

**NATIONAL PLAN  
FOR RADIO FREQUENCY SPECTRUM ALLOCATION**

(Prom. SG. 60/2004, amend. and suppl. SG. 69/2004, SG. 31/2005, SG. 16/2006, SG. 76/2011, SG. 73/2012, SG. 59/2013, SG. 16/2014, SG. 46/2015, SG. 78/2016, SG. 47/2018, SG. 73/2019, SG. 33/2021 and SG. 25/2023)

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
Below 8.3	Not allocated Footnotes 73, 256, 257	CIVIL NATIONAL SECURITY
8.3-9	METEOROLOGICAL AIDS Footnotes 73, 258	CIVIL
9-11.3	METEOROLOGICAL AIDS RADIONAVIGATION Footnotes 73, 258	CIVIL
11.3-14	RADIONAVIGATION Footnote 73	CIVIL
14-19.95	FIXED MARITIME MOBILE Footnotes 2, 73, 259	CIVIL NATIONAL SECURITY
19.95-20.05	STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	CIVIL
20.05-70	FIXED MARITIME MOBILE Footnotes 2, 73, 259	CIVIL NATIONAL SECURITY
70-72	RADIONAVIGATION Footnotes 5, 73	CIVIL NATIONAL SECURITY
72-84	FIXED MARITIME MOBILE RADIONAVIGATION Footnotes 2, 5, 73, 259	CIVIL NATIONAL SECURITY
84-86	RADIONAVIGATION Footnotes 5, 73	CIVIL NATIONAL SECURITY
86-90	FIXED MARITIME MOBILE RADIONAVIGATION Footnotes 2, 6, 73, 259	CIVIL NATIONAL SECURITY
90-110	RADIONAVIGATION Fixed Footnotes 1, 73, 237	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
110-112	FIXED MARITIME MOBILE RADIONAVIGATION Footnotes 1, 73	CIVIL NATIONAL SECURITY
112-115	RADIONAVIGATION Footnotes 5, 73	CIVIL NATIONAL SECURITY
115-117.6	RADIONAVIGATION Fixed Maritime mobile Footnotes 1, 5, 6, 73	CIVIL NATIONAL SECURITY
117.6-126	FIXED MARITIME MOBILE RADIONAVIGATION Footnotes 1, 5, 6, 73	CIVIL NATIONAL SECURITY
126-129	RADIONAVIGATION Footnotes 5, 73	CIVIL NATIONAL SECURITY
129-130	FIXED MARITIME MOBILE RADIONAVIGATION Footnotes 1, 5, 6, 73	CIVIL NATIONAL SECURITY
130-135.7	FIXED MARITIME MOBILE Footnotes 1, 6, 73	CIVIL NATIONAL SECURITY
135.7-137.8	FIXED MARITIME MOBILE Amateur Footnotes 1, 6, 71, 73	CIVIL NATIONAL SECURITY
137.8-148.5	FIXED MARITIME MOBILE Footnotes 1, 6, 73	CIVIL NATIONAL SECURITY
148.5-255	BROADCASTING Footnotes 1, 8, 73	CIVIL
255-283.5	BROADCASTING AERONAUTICAL RADIONAVIGATION Footnote 73	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
283.5-315	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (RADIOBEACON) Footnotes 8, 10, 73, 238, 239	CIVIL NATIONAL SECURITY
315-325	AERONAUTICAL RADIONAVIGATION Maritime Radionavigation (radiobeacons) Footnotes 8, 73, 238	CIVIL NATIONAL SECURITY
325-405	AERONAUTICAL RADIONAVIGATION Footnotes 8, 73	CIVIL NATIONAL SECURITY
405-415	RADIONAVIGATION Footnotes 8, 23, 73	CIVIL NATIONAL SECURITY
415-435	MARITIME MOBILE AERONAUTICAL RADIONAVIGATION Footnotes 8, 73, 240, 242	CIVIL
435-472	MARITIME MOBILE Aeronautical Radionavigation Footnotes 8, 73, 240, 242	CIVIL
472-479	MARITIME MOBILE Amateur Aeronautical Radionavigation Footnotes 8, 73, 240, 242, 260	CIVIL
479-495	MARITIME MOBILE Aeronautical Radionavigation Footnotes 8, 73, 240, 241, 242	CIVIL
495-505	MOBILE Footnotes 8, 73, 363	CIVIL
505-526.5	MARITIME MOBILE AERONAUTICAL RADIONAVIGATION Footnotes 8, 17, 73, 240, 241	CIVIL
526.5-1606.5	BROADCASTING Footnote 73	CIVIL
1606.5-1625	FIXED MARITIME MOBILE LAND MOBILE Radiolocation Footnote 73	CIVIL NATIONAL SECURITY
1625-1635	RADIOLOCATION Footnote 73	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
1635-1800	FIXED MARITIME MOBILE LAND MOBILE Footnote 73	CIVIL NATIONAL SECURITY
1800-1810	RADIOLOCATION Footnote 73	CIVIL NATIONAL SECURITY
1810-1850	AMATEUR Footnote 73	CIVIL
1850-2000	FIXED MOBILE except aeronautical mobile Amateur Footnotes 73, 246	CIVIL NATIONAL SECURITY
2000-2025	FIXED MOBILE except aeronautical mobile (R) Footnotes 73, 246	CIVIL NATIONAL SECURITY
2025-2045	FIXED MOBILE except aeronautical mobile (R) Footnotes 73, 246, 358	CIVIL NATIONAL SECURITY
2045-2160	FIXED MARITIME MOBILE LAND MOBILE Footnote 73	CIVIL NATIONAL SECURITY
2160-2170	RADIOLOCATION Footnotes 8, 73	CIVIL
2170-2173.5	MARITIME MOBILE Footnotes 8, 73	CIVIL
2173.5-2190.5	MOBILE (distress and calling) Footnotes 32, 65, 73, 105, 247	CIVIL
2190.5-2194	MARITIME MOBILE Footnotes 8, 73	CIVIL
2194-2300	FIXED MOBILE except aeronautical mobile (R) Footnotes 73, 246	CIVIL NATIONAL SECURITY
2300-2498	FIXED MOBILE except aeronautical mobile (R) Footnotes 73, 246	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
2498-2501	STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz) Footnote 73	CIVIL
2501-2502	STANDARD FREQUENCY AND TIME SIGNAL Space Research Footnote 73	CIVIL
2502-2625	FIXED MOBILE except aeronautical mobile (R) Footnotes 73, 246	CIVIL NATIONAL SECURITY
2625-2650	MARITIME MOBILE MARITIME RADIONAVIGATION Footnote 73	CIVIL NATIONAL SECURITY
2650-2850	FIXED MOBILE except aeronautical mobile (R) Footnotes 73, 246	CIVIL NATIONAL SECURITY
2850-3025	AERONAUTICAL MOBILE (R) Footnotes 8, 19, 21, 73, 105	CIVIL
3025-3155	AERONAUTICAL MOBILE (OR) Footnotes 21, 73	CIVIL NATIONAL SECURITY
3155-3200	FIXED MOBILE except aeronautical mobile (R) Footnotes 21, 73	CIVIL NATIONAL SECURITY
3200-3230	FIXED MOBILE except aeronautical mobile (R) Footnotes 21, 73	CIVIL NATIONAL SECURITY
3230-3400	FIXED MOBILE except aeronautical mobile Footnotes 21, 73	CIVIL NATIONAL SECURITY
3400-3500	AERONAUTICAL MOBILE (R) Footnotes 8, 21, 73	CIVIL
3500-3800	AMATEUR FIXED MOBILE except aeronautical mobile Footnotes 21, 73	CIVIL NATIONAL SECURITY
3800-3900	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE Footnotes 21, 73	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
3900-3950	AERONAUTICAL MOBILE (OR) Footnotes 21, 73	CIVIL NATIONAL SECURITY
3950-4000	FIXED BROADCASTING Footnotes 21, 73	CIVIL NATIONAL SECURITY
4000-4063	FIXED MARITIME MOBILE Footnotes 73, 248	CIVIL NATIONAL SECURITY
4063-4438	MARITIME MOBILE Footnotes 65, 73, 241, 247, 249, 250, 251	CIVIL NATIONAL SECURITY
4438-4488	FIXED MOBILE except aeronautical mobile (R) Radiolocation Footnotes 73, 261	CIVIL NATIONAL SECURITY
4488-4650	FIXED MOBILE except aeronautical mobile (R) Footnote 73	CIVIL NATIONAL SECURITY
4650-4700	AERONAUTICAL MOBILE (R) Footnotes 8, 73	CIVIL NATIONAL SECURITY
4700-4750	AERONAUTICAL MOBILE (OR) Footnote 73	CIVIL NATIONAL SECURITY
4750-4850	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE Footnote 73	CIVIL NATIONAL SECURITY
4850-4995	FIXED LAND MOBILE Footnote 73	CIVIL NATIONAL SECURITY
4995-5003	STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)	CIVIL
5003-5005	STANDARD FREQUENCY AND TIME SIGNAL Space Research Footnote 73	CIVIL
5005-5060	FIXED Footnote 73	CIVIL NATIONAL SECURITY
5060-5250	FIXED Mobile except aeronautical mobile Footnote 73	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
5250-5275	FIXED MOBILE except aeronautical mobile Radiolocation Footnotes 73, 261, 298	CIVIL NATIONAL SECURITY
5275-5351.5	FIXED MOBILE except aeronautical mobile Footnotes 73, 298	CIVIL NATIONAL SECURITY
5351.5-5366.5	FIXED MOBILE except aeronautical mobile AMATEUR Footnotes 73, 326	CIVIL NATIONAL SECURITY
5366.5-5450	FIXED MOBILE except aeronautical mobile Footnotes 73, 298	CIVIL NATIONAL SECURITY
5450-5480	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE Footnote 73	CIVIL NATIONAL SECURITY
5480-5680	AERONAUTICAL MOBILE (R) Footnotes 8, 19, 73, 105	CIVIL
5680-5730	AERONAUTICAL MOBILE (OR) Footnotes 19, 73, 105	CIVIL NATIONAL SECURITY
5730-5900	FIXED LAND MOBILE Footnote 73	CIVIL NATIONAL SECURITY
5900-5950	BROADCASTING Footnotes 73, 252, 327	CIVIL
5950-6200	BROADCASTING Footnote 73	CIVIL
6200-6525	MARITIME MOBILE Footnotes 65, 73, 247, 249, 251, 328	CIVIL NATIONAL SECURITY
6525-6685	AERONAUTICAL MOBILE (R) Footnotes 8, 73	CIVIL
6685-6765	AERONAUTICAL MOBILE (OR) Footnote 73	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
6765-7000	FIXED MOBILE except aeronautical mobile (R) Footnotes 67, 73	CIVIL NATIONAL SECURITY
7000-7100	AMATEUR AMATEUR-SATELLITE Footnote 73	CIVIL
7100-7200	AMATEUR Footnote 73	CIVIL
7200-7300	BROADCASTING Footnote 73	CIVIL
7300-7400	BROADCASTING Footnotes 73, 252, 329	CIVIL
7400-7450	BROADCASTING Footnote 73	CIVIL
7450-8100	FIXED MOBILE except aeronautical mobile (R) Footnote 73	CIVIL NATIONAL SECURITY
8100-8195	FIXED MARITIME MOBILE Footnote 73	CIVIL NATIONAL SECURITY
8195-8815	MARITIME MOBILE Footnotes 54, 65, 73, 105, 247, 251	CIVIL NATIONAL SECURITY
8815-8965	AERONAUTICAL MOBILE (R) Footnotes 8, 73	CIVIL
8965-9040	AERONAUTICAL MOBILE (OR) Footnote 73	CIVIL NATIONAL SECURITY
9040-9305	FIXED Footnote 73	CIVIL NATIONAL SECURITY
9305-9355	FIXED Radiolocation Footnotes 73, 262	CIVIL NATIONAL SECURITY
9355-9400	FIXED Footnote 73	CIVIL NATIONAL SECURITY
9400-9500	BROADCASTING Footnotes 73, 74, 252	CIVIL
9500-9900	BROADCASTING Footnotes 73, 111	CIVIL



<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
9900-9995	FIXED Footnote 73	CIVIL NATIONAL SECURITY
9995-10003	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) Footnotes 73, 105	CIVIL
10003-10005	STANDARD FREQUENCY AND TIME SIGNAL Space Research Footnotes 73, 105	CIVIL
10005-10100	AERONAUTICAL MOBILE (R) Footnotes 8, 73, 105	CIVIL
10100-10150	FIXED Amateur Footnote 73	CIVIL NATIONAL SECURITY
10150-11175	FIXED Mobile except aeronautical mobile (R) Footnote 73	CIVIL NATIONAL SECURITY
11175-11275	AERONAUTICAL MOBILE (OR) Footnote 73	CIVIL NATIONAL SECURITY
11275-11400	AERONAUTICAL MOBILE (R) Footnotes 8, 73	CIVIL
11400-11600	FIXED Footnote 73	CIVIL NATIONAL SECURITY
11600-11650	BROADCASTING Footnotes 73, 74, 252	CIVIL
11650-12050	BROADCASTING Footnotes 73, 111	CIVIL
12050-12100	BROADCASTING Footnotes 73, 74, 252	CIVIL
12100-12230	FIXED Footnote 73	CIVIL NATIONAL SECURITY
12230-13200	MARITIME MOBILE Footnotes 54, 65, 73, 247, 251	CIVIL NATIONAL SECURITY
13200-13260	AERONAUTICAL MOBILE (OR) Footnote 73	CIVIL NATIONAL SECURITY
13260-13360	AERONAUTICAL MOBILE (R) Footnotes 8, 73	CIVIL

