



Besluit van de Minister van Economische Zaken en Klimaat van 1 november 2023, nr. BI / 38138278, houdende wijziging van het Nationaal Frequentieplan 2014 (implementatie WRC-19, ECC-besluiten en recommandaties, enkele wijzigingen t.b.v. overheidsgebruik en wijzigingen in de 3.8–4.2 en 26 GHz-banden).

De Minister van Economische Zaken en Klimaat;

Gelet op artikel 3.1 van de Telecommunicatiewet;

Besluit:

ARTIKEL I

De bijlage bij het besluit van de Minister van Economische Zaken van 3 november 2014, DGETM-TM / 14179469, houdende vaststelling van het Nationaal Frequentieplan 2014 (Nationaal Frequentieplan 2014) wordt als volgt gewijzigd:

A

Hoofdstuk 5 wordt als volgt gewijzigd:

1. In de paragraaf '5.3. Zonder vergunning, onder voorwaarden' worden de laatste twee volzinnen vervangen door: De verplichte radio-interfaces voor deze banden zijn gepubliceerd in de Regeling gebruik van frequentieruimte zonder vergunning en zonder meldingsplicht 2015 wat in de tabel wordt aangeduid met 'Zonder vergunning, onder voorwaarden'.

2. In de paragraaf '5.4 Zonder vergunning, onder voorwaarden met meldingsplicht' wordt de laatste volzin vervangen door: Voor de in deze paragraaf besproken categorieën zijn de betreffende voorschriften gepubliceerd in de Regeling gebruik van frequentieruimte met meldingsplicht 2015.

B

De paragraaf '7.1 De veranderingen in de frequentietabel en notatie', onderdeel g., wordt als volgt gewijzigd:

1. Het tekstgedeelte 'Regeling (artikel 2, lid2.m)', wordt vervangen door: 'Regeling (artikel 2, lid2.o)'

2. De laatste volzin wordt vervangen door: In zijn algemeenheid is tussen het NFP en de Regeling gebruik van frequentieruimte zonder vergunning en zonder meldingsplicht 2015 een sterkere aansluiting aangebracht qua verwijzing naar de categorieën (de lijst onder artikel 2.2 van de regeling) door over en weer dezelfde termen te gebruiken.

C

De paragraaf '8.2. 'Ultra Wideband' (UWB) toepassingen', wordt vervangen door de volgende paragraaf:

8.2 Bijzondere vergunningvrije toepassingen

8.2.1 'Ultra Wideband' (UWB)-toepassingen

Ultra Wideband-toepassingen voor radiocommunicatie worden vergunningvrij toegelaten op interferentievrije en onbeschermd basis, zgn. non-interference basis (NIB), voor zover ze voldoen aan de uitgestraalde vermogenslimieten en andere voorwaarden genoemd in de Regeling gebruik van frequentieruimte zonder vergunning en zonder meldingsplicht 2015.



8.2.2 Nuclear Magnetic Resonance (NMR) toepassingen

Nuclear Magnetic Resonance toepassingen voor radiodeterminatie worden vergunningvrij toegelaten op interferentievrije en onbeschermd basis, non-interference basis (NIB), in de frequentiebereik 9 kHz – 130 MHz voor zover ze voldoen aan de voorwaarden genoemd in de Regeling gebruik van frequentieruimte zonder vergunning en zonder meldingsplicht 2015.

D

In paragraaf '8.5 Testinstellingen' wordt het tekstgedeelte 'EMC-richtlijn (richtlijn 2004/108/EG van het Europees Parlement en de Raad van 15 december 2004 betreffende de onderlinge aanpassing van de wetgevingen van de lidstaten inzake elektromagnetische compatibiliteit en tot intrekking van Richtlijn 89/336/EEG, Pb EU L 390/24)22', vervangen door 'EMC-richtlijn (RICHTLIJN 2014/30/EU VAN HET EUROPEES PARLEMENT EN DE RAAD van 26 februari 2014 betreffende de harmonisatie van de wetgevingen van de lidstaten inzake elektromagnetische compatibiliteit (herschikking), Pb EU L 96/79 van 29.3.2014)'

E

In hoofdstuk 9, paragraaf 'Verdeelmechanisme', wordt 'Regeling gebruik van frequentieruimte zonder vergunning 2008' vervangen door 'Regeling gebruik van frequentieruimte zonder vergunning en zonder meldingsplicht 2015'.

F

In de frequentietabel worden de regels, luidende:

Bandgrens		ITU dienst	Bestemming	Verdeelmechanisme
405	kHz			
		RNS	Radionavigatie, NDB HOL001	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
415	kHz			

Vervangen door:

Bandgrens		ITU dienst	Bestemming	Verdeelmechanisme
405	kHz			
		RNS	Radionavigatie, NDB 5.76 HOL001	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
415	kHz			

G

In de frequentietabel worden de regels, luidende:

495	kHz			
		MMS	Maritiemmobiele communicatie HOL001	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
505	kHz			

Vervangen door:

495	kHz			
		MMS	Maritiemmobiele communicatie 5.82C HOL001	Verdeling is aangehouden.
505	kHz			



H

In de frequentietabel worden de regels, luidende:

50	MHz			
		MS	Mobiele communicatie. Video-overdracht op metrostations 5.162A 5.164	Aangewezen voor Defensie. Vergunningverlening voor video-overdracht op metrostations op volgorde van binnenkomst van de aanvraag.
		as	Amateur 5.162A 5.164	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
52	MHz			

Vervangen door:

50	MHz			
		MS	Mobiele communicatie. Video-overdracht op metrostations 5.162A 5.164	Aangewezen voor Defensie. Vergunningverlening voor video-overdracht op metrostations op volgorde van binnenkomst van de aanvraag.
		AS	Amateur 5.162A 5.164 5.166A 5.166B 5.166C	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
50,5	MHz			
		MS	Mobiele communicatie. Video-overdracht op metrostations 5.162A 5.164	Aangewezen voor Defensie. Vergunningverlening voor video-overdracht op metrostations op volgorde van binnenkomst van de aanvraag.
		as	Amateur 5.162A 5.164 5.166B 5.166C	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
52	MHz			

I

In de frequentietabel worden de regels, luidende:

70,5	MHz			
		LMS	Landmobiele communicatie 5.149	Aangewezen voor Defensie & Justitie en Veiligheid.
		RAS	Radio-astronomie	Aangewezen voor Onderwijs, Cultuur en Wetenschap
74,8	MHz			

Vervangen door:

70,5	MHz			
		LMS	Landmobiele communicatie 5.149	Aangewezen voor Defensie.
		RAS	Radio-astronomie	Aangewezen voor Onderwijs, Cultuur en Wetenschap.
74,8	MHz			



J

In de frequentietabel worden de regels, luidende:

84	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart, portofonen	Aangewezen voor Justitie en Veiligheid en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
87,5	MHz			
		BS	Omroep, HOL005 HOL007	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL005A
		/bs/	Laagvermogen omroep, HOL003	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortereafstandapparatuur & hoog frequent-installaties in tunnels	Zonder vergunning, onder voorwaarden.
100	MHz			
		BS	Omroep, HOL005 HOL007	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets.
		/bs/	Laagvermogen omroep, HOL003	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortereafstandapparatuur & hoog frequent-installaties in tunnels	Zonder vergunning, onder voorwaarden.
104,9	MHz			
		BS	Omroep	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL005A
		/bs/	Laagvermogen omroep, HOL003	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortereafstandapparatuur & hoog frequent-installaties in tunnels	Zonder vergunning, onder voorwaarden.
108	MHz			

Vervangen door:

84	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
87,5	MHz			
		BS	Omroep, HOL005 HOL007	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL005A
		/bs/	Laagvermogen omroep, HOL003	Vergunningverlening op volgorde van binnenkomst van de aanvraag.

