz may be used for one way paging operations in the special emergency radio service.

NG112 The frequencies 25.04, 25.08, 150.980, 154.585, 158.445, 159.480, 454.000 and 459.000 MHz may be authorized to stations in the petroleum radio service for use primarily in oil spill containment and cleanup operations and secondarily in regular land mobile communication.

NG115 In the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz, and 614-806 MHz, wireless microphones and wireless assist video devices may be authorized on a non-interference basis, subject to the terms and conditions set forth in 47 CFR part 74, subpart H.

NG117 The frequency 156.050 and 156.175 MHz may be assigned to stations in the maritime mobile service for commercial and port operations in the New Orleans Vessel Traffic Service (VTS) area and the frequency 156.250 MHz may be assigned to stations in the maritime mobile service for port operating in the New Orleans and Houston VTS areas.

NG118 In the bands 2025-2110 MHz, 6875-7125 MHz, and 12.7-13.25 GHz, television translator relay stations may be authorized to use frequencies on a secondary basis to other stations in the Television Broadcast Auxiliary Service that are operating in accordance with the Table of Frequency Allocations.

NG120 Frequencies in the band 928-960 MHz may be assigned for multiple address systems and mobile operations on a primary basis as specified in 47 CFR part 101.

NG124 Within designated segments of the bands that comprise 30.85-47.41 MHz, 150.8-159.465 MHz, and 453.0125-467.9875 MHz, police licensees are authorized to operate low power radio transmitters on a secondary, non-interference basis in accordance with the provisions of 47 CFR 2.803 and 90.20(e)(5).

NG128 In the band 535-1705 kHz, AM broadcast licensees or permittees may use their AM carrier on a secondary basis to transmit signals intended for both broadcast and non-broadcast purposes. In the band 88-108 MHz, FM broadcast licensees or permit-

tees are permitted to use subcarriers on a secondary basis to transmit signals intended for both broadcast and non-broadcast purposes. In the bands 54-72, 76-88, 174-216, 470-608 and 614-806 MHz, TV broadcast licensees or permittees are permitted to use subcarriers on a secondary basis for both broadcast and non-broadcast purposes.

NG129 In Alaska, the bands 76-88 MHz and 88-100 MHz are also allocated to the Fixed service on a secondary basis. Broadcast stations operating in these bands shall not cause interference to non-Government fixed operations authorized prior to January 1, 1982.

NG134 In the band 10.45-10.5 GHz non-Government stations in the radiolocation service shall not cause harmful interference to the amateur and amateur-satellite services.

NG135 In the 420-430 MHz band the amateur service is not allocated north of line A (def. §2.1).

NG141 The frequencies 42.40 MHz and 44.10 MHz are authorized on a primary basis in the State of Alaska for meteor burst communications by fixed stations in the Rural Radio Service operating under the provisions of part 22 of this chapter. The frequencies 44.20 MHz and 45.90 MHz are authorized on a primary basis in Alaska for meteor burst communications by fixed private radio stations operating under the provisions of part 90 of the chapter. The private radio station frequencies may be used by Common Carrier stations on a secondary, noninterference basis and the Common Carrier frequencies may be used by private radio stations for meteor burst communications on a secondary, noninterference basis. Users shall cooperate to the extent practical to minimize potential interference. Stations utilizing meteor burst communications shall not cause harmful interference to stations of other radio services operating in accordance with the Table of Frequency Allocations.

NG142 TV broadcast stations authorized to operate in the bands 54-72, 76-88, 174-216, 470-512, and 512-806 MHz may use a portion of the television vertical blanking interval for the transmission of telecommunications signals, on the condition that harmful interference will not be caused to the reception of primary services, and that such telecommunications services must accept any interference caused by primary services operating in these bands.

NG143 In the band 11.7-12.2 GHz, protection from harmful interference shall be afforded to transmissions from space stations not in conformance with ITU Radio Regulation 5.488 only if the operations of such space stations impose no unacceptable constraints on operations or orbit locations of space stations in conformance with 5.488.

NG144 Stations authorized as of September 9, 1983 to use frequencies in the bands 17.7-18.3 GHz and 19.3-19.7 GHz may, upon proper

application, continue operations. Fixed stations authorized in the 18.3–19.3 GHz band that remain co-primary under the provisions of 47 CFR 21.901(e), 74.502(c), 74.602(g), 78.18(a)(4), and 101.147(r) of this chapter may continue operations consistent with the provisions of those sections.