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
13360-13410	FIXED RADIO ASTRONOMY Footnotes 73, 87	CIVIL NATIONAL SECURITY
13410-13450	FIXED Mobile except aeronautical mobile (R) Footnote 73	CIVIL NATIONAL SECURITY
13450-13550	FIXED Mobile except aeronautical mobile (R) Radiolocation Footnotes 73, 261	CIVIL NATIONAL SECURITY
13550-13570	FIXED Mobile except aeronautical mobile (R) Footnotes 67, 73	CIVIL NATIONAL SECURITY
13570-13600	BROADCASTING Footnotes 3, 73, 252	CIVIL
13600-13800	BROADCASTING Footnote 73	CIVIL
13800-13870	BROADCASTING Footnotes 3, 73, 252	CIVIL
13870-14000	FIXED Mobile except aeronautical mobile (R) Footnote 73	CIVIL NATIONAL SECURITY
14000-14250	AMATEUR AMATEUR-SATELLITE Footnote 73	CIVIL
14250-14350	AMATEUR Footnote 73	CIVIL
14350-14990	FIXED Mobile except aeronautical mobile (R) Footnote 73	CIVIL NATIONAL SECURITY
14990-15005	STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) Footnotes 73, 105	CIVIL
15005-15010	STANDARD FREQUENCY AND TIME SIGNAL Space Research Footnote 73	CIVIL
15010-15100	AERONAUTICAL MOBILE (OR) Footnotes 8, 73	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
15100-15600	BROADCASTING Footnote 73	CIVIL
15600-15800	BROADCASTING Footnotes 73, 74, 252	CIVIL
15800-16100	FIXED Footnote 73	CIVIL NATIONAL SECURITY
16100-16200	FIXED Radiolocation Footnotes 73, 262	CIVIL NATIONAL SECURITY
16200-16360	FIXED Footnote 73	CIVIL NATIONAL SECURITY
16360-17410	MARITIME MOBILE Footnotes 54, 65, 73, 247, 251	CIVIL NATIONAL SECURITY
17410-17480	FIXED Footnote 73	NATIONAL SECURITY
17480-17550	BROADCASTING Footnotes 73, 74, 252	CIVIL
17550-17900	BROADCASTING Footnote 73	CIVIL
17900-17970	AERONAUTICAL MOBILE (R) Footnotes 8, 73	CIVIL
17970-18030	AERONAUTICAL MOBILE (OR) Footnote 73	CIVIL NATIONAL SECURITY
18030-18052	FIXED Footnote 73	CIVIL NATIONAL SECURITY
18052-18068	FIXED Space Research Footnote 73	CIVIL NATIONAL SECURITY
18068-18168	AMATEUR AMATEUR-SATELLITE Footnote 73	CIVIL
18168-18780	FIXED Mobile except aeronautical mobile Footnote 73	CIVIL NATIONAL SECURITY
18780-18900	MARITIME MOBILE Footnotes 8, 73	CIVIL

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
18900-19020	BROADCASTING Footnotes 73, 74, 252	CIVIL
19020-19680	FIXED Footnote 73	NATIONAL SECURITY
19680-19800	MARITIME MOBILE Footnotes 8, 73, 251	CIVIL
19800-19990	FIXED Footnote 73	CIVIL NATIONAL SECURITY
19990-19995	STANDARD FREQUENCY AND TIME SIGNAL Space Research Footnotes 73, 105	CIVIL
19995-20010	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) Footnotes 73, 105	CIVIL
20010-21000	FIXED Mobile Footnote 73	CIVIL NATIONAL SECURITY
21000-21450	AMATEUR AMATEUR-SATELLITE Footnote 73	CIVIL
21450-21850	BROADCASTING Footnote 73	CIVIL
21850-21870	FIXED Footnote 73	CIVIL NATIONAL SECURITY
21870-21924	FIXED Footnotes 25, 73	CIVIL NATIONAL SECURITY
21924-22000	AERONAUTICAL MOBILE (R) Footnotes 8, 73	CIVIL
22000-22855	MARITIME MOBILE Footnotes 73, 251	CIVIL NATIONAL SECURITY
22855-23000	FIXED Footnote 73	CIVIL NATIONAL SECURITY
23000-23200	FIXED Mobile except aeronautical mobile (R) Footnote 73	CIVIL NATIONAL SECURITY
23200-23350	FIXED AERONAUTICAL MOBILE (OR) Footnotes 25, 73	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND kHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
23350-24000	FIXED MOBILE except aeronautical mobile Footnotes 38, 73	CIVIL NATIONAL SECURITY
24000-24450	FIXED LAND MOBILE Footnote 73	CIVIL NATIONAL SECURITY
24450-24600	FIXED LAND MOBILE Radiolocation Footnotes 73, 261	CIVIL NATIONAL SECURITY
24600-24890	FIXED LAND MOBILE Footnote 73	CIVIL NATIONAL SECURITY
24890-24990	AMATEUR AMATEUR-SATELLITE Footnote 73	CIVIL
24990-25005	STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz) Footnote 73	CIVIL
25005-25010	STANDARD FREQUENCY AND TIME SIGNAL Space Research Footnote 73	CIVIL
25010-25070	FIXED MOBILE except aeronautical mobile Footnote 73	CIVIL
25070-25210	MARITIME MOBILE Footnotes 8, 73	CIVIL
25210-25550	FIXED MOBILE except aeronautical mobile Footnote 73	CIVIL NATIONAL SECURITY
25550-25670	RADIO ASTRONOMY Footnotes 73, 87	CIVIL
25670-26100	BROADCASTING Footnote 73	CIVIL
26100-26175	MARITIME MOBILE Footnotes 8, 73, 251	CIVIL

FREQUENCY BAND kHz	RADIO SERVICES	USERS
26175-26200	FIXED MOBILE except aeronautical mobile Footnote 73	CIVIL NATIONAL SECURITY
26200-26350	FIXED MOBILE except aeronautical mobile Radiolocation Footnotes 73, 261	CIVIL NATIONAL SECURITY
26350-27500	FIXED MOBILE except aeronautical mobile Footnotes 67, 73	CIVIL NATIONAL SECURITY
27500-28000	FIXED MOBILE METEOROLOGICAL AIDS Footnote 73	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
28-29.7	AMATEUR AMATEUR-SATELLITE Footnote 73	CIVIL
29.7-30.005	MOBILE Footnote 73	CIVIL NATIONAL SECURITY
30.005-30.01	MOBILE Footnote 73	CIVIL NATIONAL SECURITY
30.01-37.5	MOBILE Footnotes 30, 73	CIVIL
37.5-38.25	MOBILE Radio Astronomy Footnotes 73, 87	CIVIL NATIONAL SECURITY
38.25-39	MOBILE Footnotes 30, 73	CIVIL
39-39.5	MOBILE Radiolocation Footnotes 35, 73, 261	CIVIL
39.5-39.986	MOBILE Footnotes 35, 73	CIVIL
39.986-40.02	MOBILE Space Research Footnotes 35, 73	CIVIL
40.02-40.66	MOBILE Footnotes 35, 73	CIVIL
40.66-40.7	MOBILE Footnotes 35, 67, 73	CIVIL
40.7-40.98	MOBILE Footnotes 35, 73	CIVIL
40.98-41.015	MOBILE Space Research Footnotes 35, 73	CIVIL
41.015- 42	MOBILE Footnotes 35, 73	CIVIL

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
42-42.5	FIXED MOBILE Radiolocation Footnotes 73, 261	NATIONAL SECURITY
42.5-44	MOBILE Footnote 73	NATIONAL SECURITY
44-46.475	MOBILE Footnotes 73, 75	CIVIL
46.475-48.5	LAND MOBILE Footnotes 68, 73, 75	NATIONAL SECURITY
48.5-50	LAND MOBILE Footnotes 48, 73, 75	CIVIL
50-51	LAND MOBILE Amateur Footnotes 63, 73	CIVIL
51-52	LAND MOBILE Amateur Footnotes 48, 63, 73	CIVIL
52-60	LAND MOBILE Footnotes 13, 31, 33, 48, 73	CIVIL
60-63	LAND MOBILE Footnote 73	NATIONAL SECURITY
63-68	LAND MOBILE Footnotes 48, 73	CIVIL
68-70.45	MOBILE Amateur Footnotes 31, 73, 298	CIVIL
70.45-74.8	MOBILE except aeronautical mobile Radio Astronomy Amateur Footnotes 30, 31, 73, 87, 298	CIVIL
74.8-75.2	AERONAUTICAL RADIONAVIGATION Footnotes 8, 31, 34, 73	CIVIL
75.2-87.5	MOBILE Footnotes 30, 31, 73	CIVIL
87.5-108	BROADCASTING Footnote 73	CIVIL



<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
108-117.975	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R) Footnotes 8, 73, 76	CIVIL
117.975-121.45	AERONAUTICAL MOBILE (R) Footnotes 8, 73	CIVIL
121.45-121.55	AERONAUTICAL MOBILE (R) Footnotes 8, 43, 73, 105	CIVIL
121.55-136	AERONAUTICAL MOBILE (R) Footnotes 8, 43, 39, 73	CIVIL
136-137	AERONAUTICAL MOBILE (R) Footnotes 8, 39, 73	CIVIL
137-137.025	AERONAUTICAL MOBILE (OR) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE OPERATION (space-to-Earth) SPACE RESEARCH (space-to-Earth) Footnotes 73, 80, 89, 117, 254, 364	CIVIL NATIONAL SECURITY
137.025-137.175	AERONAUTICAL MOBILE (OR) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE SPACE OPERATION (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-Satellite (space-to-Earth) Footnotes 73, 80, 89, 117, 254, 364	CIVIL NATIONAL SECURITY
137.175-137.825	AERONAUTICAL MOBILE (OR) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE OPERATION (space-to-Earth) SPACE RESEARCH (space-to-Earth) Footnotes 73, 80, 89, 117, 254, 364, 377	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
137.825-138	AERONAUTICAL MOBILE (OR) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE SPACE OPERATION (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-Satellite (space-to-Earth) Footnotes 73, 80, 89, 117, 254, 364	CIVIL NATIONAL SECURITY
138-143.6	AERONAUTICAL MOBILE (OR) LAND MOBILE Space Research (space-to-Earth) Footnote 73	CIVIL NATIONAL SECURITY
143.6-143.65	AERONAUTICAL MOBILE (OR) LAND MOBILE SPACE RESEARCH (space-to-Earth) Footnote 73	CIVIL NATIONAL SECURITY
143.65-144	AERONAUTICAL MOBILE (OR) LAND MOBILE Footnote 73	CIVIL NATIONAL SECURITY
144-146	AMATEUR AMATEUR-SATELLITE Footnote 73	CIVIL
146-146.8	MOBILE Footnotes 44, 73	CIVIL
146.8-148	MOBILE Footnotes 44, 48, 73, 300	CIVIL
148-148.95	MOBILE-SATELLITE (Earth-to-space) MOBILE Footnotes 24, 42, 48, 73, 80, 300, 302, 384	CIVIL
148.95-149.9	MOBILE-SATELLITE (Earth-to-space) MOBILE Footnotes 24, 42, 73, 80, 302, 384	CIVIL NATIONAL SECURITY
149.9-150.05	MOBILE MOBILE-SATELLITE (Earth-to-space) Footnotes 24, 73, 80	CIVIL NATIONAL SECURITY
150.05-153	MOBILE except aeronautical mobile RADIO ASTRONOMY Footnotes 30, 48, 73, 87, 300	CIVIL

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
153-154	MOBILE except aeronautical mobile (R) Footnotes 30, 48, 66, 73, 300	CIVIL
154-156.4875	MOBILE except aeronautical mobile (R) Footnotes 46, 48, 66, 73, 300	CIVIL
156.4875-156.5125	MARITIME MOBILE (distress and calling via DSC) Footnotes 46, 66, 73, 280	CIVIL
156.5125-156.5375	MARITIME MOBILE(distress and calling via DSC) Footnotes 46, 66, 73, 105, 280	CIVIL
156.5375-156.5625	MOBILE except aeronautical mobile (R) MARITIME MOBILE (distress and calling via DSC) Footnotes 46, 66, 73, 280	CIVIL
156.5625-156.7625	MOBILE except aeronautical mobile Footnotes 46, 66, 73	CIVIL
156.7625-156.7875	MARITIME MOBILE (distress and calling) Footnotes 46, 66, 73, 263	CIVIL
156.7875-156.8125	MARITIME MOBILE (distress and calling) Footnotes 46, 66, 73, 105	CIVIL
156.8125-156.8375	MARITIME MOBILE Footnotes 46, 66, 73, 263	CIVIL
156.8375-157.1875	MOBILE except aeronautical mobile Footnotes 46, 66, 73	CIVIL
157.1875-157.3375	MOBILE except aeronautical mobile Maritime mobile-satellite Footnotes 46, 66, 73, 89, 254, 365, 366	CIVIL
157.3375-161.7875	MOBILE except aeronautical mobile Footnotes 46, 66, 73, 300	CIVIL NATIONAL SECURITY
161.7875-161.9375	MOBILE except aeronautical mobile Maritime mobile-satellite Footnotes 46, 66, 73, 89, 254, 365, 366	CIVIL
161.9375-161.9625	MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space) Footnotes 30, 46, 66, 73, 300, 303	CIVIL
161.9625-161.9875	MOBILE except aeronautical mobile Mobile-Satellite (Earth-to-space) Footnotes 46, 48, 66, 73, 367	CIVIL

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
161.9875-162.0125	MARITIME MOBILE-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile Footnotes 46, 48, 66, 73, 303	CIVIL
162.0125-162.0375	MOBILE except aeronautical mobile Footnotes 46, 48, 66, 73	CIVIL
162.0375-169.4	MOBILE except aeronautical mobile Footnotes 46, 66, 73, 300	CIVIL NATIONAL SECURITY
169.4-169.8125	MOBILE except aeronautical mobile Footnote 73	CIVIL
169.8125-174	MOBILE except aeronautical mobile Footnote 73	NATIONAL SECURITY
174-230	BROADCASTING Footnote 73	CIVIL
230-235	MOBILE Footnote 73	NATIONAL SECURITY
235-240	MOBILE Footnotes 73, 84	NATIONAL SECURITY
240-242.95	MOBILE Footnotes 73, 84	NATIONAL SECURITY
242.95-243.05	AERONAUTICAL MOBILE Footnotes 50, 73, 84, 105	CIVIL
243.05-267	MOBILE Footnotes 73, 84	NATIONAL SECURITY
267-272	MOBILE Footnotes 52, 73, 84	NATIONAL SECURITY
272-273	MOBILE Footnotes 73, 84	NATIONAL SECURITY
273-312	MOBILE Footnotes 73, 84	NATIONAL SECURITY
312-315	MOBILE Footnotes 73, 84	NATIONAL SECURITY
315-322	MOBILE Footnotes 73, 84	NATIONAL SECURITY
322-328.6	MOBILE RADIO ASTRONOMY Footnotes 73, 87	NATIONAL SECURITY