		/ms/	Mobiele communicatie, kortefstandapparatuur. Hoogfrequent-installaties in wegtunnels	Kortefstandapparatuur zonder vergunning, onder voorwaarden. Hoogfrequent-installaties in wegtunnels zonder vergunning.
100	MHz			
		BS	Omroep, HOL005 HOL007	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets.
		/bs/	Laagvermogen omroep, HOL003	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortefstandapparatuur. Hoogfrequent-installaties in wegtunnels	Kortefstandapparatuur zonder vergunning, onder voorwaarden. Hoogfrequent-installaties in wegtunnels zonder vergunning.
104,9	MHz			
		BS	Omroep	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL005A
		/bs/	Laagvermogen omroep, HOL003	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortefstandapparatuur. Hoogfrequent-installaties in wegtunnels	Kortefstandapparatuur zonder vergunning, onder voorwaarden. Hoogfrequent-installaties in wegtunnels zonder vergunning.
108	MHz			

K

In de frequentietabel worden de regels, luidende:

137	MHz			
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.208	Vergunningverlening is niet van toepassing.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde) 5.208 5.208A 5.208B 5.209	Vergunningverlening is niet van toepassing.
137,025	MHz			
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.208	Vergunningverlening is niet van toepassing.
		mss_se	Mobiele satellietverbindingen (ruimte naar aarde) 5.208 5.208A 5.208B 5.209	Vergunningverlening is niet van toepassing.
137,175	MHz			
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.208	Vergunningverlening is niet van toepassing.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde) 5.208 5.208A 5.208B 5.209	Vergunningverlening is niet van toepassing.
137,825	MHz			
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.208	Vergunningverlening is niet van toepassing.
		mss_se	Mobiele satellietverbindingen (ruimte naar aarde) 5.208 5.208A 5.208B 5.209	Vergunningverlening is niet van toepassing.



138	MHz			
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Vervangen door:

137	MHz			
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.208	Vergunningverlening is niet van toepassing.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde) 5.208 5.208A 5.208B 5.209	Vergunningverlening is niet van toepassing.
		SOS_SE	Ruimtevaartactiviteit (ruimte naar aarde) 5.203C	Vergunningverlening is niet van toepassing.
137,025	MHz			
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.208	Vergunningverlening is niet van toepassing.
		SOS_SE	Ruimtevaartactiviteit (ruimte naar aarde) 5.203C	Vergunningverlening is niet van toepassing.
		mss_se	Mobiele satellietverbindingen (ruimte naar aarde) 5.208 5.208A 5.208B 5.209	Vergunningverlening is niet van toepassing.
137,175	MHz			
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.208	Vergunningverlening is niet van toepassing.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde) 5.208 5.208A 5.208B 5.209	Vergunningverlening is niet van toepassing.
		SOS_SE	Ruimtevaartactiviteit (ruimte naar aarde) 5.203C	Vergunningverlening is niet van toepassing.
137,825	MHz			
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.208	Vergunningverlening is niet van toepassing.
		SOS_SE	Ruimtevaartactiviteit (ruimte naar aarde) 5.203C	Vergunningverlening is niet van toepassing.
		mss_se	Mobiele satellietverbindingen (ruimte naar aarde) 5.208 5.208A 5.208B 5.209	Vergunningverlening is niet van toepassing.
138	MHz			

L

In de frequentietabel worden de regels, luidende:

148	MHz			
		LMS	Landmobiele communicatie 5.219 5.221	Aangewezen voor Justitie en Veiligheid en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte). Randapparaten 5.209 5.219 5.221	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Eindapparaten zonder vergunning.
149,9	MHz			

Vervangen door:

148	MHz			
		LMS	Landmobiele communicatie 5.218A 5.219 5.221	Aangewezen voor Justitie en Veiligheid en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.



		MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte). Eindapparaten 5.209 5.218A 5.219 5.221	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Eindapparaten zonder vergunning.
		SOS_ES	Ruimtevaartactiviteit (aarde naar ruimte) 5.218 5.218A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
149,9	MHz			

M

In de frequentietabel worden de regels, luidende:

156,4875	MHz			
		MMS	Maritiemmobiele communicatie. Bijzonder gebruik maritieme frequenties 5.111 5.226 5.227	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
156,5625	MHz			

Vervangen door:

156,4875	MHz			
		MMS	Maritiemmobiele communicatie. DSC-AMRD. Bijzonder gebruik maritieme frequenties 5.111 5.226 5.227	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht. DSC-AMRD zonder vergunning onder voorwaarden.
156,5625	MHz			

N

In de frequentietabel worden de regels, luidende:

156,8375	MHz			
		MMS	Maritiemmobiele communicatie. Bijzonder gebruik maritieme frequenties 5.226	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
158,04	MHz			

Vervangen door:

156,8375	MHz			
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		MMS	Maritiemmobilie communicatie. Bijzonder gebruik maritieme frequenties 5.226	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobilie gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
157,1875	MHz			
		MMS	Maritiemmobilie communicatie. Bijzonder gebruik maritieme frequenties 5.226	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobilie gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
		mmss_es	Maritiemmobilie satellietverbindingen (aarde naar ruimte) 5.208A 5.208B 5.226 5.228AB 5.228AC	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobilie gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
157,3375	MHz			
		MMS	Maritiemmobilie communicatie. Bijzonder gebruik maritieme frequenties 5.226	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobilie gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
158,04	MHz			

O

In de frequentietabel worden de regels, luidende:

160,6	MHz			
		MMS	Maritiemmobilie communicatie. Bijzonder gebruik maritieme frequenties 5.226	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobilie gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
161,9375	MHz			
		MMS	Maritiemmobilie communicatie 5.226	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobilie gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
		MMSS_ES	Maritiemmobilie satellietverbindingen (aarde naar ruimte) 5.228AA 5.226	Maritiemmobilie gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
161,9625	MHz			



		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.226 5.228A 5.228B	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte), AIS 5.226 5.228A 5.228B 5.228F	Vergunningverlening is niet van toepassing.
161,9875	MHz			

Vervangen door:

160,6	MHz			
		MMS	Maritiemmobiele communicatie. Bijzonder gebruik maritieme frequenties. AMRD 5.226	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht. AMRD zonder vergunning, onder voorwaarden.
161,7875	MHz			
		MMS	Maritiemmobiele communicatie. Bijzonder gebruik maritieme frequenties 5.226	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
		mmss_es	Maritiemmobiele satellietverbindingen (aarde naar ruimte) 5.208A 5.208B 5.226 5.228AB 5.228AC	Vergunningverlening is niet van toepassing.
161,9375	MHz			
		MMS	Maritiemmobiele communicatie. Bijzonder gebruik maritieme frequenties. 5.226	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Vergunningen voor bijzonder gebruik maritieme frequenties op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
		mmss_es	Maritiemmobiele satellietverbindingen (aarde naar ruimte) 5.228AA 5.226	Vergunningverlening is niet van toepassing.
161,9625	MHz			
		MMS	Maritiemmobiele communicatie. AIS-AMRD 5.226 5.228A 5.228B	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht. AIS-AMRD zonder vergunning onder voorwaarden.
		mmss_es	Maritiemmobiele satellietverbindingen (aarde naar ruimte), AIS 5.226 5.228A 5.228B 5.228F	Vergunningverlening is niet van toepassing.
161,9875	MHz			



P

In de frequentietabel worden de regels, luidende:

162,0125	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart, Maritiemmobil 5.226 5.228A 5.228B	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobil gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte), AIS 5.226 5.228A 5.228B 5.228F	Vergunningverlening is niet van toepassing.
162,0375	MHz			

Vervangen door:

162,0125	MHz			
		MMS	Maritiemmobilie communicatie. AIS-AMRD 5.226 5.228A 5.228B	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobil gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht. AIS-AMRD zonder vergunning onder voorwaarden.
		mmss_es	Maritiemmobilie satellietverbindingen (aarde naar ruimte), AIS 5.226 5.228A 5.228B 5.228F	Vergunningverlening is niet van toepassing.
162,0375	MHz			

Q

In de frequentietabel worden de regels, luidende:

174	MHz			
		BS	Digitale omroep HOL006 HOL007	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL002A HOL006A HOL007A
		lms	Landmobiele communicatie, besloten netten & DAV	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortefstandapparatuur	Zonder vergunning, onder voorwaarden.
223	MHz			
		BS	Digitale omroep	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL002A
		lms	Landmobiele communicatie, besloten netten & DAV	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
225	MHz			
		BS	Digitale omroep	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL002A HOL006A HOL007A



		ms	Mobiele communicatie	Aangewezen voor Defensie.
230	MHz			

Vervangen door:

174	MHz			
		BS	Digitale omroep HOL006 HOL007	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL002A HOL006A HOL007A
		lms	Landmobiele communicatie, besloten netten & DAV	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie. Korteafstandapparatuur. Hoogfrequent-installaties in wegtunnels	Korteafstandapparatuur zonder vergunning, onder voorwaarden. Hoogfrequent-installaties in wegtunnels zonder vergunning.
223	MHz			
		BS	Digitale omroep	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL002A
		lms	Landmobiele communicatie, besloten netten & DAV	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, hoogfrequent-installaties in wegtunnels	Zonder vergunning.
225	MHz			
		BS	Digitale omroep	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets. HOL002A HOL006A HOL007A
		ms	Mobiele communicatie	Aangewezen voor Defensie.
		/ms/	Mobiele communicatie, hoogfrequent-installaties in wegtunnels	Zonder vergunning.
230	MHz			

R

In de frequentietabel worden de regels, luidende:

399,9	MHz			
		MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte), eindapparaten 5.209 5.220 5.224A	Eindapparaten zonder vergunning.
400,05	MHz			

Vervangen door:

399,9	MHz			
		MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte), eindapparaten 5.209 5.220 5.260A 5.260B	Eindapparaten zonder vergunning.
400,05	MHz			



S

In de frequentieband worden de regels, luidende:

400,15	MHz			
		MAS	Meteorologische waarnemingen 5.264	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.264	Vergunningverlening is niet van toepassing.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde), eindapparaten 5.208A 5.209 5.264	Eindapparaten zonder vergunning.
401	MHz			

Vervangen door:

400,15	MHz			
		MAS	Meteorologische waarnemingen 5.264	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.264	Vergunningverlening is niet van toepassing.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde), eindapparaten 5.208A 5.209 5.264	Eindapparaten zonder vergunning.
		ms	Mobiele communicatie, ontwikkeling en testen onbemande voer-, vlieg- en vaartuigen 5.264	Beperkte vergunningverlening op volgorde van binnenkomst van de aanvraag.
401	MHz			

T

In de frequentietabel worden de regels, luidende:

401	MHz			
		MAS	Meteorologische waarnemingen	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ms_ex_ams	Mobiele communicatie met uitzondering van de luchtvaart	Aangewezen voor publieke taken.
		/ms/	Mobiele communicatie, kortefstandapparatuur	Zonder vergunning, onder voorwaarden.
402	MHz			
		MAS	Meteorologische waarnemingen	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ms_ex_ams	Mobiele communicatie met uitzondering van de luchtvaart	Aangewezen voor publieke taken.
		/ms/	Mobiele communicatie, kortefstandapparatuur	Zonder vergunning, onder voorwaarden.
403	MHz			

Vervangen door:

401	MHz			
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		MAS	Meteorologische waarnemingen 5.264A 5.264B	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ms_ex_ams	Mobiele communicatie met uitzondering van de luchtvaart 5.264A 5.264B	Aangewezen voor publieke taken.
		eess_a	Aarde- en atmosfeeronderzoek (actief)	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortefstandapparatuur 5.264A 5.264B	Zonder vergunning, onder voorwaarden.
402	MHz			
		MAS	Meteorologische waarnemingen 5.264A 5.264B	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ms_ex_ams	Mobiele communicatie met uitzondering van de luchtvaart 5.264A 5.264B	Aangewezen voor publieke taken.
		eess_a	Aarde- en atmosfeeronderzoek (actief)	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortefstandapparatuur 5.264A 5.264B	Zonder vergunning, onder voorwaarden.
403	MHz			

U

In de frequentietabel worden de regels, luidende'

430	MHz			
		AS	Amateur	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		rls	Radioplaatsbepaling	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
432	MHz			
		AS	Amateur 5.138 5.282	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		eess_a	Aarde- en atmosfeeronderzoek (actief) 5.138 5.279A 5.282	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		rls	Radioplaatsbepaling 5.138 5.282	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortefstandapparatuur 5.138 5.282	Zonder vergunning, onder voorwaarden.
436	MHz			
		RLS	Radioplaatsbepaling	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		as	Amateur 5.282	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		eess_a	Aarde- en atmosfeeronderzoek (actief) 5.279A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
438	MHz			



		RLS	Radioplaatsbepaling, DGPS	Aangewezen voor Defensie & Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		as	Amateur	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
440	MHz			

Vervangen door:

430	MHz			
		AS	Amateur	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		rls	Radioplaatsbepaling	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
432	MHz			
		AS	Amateur 5.138 5.282	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		eess_a	Aarde- en atmosfeeronderzoek (actief) 5.138 5.279A 5.282	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		rls	Radioplaatsbepaling 5.138 5.282	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.138 5.282	Zonder vergunning, onder voorwaarden.
436	MHz			
		RLS	Radioplaatsbepaling	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		as	Amateur 5.282	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		eess_a	Aarde- en atmosfeeronderzoek (actief) 5.279A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
438	MHz			
		RLS	Radioplaatsbepaling, DGPS	Aangewezen voor Defensie & Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		as	Amateur	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
440	MHz			



V

In de frequentietabel worden de regels, luidende:

614	MHz			
		BS	Omroep, DVB-T (tot 1 januari 2020) & DVB-T2 5.296	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets.
		lms	Landmobiele communicatie, DAV, reportageverbindingen 5.296	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.296	Zonder vergunning, onder voorwaarden.
698	MHz			

Vervangen door:

614	MHz			
		BS	Omroep, DVB-T2 5.296	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets.
		lms	Landmobiele communicatie, DAV, reportageverbindingen 5.296	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.296	Zonder vergunning, onder voorwaarden.
694	MHz			
		lms	Landmobiele communicatie, DAV, reportageverbindingen 5.296	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.296	Zonder vergunning, onder voorwaarden.
698	MHz			

W

In de band 758 MHz, in de kolom bestemming wordt 'installies' vervangen door 'installaties'.

X

In de frequentietabel worden de regels, luidende:

862	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart	Vergunningverlening is onderwerp van studie.
863	MHz			
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
870	MHz			

Vervangen door:

862	MHz			
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.



870	MHz		
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Y

In de frequentietabel worden de regels, luidende:

1613,8	MHz			
		ARNS	Luchtvaart radionavigatie 5.341 5.359 5.365 5.366 5.367 5.368 5.372	Aangewezen voor Infrastructuur en Milieu.
		MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte). Eindapparaten 5.341 5.351A 5.359 5.365 5.366 5.367 5.368 5.372	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Eindapparaten zonder vergunning.
		mss_se	Mobiele satellietverbindingen (ruimte naar aarde) 5.208B 5.341 5.359 5.365 5.366 5.367 5.368 5.372	Vergunningverlening is niet van toepassing.
1626,5	MHz			

Vervangen door:

1613,8	MHz			
		ARNS	Luchtvaart radionavigatie 5.341 5.359 5.365 5.366 5.367 5.368 5.372	Aangewezen voor Infrastructuur en Waterstaat.
		MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte). Eindapparaten 5.341 5.351A 5.359 5.365 5.366 5.367 5.368 5.372	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Eindapparaten zonder vergunning.
		mss_se	Mobiele satellietverbindingen (ruimte naar aarde) 5.208B 5.341 5.359 5.365 5.366 5.367 5.368 5.372	Vergunningverlening is niet van toepassing.
1621,35	MHz			
		ARNS	Luchtvaart radionavigatie 5.341 5.359 5.365 5.366 5.367 5.368 5.372	Aangewezen voor Infrastructuur en Waterstaat.
		MMSS_SE	Maritiem mobiele satellietverbindingen (ruimte naar aarde) 5.208B 5.341 5.359 5.365 5.366 5.367 5.368 5.372 5.373 5.373A	Vergunningverlening is niet van toepassing.
		MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte). Eindapparaten 5.341 5.351A 5.359 5.365 5.366 5.367 5.368 5.372	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Eindapparaten zonder vergunning.
		mss_se	Mobiele satellietverbindingen, met uitzondering van maritiem mobiele satellietverbindingen (ruimte naar aarde) 5.208B 5.341 5.359 5.365 5.366 5.367 5.368 5.372	Vergunningverlening is niet van toepassing.
1626,5	MHz			