NG145 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.

NG147 In the band 2483.5–2500 MHz, stations in the fixed and mobile services that are licensed under part 74 (Television Broadcast Auxiliary Stations), part 90 (Private Land Mobile Radio Services), or part 101 (Fixed Microwave Services) of the Commission's Rules, which were licensed as of July 25, 1985, and those whose initial applications were filed on or before July 25, 1985, may continue to operate on a primary basis with the mobile-satellite and radiodetermination-satellite services, and in the segment 2495–2500 MHz, these grandfathered stations may also continue to operate on a primary basis with stations in the fixed and mobile except aeronautical mobile services that are licensed under part 27 (Miscellaneous Wireless Communication Services) of the Commission's Rules.

NG148 The frequencies 154.585 MHz, 159.480 MHz, 160.725 MHz, 160.785 MHz, 454.000 MHz and 459.000 MHz may be authorized to maritime mobile stations for offshore radiolocation and associated telecommand operations.

NG149 The frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz, 470–512 MHz, 512–608 MHz, and 614–698 MHz are also allocated to the fixed service to permit subscription television operations in accordance with part 73 of the rules.

NG151 In the frequency bands 824–849 MHz and 869–894 MHz, cellular land mobile licensees are permitted to offer auxiliary services on a secondary basis subject to the provisions of part 22.

NG152 The band 219–220 MHz is also allocated to the amateur service on a secondary basis for stations participating, as forwarding stations, in point-to-point fixed digital message forwarding systems, including intercity packet backbone networks.

NG153 The band 2160–2165 MHz is reserved for future emerging technologies on a co-primary basis with the fixed and mobile services. Allocations to specific services will be made in future proceedings. Authorizations

in the band 2160–2162 MHz for stations in the Multipoint Distribution Service applied for after January 16, 1992, shall be on a secondary basis to emerging technologies.

NG155 The bands 159.500–159.675 MHz and 161.375–161.550 MHz are allocated to the maritime service as described in Part 80 of this chapter. Additionally, the frequencies 159.550, 159.575 and 159.600 MHz are available for low-power intership communications.

NG156 The band 2000–2020 MHz is also allocated to the fixed and mobile services on a primary basis for facilities where the receipt date of the initial application was prior to June 27, 2000, and on a secondary basis for all other initial applications. Not later than December 9, 2013, the band 2000–2020 MHz is allocated to the fixed and mobile services on a secondary basis.

NG158 The frequency bands 764–776 MHz and 794–806 MHz are available for assignment exclusively to the public safety services, to be defined in Docket No. WT 96–86.

NG159 Full power analog television stations licensed and new digital television (DTV) broadcasting operations in the band 698–806 MHz shall be entitled to protection from harmful interference until the end of the DTV transition period. Low power television and television translators in the band 746–806 MHz must cease operations in the band at the end of the DTV transition period. Low power television and television translators in the band 698–746 MHz are secondary to all other operations in the band 698–746 MHz.

NG160 In the 5850–5925 MHz band, the use of the non-Federal government mobile service is limited to Dedicated Short Range Communications operating in the Intelligent Transportation System radio service.

NG163 The allocation to the broadcasting-satellite service in the band 17.3–17.7 GHz shall come into effect on 1 April 2007.

NG164 The use of the band 18.3–18.8 GHz by the fixed-satellite service (space-to-Earth) is limited to systems in the geostationary-satellite orbit.

NG165 The use of the band 18.8–19.3 GHz by the fixed-satellite service (space-to-Earth) is limited to systems in non-geostationary-satellite orbits.

NG166 The use of the band 19.3–19.7 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links for the mobile-satellite service.

NG167 The use of the fixed-satellite service (Earth-to-space) in the band 24.75–25.25 GHz is limited to feeder links for the broadcasting-satellite service operating in the band 17.3–17.7 GHz. The allocation to the fixed-satellite service (Earth-to-space) in the band 24.75–25.25 shall come into effect on 1 April 2007.

NG168 The band 2180–2200 MHz is also allocated to the fixed and mobile services on a primary basis for facilities where the receipt

date of the initial application was prior to January 16, 1992, and on a secondary basis for all other initial applications. Not later than December 9, 2013, the band 2180–2200 MHz is allocated to the fixed and mobile services on a secondary basis.