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
328.6-335.4	AERONAUTICAL RADIONAVIGATION Footnotes 8, 72, 73	CIVIL
335.4-380	MOBILE Footnotes 73, 84	NATIONAL SECURITY
380-385	MOBILE Footnotes 64, 73, 84	NATIONAL SECURITY
385-387	MOBILE Footnotes 73, 84	NATIONAL SECURITY
387-390	MOBILE Footnotes 73, 84, 254	NATIONAL SECURITY
390-395	MOBILE Footnotes 64, 73, 84	NATIONAL SECURITY
395-399.9	MOBILE Footnotes 73, 84	NATIONAL SECURITY
399.9-400.05	MOBILE-SATELLITE (Earth-to-space) Footnotes 24, 73, 80, 368, 369	CIVIL
400.05-400.15	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) Footnotes 73, 304	CIVIL
400.15-401	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE OPERATION (space-to-Earth) SPACE RESEARCH (space-to-Earth) Footnotes 73, 80, 89, 137, 173, 254	CIVIL
401-402	EARTH EXPLORATION-SATELLITE (Earth-to-space) SPACE OPERATION (space-to-Earth) METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (Earth-to-space) Footnotes 73, 370, 371	CIVIL
402-403	EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (Earth-to-space) Footnotes 73, 370, 371	CIVIL

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
403-406	METEOROLOGICAL AIDS Footnotes 73, 305	CIVIL
406-406.1	MOBILE-SATELLITE (Earth-to-space) Footnotes 59, 73, 305	CIVIL
406.1-410	LAND MOBILE RADIO ASTRONOMY Footnotes 73, 87, 305	CIVIL
410-418	MOBILE except aeronautical mobile Footnote 73	CIVIL
418-420	MOBILE except aeronautical mobile Footnote 73	NATIONAL SECURITY
420-428	MOBILE except aeronautical mobile Radiolocation Footnotes 48, 73	CIVIL
428-430	MOBILE except aeronautical mobile Radiolocation Footnote 73	NATIONAL SECURITY
430-432	AMATEUR RADIOLOCATION Footnote 73	CIVIL NATIONAL SECURITY
432-433.05	AMATEUR RADIOLOCATION Earth exploration-satellite (active) Footnotes 73, 79	CIVIL NATIONAL SECURITY
433.05-434.79	AMATEUR RADIOLOCATION Land mobile Earth exploration-satellite (active) Footnotes 67, 73, 79	CIVIL NATIONAL SECURITY
434.79-438	AMATEUR AMATEUR-SATELLITE RADIOLOCATION Earth exploration-satellite (active) Footnotes 73, 79	CIVIL NATIONAL SECURITY
438-440	AMATEUR RADIOLOCATION Footnote 73	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
440-450	MOBILE except aeronautical mobile Radiolocation Footnotes 20, 48, 73	CIVIL
450-455	MOBILE Footnotes 69, 73, 85	CIVIL NATIONAL SECURITY
455-456	MOBILE Footnotes 69, 73, 85	CIVIL
456-459	MOBILE Footnotes 11, 69, 73, 85	CIVIL NATIONAL SECURITY
459-460	MOBILE Footnote 73	CIVIL NATIONAL SECURITY
460-470	MOBILE Footnotes 11, 69, 73, 85, 183	CIVIL NATIONAL SECURITY
470-478	BROADCASTING Footnotes 73, 306	CIVIL
478-494	BROADCASTING Footnotes 70, 73, 306	CIVIL NATIONAL SECURITY
494-590	BROADCASTING Footnotes 73, 306	CIVIL
590-614	BROADCASTING Footnotes 70, 73, 306	CIVIL NATIONAL SECURITY
614-646	BROADCASTING Footnotes 73, 306	CIVIL
646-694	BROADCASTING Footnotes 73, 306	CIVIL
694-698	MOBILE except aeronautical mobile Footnotes 73, 264, 281	CIVIL
698-703	MOBILE except aeronautical mobile Footnotes 64, 73, 264, 281	NATIONAL SECURITY
703-726	MOBILE except aeronautical mobile Footnotes 73, 264, 281	CIVIL
726-758	MOBILE except aeronautical mobile Footnotes 64, 73, 264, 281, 362	CIVIL NATIONAL SECURITY
758-778	MOBILE except aeronautical mobile Footnotes 73, 264, 281	CIVIL
778-790	MOBILE except aeronautical mobile Footnotes 73, 264, 281, 362	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
790-811	MOBILE except aeronautical mobile Footnotes 73, 265, 281, 362	CIVIL NATIONAL SECURITY
811-822	MOBILE except aeronautical mobile Footnotes 73, 265, 281, 301	CIVIL
822-852	MOBILE except aeronautical mobile Footnotes 73, 265, 281, 362	CIVIL NATIONAL SECURITY
852-862	MOBILE except aeronautical mobile Footnotes 73, 265, 281	CIVIL
862-870	MOBILE AERONAUTICAL RADIONAVIGATION Footnotes 73, 138, 281	CIVIL NATIONAL SECURITY
870-876	MOBILE AERONAUTICAL RADIONAVIGATION Footnotes 45, 73, 138, 281	CIVIL NATIONAL SECURITY
876-880	MOBILE AERONAUTICAL RADIONAVIGATION Footnotes 45, 73, 138, 281	CIVIL NATIONAL SECURITY
880-890	MOBILE Footnotes 73, 281	CIVIL
890-915	MOBILE Radiolocation Footnotes 73, 281	CIVIL
915-921	MOBILE AERONAUTICAL RADIONAVIGATION Radiolocation Footnotes 45, 73, 138, 281	CIVIL NATIONAL SECURITY
921-925	MOBILE AERONAUTICAL RADIONAVIGATION Footnotes 45, 73, 138, 281	CIVIL NATIONAL SECURITY
925-942	MOBILE Radiolocation Footnotes 73, 281	CIVIL
942-960	MOBILE Footnotes 73, 281	CIVIL



FREQUENCY BAND MHz	RADIO SERVICES	USERS
960-1164	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R) AERONAUTICAL MOBILE-SATELLITE (R) Footnotes 8, 73, 169, 266, 307	CIVIL NATIONAL SECURITY
1164-1215	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) Footnotes 73, 164, 169, 170	CIVIL NATIONAL SECURITY
1215-1240	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) SPACE RESEARCH (active) Footnotes 73, 161, 170, 171, 172	CIVIL NATIONAL SECURITY
1240-1300	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) SPACE RESEARCH (active) Amateur Amateur-Satellite Footnotes 73, 161, 170, 171, 172	CIVIL NATIONAL SECURITY
1300-1350	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) RADIOLOCATION Footnotes 53, 73, 87, 167	CIVIL NATIONAL SECURITY
1350-1400	FIXED MOBILE RADIOLOCATION Footnotes 73, 82, 87, 155, 189	CIVIL NATIONAL SECURITY
1400-1427	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Footnotes 73, 88	CIVIL
1427-1429	FIXED MOBILE except aeronautical mobile SPACE OPERATION (Earth-to-space) Footnotes 73, 155, 189, 308	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
1429-1452	FIXED MOBILE except aeronautical mobile Footnotes 73, 155, 189, 308	CIVIL NATIONAL SECURITY
1452-1492	MOBILE except aeronautical mobile Fixed Footnote 73	CIVIL
1492-1518	FIXED MOBILE except aeronautical mobile Footnotes 73, 155	CIVIL NATIONAL SECURITY
1518-1525	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) Footnotes 73, 155, 157, 175	CIVIL NATIONAL SECURITY
1525-1530	SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) Footnotes 73, 156, 157, 158, 254	CIVIL
1530-1533	MOBILE-SATELLITE (space-to-Earth) SPACE OPERATION (space-to-Earth) Fixed Earth Exploration-Satellite Mobile except aeronautical mobile Footnotes 73, 135, 156, 157, 158, 254	CIVIL
1533-1535	MOBILE-SATELLITE (space-to-Earth) SPACE OPERATION (space-to-Earth) AERONAUTICAL MOBILE Earth Exploration-Satellite Mobile except aeronautical mobile Footnotes 73, 135, 156, 157, 158, 184, 254	CIVIL NATIONAL SECURITY
1535-1559	MOBILE-SATELLITE (space-to-Earth) Footnotes 73, 135, 136, 156, 157, 158, 159, 160, 254	CIVIL
1559-1610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) Footnotes 73, 161, 170, 254	CIVIL

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
1610-1610.6	AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space) Footnotes 73, 146, 157, 267, 282, 283, 284, 285	CIVIL
1610.6-1613.8	AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Footnotes 73, 87, 146, 157, 267, 282, 283, 284, 285	CIVIL
1613.8-1621.35	AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space) Mobile-Satellite (space-to-Earth) Footnotes 73, 146, 157, 254, 267, 282, 283, 284, 285, 286	CIVIL
1621.35-1626.5	AERONAUTICAL RADIONAVIGATION MARITIME MOBILE-SATELLITE (space-to-Earth) MOBILE-SATELLITE (Earth-to-space) Mobile-Satellite except maritime mobile-satellite (space-to-Earth) Footnotes 73, 146, 157, 254, 267, 282, 283, 284, 285, 286, 372, 373	CIVIL
1626.5-1660	MOBILE-SATELLITE (Earth-to-space) Footnotes 73, 135, 156, 157, 158, 159, 160, 162, 372	CIVIL
1660-1660.5	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Footnotes 73, 87, 155, 156, 157, 158, 308	CIVIL NATIONAL SECURITY
1660.5-1668	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile Footnotes 73, 87, 155, 165	CIVIL NATIONAL SECURITY
1668-1668.4	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile Footnotes 73, 87, 155, 157, 165, 177	CIVIL NATIONAL SECURITY

FREQUENCY BAND MHz	RADIO SERVICES	USERS
1668.4-1670	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Footnotes 73, 87, 155, 157, 177, 178, 180	CIVIL NATIONAL SECURITY
1670-1675	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) Fixed Footnotes 73, 157, 177, 178, 179, 180	CIVIL
1675-1690	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Footnotes 73, 155	CIVIL NATIONAL SECURITY
1690-1700	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile Footnotes 73, 155, 183	CIVIL NATIONAL SECURITY
1700-1710	FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) Mobile except aeronautical mobile Footnotes 73, 155, 183	CIVIL NATIONAL SECURITY
1710-1785	FIXED MOBILE Footnotes 16, 73, 87, 292	CIVIL
1785-1800	FIXED MOBILE Footnotes 16, 73, 155	CIVIL NATIONAL SECURITY
1800-1805	MOBILE Fixed Footnotes 16, 73	CIVIL

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
1805-1880	FIXED MOBILE Footnotes 16, 73, 87	CIVIL
1880-1885	MOBILE Fixed Footnotes 16, 73, 86	CIVIL
1885-1900	MOBILE Fixed Footnotes 73, 86, 293, 294	CIVIL
1900-1930	MOBILE Fixed Footnotes 73, 293, 294	CIVIL
1930-1970	MOBILE Fixed Footnotes 73, 293, 294	CIVIL
1970-1980	MOBILE Fixed Footnotes 73, 293, 294	CIVIL
1980-2010	MOBILE MOBILE-SATELLITE (Earth-to-space) Footnotes 73, 157, 293, 295	CIVIL
2010-2025	MOBILE Fixed Footnotes 73, 293, 294	CIVIL
2025-2110	FIXED MOBILE SPACE RESEARCH (Earth-to-space) (space-to-space) SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) Footnotes 73, 155, 296, 297	CIVIL NATIONAL SECURITY
2110-2120	MOBILE SPACE RESEARCH (deep Space) (Earth-to-space) Fixed Footnotes 73, 293, 294	CIVIL

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
2120-2170	MOBILE Fixed Footnotes 73, 293, 294	CIVIL
2170-2200	MOBILE MOBILE-SATELLITE (space-to-Earth) Footnotes 73, 157, 293, 294	CIVIL
2200-2290	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE SPACE RESEARCH (space-to-Earth) (space-to-space) Footnotes 73, 155, 296, 297	CIVIL NATIONAL SECURITY
2290-2300	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) (deep Space) Footnote 73	CIVIL
2300-2400	FIXED MOBILE Amateur Radiolocation Footnotes 16, 73	CIVIL
2400-2450	FIXED MOBILE Amateur Amateur-Satellite Radiolocation Footnotes 67, 73	CIVIL
2450-2483.5	FIXED MOBILE Footnotes 67, 73	CIVIL
2483.5-2500	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) Footnotes 67, 73, 157, 287	CIVIL

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
2500-2520	MOBILE except aeronautical mobile FIXED Footnotes 16, 73	CIVIL
2520-2655	FIXED MOBILE except aeronautical mobile Footnotes 16, 73, 82	CIVIL
2655-2670	FIXED MOBILE except aeronautical mobile Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) Footnotes 16, 73, 87, 254	CIVIL
2670-2690	MOBILE except aeronautical mobile FIXED Radio Astronomy Footnotes 16, 73, 87, 254	CIVIL
2690-2700	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Footnotes 73, 88	CIVIL
2700-2900	AERONAUTICAL RADIONAVIGATION Radiolocation Footnotes 53, 73, 140	CIVIL NATIONAL SECURITY
2900-3100	RADIONAVIGATION RADIOLOCATION Footnotes 73, 141, 142, 143, 192	CIVIL NATIONAL SECURITY
3100-3300	RADIOLOCATION Earth Exploration-Satellite (active) Space Research (active) Footnotes 73, 87	CIVIL NATIONAL SECURITY
3300-3400	RADIOLOCATION Footnotes 73, 87	CIVIL NATIONAL SECURITY

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
3400-3600	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Amateur Radiolocation Footnotes 7, 48, 73	CIVIL
3600-4200	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Footnote 73	CIVIL
4200-4400	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R) Footnotes 73, 144, 145, 309	CIVIL NATIONAL SECURITY
4400-4500	FIXED MOBILE Footnotes 73	NATIONAL SECURITY
4500-4800	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Footnotes 73, 193	NATIONAL SECURITY
4800-4990	FIXED MOBILE Radio Astronomy Footnotes 73, 82, 87, 194	NATIONAL SECURITY
4990-5000	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Footnotes 73, 87	NATIONAL SECURITY
5000-5010	AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) Radio Astronomy Space Research (passive) Footnotes 73, 268	CIVIL