Z

In de frequentietabel worden de regels, luidende:

1670	MHz			
		MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte) 5.341 5.351A 5.379B	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Eindapparaten zonder vergunning.
1675	MHz			

Vervangen door:



1670	MHz			
		MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte). Eindapparaten 5.341 5.351A 5.379B	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Eindapparaten zonder vergunning.
1675	MHz			

AA

In de frequentietabel worden de regels, luidende:

2500	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. Mobiel elektronisch communicatienetwerk aan boord van schepen. Eindapparaten 5.384A	Vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden. Eindapparaten zonder vergunning.
2520	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. Mobiel elektronisch communicatienetwerk aan boord van schepen. Eindapparaten 5.339 5.384A	Vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden. Eindapparaten zonder vergunning.
2655	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. Mobiel elektronisch communicatienetwerk aan boord van schepen. Eindapparaten 5.149 5.384A	Aangewezen voor Onderwijs, Cultuur en Wetenschap en overigens vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden. Eindapparaten zonder vergunning.
2670	MHz			

Vervangen door:

2500	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. Mobiel elektronisch communicatienetwerk aan boord van schepen. Eindapparaten 5.384A	Vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden. Eindapparaten zonder vergunning, onder voorwaarden.
2520	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. Mobiel elektronisch communicatienetwerk aan boord van schepen. Eindapparaten 5.339 5.384A	Vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden. Eindapparaten zonder vergunning, onder voorwaarden.
2655	MHz			



		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. Mobiel elektronisch communicatienetwerk aan boord van schepen. Eindapparaten 5.149 5.384A	Aangewezen voor Onderwijs, Cultuur en Wetenschap en overigens vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden. Eindapparaten zonder vergunning, onder voorwaarden.
2670	MHz			

AB

In de frequentietabel worden de regels, luidende:

3800	MHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
4200	MHz			

Vervangen door:

3800	MHz			
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) HOL008C	Vergunningverlening is niet van toepassing.
4200	MHz			

AC

In de frequentietabel worden de regels, luidende:

5030	MHz			
		AMRS	Luchtvaartmobiele vluchtveiligheid (route) 5.443C 5.444	Aangewezen voor Infrastructuur en Milieu en overigens is verdeling aangehouden.
		AMSRS	Luchtvaartmobiele satellietverbindingen (route) 5.443D 5.444	Verdeling is aangehouden.
		ARNS	Luchtvaart radionavigatie, MLS 5.444	Aangewezen voor Infrastructuur en Milieu.
5091	MHz			

Vervangen door:

5030	MHz			
		AMRS	Luchtvaartmobiele vluchtveiligheid (route) 5.443C 5.444	Aangewezen voor Infrastructuur en Waterstaat en overigens is verdeling aangehouden.
		AMSRS	Luchtvaartmobiele satellietverbindingen (route) 5.443D 5.444	Verdeling is aangehouden.
		ARNS	Luchtvaart radionavigatie, MLS 5.444	Aangewezen voor Infrastructuur en Waterstaat.
		ms	Mobiele communicatie, onbemande luchtvaartuigen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
5091	MHz			



AD

In de frequentietabel worden de regels, luidende:

5150	MHz			
		AMRS	Luchtvaartmobile vluchtveiligheid (route) 5.446C 5.447B 5.447C	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.446C 5.447A 5.447B 5.447C	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.446A 5.446B 5.446C 5.447B 5.447C	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
5250	MHz			

Vervangen door:

5150	MHz			
		AMRS	Luchtvaartmobile vluchtveiligheid (route) 5.446C 5.447B 5.447C	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ARNS	Luchtvaart radionavigatie 5.446C 5.447B 5.447C	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.446C 5.447A 5.447B 5.447C	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.446A 5.446B 5.446C 5.447B 5.447C	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
5250	MHz			

AE

In de frequentietabel worden de regels, luidende:

5350	MHz			
		EESS_A	Aarde- en atmosfeeronderzoek (actief)	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ARNS	Luchtvaart radionavigatie 5.449	Aangewezen voor Infrastructuur en Milieu.
		RLS	Radioplaatsbepaling 5.448D	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
5460	MHz			

Vervangen door:

5350	MHz			
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		EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.448B	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ARNS	Luchtvaart radionavigatie 5.449	Aangewezen voor Infrastructuur en Waterstaat.
		RLS	Radioplaatsbepaling 5.448D	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
5460	MHz			

AF

In de frequentietabel worden de regels, luidende:

7450	MHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
		METS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.461A	Vergunningverlening is niet van toepassing.
		MMSS_SE	Maritiem mobiele satellietcommunicatie (ruimte naar aarde) 5.461AA 5.461AB	Vergunningverlening is niet van toepassing.
7550	MHz			

Vervangen door:

7450	MHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
		METS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.461A	Vergunningverlening is niet van toepassing.
		MMSS_SE	Maritiem mobiele satellietcommunicatie (ruimte naar aarde) 5.461AA 5.461AB	Vergunningverlening is niet van toepassing.
7550	MHz			

AG

In de frequentietabel worden de regels, luidende:

7750	MHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MLSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.461B	Vergunningverlening is niet van toepassing.
7900	MHz			

Vervangen door:

7750	MHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.



		METSS_SE	Meteorologische satellietwaarnemingen (ruimte naar aarde) 5.461B	Vergunningverlening is niet van toepassing.
7900	MHz			

AH

In de frequentietabel worden de regels, luidende:

8750	MHz			
		ARNS	Luchtvaart radionavigatie 5.470	Aangewezen voor Defensie & Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie.
		MRNS	Maritieme radionavigatie, walradarstations 5.471	Verdeling is aangehouden.
8850	MHz			
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie
		MRNS	Maritieme radionavigatie, walradarstations 5.472	Verdeling is aangehouden.
9000	MHz			
		ARNS	Luchtvaart radionavigatie 5.337	Aangewezen voor Infrastructuur en Milieu.
		RLS	Radioplaatsbepaling 5.473A	Aangewezen voor Defensie.
		MRNS	Maritieme radionavigatie, walradarstations 5.471 5.473A	Verdeling is aangehouden.
9200	MHz			
		EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.474A 5.474B 5.474C	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling 5.474	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MRNS	Maritieme radionavigatie 5.472 5.474	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik zonder vergunning, onder voorwaarden.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
9300	MHz			
		EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.474 5.475 5.475A 5.475B 5.476A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling 5.474 5.475 5.475A 5.475B 5.476A	Aangewezen voor Defensie.
		RNS	Radionavigatie. Maritiemmobiel 5.474 5.475 5.475A 5.475B 5.476A	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik zonder vergunning, onder voorwaarden.
		SRS_A	Ruimte-onderzoek (actief) 5.474 5.475 5.475A 5.475B 5.476A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
9500	MHz			

Vervangen door:

8750	MHz			
		ARNS	Luchtvaart radionavigatie 5.470	Aangewezen voor Defensie & Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie.
		MRNS	Maritieme radionavigatie, walradarstations 5.471	Verdeling is aangehouden.
8850	MHz			
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie.
		MRNS	Maritieme radionavigatie, walradarstations 5.472	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
9000	MHz			
		ARNS	Luchtvaart radionavigatie 5.337	Aangewezen voor Infrastructuur en Waterstaat.
		RLS	Radioplaatsbepaling 5.473A	Aangewezen voor Defensie.
		MRNS	Maritieme radionavigatie, walradarstations 5.471 5.473A	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
9200	MHz			
		EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.474A 5.474B 5.474C	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling 5.474	Aangewezen voor publieke taken en overigens beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MRNS	Maritieme radionavigatie 5.472 5.474	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik zonder vergunning, onder voorwaarden.
		/ms/	Mobiele communicatie, kortefstandapparatuur	Zonder vergunning, onder voorwaarden.
9300	MHz			
		EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.474 5.475A 5.475B 5.476A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling 5.474 5.475A 5.475B 5.476A	Aangewezen voor Defensie & Infrastructuur en Waterstaat en overigens beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RNS	Radionavigatie. Maritiemmobiel 5.474 5.475 5.475A 5.475B 5.476A	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Maritiemmobiel gebruik zonder vergunning, onder voorwaarden.
		SRS_A	Ruimte-onderzoek (actief) 5.474 5.475A 5.475B 5.476A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortefstandapparatuur	Zonder vergunning, onder voorwaarden.
9500	MHz			