NG169 After December 1, 2000, operations on a primary basis by the fixed-satellite service (space-to-Earth) in the band 3650–3700 MHz shall be limited to grandfathered earth stations. All other fixed-satellite service earth station operations in the band 3650–3700 MHz shall be on a secondary basis. Grandfathered earth stations are those authorized prior to December 1, 2000, or granted as a result of an application filed prior to December 1, 2000, and constructed within 12 months of initial authorization. License applications for primary operations for new earth stations, major amendments to pending earth station applications, or applications for major modifications to earth station facilities filed on or after December 18, 1998, and prior to December 1, 2000, shall not be accepted unless the proposed facilities are in the vicinity (*i.e.*, within 10 miles) of an authorized primary earth station operating in the band 3650–3700 MHz. License applications for primary operations by new earth stations, major amendments to pending earth station applications, and applications for major modifications to earth station facilities, filed after December 1, 2000, shall not be accepted, except for changes in polarization, antenna orientation or ownership of a grandfathered earth station.

NG170 In the band 3650–3700 MHz, the mobile except aeronautical mobile service is limited to base station operations. These base stations are subject to the same coordination procedures as fixed service operations in the band 3650–3700 MHz.

NG171 In the band 6875–7125 MHz, the following two channels should be used for airborne TV pickup stations, wherever possible: 7075–7100 MHz and 7100–7125 MHz.

NG172 In the band 7025–7075 MHz, the fixed-satellite service (space-to-Earth) is allocated on a primary basis, but the use of this allocation shall be limited to two grandfathered satellite systems. Associated earth stations located within 300 meters of the following locations shall be grandfathered: (1) in the band 7025–7075 MHz, Brewster, Washington (48°08'46.7" N, 119°42'8.0" W); and, (2) in the band 7025–7055 MHz, Clifton, Texas (31°47'58.5" N, 97°36'46.7" W) and Finca Pascual, Puerto Rico (17°58'41.8" N, 67°8'12.6" W). All coordinates are specified in terms of the North American Datum of 1983.

NG173 In the band 216–220 MHz, secondary telemetry operations are permitted subject to the requirements of §90.259 of this chapter. After January 1, 2002, no new assignments shall be authorized in the band 216–217 MHz.

NG174 In Puerto Rico, frequencies within the band 2385–2390 MHz are not available for assignment to stations in the aeronautical mobile service.

NG175 Television pickup stations in the mobile services authorized to use frequencies in the band 38.6–40.0 GHz on or before April 16, 2003, may continue to operate on a secondary basis to stations operating in accordance with the Table of Frequency Allocations.

NG176 The allocations to the fixed and mobile services in the band 1710–1755 MHz shall come into effect on January 1, 2004.

NG177 In the bands 1990–2000 MHz and 2020–2025 MHz, where the receipt date of the initial application for facilities in the fixed and mobile services was prior to June 27, 2000, said facilities shall operate on a primary basis and all later-applied-for facilities shall operate on a secondary basis to any service licensed pursuant to the allocation adopted in FCC 03–16, 68 FR 11986, March 13, 2003 (“Advanced Wireless Services”). Not later than December 9, 2013, all such facilities in the bands 1990–2000 MHz and 2020–2025 MHz shall operate on a secondary basis to Advanced Wireless Services.

NG178 In the band 2165–2180 MHz, where the receipt date of the initial application for facilities in the fixed and mobile services was prior to January 16, 1992, said facilities shall operate on a primary basis and all later-applied-for facilities shall operate on a secondary basis to any service licensed pursuant to the allocation adopted in FCC 03–16, 68 FR 11986, March 13, 2003 (“Advanced Wireless Services”). Not later than December 9, 2013, all such facilities in the band 2165–2180 MHz shall operate on a secondary basis to Advanced Wireless Services.

#### FEDERAL GOVERNMENT (G) FOOTNOTES

(These footnotes, each consisting of the letter “G” followed by one or more digits, denote stipulations applicable only to the Federal Government.)

G2 In the bands 216–225, 420–450 (except as provided by US217 and G129), 890–902, 928–942, 1300–1400, 2310–2385, 2417–2450, 2700–2900, 5650–5925 and 9000–9200 MHz, the Federal Government radiolocation service is limited to the military services.