<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
5010-5030	AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) Radio Astronomy Space Research (passive) Footnotes 73, 166, 170, 268	CIVIL
5030-5091	AERONAUTICAL MOBILE (R) AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION Footnotes 73, 147, 270, 269	CIVIL
5091-5150	FIXED-SATELLITE (Earth-to-space) AERONAUTICAL MOBILE AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION Footnotes 73, 147, 195, 268, 288	CIVIL
5150-5250	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile Footnotes 73, 185, 196, 197, 198, 199, 201, 271	CIVIL
5250-5255	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile RADIOLOCATION SPACE RESEARCH Footnotes 73, 98, 148, 185, 202	CIVIL NATIONAL SECURITY
5255-5350	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile Footnotes 73, 98, 185, 202	CIVIL NATIONAL SECURITY
5350-5460	EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) AERONAUTICAL RADIONAVIGATION RADIOLOCATION Footnotes 73, 149, 203, 204, 205	CIVIL NATIONAL SECURITY

FREQUENCY BAND MHz	RADIO SERVICES	USERS
5460-5470	RADIONAVIGATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION Footnotes 73, 149, 203, 205	CIVIL NATIONAL SECURITY
5470-5570	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) Footnotes 73, 185, 205, 206, 207	CIVIL NATIONAL SECURITY
5570-5650	MARITIME RADIONAVIGATION RADIOLOCATION MOBILE except aeronautical mobile Footnotes 73, 150, 185, 206, 207	CIVIL NATIONAL SECURITY
5650-5725	RADIOLOCATION MOBILE except aeronautical mobile Amateur Amateur-Satellite (Earth-to-space) Footnotes 73, 185, 206, 208	CIVIL
5725-5830	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Fixed Amateur Mobile Footnotes 67, 73	CIVIL NATIONAL SECURITY
5830-5850	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Fixed Amateur Amateur-Satellite Mobile Footnotes 67, 73	CIVIL NATIONAL SECURITY
5850-5925	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Footnotes 57, 67, 73	CIVIL

<b>FREQUENCY BAND MHz</b>	<b>RADIO SERVICES</b>	<b>USERS</b>
5925-6700	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (passive) Footnotes 48, 73, 87, 145, 209, 210	CIVIL
6700-7075	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) Earth Exploration-Satellite (passive) Footnotes 48, 73, 193, 210, 310, 311	CIVIL
7075-7145	FIXED Earth Exploration-Satellite (passive) Footnotes 48, 73, 210	CIVIL
7145-7190	FIXED MOBILE SPACE RESEARCH (deep Space) (Earth-to-space) Space Operation (Earth-to-space) Footnotes 73, 163, 210	CIVIL
7190-7235	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED MOBILE SPACE RESEARCH (Earth-to-space) Footnotes 73, 163, 211, 312, 313	CIVIL
7235-7250	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED Space Research (Earth-to-space) Footnotes 73, 163, 210, 312	CIVIL
7250-7300	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Footnotes 73, 151	CIVIL NATIONAL SECURITY
7300-7375	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Footnotes 73, 151	CIVIL NATIONAL SECURITY

FREQUENCY BAND MHz	RADIO SERVICES	USERS
7375-7450	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) Footnotes 73, 314, 315	CIVIL NATIONAL SECURITY
7450-7550	FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) Footnotes 73, 314, 315, 316	CIVIL NATIONAL SECURITY
7550-7750	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) Footnotes 73, 314, 315	CIVIL NATIONAL SECURITY
7750-7900	FIXED MOBILE except aeronautical mobile METEOROLOGICAL-SATELLITE (space-to-Earth) Footnotes 73, 289	CIVIL NATIONAL SECURITY
7900-8025	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Footnotes 73 ,151	CIVIL NATIONAL SECURITY
8025-8175	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Footnotes 73, 290, 291	CIVIL NATIONAL SECURITY

FREQUENCY BAND MHz	RADIO SERVICES	USERS
8175-8215	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE Footnotes 73, 290, 291	CIVIL NATIONAL SECURITY
8215-8400	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) Footnotes 73, 290, 291	CIVIL NATIONAL SECURITY
8400-8500	FIXED SPACE RESEARCH (Earth-to-space) Radiolocation Footnotes 48, 73	CIVIL
8500-8550	RADIOLOCATION Footnote 73	CIVIL NATIONAL SECURITY
8550-8650	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Footnotes 73, 318	CIVIL NATIONAL SECURITY
8650-8750	RADIOLOCATION Footnote 73	CIVIL NATIONAL SECURITY
8750-8850	RADIOLOCATION AERONAUTICAL RADIONAVIGATION Space Research Footnotes 73, 152	CIVIL NATIONAL SECURITY
8850-9000	RADIOLOCATION MARITIME RADIONAVIGATION Space Research Footnotes 73, 153	CIVIL NATIONAL SECURITY
9000-9200	AERONAUTICAL RADIONAVIGATION RADIOLOCATION Space Research Footnotes 53, 73, 186	CIVIL NATIONAL SECURITY

FREQUENCY BAND MHz	RADIO SERVICES	USERS
9200-9300	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION MARITIME RADIONAVIGATION Space Research Footnotes 18, 73, 153, 319, 320, 321	CIVIL NATIONAL SECURITY
9300-9500	RADIONAVIGATION RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) Footnotes 4, 18, 73, 143, 322, 323	CIVIL NATIONAL SECURITY
9500-9800	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Footnotes 73, 323	CIVIL NATIONAL SECURITY
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232-235	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation Footnote 48	CIVIL
235-238	EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) Footnotes 356, 357	CIVIL
238-240	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE Footnote 48	CIVIL
240-241	FIXED MOBILE RADIOLOCATION Footnote 48	CIVIL

FREQUENCY BAND GHz	RADIO SERVICES	USERS
241-248	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-Satellite Footnotes 67, 73, 87	CIVIL
248-250	AMATEUR AMATEUR-SATELLITE Radio Astronomy Footnote 87	CIVIL
250-252	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Footnotes 88, 357	CIVIL
252-265	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE Footnotes 48, 87, 121	CIVIL
265-275	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY Footnotes 48, 87, 357	CIVIL
275-3000	Not allocated Footnotes 134, 383	CIVIL

## FOOTNOTES

In the column titled "RADIO SERVICES" the titles of services on a primary basis have been printed in capital letters, while those on secondary basis are in small print.

### *Footnote:*

- Radio services on a secondary basis shall not cause harmful interference to the services operating on a primary basis, to which frequencies have already been assigned or may later be assigned.
- Radio services on a secondary basis cannot claim protection from harmful interference caused by stations operating on a primary basis, to which frequencies have already been assigned or may later be assigned.
- Radio services on a secondary basis can claim protection from harmful interference caused by other stations operating on a secondary basis, to which frequencies may later be assigned.
- Each frequency band limit is a nominal for a radio channel of the higher frequency range.
- The frequency bands designated for "civil, national security needs" shall be allocated with priority to national security needs.
- Individual frequency bands used for "national security needs" may be used for civil needs, subject to prior coordination between the authorities concerned.
- Individual frequency bands used for civil needs may be used for national security, subject to prior coordination with the Communications Regulation Commission (CRC).
- All quoted Articles, Appendices, Recommendations and Resolutions are from the Radio Regulations of the International Telecommunications Union (ITU).

1. 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 90-148.5 kHz and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 148.5 kHz. Exceptionally, class J2B or J7B emissions are authorized for stations of the maritime mobile service, operating at frequency 110-148.5 kHz.

2. The stations of services to which the frequency bands 14-19.95 kHz and 20.05-70 kHz, 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals and shall be afforded protection from harmful interference.

3. The frequency bands 13570-13600 kHz and 13800-13870 kHz may be used by stations in the fixed service and in the mobile except aeronautical mobile (R) service, communicating only within the boundary of the country, on the condition that harmful interference is not caused to the broadcasting service. The use of frequencies in these services shall take place with 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.

4. 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 frequency band 9300-9320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. In the band 9300-9500 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the radionavigation service in conformity with the Radio Regulations. Ground-based radars used for meteorological purposes have priority over other radiolocation devices.

5. In the frequency bands 70-86 kHz and 112-130 kHz, pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services.

6. In this frequency band the maritime mobile service in the Black Sea region has a priority

7. The allocation of the frequency band 3400-3600 MHz to the mobile, except aeronautical mobile, service subject to agreement obtained under No. 9.21. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in the band 3400-3600 MHz, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed  $-154.5 \text{ dB(W)/(m}^2 \cdot 4 \text{ kHz)}$  for more than 20% of time

at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), and with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3400-3600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004).

8. Individual frequencies are used by the national security for the respective radio services, subject to prior coordination with the Ministry of Transport, Information Technology and Communications.

9. (abrog. SG. 16/2014).

10. In this frequency band, the maritime radionavigation service in the Black Sea region has priority.

11. Use of the frequencies bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by the maritime mobile service is limited to on-board communication stations. The characteristics of the equipment and the channelling arrangement shall be in accordance with the most recent version of Recommendation ITU-R M.1174. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned.

12. The frequency 465±5 kHz is used as an intermediate frequency in radio receivers for civil needs.

13. The frequencies 52.025 MHz, 52.050 MHz, 52.075 MHz, 52.125 MHz, 52.150 MHz, 52.175 MHz and 52.250 MHz are used for the national security needs till the expiry of the depreciation period of the Ministry of Defence's equipment, without making new assignments.

14. In the frequency band 535-1300 kHz individual frequencies are used by the aeronautical radionavigation service on the condition that they do not cause harmful interference to broadcasting.

15. (abrog. SG. 16/2014).

16. The bands, or portions of the bands, 1710-1885 MHz, 2300-2400 MHz and 2500-2690 MHz, are identified for use without priority for International Mobile Telecommunications (IMT) in accordance with Resolution 223. 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.

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

18. In the frequency band 9200-9500 MHz, search and rescue transponders (SART) may be used, in accordance with Art. 31, having due regard to the appropriate ITU-R Recommendation.

19. The carrier frequencies 3023 kHz and 5680 kHz may also be used, in accordance with Article 31 by stations of the maritime mobile service engaged in coordinated search and rescue operations. (WRC-07).

20. (abrog. SG. 47/2018).

21. The frequency band 3155-3195 kHz is used for the provision of a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned in the bands between 3155 kHz and 3400 kHz to suit local needs.

The 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 limits of the induction field.

22. (abrog. SG. 47/2018).

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

24. The use of the frequency bands 148-150.05 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 mobile and space operation services in the frequency band 148-149.9 MHz. The use of the frequency band 148-149.9 MHz by non-geostationary-satellite systems in the space operation service identified as short-duration mission is not subject to No. 9.11A.

25. The use of the frequency bands 21870-21924 kHz and 23200-23350 kHz by the fixed service is limited to

provision of services related to aircraft flight safety.

26. (abrog. SG. 76/2011).

27. (abrog. SG. 47/2018).

28. (abrog. SG. 47/2018).

29. (abrog. SG. 47/2018).

30. The frequency bands 30.3-32.8 MHz, 38.25-38.44375 MHz, 38.56875-39 MHz, 73.3-74.1 MHz, 79.0-79.7 MHz, 151.025-151.200 MHz, 152.025-152.100 MHz, 152.150-152.200 MHz, 152.250-152.300 MHz, 153.450-153.850 MHz and frequencies 153.900 MHz and 158.100 MHz are used for the national security needs.

31. The frequency bands 58-60 MHz and 68-73 MHz are used on a secondary basis for the national security needs, outside populated areas and with a power up to 10 W. The frequency bands 73-73.3 MHz, 74.1-74.8 MHz, 77.8-79 MHz and 79.7-84.6 MHz may be used on a secondary basis for the national security needs, outside populated areas and with a power up to 10 W after coordination with the Communications Regulation Commission.

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

33. This frequency band is principally used for radio stations with a power up to 10 W, and individual frequencies in the frequency band 52-54 MHz are used by the Unified National Radiation Monitoring System.

34. The frequency 75 MHz is assigned to marker beacons. Assignment of frequencies close to the limits of the guard band to other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons shall be refrained. Every effort should be made to improve the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.8 MHz and 75.2 MHz.

35. The frequency band 39.25-40.66 MHz is used for needs of national security on a secondary basis outside populated areas and with a power up to 5 W. The frequency band 40.66-42 MHz may be used for needs of national security on a secondary basis outside populated areas and with a power up to 5 W after coordination with the Communications Regulation Commission.

36. (abrog. SG. 16/2014).

37. (abrog. SG. 16/2014).

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

39. (abrog. SG. 47/2018).

40. The frequency band 87.5-108 MHz is allocated to the VHF-FM broadcasting service. The allocation of these frequencies is performed in accordance with Technical requirements for operation of the electronic communications networks of the terrestrial broadcasting service and the related equipment adopted by the Communications Regulation Commission

41. (abrog. SG. 47/2018).

42. 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 mobile services.

43. In the band 117.975-137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency, and the frequency 123.1 MHz is the aeronautical auxiliary frequency for search and rescue (SAR). Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article 31 with stations of the aeronautical mobile service.

44. The use of this frequency band by the national security is limited to the assigned frequency channels until the expiry of the depreciation period of the Ministry of Defence's equipment.

45. The frequency bands 874.4-880 MHz and 919.4-925 MHz are used for Railway Mobile Radio - RMR including railway applications GSM-R.

46. The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile service. The conditions for the use of this frequency and the band 156.7625-156.8375 MHz are contained in Article 31 and Appendix 18 of the Radio Regulation.

The frequency 156.525 MHz is the international distress, safety and calling frequency for the maritime mobile service using digital selective calling (DSC). The conditions for the use of this frequency and the band 156.4875-156.5625 MHz are contained in Articles 31 and 52, and in Appendix 18 of the Radio Regulation.

The frequency bands 156-156.4875MHz, 156.5625-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz shall be exclusively used by the maritime mobile service (see Articles 31 and 52, and Appendix 18). Their use by stations of other services shall be subject to prior coordination with the Ministry of Transport, Information Technology and Communications.

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 radiocommunication service.

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

47. (abrog. SG. 16/2014).

48. In this band individual frequencies and bands may be used for national security needs subject to prior coordination with the Communications Regulation Commission.

49. Until 29 March 2009, the frequency band 7450-8100 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis.

50. The frequency 243 MHz is used by survival craft stations and equipment used for survival purposes.

51. (abrog. SG. 16/2014).