AI

In de frequentietabel worden de regels, luidende:

12,75	GHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.441	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
13,25	GHz			

Vervangen door:

12,75	GHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). Satellietgrondstations aan boord van vliegtuigen 5.441	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Satellietgrondstations aan boord van vliegtuigen zonder vergunning, onder voorwaarden.
13,25	GHz			

AJ

In de frequentietabel worden de regels luidende:

13,65	GHz			
		RLS	Radioplaatsbepaling	Aangewezen voor Publieke taken.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
13,75	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.484A 5.502	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling 5.502	Aangewezen voor Defensie & voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
14	GHz			

Vervangen door:

13,65	GHz			
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie.
		MRNS	Maritieme radionavigatie, walradarstations	Aangewezen voor Infrastructuur en Waterstaat.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
13,75	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.484A 5.502	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MRNS	Maritieme radionavigatie, walradarstations	Aangewezen voor Infrastructuur en Waterstaat.
		RLS	Radioplaatsbepaling 5.502	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.



		/ms/	Mobiele communicatie, kortereafstandapparatuur	Zonder vergunning, onder voorwaarden.
14	GHz			

AK

In de frequentietabel worden de regels, luidende:

14	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). LEST/HEST & ESIM 5.457A 5.484A 5.504A 5.506B	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. LEST/HEST & ESIM zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.504A 5.504B 5.504C 5.506A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
14,25	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). VSAT & ESIM 5.457A 5.484A 5.504A 5.506B	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. VSAT & ESIM zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.504A 5.504B 5.506A 5.508A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
14,3	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). VSAT & ESIM 5.457A 5.484A 5.504A 5.506B	Vergunningverlening op volgorde van binnenkomst van de aanvraag. VSAT & ESIM zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.504A 5.504B 5.506A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
14,4	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). VSAT & ESIM 5.457A 5.484A 5.504A 5.506B	Vergunningverlening op volgorde van binnenkomst van de aanvraag. VSAT & ESIM zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.504B 5.506A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
14,47	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). VSAT & ESIM 5.149 5.457A 5.484A 5.504A 5.506B	Vergunningverlening op volgorde van binnenkomst van de aanvraag. VSAT & ESIM zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.149. 5.504A 5.504B 5.506B	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ras	Radio-astronomie	Aangewezen voor Onderwijs, Cultuur en Wetenschap.
14,5	GHz			

Vervangen door:

14	GHz			
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		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). Niet gecoördineerde satellietgrondstations 5.457A 5.484A 5.504A 5.506B	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Niet gecoördineerde satellietgrondstations zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.504A 5.504B 5.504C 5.506A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
14,25	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). Niet gecoördineerde satellietgrondstations 5.457A 5.484A 5.504A 5.506B	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Niet gecoördineerde satellietgrondstations zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.504A 5.504B 5.506A 5.508A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
14,3	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). Niet gecoördineerde satellietgrondstations 5.457A 5.484A 5.504A 5.506B	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Niet gecoördineerde satellietgrondstations zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.504A 5.504B 5.506A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
14,4	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). Niet gecoördineerde satellietgrondstations 5.457A 5.484A 5.504A 5.506B	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Niet gecoördineerde satellietgrondstations zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.504B 5.506A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
14,47	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). Niet gecoördineerde satellietgrondstations 5.149 5.457A 5.484A 5.504A 5.506B	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Niet gecoördineerde satellietgrondstations zonder vergunning, onder voorwaarden.
		mss_es	Mobiele satellietverbindingen (aarde naar ruimte) 5.149 5.504A 5.504B 5.506B	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ras	Radio-astronomie	Aangewezen voor Onderwijs, Cultuur en Wetenschap.
14,5	GHz			

AL

In de frequentietabel worden de regels, luidende:

17,7	GHz			
		FS	Vaste verbindingen	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.484A 5.516	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
18,1	GHz			
		FS	Vaste verbindingen 5.519	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.



		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.484A 5.516B 5.519 5.520	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss_se	Vaste satellietverbindingen (ruimte naar aarde) 5.484A 5.516B 5.519 5.520	Vergunningverlening is niet van toepassing.
18,4	GHz			
		FS	Vaste verbindingen	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss-se	Vaste satellietverbindingen (ruimte naar aarde) 5.484A 5.516B	Vergunningverlening is niet van toepassing.
18,6	GHz			
		FS	Vaste verbindingen 5.522A	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss_se	Vaste satellietverbindingen (ruimte naar aarde) 5.522A	Vergunningverlening is niet van toepassing.
18,8	GHz			
		FS	Vaste verbindingen	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss_se	Vaste satellietverbindingen (ruimte naar aarde) 5.516B	Vergunningverlening is niet van toepassing.
19,3	GHz			
		FS	Vaste verbindingen	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss_se	Vaste satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
19,7	GHz			

Vervangen door:

17,7	GHz			
		FS	Vaste verbindingen	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES, SE	Vaste satellietverbindingen (aarde naar ruimte & ruimte naar aarde) 5.484A 5.516 5.517A	Vergunningverlening op volgorde van binnenkomst van de aanvraag voor aarde naar ruimte, voor ruimte naar aarde is vergunningverlening niet van toepassing.
18,1	GHz			
		FS	Vaste verbindingen 5.519	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.484A 5.516B 5.519 5.520	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss_se	Vaste satellietverbindingen (ruimte naar aarde) 5.484A 5.516B 5.517A 5.519 5.520	Vergunningverlening is niet van toepassing.
18,4	GHz			



		FS	Vaste verbindingen	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss_se	Vaste satellietverbindingen (ruimte naar aarde) 5.484A 5.516B 5.517A	Vergunningverlening is niet van toepassing.
18,6	GHz			
		FS	Vaste verbindingen 5.522A	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss_se	Vaste satellietverbindingen (ruimte naar aarde) 5.517A 5.522A	Vergunningverlening is niet van toepassing.
18,8	GHz			
		FS	Vaste verbindingen	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss_se	Vaste satellietverbindingen (ruimte naar aarde) 5.516B 5.517A	Vergunningverlening is niet van toepassing.
19,3	GHz			
		FS	Vaste verbindingen	Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		fss_se	Vaste satellietverbindingen (ruimte naar aarde) 5.517A	Vergunningverlening is niet van toepassing.
19,7	GHz			

AM

In de frequentietabel worden de regels, luidende:

21,4	GHz			
		BSS	Omroepsatelliet voor toekomstig HDTV-uitzendingen 5.208B 5.530B 5.530C	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen 5.530A 5.530B 5.530C	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie 5.530A 5.530B 5.530C	Aangewezen voor Defensie
		/ms/	Mobiele communicatie, kortereafstandapparatuur	Zonder vergunning, onder voorwaarden.
21,5	GHz			
		BSS	Omroepsatelliet voor toekomstig HDTV-uitzendingen 5.208B 5.530B 5.530C	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen 5.530B 5.530C	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortereafstandapparatuur	Zonder vergunning, onder voorwaarden.
22	GHz			

Vervangen door:

21,4	GHz			
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		BSS	Omroepsatelliet voor toekomstig HDTV-uitzendingen 5.208B 5.530B	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen 5.530A 5.530B	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie 5.530A 5.530B	Aangewezen voor Defensie
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
21,5	GHz			
		BSS	Omroepsatelliet voor toekomstig HDTV-uitzendingen 5.208B 5.530B	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen 5.530B	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
22	GHz			

AN

In de frequentietabel worden de regels, luidende:

24,05	GHz			
		RLS	Radioplaatsbepaling 5.150	Aangewezen voor Defensie & Veiligheid en Justitie.
		as	Amateur 5.150	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.150	Zonder vergunning, onder voorwaarden.
24,25	GHz			

Vervangen door:

24,05	GHz			
		RLS	Radioplaatsbepaling 5.150	Aangewezen voor Defensie & Justitie en Veiligheid en overigens beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag.
		as	Amateur 5.150	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.150	Zonder vergunning, onder voorwaarden.
24,25	GHz			

AO

In de frequentietabel worden de regels, luidende

24,25	GHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.