G5 In the bands 162.0125–173.2, 173.4–174, 406.1–410 and 410–420 MHz, the fixed and mobile services are all allocated on a primary basis to the Government non-military agencies.

G6 Military tactical fixed and mobile operations may be conducted nationally on a secondary basis: (1) To the meteorological aids service in the band 403–406 MHz; and (2) to the radio astronomy service in the band 406.1–410 MHz. Such fixed and mobile operations are subject to local coordination to ensure that harmful interference will not be

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caused to the services to which the bands are allocated.

G8 Low power Government radio control operations are permitted in the band 420–450 MHz.

G11 Government fixed and mobile radio services, including low power radio control operations, are permitted in the band 902–928 MHz on a secondary basis.

G15 Use of the band 2700–2900 MHz by the military fixed and shipborne air defense radiolocation installations will be fully coordinated with the meteorological aids and aeronautical radionavigation services. The military air defense installations will be moved from the band 2700–2900 MHz at the earliest practicable date. Until such time as military air defense installations can be accommodated satisfactorily elsewhere in the spectrum, such operations will, insofar as practicable, be adjusted to meet the requirements of the aeronautical radionavigation service.

G19 Use of the band 9000–9200 MHz by military fixed and shipborne air defense radiolocation installations will be fully coordinated with the aeronautical radionavigation service, recognizing fully the safety aspects of the latter. Military air defense installations will be accommodated ultimately outside this band. Until such time as military defense installations can be accommodated satisfactorily elsewhere in the spectrum such operations will, insofar as practicable, be adjusted to meet the requirements of the aeronautical radionavigation services.

G27 In the bands 255–328.6 MHz, 335.4–399.9 MHz, and 1350–1390 MHz, the fixed and mobile services are limited to the military services.

G30 In the bands 138–144 MHz, 148–149.9 MHz, and 150.05–150.8 MHz, the fixed and mobile services are limited primarily to operations by the military services.

G31 In the 3300–3500 MHz, the Government radiolocation is limited to the military services, except as provided by footnote.

G32 Except for weather radars on meteorological satellites in the band 9975–10025 MHz and for Government survey operations (see footnote US108), Government radiolocation in the band 10000–10500 MHz is limited to the military services.

G34 In the band 34.4–34.5 GHz, weather radars on board meteorological satellites for cloud detection are authorized to operate on the basis of equality with military radiolocation devices. All other non-military radiolocation in the band 33.4–36.0 GHz shall be secondary to the military services.

G42 Space command, control, range and range rate systems for earth station transmission only (including installations on certain Navy ships) may be accommodated on a co-equal basis with the fixed and mobile services in the band 1761–1842 MHz. Specific frequencies required to be used at any loca-

tion will be satisfied on a coordinated case-by-case basis.

G56 Government radiolocation in the bands 1215–1300, 2900–3100, 5350–5650 and 9300–9500 MHz is primarily for the military services; however, limited secondary use is permitted by other Government agencies in support of experimentation and research programs. In addition, limited secondary use is permitted for survey operations in the band 2900–3100 MHz.

G59 In the bands 902–928 MHz, 3100–3300 MHz, 3500–3650 MHz, 5250–5350 MHz, 8500–9000 MHz, 9200–9300 MHz, 13.4–14.0 GHz, 15.7–17.7 GHz and 24.05–24.25 GHz, all Government non-military radiolocation shall be secondary to military radiolocation, except in the sub-band 15.7–16.2 GHz airport surface detection equipment (ASDE) is permitted on a co-equal basis subject to coordination with the military departments.

G100 The bands 235–322 MHz and 335.4–399.9 MHz are also allocated on a primary basis to the mobile-satellite service, limited to military operations.

G104 In the bands 7450–7550 and 8175–8215 MHz, it is agreed that although the military space radio communication systems, which include earth stations near the proposed meteorological-satellite installations will precede the meteorological-satellite installations, engineering adjustments to either the military or the meteorological-satellite systems or both will be made as mutually required to assure compatible operations of the systems concerned.

G106 The bands 2501–2502 kHz, 5003–5005 kHz, 10003–10005 kHz, 15005–15010 kHz, 19990–19995 kHz, 20005–20010 kHz and 25005–25010 kHz are also allocated, on a secondary basis, to the space research service. The space research transmissions are subject to immediate temporary or permanent shutdown in the event of interference to the reception of the standard frequency and time broadcasts.