52. The frequency band 267-272 MHz may be used for space telemetry on a primary basis, subject to agreement obtained under No. 9.21.

53. The use of the frequency 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 radiate only on frequencies in these bands and only when actuated by radars operating in the same band.

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

55. (abrog. SG. 47/2018).

56. (abrog. SG. 47/2018).

57. (abrog. SG. 47/2018).

58. (abrog. SG. 16/2014).

59. The use of the frequency band 406-406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position indicating radiobeacons (EPIRB) (see also Article 31 and Appendix 13). Any emission capable of causing harmful interference to the authorised uses of the band 406-406.1 MHz is prohibited.

60. (abrog. SG. 16/2014).

61. (abrog. SG. 76/2011).

62. The band 14.5-15.35 GHz is also used by the Air Traffic Control for civil needs.

63. The frequency band 50.05-50.20 MHz is used on a secondary basis by equipment with a power of up to 10 W for the needs of the amateur service in observance of the necessary guard bands. stations in the amateur service shall not cause harmful interference to, or claim protection from, wind profiler radars operating in the radiolocation service under No. 5.162A of the Radio Regulation.

64. The frequency bands 380-385 MHz/390-395 MHz and 698-703 MHz/753-758 MHz are used for the national mobile digital radiocommunication system for public security, protection and disaster relief (Public Protection and Disaster Relief (PPDR)) on the territory of the country. The frequency bands 698-703 MHz/753-758 MHz shall be used for PPDR in accordance with the technical conditions for wireless broadband electronic communications services set out in the Annex to Implementing Decision (EU)



2016/687<sup>1</sup>.

65. The conditions for use of the international distress frequencies for digital selective calling 2187.5 kHz, 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12577 kHz and 16804.5 kHz are prescribed in Article 31.

66. The frequency band 153-162.050 MHz may be used by the cable distribution systems at a minimum distance of 40 km from the Black Sea and the Danube river coast. The frequency band 162.050-174 MHz may be used by the cable distribution systems for transmission of digital information.

67. The frequency bands 6765-6795 kHz, 433.050-434.790 MHz, 61-61.5 GHz, 122-123 GHz и 244-246 GHz, as well as frequency bands 13553-13567 kHz, 26957-27283 kHz, 40.660-40.700 MHz, 2400-2500 MHz, 5725-5875 MHz, 24-24.25 GHz are designated for industrial, scientific and medical (ISM) applications. The use of the frequency bands from the first group shall be subject to an agreement with other administrations whose radiocommunication services might be affected, in accordance with relevant ITU-R Recommendations. The use of the frequency bands from the second group by the ISM applications is subject to the provisions of No. 15.13, and radiocommunication services, which these frequency bands are allocated to, shall accept the harmful interference, which might be caused by the ISM applications.

68. (abrog. SG. 47/2018).

69. The frequency bands 452.700-457.400 MHz and 462.700-467.400 MHz are used by wideband systems for civil needs.

70. In the frequency bands 478-494 MHz, and 606-614 MHz some frequency subbands are used for broadcasting in particular districts of the country, subject to prior coordination with the Ministry of Defence.

478-486 MHz – allotments Varna and Stara Zagora;  
486-494 MHz – allotment Sofia;  
606-614 MHz – allotment Smolian.

71. The equivalent isotropically radiated power (e.i.r.p.) of the station in amateur service using the frequency band 135.7-137.8 kHz shall not exceed 1 W. These station shall not cause harmful interference to stations of the radionavigation service operating in Mongolia, Kyrgyzstan and Turkmenistan.

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

73. The following frequencies and frequency bands are also used for short range devices for civil needs:

below 3000 GHz	Ultra Wide Band (UWB) technologies
100 Hz-12.4 GHz	Radiodetermination applications
100-9000 Hz	Assistive Listening Devices
100Hz-30 MHz	Inductive applications
9-315 kHz	Active medical implant devices
442.2-450 kHz	Non-specific Short Range Devices
456.9-457.1 kHz	Non-specific Short Range Devices
984-7484 kHz	Transport and Traffic Telematics Devices
7.3-23.0 MHz	Transport and Traffic Telematics Devices
13.553-13.567 MHz	Non-specific Short Range Devices
26.957-27.283 MHz	Non-specific Short Range Devices
26.960-27.410 MHz	CB (Citizen Band) 27 MHz
26.990-27.000 MHz	Non-specific Short Range Devices
27.040-27.050 MHz	Non-specific Short Range Devices
27.090-27.100 MHz	Transport and Traffic Telematics Devices, Non-specific Short Range Devices
27.140-27.150 MHz	Non-specific Short Range Devices
27.190-27.200 MHz	Non-specific Short Range Devices
29.7-47 MHz	Radio microphones
30-37.5 MHz	Active medical implant devices
34.995-35.225 MHz	Model Control

<sup>1</sup> Commission implementing decision (EU) 2016/687 of 28 April 2016 on the harmonisation of the 694-790 MHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services and for flexible national use in the Union

38.44375-38.56875 MHz	Professional Mobile Radio - PMR
40.660-40.700 MHz	Non-specific Short Range Devices, Model Control
84.69375-84.81875 MHz	Professional Mobile Radio - PMR
84.86875-84.99375 MHz	Professional Mobile Radio - PMR
87.5-108 MHz	Wireless audio and multimedia streaming transmitters with analogue frequency modulation (FM)
138.2-138.45 MHz	Non-specific Short Range Devices
150.80625-150.81875 MHz	Radio equipment for animal tracking
151.25625-151.26875 MHz	Radio equipment for animal tracking
155.4875-155.5875 MHz	Radio equipment for animal tracking
169.4000-169.8125 MHz	Non-specific Short Range Devices
169.4000-169.4750 MHz	Assistive Listening Devices
169.4875-169.5875 MHz	Assistive Listening Devices
173.965-216 MHz	Radio microphones and Assistive Listening Devices
401-406 MHz	Active medical implant devices
430-440 MHz	Medical data acquisition devices
433.050-434.790 MHz	Non-specific Short Range Devices
446.0-446.2 MHz	PMR 446
470-694 MHz, 723-753 MHz, 778-786 MHz and 823-832 MHz	Wireless audio programme making and special events (PMSE) equipment
786-789 MHz	Radio microphones
862-863 MHz	Non-specific Short Range Devices
863-865 MHz	Non-specific Short Range Devices and Wireless audio and multimedia streaming devices
863-868 MHz	Wideband data transmission devices
865-868 MHz	Radio frequency identification applications
865-868.600 MHz	Non-specific Short Range Devices
868.600-868.700 MHz	Alarms
868.700-869.200 MHz	Non-specific Short Range Devices
869.200-869.400 MHz	Alarms
869.400-869.650 MHz	Non-specific Short Range Devices
869.650-869.700 MHz	Alarms
869.700-870 MHz	Non-specific Short Range Devices
870.0-874.4 MHz	Tracking, Tracing and Data Acquisition, Non-specific Short Range Devices
915-919.4 MHz	Non-specific Short Range Devices
916.1-918.9 MHz	Radio frequency identification applications
917.3-918.9 MHz	Tracking, Tracing and Data Acquisition
917.4-919.4 MHz	Wideband data transmission devices
1350-1400 MHz	Radio microphones
1492-1525 MHz	Radio microphones
1656.5-1660.5 MHz	Assistive Listening Devices
1785-1805 MHz	Wireless audio programme making and special events (PMSE) equipment
1880-1900 MHz	DECT Radio equipment
2400-2483.5 MHz	Non-specific Short Range Devices and Wideband data transmission devices
2446-2454 MHz	Radio frequency identification applications
2483.5-2500 MHz	Active medical implant devices and Medical data acquisition devices
5150-5350 MHz	Wideband data transmission devices
5470-5725 MHz	Wideband data transmission devices
5725-5875 MHz	Non-specific Short Range Devices and Tracking, Tracing and Data Acquisition
5795-5815 MHz	Transport & Traffic Telematics Devices
5855-5935 MHz	Transport & Traffic Telematics Devices
13.4-14.0 GHz	Radiodetermination applications
17.1-17.3 GHz	Radiodetermination applications

21.65-26.65 GHz	Transport & Traffic Telematics Devices
24.00-24.25 GHz	Non-specific Short Range Devices
24.05-27 GHz	Radiodetermination applications
57-64 GHz	Radiodetermination applications, Non-specific Short Range Devices
57-71 GHz	Wideband data transmission devices
61-61.5 GHz	Non-specific Short Range Devices
63.72-65.88 GHz	Transport & Traffic Telematics Devices
75-85 GHz	Radiodetermination applications
76-81 GHz	Transport & Traffic Telematics Devices
122-123 GHz	Non-specific Short Range Devices
244-246 GHz	Non-specific Short Range Devices

74. The frequency bands 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 15600-15800 kHz, 17480-17550 kHz and 18900-19020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country, on condition that harmful interference is not caused to the broadcasting service. Usage of frequencies in the fixed service shall be with the minimum power required, taking into account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

75. (abrog. SG. 47/2018).

76. The frequency bands 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.

77. (abrog. SG. 16/2014).

78. This band is intended for Multimedia Wireless Systems (MWS).

79. The use of the frequency band 432-438 MHz by sensors in the Earth exploration-satellite service (active) shall be in accordance with the most recent version of Recommendation ITU-R RSA.1260. Additionally, the Earth exploration-satellite service (active) in the frequency band 432-438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. 5.29 and 5.30.

80. The use of the frequency bands 137-138 MHz, 148-150.05 MHz, 399.9-400.05 MHz and 400.15-401 MHz by the mobile-satellite service is limited to non-geostationary-satellite systems.

81. (abrog. SG. 16/2014).

82. The frequency 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.

83. The frequency bands 22.540-22.568 GHz and 23.548-23.576 GHz are used for national security needs.

84. The frequency 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.

85. In the frequency bands 450-459 MHz and 460-469 MHz individual frequencies shall be used by the Ministry of Defence till the end of 2025.

86. The frequency band 1880-1900 MHz is used shared on the territory of the country by the military radio-electronic systems and the civil radio-subscriber system under DECT standard.

87. In making assignments in the following bands to stations of the radio services, other than the radio astronomy service, all practicable steps shall be taken to protect the radio astronomy service from harmful interference:

13360-13410 kHz,

4950-4990 MHz,

92-94 GHz,

25550-25670 kHz,	4990-5000 MHz,	94.1-100 GHz,
37.5-38.25 MHz,	6650-6675.2 MHz,	102-109.5 GHz,
73-74.6 MHz,	10.6-10.68 GHz,	111.8-114.25 GHz,
150.05-153 MHz,	14.47-14.5 GHz,	128.33-128.59 GHz,
322-328.6 MHz,	22.01-22.21 GHz,	129.23-129.49 GHz,
406.1-410 MHz,	22.21-22.5 GHz,	130-134 GHz,
608-614 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,
1660-1670 MHz,	31.5-31.8 GHz,	171.11-171.45 GHz,
1718.8-1722.2 MHz,	36.43-36.5 GHz,	172.31-172.65 GHz,
2655-2690 MHz,	42.5-43.5 GHz,	173.52-173.85 GHz,
3260-3267 MHz,	42.77-42.87 GHz,	195.75-196.15 GHz,
3332-3339 MHz,	43.07-43.17 GHz,	209-226 GHz,
3345.8-3352.5 MHz,	43.37-43.47 GHz,	241-250 GHz,
4825-4835 MHz,	48.94-49.04 GHz,	252-275 GHz.
	76-86 GHz,	

88. All emissions are prohibited in the following bands:

1400-1427 MHz,  
 2690-2700 MHz,  
 10.68-10.7 GHz,  
 15.35-15.4 GHz,  
 23.6-24 GHz,  
 31.3-31.5 GHz,  
 48.94-49.04 GHz from airborne stations,  
 50.2-50.4 GHz,  
 52.6-54.25 GHz,  
 86-92 GHz,  
 100-102 GHz,  
 109.5-111.8 GHz,  
 114.25-116 GHz,  
 148.5-151.5 GHz,  
 164-167 GHz  
 182-185 GHz,  
 190-191.8 GHz,  
 200-209 GHz,  
 226-231.5 GHz,  
 250-252 GHz.

89. In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz and 400.15-401 MHz and in the maritime mobile-satellite service (space-to-Earth) in the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz, all practicable steps shall be taken to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz and 406.1-410 MHz from harmful interference from unwanted emissions as shown in the most recent version of Recommendation ITU-R RA.769.

90. In the frequency band 10.6-10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical mobile, services shall not exceed  $-3$  dBW. This limit may be exceeded, subject to agreement obtained under No. 9.21.

91. 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.

92. In the frequency band 11.7-12.5 GHz, the fixed and mobile, except aeronautical mobile services, in accordance with their respective allocations, shall not cause harmful interference to, or claim protection from, broadcasting-satellite stations operating in accordance with Appendix 30 of the Radio Regulation.

93. The 11.7-12.5 GHz band is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, and its use is limited to non-geostationary systems. The use of non-geostationary-satellite systems 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 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. Article No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the 11.7-12.5 GHz band shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

94. The assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan or included in the Regions 1 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.

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

96. 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.

97. The allocation of the band 13.65–13.75 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.

98. 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.

99. In the frequency band 13.75-14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2 m and an earth station of a non geostationary fixed-satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the equivalent isotropically radiated power (e.i.r.p.), averaged over one second, radiated by a station in the radiolocation or radionavigation services shall not exceed 59 dBW for elevation angles above 2° and 65 dBW at lower angles. When bringing into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna size smaller than 4.5 m, shall be ensured that the power flux-density produced by this earth station does not exceed:

–115 dB(W/(m<sup>2</sup> · 10 MHz)) for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal state;

–115 dB(W/(m<sup>2</sup> · 10 MHz)) for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.

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

100. 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.

101. 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.

102. The use of the frequency 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 bands 17.3-18.1 GHz (Earth-to-space) 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.

103. The use of the band 18.1-18.3 GHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary satellites.

104. 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.

105. The carrier frequencies 2182 kHz, 3023 kHz, 5680 kHz, 8364 kHz, 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article 31.

The same applies to the frequencies 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.

106. 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.

107. In the bands 20.1-20.2 GHz and 29.9-30 GHz, 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.

108. 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.

109. Use of the frequency band 25.25-27.5 GHz 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.

110. The earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account Recommendation ITU-R SA.1862. Resolution 242 applies.