24,45	GHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
24,549	GHz			
		FS	Vaste verbindingen, FWA. Duplex met 25,557–25,697 GHz	Vergunningverlening per FWA basispost op volgorde van binnenkomst van de aanvraag.
		/ms	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
24,65	GHz			
		FS	Vaste verbindingen, FWA. Duplex met 25,657–25,697 GHz	Vergunningverlening per FWA basispost op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
24,689	GHz			
		FS	Vaste verbindingen, FWA. Duplex met 25,697–25,921 GHz.	Vergunningverlening via veiling of vergelijkende toets.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
24,75	GHz			
		FS	Vaste verbindingen, FWA. Duplex met 25,697–25,921 GHz	Vergunningverlening via veiling of vergelijkende toets.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
24,913	GHz			
		FS	Vaste verbindingen	Vergunning verlening op volgorde van binnenkomst van de aanvraag.
		/ms	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
25,25	GHz			
		FS	Vaste verbindingen 5.536A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
25,5	GHz			
		FS	Vaste verbindingen.	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.536A	Zonder vergunning, onder voorwaarden.
25,557	GHz			
		FS	Vaste verbindingen, FWA. Duplex met 24,549–24,689 GHz	Vergunning verlening per FWA beaistation op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, korteaafstandapparatuur	Zonder vergunning, onder voorwaarden.
25,697	GHz			
		FS	Vaste verbindingen, FWA. Duplex met 24,689–24,913 GHz	Vergunningverlening via veiling of vergelijkende toets.

		/ms/	Mobiele communicatie, kortearfstandapparatuur 5.536A	Zonder vergunning, onder voorwaarden.
25,921	GHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortearfstandapparatuur 5.536A	Zonder vergunning, onder voorwaarden.
26,033	GHz			
		FS	Vaste verbindingen 5.536A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortearfstandapparatuur 5.536A	Zonder vergunning, onder voorwaarden.
26,5	GHz			
		FS	Vaste verbindingen 5.536A	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie 5.536A	Aangewezen voor Defensie.
		/ms/	Mobiele communicatie, kortearfstandapparatuur 5.536A	Zonder vergunning, onder voorwaarden.
27	GHz			
		FS	Vaste verbindingen	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie	Aangewezen aan Defensie
27,5	GHz			

Vervangen door

24,25	GHz			
		FS	Vaste verbindingen tot en met 31-12-2027 HOL012	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
24,45	GHz			
		FS	Vaste verbindingen tot en met 31-12-2027 HOL012	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
24,549	GHz			
		FS	Vaste verbindingen, FWA tot en met 31-12-2027. Duplex met 25,557–25,697 GHz HOL012	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
24,65	GHz			
		FS	Vaste verbindingen, FWA tot en met 31-12-2027. Duplex met 25,657–25,697 GHz HOL012	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
24,689	GHz			
		FS	Vaste verbindingen, FWA tot en met 31-12-2027. Duplex met 25,697–25,921 GHz HOL012	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
24,75	GHz			
		FS	Vaste verbindingen, FWA tot en met 31-12-2027. Duplex met 25,697–25,921 GHz HOL012	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
24,913	GHz			

		FS	Vaste verbindingen tot en met 31-12-2027 HOL012	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
25,25	GHz			
		FS	Vaste verbindingen tot en met 31-12-2027 HOL012 5.536A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
25,5	GHz			
		FS	Vaste verbindingen tot en met 31-12-2027 HOL012 5.536A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
25,557	GHz			
		FS	Vaste verbindingen, FWA, beide tot en met 31-12-2027. Duplex met 24,549–24,689 GHz HOL012	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
25,697	GHz			
		FS	Vaste verbindingen, FWA beide tot en met 31-12-2027. Duplex met 24,689–24,913 GHz HOL012 5.536A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
25,921	GHz			
		FS	Vaste verbindingen tot en met 31-12-2027 HOL012 5.536A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
26,033	GHz			
		FS	Vaste verbindingen tot en met 31-12-2027 HOL012 5.536A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
26,5	GHz			
		FS	Vaste verbindingen HOL012 5.536A	Aangewezen voor Defensie en overigens geen nieuwe vergunningen.
		MS	Mobiele communicatie HOL012 5.532AB 5.536A	Aangewezen voor Defensie.
27	GHz			
		FS	Vaste verbindingen	Aangewezen voor Defensie en overigens geen nieuwe vergunningen.
		MS	Mobiele communicatie 5.532AB	Aangewezen voor Defensie.
27,5	GHz			

AP

In de frequentietabel worden de regels, luidende:

34,7	GHz			
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie & Infrastructuur en Milieu.
35,2	GHz			
		MAS	Meteorologische waarnemingen, mobiele weerradars	Aangewezen voor Infrastructuur en Milieu en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie.
35,5	GHz			
		MAS	Meteorologische waarnemingen, mobiele weerradars	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie.

36	GHz			
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Vervangen door:

34,7	GHz			
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie & Infrastructuur en Waterstaat en overigens beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag.
35,2	GHz			
		MAS	Meteorologische waarnemingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie.
35,5	GHz			
		MAS	Meteorologische waarnemingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RLS	Radioplaatsbepaling	Aangewezen voor Defensie.
36	GHz			

AQ

In de frequentietabel worden de regels, luidende:

37,5	GHz			
		FS	Vaste verbindingen, HDFS 5.547	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.547	Vergunningverlening is niet van toepassing.
38	GHz			
		FS	Vaste verbindingen, HDFS 5.547	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.547	Vergunningverlening is niet van toepassing.
39,5	GHz			
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.516B 5.547	Vergunningverlening is niet van toepassing.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde) 5.547	Vergunningverlening is niet van toepassing.
40	GHz			
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.516B	Vergunningverlening is niet van toepassing.
40,5	GHz			
		BS	Omroep, MWS 5.547	Verdeling is aangehouden.
		BSS	Omroepsatelliet 5.547	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen, HDFS 5.547	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.547	Vergunningverlening is niet van toepassing.
		ms	Mobiele communicatie 5.547	Vergunningverlening op volgorde van binnenkomst van de aanvraag.

41	GHz			
		BS	Omroep, MWS 5.547. 5.547 5.551H 5.551I	Verdeling is aangehouden.
		BSS	Omroepsatelliet 5.547 5.511H 5.551I	Vergunningverlening is niet van toepassing
		FS	Vaste verbindingen, HDFS 5.547 5.551H 5.551I	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.516B 5.547. 5.551H 5.551I	Vergunningverlening is niet van toepassing.
		ms	Mobiele communicatie 5.547 5.551H 5.551I	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
42,5	GHz			
		FS	Vaste verbindingen, HDFS 5.149 5.547	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.149 5.547 5.552	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie met uitzondering van de luchtvaart 5.149 5.547	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RAS	Radio-astronomie 5.547	Beschermd voor passief gebruik.
43,5	GHz			

Vervangen door:

37,5	GHz			
		FS	Vaste verbindingen, HDFS 5.547	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.547 5.550C	Vergunningverlening is niet van toepassing.
38	GHz			
		FS	Vaste verbindingen, HDFS 5.547 5.550D	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.547 5.550C	Vergunningverlening is niet van toepassing.
39,5	GHz			
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.516B 5.547 5.550C 5.550E	Vergunningverlening is niet van toepassing.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde) 5.547 5.550E	Vergunningverlening is niet van toepassing.
40	GHz			
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.516B 5.550C 5.550E	Vergunningverlening is niet van toepassing.
40,5	GHz			
		BS	Omroep, MWS 5.547	Verdeling is aangehouden.
		BSS	Omroepsatelliet 5.547	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen, HDFS 5.547	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.547 5.550C	Vergunningverlening is niet van toepassing.
		ms	Mobiele communicatie 5.547 5.550B	Vergunningverlening op volgorde van binnenkomst van de aanvraag.