G109 All assignments in the band 157.0375–157.1875 MHz are subject to adjustment to other frequencies in this band as long term U.S. maritime VHF planning develops, particularly that planning incident to support of the National VHF-FM Radiotelephone Safety and Distress System (See Doc. 15624/1-1.9.111/1.9.125).

G110 Government ground-based stations in the aeronautical radionavigation service may be authorized between 3500–3650 MHz when accommodation in the band 2700–2900 MHz is not technically and/or economically feasible.

G114 The band 1369.05–1390 MHz is also allocated to the fixed-satellite service (space-to-Earth) and to the mobile-satellite service (space-to-Earth) on a primary basis for the relay of nuclear burst data.

G115 In the band 13360–13410 kHz, the fixed service is allocated on a primary basis outside the conterminous United States. Within

the conterminous United States, assignments in the fixed service are permitted, and will be protected for national defense purposes or, if they are to be used only in an emergency jeopardizing life, public safety, or important property under conditions calling for immediate communication where other means of communication do not exist.

G116 The band 7125-7155 MHz is also allocated for earth-to-space transmissions in the Space Operations Service at a limited number of sites (not to exceed two), subject to established coordination procedures.

G117 In the bands 7.25-7.75 GHz, 7.9-8.4 GHz, 17.8-21.2 GHz, 30-31 GHz, 33-36 GHz, 39.5-41 GHz, 43.5-45.5 GHz and 50.4-51.4 GHz, the Government fixed-satellite and mobile-satellite services are limited to military systems.

G118 Government fixed stations may be authorized in the band 1700-1710 MHz only if spectrum is not available in the band 1710-1850 MHz.

G120 Development of airborne primary radars in the band 2310-2385 MHz with peak transmitter power in excess of 250 watts for use in the United States is not permitted.

G122 In the bands 2390-2400 MHz, 2402-2417 MHz, and 4940-4990 MHz, Government operations may be authorized on a non-interference basis to authorized non-Government operations, but shall not hinder the implementation of any non-Government operations.

G123 The bands 2300-2310 and 2400-2402 MHz were identified for reallocation, effective August 10, 1995, for exclusive non-Government use under Title VI of the Omnibus Budget Reconciliation Act of 1993. Effective August 10, 1995, any Government operations in these bands are on a non-interference basis to authorized non-Government operations and shall not hinder the implementation of any non-Government operations.

G124 The band 2417-2450 MHz was identified for reallocation, effective August 10, 1995, for mixed Government and non-Government use under Title VI of the Omnibus Budget Reconciliation Act of 1993.

G128 Use of the band 56.9-57 GHz by inter-satellite systems is limited to transmissions between satellites in geostationary orbit, to transmissions between satellites in geostationary satellite orbit and those in high-Earth orbit, to transmissions from satellites in geostationary satellite orbit to those in low-Earth 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-den-

sity at all altitudes from 0 km to 1000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed -147 dB (W/m<sup>2</sup>/100 MHz) for all angles of arrival.

G129 Federal Government wind profilers are authorized to operate on a primary basis in the radiolocation service in the frequency band 448-450 MHz with an authorized bandwidth of no more than 2 MHz centered on 449 MHz, subject to the following conditions: (1) wind profiler locations must be pre-coordinated with the military services to protect fixed military radars; and (2) wind profiler operations shall not cause harmful interference to, nor claim protection from, military mobile radiolocation stations that are engaged in critical national defense operations.

G130 Federal Government stations in the radiolocation service operating in the band 5350-5470 MHz, shall not cause harmful interference to, nor claim protection from, Federal stations in the aeronautical radio-navigation service operating in accordance with ITU *Radio Regulation* No. 5.449.

G131 Federal Government stations in the radiolocation service operating in the band 5470-5650 MHz, with the exception of ground-based radars used for meteorological purposes operating in the band 5600-5650 MHz, shall not cause harmful interference to, nor claim protection from, Federal Government stations in the maritime radionavigation service.

[49 FR 2373, Jan. 19, 1984]

EDITORIAL NOTE 1: For FEDERAL REGISTER citations affecting §2.106, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

EFFECTIVE DATE NOTE: At 69 FR 46440, Aug. 3, 2004, §2.106 was amended by revising page 57 of the table, effective Oct. 4, 2004. For the convenience of the user, the revised page is set forth as follows:

§2.106 Table of Frequency Allocations

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