111. On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9775-9900 kHz, 11650-11700 kHz and 11975-12050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.

112. The bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of 10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit.

113. The frequency band 27.5-30 GHz is used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.

114. The frequency 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.

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

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

117. The use of the frequency band 137-138 MHz by the mobile-satellite service is subject to coordination in accordance with the provisions of No 9.11A. (WRC-97).

118. 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. All practicable steps shall be taken 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.

119. The allocation to the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz is identified for use by high altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated on a co-primary basis, and does not establish priority for these stations. The use of these bands by HAPS shall be in accordance with the provisions of Resolution 122.

120. 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.

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

122. (abrog. SG. 47/2018).

123. 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.

124. 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.

125. 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.

126. 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.

127. (abrog. SG. 47/2018).

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

129. The use of the bands 12.5-12.75 GHz (space-to-Earth), 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.

130. Stations operating in the aeronautical radionavigation service shall limit the effective equivalent isotropically radiated power (e.i.r.p.) in accordance with Recommendation ITU-R S.1340-0. The minimum coordination distance required to protect the aeronautical radionavigation stations from harmful interference from feeder link earth stations and the maximum effective equivalent isotropically radiated power (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.1340-0.

131. 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.

132. 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.

133. In the frequency 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).

134. The frequency band 275-1000 GHz may be used for passive services, as follows:

- 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): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz; 409-411 GHz; 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz; 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz, 713-718 GHz; 729-733 GHz, 750-754 GHz; 771-776 GHz; 823-846 GHz; 850-854 GHz; 857-862 GHz;

866-882 GHz; 905-928 GHz; 951-956 GHz; 968-973 GHz and 985-990 GHz.

The use of the range 275-1000 GHz by the passive services does not preclude use of this range by active services. Administrations wishing to make frequencies available for active service applications are urged to take all practicable steps to protect these passive services from harmful interference until the date when the Table of Frequency Allocations is established in the above-mentioned frequency band.

All frequencies in the range 1000-3000 GHz may be used by both active and passive services. (WRC-12)

135. In the frequency bands 1530-1544 MHz and 1626.5-1645.5 MHz, Global Maritime Distress and Safety System (GMDSS) communications shall have priority access and immediate availability for operation in the network over all other mobile satellite communications.

The mobile-satellite systems shall not cause unacceptable interference to, or claim protection from the Global Maritime Distress and Safety System (GMDSS), in compliance with Resolution 222 (WRC-2000).

136. The use of the frequency band 1544-1545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications in accordance with Article 31.

137. The frequency 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.

138. The use of the frequency bands 862-880 MHz and 915-925 MHz by aeronautical radionavigation service 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.

139. (abrog. SG. 16/2014).

140. In this band 2700-2900 MHz, ground-based radars used for meteorological purposes are authorised to operate on a basis of equality with stations of the aeronautical radionavigation service.

141. In the band 2900-3100 MHz, the use of the shipborne interrogator-transponder system shall be confined to the band 2930-2950 MHz.

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

143. In the frequency 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 and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. 4.9.

144. The use of the 4200-4400 MHz band by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the Earth exploration-satellite and space research services may be authorised in this band on a secondary basis.

145. The standard frequency and time signal-satellite service may be authorised 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 2 MHz of these frequencies, subject to agreement obtained under No. 9.21.

146. The frequency band 1610-1626.5 MHz is also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21.

147. The frequency band 5030-5150 MHz is to be used for the operation of the international standard system MLS (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other users of the band 5030-5091 MHz. For the use of the band 5091-5150 MHz, note 195 and Resolution 114 apply.

148. 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.

149. The use of the frequency band 5350-5470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

150. In the frequency band 5600-5650 MHz, ground-based radars used for meteorological purposes are authorised to operate on a basis of equality with stations of the maritime radionavigation service.

151. The frequency 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.

152. 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.

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

154. (abrog. SG. 47/2018).

155. This frequency bands 1350-1400 MHz, 1427-1452 MHz, 1492-1525 MHz, 1660-1670 MHz, 1675-1710 MHz, 1785-1800 MHz, 2025-2110 MHz and 2200-2290 MHz are also used by the tactical radio relay links for the national security.

156. The frequency 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 but for exceptional circumstances.

157. The use of the frequency bands 1518-1544 MHz, 1545-1559 MHz, 1610-1645.5 MHz, 1646.5-1660.5 MHz, 1668-1675 MHz, 1980-2010 MHz, 2170-2200 MHz and 2483.5-2500 MHz, by the mobile-satellite service is in compliance with Resolutions 212 and 225.

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

159. In applying the procedures of Section II of Article 9 of the Radio Regulations to the mobile-satellite service in the frequency bands 1545-1555 MHz and 1646.5-1656.5 MHz, priority shall be given to the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 according to Article 44. This transmission 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 transmission of messages with priority 1 to 6 in Article 44. The priority regulation in the frequency band shall be subject to the clauses of Resolution 222 (WRC-12).

160. 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 authorised when such transmissions are used to extend or supplement the satellite-to-aircraft links.

Transmissions in the band 1646.5-1656.5 MHz from aircraft stations directly to terrestrial aeronautical stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorised when such transmissions are used to extend or supplement the aircraft-to-satellite links.

161. 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.

162. The use of the frequency 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.

163. In this frequency band, individual telecommunications networks for national security needs may be established after coordination with the Communications Regulation Commission.

164. Stations in the radionavigation-satellite service in the frequency band 1164-1215 MHz shall operate in accordance with the provisions of Resolution 609 and shall not claim protection from stations in the aeronautical radionavigation service in the band 960-1215 MHz. No. 5.43A does not apply. The provisions of No. 21.18 shall apply.

165. All practicable protection should be given in the frequency 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 frequency band 1664.4-1668.4 MHz.

166. In order not to cause harmful interference to the microwave landing system (MLS) operating above 5030 MHz, the aggregate power flux-density produced at the Earth's surface in the frequency band 5030-5150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the frequency 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 frequency band 4990-5000 MHz, radionavigation-satellite service systems operating in the band 5010-5030 MHz shall comply with the limits in the band 4990-5000 MHz defined in Resolution 741 .

167. The use of the frequency 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 constrains the operation and development of, the aeronautical-radionavigation service.

168. (abrog. SG. 16/2014).

169. The use of the frequency 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.

170. The use of the frequency 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; however, in the case of radionavigation-satellite service (space-to-space) networks and systems, Resolution 610 (WRC-03) shall only apply to transmitting space stations. In accordance with No. 5.329A, for systems and networks in the radionavigation-satellite service (space-to-space) in the bands 1 215-1 300 MHz and 1 559-1 610 MHz, the provisions of Nos. 9.7, 9.12, 9.12A and 9.13 shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space).

171. The radionavigation-satellite service, operating in the frequency band 1215-1300 MHz shall not cause harmful interference to the radiolocation service. No. 5.43 shall not apply in respect of the radiolocation service. Resolution 608 shall apply.

172. In the frequency band 1215-1300 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, the radionavigation-satellite service and other services allocated on a primary basis.

173. The use of the frequency 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.

174. (abrog. SG. 47/2018).

175. The use of the frequency band 1518-1525 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the frequency band 1518-1525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. 5.43A does not apply.

176. (abrog. SG. 47/2018).

177. The use of the frequency band 1668-1675 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the band 1668-1668.4 MHz, Resolution 904 shall apply.

178. For sharing of the frequency band 1668.4-1675 MHz between the mobile-satellite service and the fixed and mobiles services, Resolution 744 shall apply.

179. In the band 1670-1675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified before 1 January 2004. Any new assignment to these earth stations in this band shall also be protected from harmful interference from stations in the mobile-satellite service.

180. In the frequency band 1668.4-1675 MHz new systems in the meteorological service shall not be implemented, and the existing systems in the meteorological service shall be moved in other bands as soon as possible.

181. (abrog. SG. 33/2021).

182. (abrog. SG. 47/2018).

183. 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 Radio Regulations.

184. (abrog. SG. 47/2018).

185. The frequency bands 5150-5350 MHz and 5470-5725 MHz are used for stations in the mobile, except aeronautical mobile, services in accordance with Resolution 229 for civil needs.

186. In the band 9000-9200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in the note 53 operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. 5.471.

187. For sharing of the frequency band 10.6-10.68 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services, Resolution 751 (WRC-07) applies.

188. (abrog. SG. 47/2018).

189. In the bands 1350-1400 MHz, 1427-1452 MHz, 22.55-23.55 GHz, 24.25-27.5 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution 750 applies.

190. (abrog. SG. 76/2011).

191. (abrog. SG. 76/2011).

192. In the frequency band 2900-3100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service.

193. The use of the frequency 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 frequency 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 frequency 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 system 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 system in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks. 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.

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

195. The use of allocation to the fixed-satellite service (Earth-to-space) in the frequency band 5091-5150 MHz is limited to feeder links of non-geostationary -satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A. The use of by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be subject to application of Resolution 114. Moreover, to ensure that the aeronautical radionavigation service is protected from harmful interference, coordination is required for feeder-link earth stations of the non geostationary satellite systems in the mobile-satellite service which are separated by less than 450 km from the territory of an administration operating ground stations in the aeronautical radionavigation service.

196. 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.

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

198. The frequency band 5150-5216 MHz 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  $-159 \text{ dB(W/m}^2\text{)}$  in any 4 kHz band for all angles of arrival.

199. Fixed-satellite service networks in the frequency band 5150-5250 MHz shall be coordinated on an equal basis in accordance with No. 9.11A with non-geostationary-radiodetermination-satellite networks brought into use prior to 17 November 1995. Radiodetermination-satellite networks 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.

200. (abrog. SG. 76/2011).

201. In the frequency 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.

202. In the frequency 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 more stringent conditions upon the mobile service, than those stipulated in Resolution 229.

203. 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 Footnote 149.

204. 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.

205. 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.

206. In the frequency band 5470-5725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution 229.

207. In the frequency band 5470-5650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5600-5650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service.

208. In the frequency band 5650-5670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in this frequency band (see No. 5.43). Any harmful interference from a station in the amateur-satellite service shall be immediately eliminated in accordance with the provisions of No.25.11. The use of this band by the amateur-satellite service is limited to the Earth-to-space direction.

209. In the frequency bands 5925-6425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution 902 (WRC 03). In the frequency band 5925-6425 MHz, earth stations located on board vessels and communicating with space stations of the fixed-satellite service may employ transmit antennas with minimum diameter of 1.2 m and operate without prior agreement of any administration if located at least 330 km away from the low-water mark as officially recognized by the coastal State. All other provisions of Resolution 902 shall apply.

210. In the frequency band 6425-7075 MHz, passive microwave sensor measurements are carried out over the oceans. In the frequency band 7075-7250 MHz, passive microwave sensor measurements are carried out. In the future planning of bands 6425-7075 MHz and 7075-7250 MHz the needs of the Earth exploration-satellite (passive) and space research (passive) services shall be born in mind.

211. No emissions from space research service (Earth-to-space) systems intended for deep space shall be effected in the frequency band 7190-7235 MHz. Geostationary satellites in the space research service operating in the frequency band 7190-7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services. Article No. 5.43A does not apply.

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

213. In the frequency band 14-14.5 GHz, ship earth stations with an equivalent isotropically radiated power (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.

214. In the frequency 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.

215. 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.1643-0, 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.

216. The following frequency bands are identified for use by high-density applications in the fixed-satellite service:

17.3-17.7 GHz	(space-to-Earth)
19.7-20.2 GHz	(space-to-Earth)
39.5-40 GHz	(space-to-Earth)
40-40.5 GHz	(space-to-Earth)
47.5-47.9 GHz	(space-to-Earth)
48.2-48.54 GHz	(space-to-Earth)
49.44-50.2 GHz	(space-to-Earth)
and	
27.5-27.82 GHz	(Earth-to-space)
28.45-28.94 GHz	(Earth-to-space)
29.46-30 GHz	(Earth-to-space)

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 primary basis and does not establish priority among users of these bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution 143.

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

218. The use of the frequency 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.

219. In the frequency bands 20.1-20.2 GHz and 29.9-30 GHz, the provisions of No 4.10 do not apply with respect to the mobile-satellite service.

220. In the frequency 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.

221. The use of the frequency 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.

222. Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the frequency 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. Appendix 4 coordination information before this date shall use these techniques to the extent practicable.

223. (abrog. SG. 47/2018).

224. The frequency 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)). This condition shall be taken 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 frequency bands 39.5-40 GHz and 40.5-42 GHz (see Footnote 216) the potential constraints to high-density applications in the fixed service shall be further taken account.

225. Practical measures shall be taken to minimize the potential interference between stations in the fixed service and airborne stations in the radionavigation service in the frequency band 31.8-33.4 GHz, taking into account the operational needs of the airborne radar systems.

226. In the frequency band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than  $0.8^\circ$  from the beam centre shall not exceed  $-73.3$  dB(W/m<sup>2</sup>) in this band.

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

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

These equivalent power flux-density 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  $5^\circ$  should be adopted in the absence of notified information).

These values shall be applied 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. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed.

228. The power flux-density in the frequency 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 frequency band 42-42.5 GHz, 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 frequency band 42.5-43.5 GHz 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 frequency band 42.5-43.5 GHz at the site of any radio astronomy station registered as a very long baseline interferometry station.

These values shall be applied 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. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed.

229. The use of the frequency 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.

230. The power flux-density in the frequency 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.

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

232. The use of the frequency 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 power flux-density at all altitudes 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.

233. In the frequency 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  $-26 \text{ dB(W/MHz)}$ .

234. (abrog. SG. 76/2011).

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

236. (abrog. SG. 76/2011).

237. The technical and operational characteristics of stations in the radionavigation service in the 90-110 kHz band must be coordinated in such a way as to avoid harmful interference to the services provided by these stations.

238. The frequency band 283.5-325 kHz in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service.

239. The frequency band 285.3-285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis.

240. The use of the bands 415-495 kHz and 505-526.5 kHz by the maritime mobile service is limited to radiotelegraphy and may also be used for the NAVDAT system in accordance with the most recent version of Recommendation ITU-R M.2010, subject to agreement between interested and affected administrations. NAVDAT transmitting stations are limited to coast stations.

241. When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4209.5 kHz, it is strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (see Resolution 339 (Rev.WRC-97)). (WRC-97)

242. In the maritime mobile service, the frequency 490 kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles 31 and 52. In using the band 415-495 kHz for the aeronautical radionavigation service and the band 472-479 kHz for the amateur service shall not cause harmful interference to the frequency 490 kHz. (WRC-12).

243. (abrog. SG. 16/2014).

244. (abrog. SG. 16/2014).

245. (abrog. SG. 76/2011).

246. In making assignments to stations in the fixed and mobile services in the frequency bands 1850-2045 kHz, 2194-2498 kHz, 2502-2625 kHz and 2650-2850 kHz the special requirements of the maritime mobile service shall be born in mind.

247. The conditions for the use of the international distress frequencies 2174.5 kHz, 4177.5 kHz, 6268 kHz, 8376.5 kHz, 12520 kHz and 16695 kHz for narrow-band direct-printing telegraphy are prescribed in Articles 31.

248. 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).

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

250. 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 (NBDP).

251. 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).

252. The use of the bands 5900-5950 kHz, 7300-7350 kHz, 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 13570-13600 kHz, 13800-13870 kHz, 15600-15800 kHz, 17480-17550 kHz and 18900-19020 kHz by

the broadcasting service is subject to the application of the procedure of Article 12. The introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 shall be facilitated.

253. (abrog. SG. 76/2011).

254. In the frequency bands 137-138 MHz, 157.1875-157.3375 MHz, 161.7875-161.9375 MHz, 400.15-401 MHz, 1452-1492 MHz, 1525-1610 MHz, 1613.8-1626.5 MHz, 2655-2690 MHz and 21.4-22 GHz Resolution 739 applies.

255. (abrog. SG. 76/2011).

256. In using the frequencies below 8.3 kHz shall not cause harmful interference to services to which the bands above 8.3 kHz are allocated.

257. Services conducting scientific research using frequencies below 8.3 kHz shall inform the National Radio Frequency Spectrum Council who shall inform other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.

258. Use of the 8.3-11.3 kHz frequency band by stations in the meteorological aids service is limited to passive use only. In the frequency band 9-11.3 kHz, meteorological aids stations shall not claim protection from stations of the radionavigation service submitted for notification to the Bureau prior to 1 January 2013. For sharing between stations of the meteorological aids service and stations in the radionavigation service submitted for notification after this date, the most recent version of Recommendation ITU-R RS.1881 should be applied.

259. The use of the frequency bands 14-19.95 kHz, 20.05-70 kHz, 72-84 kHz and 86-90 kHz 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.

260. The maximum equivalent isotropically radiated power (e.i.r.p.) of stations in the amateur service using frequencies in the frequency band 472-479 kHz shall not exceed 1 W. This limit of e.i.r.p. may be increased to 5 W in portions of their territory which are at a distance of over 800 km from the borders the Russian Federation and Ukraine. In this frequency band, stations in the amateur service shall not cause harmful interference to, or claim protection from, stations of the aeronautical radionavigation service.

261. Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution 612 (Rev.WRC-12).

262. Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution 612.

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

264. The use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution 760. See also Resolution 224.

265. The allocation to the mobile, except aeronautical mobile, service in the frequency band 790-862 MHz is subject to agreement obtained under No. 9.21 with respect to the aeronautical radionavigation service in countries mentioned in No. 5.312. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions 224 and 749 shall apply, as appropriate.

266. The use of the frequency band 960-1164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 417.

267. The frequency band 1610-1626.5 MHz (Earth-to-space) is also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. 9.21 (WRC-12).



268. In the frequency bands 5000-5030 MHz and 5091-5150 MHz, the aeronautical mobile-satellite (R) service is subject to agreement obtained under No. 9.21 of the Radio Regulations. The use of these bands by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems.

269. The use of the frequency band 5030-5091 MHz by the aeronautical mobile (R) service is limited to internationally standardized aeronautical systems. Unwanted emissions from the aeronautical mobile (R) service in the frequency band 5030-5091 MHz shall be limited to protect RNSS system downlinks in the adjacent 5010-5030 MHz band. Until such time that an appropriate value is established in a relevant ITU-R Recommendation, the e.i.r.p. density limit of  $-75$  dBW/MHz in the frequency band 5010-5030 MHz for any AM(R)S station unwanted emission should be used (WRC-12).

270. In the frequency band 5030-5091 MHz, the aeronautical mobile-satellite (R) service is subject to coordination under No. 9.11A of the Radio Regulations. The use of this frequency band by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems.

271. The frequency band 5150-5250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations, in accordance with Resolution 418. These stations shall not claim protection from other stations operating in accordance with Article 5. Article No. 5.43A does not apply.

272. In the frequency band 15.4-15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the aeronautical radionavigation service.

273. In order to protect the radio astronomy service in the frequency band 15.35-15.4 GHz, radiolocation stations operating in the frequency band 15.4-15.7 GHz shall not exceed the power flux-density level of  $-156$  dB(W/m<sup>2</sup>) in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time.

274. Unless otherwise agreed between the administrations concerned, any station in the fixed or mobile services shall not produce a power flux-density in excess of  $-120.4$  dB(W/(m<sup>2</sup> · MHz)) at 3 m above the ground of any point of the territory of any other administration for more than 20% of the time. In conducting the calculations, administrations should use the most recent version of Recommendation ITU-R P.452 (see the most recent version of Recommendation ITU-R BO.1898) (WRC-12).

275. In the band 21.4-22 GHz, in order to facilitate the development of the broadcasting-satellite service, it is recommended not to deploy stations in the mobile service. It is recommended to limit the deployment of stations in the fixed service to point-to-point links (WRC-12).

276. (abrog. SG. 33/2021).

277. (abrog. SG. 47/2018).

278. The location of earth stations in the space research service shall maintain a separation distance of at least 54 km from the respective border(s) of neighbouring countries to protect the existing and future deployment of fixed and mobile services unless a shorter distance is otherwise agreed between the corresponding administrations. Nos. 9.17 and 9.18 do not apply.

279. Use of the frequency band 24.65-25.25 GHz by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m. (WRC-12).

280. The frequency bands 156.4875-156.5125 MHz and 156.5375-156.5625 MHz are also allocated to the fixed and land mobile services on a primary basis. The use of these bands by the fixed and land mobile services shall not cause harmful interference to nor claim protection from the maritime mobile VHF radiocommunication service.

281. Those parts of the frequency band 694-960 MHz which are allocated to the mobile service on a primary basis are identified for implementation of International Mobile Telecommunications (IMT) – see Resolutions 224, 749 and 760, as appropriate. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations.

282. The use of the frequency band 1610-1626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. 9.11A. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. 5.366 (to which No. 4.10 applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed -3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 5.366 and stations in the fixed service operating in accordance with the provisions of No. 5.359. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. 5.366.

283. The frequency 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.

284. With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. 4.10 do not apply in the frequency band 1610-1626.5 MHz. However, No. 4.10 applies in the frequency band 1610-1626.5 MHz with respect to the aeronautical radionavigation-satellite service when operating in accordance with Footnote 283, the aeronautical mobile satellite (R) service when operating in accordance with Footnote 146, and in the frequency band 1621.35-1626.5 MHz with respect to the maritime mobile-satellite service when used for GMDSS.

285. Harmful interference shall not be caused to stations of the radio astronomy service using the frequency band 1610.6-1613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. 29.13 applies). The equivalent power flux-density (epfd) produced in the frequency band 1610.6-1613.8 MHz by all space stations of a non-geostationary-satellite system in the mobile-satellite service (space-to-Earth) operating in frequency band 1613.8-1626.5 MHz shall be in compliance with the protection criteria provided in the most recent version of Recommendations ITU-R RA.769 and ITU-R RA.1513, using the methodology given in the most recent version of Recommendation ITU-R M.1583, and the radio astronomy antenna pattern described in the most recent version of Recommendation ITU-R RA.1631.

286. The use of the frequency band 1613.8-1626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. 9.11A.

287. The use of the frequency 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 frequency band 4990-5000 MHz allocated to the radio astronomy service worldwide.

288. The use of the frequency band 5091-5150 MHz by the aeronautical mobile service is limited to:

- systems operating in the aeronautical mobile (R) service and in accordance with international standards for this service, limited to surface applications at airports. Such use shall be in accordance with Resolution 748;

- aeronautical telemetry transmissions from aircraft stations in accordance with Resolution 418.

289. The use of the frequency band 7750-7900 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems (WRC-12).

290. In the frequency band 8025-8400 MHz, the Earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following values for angles of arrival ( $\theta$ ), without the consent of the affected administration:

- 135 dB(W/m<sup>2</sup>) in a 1 MHz band for  $0^\circ \leq \theta < 5^\circ$

- 135 + 0.5 ( $\theta - 5$ ) dB(W/m<sup>2</sup>) in a 1 MHz band for  $5^\circ \leq \theta < 25^\circ$

- 125 dB(W/m<sup>2</sup>) in a 1 MHz band for  $25^\circ \leq \theta \leq 90^\circ$ .

291. Aircraft stations are not permitted to transmit in the frequency band 8025-8400 MHz (WRC-97).

292. The frequency band 1718.8-1722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations (WRC-2000).

293. The frequency bands 1885-2025 MHz and 2110-2200 MHz are intended for use, on a worldwide basis, for implementation of 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 (See also Resolution 223).

294. The frequency bands 1885-1980 MHz, 2010-2025 MHz and 2110-2170 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications (IMT), in accordance with Resolution 221. This use 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 .

295. The use of the frequency 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 (Rev.WRC-2000) (WRC-07).

296. In making assignments to the mobile service in the frequency bands 2025-2110 MHz and 2200-2290 MHz, shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154-0, and shall take that Recommendation into account for the introduction of any other type of mobile system .

297. It is recommended 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.

298. The frequency bands 5250-5450 kHz and 69.9-70.5 MHz are used by the amateur service on a secondary basis.

299. For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution 752 shall apply.

300. In this frequency band individual frequencies designated for national security, are used shared by national and local alerting systems (LAS) to prevent and respond to disasters. These frequencies are defined in the standard operating procedures for cooperation between the Ministry of Interior and the operator exploiting LAS.

301. In using the frequency bands 811-821 MHz and 852-862 MHz for civil needs shall not cause harmful interference to the operation of the Ministry of Defence's radio-electronic equipment, using adjacent frequency bands.

302. The frequency 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.

303. The use of the frequency bands 161.9375-161.9625 MHz and 161.9875-162.0125 MHz by the maritime mobile-satellite (Earth-to-space) service is limited to the systems which operate in accordance with Appendix 18 of the Radio Regulations.

304. Emissions shall be confined in a band of  $\pm 25$  kHz about the standard frequency 400.1 MHz.

305. In the frequency band 403-410 MHz, Resolution 205 applies.

306. The frequency band 470-694 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme-making. Stations of the land mobile service shall not cause harmful interference to existing or planned stations operating in accordance with the tables for radio frequency spectrum allocation in countries other than those listed in footnote 5.296 of the Radio Regulations.

307. The frequency band 1087.7-1092.3 MHz is also allocated to the aeronautical mobile-satellite(R) service on a primary basis, limited to the space station reception of Automatic Dependent Surveillance-Broadcast (ADS-B) emissions from aircraft transmitters that operate in accordance with recognized international aeronautical standards. Stations operating in the aeronautical mobile-satellite (R) service shall not claim protection from stations operating in the aeronautical radionavigation service. Resolution 425 shall apply.

308. Mobile earth stations operating in the band 1660-1660.5 MHz shall not cause harmful interference to stations in the radio astronomy service.

309. Use of the frequency band 4200-4400 MHz by stations in the aeronautical mobile (R) service is reserved exclusively for wireless avionics intra-communication systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 424.

310. 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.

311. 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 of the Radio Regulations.

312. The use of the frequency band 7190-7250 MHz (Earth-to-space) by the Earth exploration-satellite service shall be limited to tracking, telemetry and command for the operation of spacecraft. Space stations operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7190-7250 MHz shall not claim protection from existing and future stations in the fixed and mobile services, and Article No. 5.43A does not apply. Article No. 9.17 applies. Additionally, to ensure protection of the existing and future deployment of fixed and mobile services, the location of earth stations supporting spacecraft in the Earth exploration-satellite service in non-geostationary orbits or geostationary orbit shall maintain a separation distance of at least 10 km and 50 km, respectively, from the respective border(s) of neighbouring countries, unless a shorter distance is otherwise agreed between the corresponding administrations.

313. Space stations on the geostationary orbit operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7190-7250 MHz shall not claim protection from existing and future stations of the space research service, and Article No. 5.43A does not apply.

314. The use of the frequency band 7375-7750 MHz by the maritime mobile-satellite service is limited to geostationary-satellite networks.

315. In the frequency band 7375-7750 MHz, earth stations in the maritime mobile-satellite service shall not claim protection from, nor constrain the use and development of, stations in the fixed and mobile, except aeronautical mobile, services. Article No. 5.43A does not apply.

316. The use of the band 7450-7550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary-satellite systems.

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

318. 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.

319. The use of the frequency bands 9200-9300 MHz and 9900-10400 MHz by the Earth exploration-satellite service (active) is limited to systems requiring necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the frequency band 9300-9900 MHz. Such use is subject to agreement to be obtained under No. 9.21 from Algeria, Saudi Arabia, Bahrain, Egypt, Indonesia, Iran (Islamic Republic of), Lebanon and Tunisia. An administration that has not replied under No. 9.52 is considered as not having agreed to the coordination request. In this case, the notifying administration of the satellite system operating in the Earth exploration-satellite service (active) may request the assistance of the Bureau under Sub-Section IID of Article 9.

320. Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2065-0 and ITU-R RS.2066-0.

321. Stations operating in the Earth exploration-satellite service (active) shall not cause harmful interference to, or claim protection from, stations of the maritime radionavigation and radiolocation services in the frequency band 9200-9300 MHz, the radionavigation and radiolocation services in the frequency band 9900-10000 MHz and the radiolocation service in the frequency band 10.0-10.4 GHz.

322. The use of the band 9300-9500 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9500-9800 MHz band.

323. In the band 9300-9800 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from, stations of the radionavigation and radiolocation services.

324. The use of the band 9800-9900 MHz by the Earth exploration-satellite service (active) and space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9300-9800 MHz band.

325. In the band 9800-9900 MHz, stations in the Earth exploration-satellite service (active) and the space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis.

326. Stations in the amateur service using the frequency band 5351.5-5366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.).

327. Frequencies in the band 5900-5950 kHz may be used by stations in the fixed service and land mobile service, communicating only within the boundary of the country in which they are located on condition that harmful interference is not caused to the broadcasting service, using the minimum power required and taking account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

328. 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.

329. Frequencies in the band 7300-7350 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. The total radiated power of each station shall not exceed 24 dBW and shall take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

330. Resolution 155 shall apply.

331. The use of the frequency band 13.4-13.65 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary-satellite systems and is subject to agreement obtained under No. 9.21 with respect to satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015.

332. Administrations shall not preclude the deployment and operation of transmitting earth stations in the standard frequency and time signal-satellite service (Earth-to-space) allocated on a secondary basis in the frequency band 13.4-13.65 GHz due to the primary allocation to FSS (space-to-Earth).

333. The allocation of the frequency band 13.4-13.65 GHz to the space research service on a primary basis is limited to:

- satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015,
- active spaceborne sensors,
- satellite systems operating in the space research service (space-to-Earth) to relay data from space stations in the geostationary-satellite orbit to associated earth stations.

Other uses of the band by the space research service are on a secondary basis.

334. In the frequency band 13.4-13.65 GHz, satellite systems in the space research service (space-to-Earth) and/or the space research service (space-to-space) shall not cause harmful interference to, nor claim protection from, stations in the fixed, mobile, radiolocation and Earth exploration-satellite (active) services.

335. In the frequency band 13.4-13.65 GHz, geostationary-satellite networks in the fixed-satellite service (space-to-Earth) shall not claim protection from space stations in the Earth exploration-satellite service (active) operating in accordance with Radio Regulations. Article No. 5.43A of the Radio Regulations does not apply. The provisions of No. 22.2 of the Radio Regulations do not apply to the Earth exploration-satellite service (active) with respect to the fixed-satellite service (space-to-Earth) in this band 13.4-13.65 GHz.

336. 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:

a) in the band 13.77-13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary orbit shall not exceed:

aa)  $4.7D + 28 \text{ dB(W/40 kHz)}$ , where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 m;

bb)  $49.2 + 20 \log(D/4.5) \text{ dB(W/40 kHz)}$ , where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m;

cc)  $66.2 \text{ dB(W/40 kHz)}$  for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m;

dd)  $56.2 \text{ dB(W/4 kHz)}$  for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater;

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 the 6 MHz band from 13.772 to 13.778 GHz.

Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions.

337. Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14-14.5 GHz without the need for prior agreement from Cyprus and Malta, within the minimum distance given in Resolution 902 (Rev.WRC-03) from these countries.

338. The use of the frequency bands 14.5-14.75 GHz by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service is limited to geostationary-satellites.

339. For the use of the frequency bands 14.5-14.75 GHz by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service, the fixed-satellite service earth stations shall have a minimum antenna diameter of 6 m and a maximum power spectral density of  $-44.5 \text{ dBW/Hz}$  at the input of the antenna. The earth stations shall be notified at known locations on land.

340. The power flux-density produced by this earth station in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service does not exceed  $-151.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$  produced at all altitudes from 0 m to 19 000 m above sea level at 22 km seaward from all coasts, defined as the low-water mark, as officially recognized by each coastal State.

341. In the frequency bands 14.50-14.75 GHz the location of earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall maintain a separation distance of at least 500 km from the border(s) of other countries unless shorter distances are explicitly agreed by those administrations. Article No. 9.17 does not apply. When applying this provision, administrations should consider the relevant parts of these Regulations and the latest relevant ITU-R Recommendations.

342. In the frequency bands 14.50-14.75 GHz earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall not constrain the future deployment of the fixed and mobile services.

343. Except for use in accordance with Resolution 163, the use of the frequency band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. Uses other than feeder links for the broadcasting-satellite service are not authorized in the frequency band 14.75-14.8 GHz.

344. Use of the band 15.43-15.63 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. 9.11A of the Radio Regulations.

345. The operation of earth stations in motion communicating with the fixed-satellite service is subject to Resolution 156.

346. The allocation to the mobile-satellite service in the band 20.1-20.2 GHz is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Operating systems in the mobile-satellite service in this band 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 Article No. 5.524 of the Radio Regulations.

347. The band 48.94-49.04 GHz is allocated to the radio astronomy service on a primary basis.

348. 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 nongeostationary 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.

349. The use of the frequency band 77.5-78 GHz by the radiolocation service shall be limited to short-range radar for ground-based applications, including automotive radars. The technical characteristics of these radars are provided in the most recent version of Recommendation ITU-R.M.2057. The provisions of Article No. 4.10 do not apply.

350. In the bands 94-94.1 GHz and 130-134 GHz, transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible (WRC-2000).

351. In the bands 105-109.5 GHz, 111.8-114.25 GHz, and 217-226 GHz, the use of is limited to space-based radio astronomy only.

352. 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  $-148 \text{ dB(W/(m}^2 \text{ MHz))}$  for all angles of arrival.

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

354. (abrog. SG. 33/2021).

355. 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 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  $-144 \text{ dB(W/(m}^2 \text{ MHz))}$  for all angles of arrival.

356. 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.

357. 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.

358. The use of the band 2025-2045 kHz by the meteorological aids service is limited to oceanographic buoy stations.

359. (abrog. SG. 33/2021).

360. (abrog. SG. 33/2021).

361. (abrog. SG. 33/2021).

362. The bands 726-753 MHz, 778-811, MHz and 822-852 MHz are allocated to the aeronautical radionavigation service and are used for national security needs.

363. The frequency band 495-505 kHz is used for the international NAVDAT system as described in the most recent version of Recommendation ITU-R M.2010. NAVDAT transmitting stations are limited to coast stations.

364. The use of the space operation service (space-to-Earth) with non-geostationary satellite short-duration mission systems in the frequency band 137-138 MHz is subject to Resolution 660. Resolution 32 applies. These systems shall not cause harmful interference to, or claim protection from, the existing services to which the frequency band is allocated on a primary basis.

365. The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (Earth-to-space) is limited to non-GSO satellite systems operating in accordance with Appendix 18.

366. The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (space-to-Earth) is limited to non-GSO satellite systems operating in accordance with Appendix 18 of the Radio Regulations. Such use is subject to agreement obtained under No. 9.21 with respect to the terrestrial services in Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, the Russian Federation, the Syrian Arab Republic, the Dem. People's Rep. of Korea, South Africa and Viet Nam.

367. The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the mobile-satellite (Earth-to-space) service is limited to receiving emissions from the automatic identification system (AIS) operating in the maritime mobile service.

368. In the frequency band 399.9-400.05 MHz, the maximum e.i.r.p. of any emission of earth stations in the mobile-satellite service shall not exceed 5 dBW in any 4 kHz band and the maximum e.i.r.p. of each earth station in the mobile-satellite service shall not exceed 5 dBW in the whole 399.9-400.05 MHz frequency band. Until 22 November 2022, this limit shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2022, these limits shall apply to all systems within the mobile-satellite service operating in this frequency band. In the frequency band 399.99-400.02 MHz, the e.i.r.p. limits as specified above shall apply after 22 November 2022 to all systems within the mobile-satellite service. After 22 November 2019 the mobile-satellite service satellite links in the 399.99-400.02 MHz frequency band shall comply with the e.i.r.p. limits as specified above.

369. In the frequency band 400.02-400.05 MHz, the provisions of Footnote 368 are not applicable for telecommand uplinks within the mobile-satellite service.

370. In the frequency band 401-403 MHz, the maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 22 dBW in any 4 kHz band for geostationary systems and non-geostationary systems with an orbit of apogee equal or greater than 35 786 km. The maximum e.i.r.p. of any emission of each earth station in the meteorological satellite service and the Earth exploration-satellite service shall not exceed 7 dBW in any 4 kHz band for non-geostationary systems with an orbit of apogee lower than 35 786 km. The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 22 dBW for geostationary systems and nongeostationary systems with an orbit of apogee equal or greater than 35 786 km in the whole 401-403 MHz frequency band. The maximum e.i.r.p. of each earth station in the meteorological satellite service and the Earth exploration-satellite service shall not exceed 7 dBW for non-geostationary systems with an orbit of apogee lower than 35 786 km in the whole 401-403 MHz frequency band. Until 22 November 2029, these limits shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2029, these limits shall apply to all systems within the meteorological-satellite service and the Earth exploration-satellite service operating in this frequency band.

371. Non-geostationary satellite systems in the meteorological-satellite service and the Earth exploration-satellite service for which complete notification information has been received by the Radiocommunication Bureau before 28 April 2007 are exempt from provisions of Footnote 370 and may continue to operate in the



frequency band 401.898-402.522 MHz on a primary basis without exceeding a maximum e.i.r.p. level of 12 dBW.

372. Maritime mobile earth stations receiving in the frequency band 1621.35-1626.5 MHz shall not impose additional constraints on earth stations operating in the maritime mobile-satellite service or maritime earth stations of the radiodetermination-satellite service operating in accordance with the Radio Regulations in the frequency band 1610-1621.35 MHz or on earth stations operating in the maritime mobile-satellite service operating in accordance with the Radio Regulations in the frequency band 1626.5-1660.5 MHz, unless otherwise agreed between the notifying administrations.

373. Maritime mobile earth stations receiving in the frequency band 1621.35-1626.5 MHz shall not impose constraints on the assignments of earth stations of the mobile satellite service (Earth-to-space) and the radiodetermination-satellite service (Earth-to-space) in the frequency band 1621.35-1626.5 MHz in networks for which complete coordination information has been received by the Radiocommunication Bureau before 28 October 2019.

374. The operation of earth stations in motion communicating with geostationary fixed satellite service space stations within the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) shall be subject to the application of Resolution 169.

375. The frequency band 24.25-27.5 GHz is identified for use by the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution 242 applies.

376. The allocation to the fixed service in the frequency band 31-31.3 GHz is identified for worldwide use by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution 167.

377. The use of the frequency band 137.175-137.825 MHz by non-geostationary satellite systems in the space operation service identified as short-duration mission in accordance with Appendix 4 of the Radio Regulations is not subject to No. 9.11A.

378. The frequency band 37-43.5 GHz, or portions thereof, is identified for use by the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Because of the potential deployment of FSS earth stations within the frequency range 37.5-42.5 GHz and high-density applications in the fixed-satellite service in the frequency bands 39.5-40 GHz and 40-40.5 GHz should further take into account potential constraints to IMT in these frequency bands, as appropriate. Resolution 243 applies.

379. The use of the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed satellite service is subject to the application of the provisions of No. 9.12 for coordination with other non-geostationary satellite systems in the fixed-satellite service but not with non-geostationary-satellite systems in other services. Resolution 770 and No. 22.2 apply.

380. The allocation to the fixed service in the frequency band 38-39.5 GHz is identified for worldwide use by administrations wishing to implement high-altitude platform stations (HAPS). In the HAPS-to-ground direction, the HAPS ground station shall not claim protection from stations in the fixed, mobile and fixed-satellite services; and No. 5.43A does not apply. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis. Furthermore, the development of the fixed-satellite, fixed and mobile services shall not be unduly constrained by HAPS. Such use of the fixed service allocation by HAPS shall be in accordance with the provisions of Resolution 168.

381. The use of the frequency bands 39.5-40 GHz and 40-40.5 GHz by non-geostationary-satellite systems in the mobile-satellite service (space-to-Earth) and by non-geostationary-satellite systems in the fixed-satellite service (space-to-Earth) is subject to the application of the provisions of No. 9.12 for coordination with other

non-geostationary satellite systems in the fixed-satellite and mobile-satellite services but not with non-geostationary-satellite systems in other services. No. 22.2 apply for non-geostationary-satellite-systems.

382. The frequency band 66-71 GHz is identified for use by International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which this frequency band is allocated and does not establish priority in the Radio Regulations. Resolution 241 applies.

383. For the operation of fixed and land mobile service applications in frequency bands in the range 275-450 GHz:

The frequency bands 275-296 GHz, 306-313 GHz, 318-333 GHz and 356-450 GHz are identified for the implementation of land mobile and fixed service applications, where no specific conditions are necessary to protect Earth exploration-satellite service (passive) applications. The frequency bands 296-306 GHz, 313-318 GHz and 333-356 GHz may only be used by fixed and land mobile service applications when specific conditions to ensure the protection of Earth exploration-satellite service (passive) applications are determined in accordance with Resolution 731.

In those portions of the frequency range 275-450 GHz where radio astronomy applications are used, specific conditions (e.g. minimum separation distances and/or avoidance angles) may be necessary to ensure protection of radio astronomy sites from land mobile and/or fixed service applications, on a case-by-case basis in accordance with Resolution 731.

The use of the frequency bands by land mobile and fixed service applications does not preclude use by, and does not establish priority over, any other applications of radio services in the range of 275-450 GHz.

384. The frequency band 148-149.9 MHz in the space operation service (Earth-to-space) may be used by non-geostationary satellite systems with short-duration missions. Non-geostationary satellite systems in the space operation service used for a short-duration mission in accordance with Resolution 32 of the Radio Regulations are not subject to agreement under No. 9.21. At the stage of coordination, the provisions of Nos. 9.17 and 9.18 also apply. In the frequency band 148-149.9 MHz, non-geostationary satellite systems with short-duration missions shall not cause unacceptable interference to, or claim protection from, existing primary services within this frequency band, or impose additional constraints on the space operation and mobile satellite services. In addition, earth stations in non-geostationary satellite systems in the space operation service with short-duration missions in the frequency band 148-149.9 MHz shall ensure that the power fluxdensity does not exceed  $-149 \text{ dB(W)/(m}^2 \cdot 4 \text{ kHz)}$  for more than 1% of time at the border of the territory of the following countries: Armenia, Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, Russian Federation, India, Iran (Islamic Republic of), Japan, Kazakhstan, Malaysia, Uzbekistan, Kyrgyzstan, Thailand and Viet Nam. In case this power flux-density limit is exceeded, agreement under No. 9.21 is required to be obtained from these countries.

385. The use of the frequency band 51.4-52.4 GHz by the fixed-satellite service (Earth-to-space) is limited to geostationary-satellite networks. The earth stations shall be limited to gateway earth stations with a minimum antenna diameter of 2.4 metres.