41	GHz			
		BS	Omroep, MWS 5.547. 5.547 5.551H 5.551I	Vergunningverlening is aangehouden.
		BSS	Omroepsatelliet 5.547 5.511H 5.551I	Vergunningverlening is niet van toepassing
		FS	Vaste verbindingen, HDFS 5.547 5.551H 5.551I	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.516B 5.547 5.550C 5.551H 5.551I	Vergunningverlening is niet van toepassing.
		ms	Mobiele communicatie 5.547 5.550B 5.551H 5.551I	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
42,5	GHz			
		FS	Vaste verbindingen, HDFS 5.149 5.547	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.149 5.547 5.552	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie met uitzondering van de luchtvaart 5.149 5.547 5.550B	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RAS	Radio-astronomie 5.547	Beschermd voor passief gebruik.
43,5	GHz			

AR

In de frequentietabel worden de regels, luidende:

47,2	GHz			
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
47,5	GHz			
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
47,9	GHz			
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
48,2	GHz			
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
48,54	GHz			
		MS	Mobiele communicatie 5.149 5.340	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
49,44	GHz			
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
50,2	GHz			

Vervangen door:

47,2	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.550C 5.552	Vergunningverlening op volgorde van binnenkomst van de aanvraag.



		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
47,5	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.550C 5.552	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
47,9	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.550C 5.552	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
48,2	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.550C 5.552	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
48,54	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.149 5.340 5.550C 5.552	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie 5.149 5.340	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
49,44	GHz			
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.338A 5.550C 5.552	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
50,2	GHz			

AS

In de frequentietabel worden de regels, luidende:

51,4	GHz			
		FS	Vaste verbindingen, HDFS 5.338A 5.547 5.556	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie 5.547 5.556	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
52,6	GHz			

Vervangen door:

51,4	GHz			
		FS	Vaste verbindingen, HDFS 5.338A 5.547 5.556	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.338A 5.547 5.555C 5.556	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie 5.547 5.556	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
52,4	GHz			
		FS	Vaste verbindingen, HDFS 5.338A 5.547 5.556	Vergunningverlening op volgorde van binnenkomst van de aanvraag.



		MS	Mobiele communicatie 5.547 5.556	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
52,6	GHz			

AT

In de frequentietabel worden de regels, luidende:

66	GHz			
		MS	Mobiele communicatie 5.553 5.554 5.558	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
71	GHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
74	GHz			
		BS	Omroep 5.561	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets.
		BSS	Omroepsatelliet 5.561	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen 5.561	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.561	Vergunningverlening is niet van toepassing.
		MS	Mobiele communicatie 5.561	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.561	Vergunningverlening is niet van toepassing.
75,5	GHz			
		AS	Amateur 5.561	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ASS	Amateur satelliet 5.561	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		BS	Omroep 5.561	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets.
		BSS	Omroepsatelliet 5.561	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen 5.561	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.561	Vergunningverlening is niet van toepassing.



		MS	Mobiele communicatie 5.561	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.561	Vergunningverlening is niet van toepassing.
76	GHz			
		RAS	Radio-astronomie	Beschermd voor passief gebruik.
		RLS	Radioplaatsbepaling 5.149	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		as	Amateur 5.149	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ass	Amateur satelliet 5.149	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.149	Vergunningverlening is niet van toepassing.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.149	Zonder vergunning, onder voorwaarden.
77,5	GHz			
		AS	Amateur 5.149	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ASS	Amateur satelliet 5.149	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ras	Radio-astronomie	Beschermd voor passief gebruik.
		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.149	Vergunningverlening is niet van toepassing.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.149 5.559B	Zonder vergunning, onder voorwaarden.
78	GHz			
		RLS	Radioplaatsbepaling 5.149 5.560	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		as	Amateur 5.149 5.560	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ass	Amateur satelliet 5.149 5.560	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ras	Radio-astronomie 5.560	Beschermd voor passief gebruik.
		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.149 5.560	Vergunningverlening is niet van toepassing.
		/ms/	Mobiele communicatie, korteaafstandapparatuur 5.149	Zonder vergunning, onder voorwaarden.
79	GHz			

Vervangen door:

66	GHz			
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		MS	Mobiele communicatie 5.553 5.554 5.558 5.559AA	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortefstandapparatuur 5.553 5.554 5.558 5.559AA	Zonder vergunning, onder voorwaarden.
		/rls/	Radioplaatsbepaling 5.553 5.554 5.558 5.559AA	Aangewezen voor Justitie en Veiligheid.
71	GHz			
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
		MS	Mobiele communicatie	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
		/rls/	Radioplaatsbepaling	Aangewezen voor Justitie en Veiligheid.
74	GHz			
		BS	Omroep 5.561	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets.
		BSS	Omroepsatelliet 5.561	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen 5.561	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.561	Vergunningverlening is niet van toepassing.
		MS	Mobiele communicatie 5.561	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.561	Vergunningverlening is niet van toepassing.
		/rls/	Radioplaatsbepaling 5.561	Aangewezen voor Justitie en Veiligheid.
75,5	GHz			
		AS	Amateur 5.561	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ASS	Amateur satelliet 5.561	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		BS	Omroep 5.561	Vergunningverlening aan publieke media-instellingen op aanvraag en vergunningverlening aan commerciële omroep via veiling of vergelijkende toets.
		BSS	Omroepsatelliet 5.561	Vergunningverlening is niet van toepassing.
		FS	Vaste verbindingen 5.561	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.561	Vergunningverlening is niet van toepassing.
		MS	Mobiele communicatie 5.561	Vergunningverlening op volgorde van binnenkomst van de aanvraag.

		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.561	Vergunningverlening is niet van toepassing.
		/rls/	Radioplaatsbepaling 5.561	Aangewezen voor Justitie en Veiligheid.
76	GHz			
		RAS	Radio-astronomie	Beschermd voor passief gebruik.
		RLS	Radioplaatsbepaling 5.149	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		as	Amateur 5.149	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ass	Amateur satelliet 5.149	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.149	Vergunningverlening is niet van toepassing.
		/ms/	Mobiele communicatie, kortereafstandapparatuur 5.149	Zonder vergunning, onder voorwaarden.
		/rls/	Radioplaatsbepaling 5.149	Aangewezen voor Justitie en Veiligheid.
77,5	GHz			
		AS	Amateur 5.149	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ASS	Amateur satelliet 5.149	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ras	Radio-astronomie	Beschermd voor passief gebruik.
		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.149	Vergunningverlening is niet van toepassing.
		/ms/	Mobiele communicatie, kortereafstandapparatuur 5.149 5.559B	Zonder vergunning, onder voorwaarden.
		/rls/	Radioplaatsbepaling 5.149	Aangewezen voor Justitie en Veiligheid.
78	GHz			
		RLS	Radioplaatsbepaling 5.149 5.560	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		as	Amateur 5.149 5.560	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ass	Amateur satelliet 5.149 5.560	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ras	Radio-astronomie 5.560	Beschermd voor passief gebruik.
		srs_se	Ruimte-onderzoek (ruimte naar aarde) 5.149 5.560	Vergunningverlening is niet van toepassing.
		/ms/	Mobiele communicatie, kortereafstandapparatuur 5.149	Zonder vergunning, onder voorwaarden.
		/rls/	Radioplaatsbepaling 5.149	Aangewezen voor Justitie en Veiligheid.
79	GHz			



AU

In de frequentietabel worden de regels, luidende:

130	GHz			
		EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.149 5.562A 5.562E	Beschermd voor passief gebruik.
		FS	Vaste verbindingen 5.149 5.562A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ISS	Inter satellietverbindingen 5.149 5.562A	Vergunningverlening is niet van toepassing.
		MS	Mobiele communicatie 5.149 5.558 5.562A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RAS	Radio-astronomie 5.562A	Beschermd voor passief gebruik.
134	GHz			

Vervangen door:

130	GHz			
		EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.149 5.562A 5.562E	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		FS	Vaste verbindingen 5.149 5.562A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		ISS	Inter satellietverbindingen 5.149 5.562A	Vergunningverlening is niet van toepassing.
		MS	Mobiele communicatie 5.149 5.558 5.562A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RAS	Radio-astronomie 5.562A	Beschermd voor passief gebruik.
134	GHz			

AV

In de frequentietabel worden de regels, luidende:

155,5	GHz			
		EESS_P	Aarde- en atmosfeeronderzoek (passief) 5.149 5.562F 5.562G	Beschermd voor passief gebruik tot 1-1-2018.
		FS	Vaste verbindingen 5.149 5.562G	Beschermd voor passief gebruik. Na 1-1-2018 vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie 5.149 5.562G	Beschermd voor passief gebruik. Na 1-1-2018 vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RAS	Radio-astronomie 5.562G	Beschermd voor passief gebruik.
		SRS_P	Ruimte-onderzoek (passief) 5.149 5.562B 5.562F 5.562G	Beschermd voor passief gebruik tot 1-1-2018.
158,5	GHz			

Vervangen door:

155,5	GHz			
		FS	Vaste verbindingen 5.149 5.562G	Vergunningverlening op volgorde van binnenkomst van de aanvraag.



		MS	Mobiele communicatie 5.149 5.562G	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		RAS	Radio-astronomie 5.562G	Beschermd voor passief gebruik.
158,5	GHz			

AW

In de frequentietabel worden de regels, luidende:

275	GHz			
		NA	Nog geen bestemming. 5.565	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
3000	GHz			

Vervangen door:

275	GHz			
		NA	Nog geen bestemming. 5.564A 5.565	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
3000	GHz			

AX

Annex 1 wordt als volgt gewijzigd:

1. In alfabetische volgorde worden de volgende ITU-radiodiensten toegevoegd:

MMSS_ES maritime mobile-satellite service_(Earth to Space): A mobile-satellite service in which mobile earth stations are located on board ships; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.

SOS_SE space operation service (Space to Earth): A radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand.

SOS_ES space operation service (Earth to Space): A radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand.

2 Het tekstgedeelte '**EESS_A Earth Exploration Satellite (Active) – Aarde- en atmosfeeronderzoek (passief)**', wordt vervangen door '**EESS_A Earth Exploration Satellite (Active) – Aarde- en atmosfeeronderzoek (actief)**'.

AY

Annex 2 komt als volgt te luiden:

Hieronder treft u de lijst van alle ITU-voetnoten met daarbij de betekenis uit de ITU Radio Regulations.

The following ITU footnotes are relevant for the Dutch Frequency Plan. These footnotes are taken from Article 5 of the Radio Regulations, as amended at WRC-07 and WRC-12. Additional information can be obtained from the ITU (<http://www.itu.int/pub/R-REG-RR/en>)

Bij een NFP-bestemming is in een band een ITU-voetnoot vermeld indien:

1. afwijkend gebruik in buurlanden moet worden beschermd,
2. deze voetnoot een instructie geeft hoe een andere radiodienst in dezelfde band dient te worden beschermd,
3. deze voetnoot aanvullende informatie bevat die de radiodienst inperkt (bijv. 5.444A).

De Radio Regulations zijn gratis beschikbaar en te downloaden op de ITU-site: (<http://www.itu.int/pub/R-REG-RR/en>)

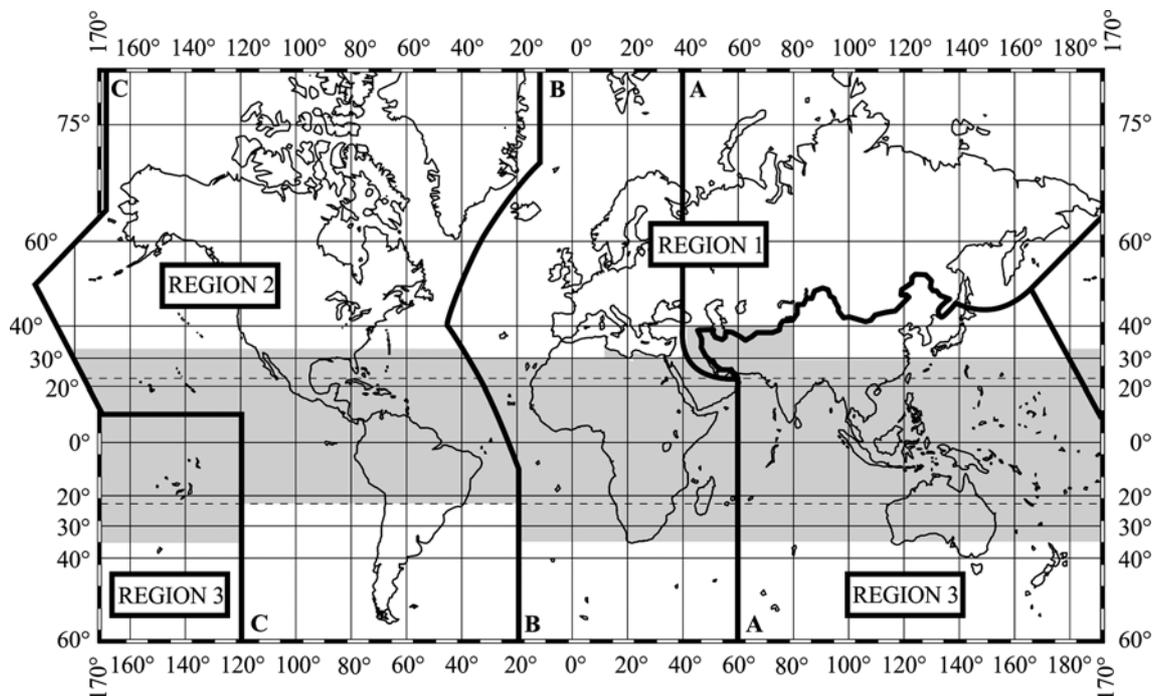
5.1 In all documents of the Union where the terms *allocation*, *allotment* and *assignment* are to be used, they shall have the meaning given them in Nos. **1.16** to **1.18**, the terms used in the six working languages being as follows:



Frequency distribution to	French	English	Spanish	Arabic	Chinese	Russian
Services	Attribution (attribuer)	Allocation (to allocate)	Atribución (atribuir)	توزيع (بوزع)	划分	распределение (распределять)
Areas or countries	Allotissement (allotir)	Allotment (to allot)	Adjudicación (adjudicar)	تعيين (يعين)	分配	выделение (выделять)
Stations	Assignment (assigner)	Assignment (to assign)	Asignación (asignar)	تخصيص (يخصص)	指配	присвоение (присваивать)

Section I – Regions and areas

5.2 For the allocation of frequencies the world has been divided into three Regions¹ as shown on the following map and described in Nos. 5.3 to 5.9:



5-01

The shaded part represents the Tropical Zones as defined in Nos. 5.16 to 5.20 and 5.21.

5.3 *Region 1*: Region 1 includes the area limited on the east by line A (lines A, B and C are defined below) and on the west by line B, excluding any of the territory of the Islamic Republic of Iran which lies between these limits. It also includes the whole of the territory of Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation which lies between lines A and C.

5.4 *Region 2*: Region 2 includes the area limited on the east by line B and on the west by line C.

5.5 *Region 3*: Region 3 includes the area limited on the east by line C and on the west by line A, except any of the territory of Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation. It also includes that part of the territory of the Islamic Republic of Iran lying outside of those limits.

5.6 The lines A, B and C are defined as follows:

5.7 Line A: Line A extends from the North Pole along meridian 40° East of Greenwich to parallel 40° North; thence by great circle arc to the intersection of meridian 60° East and the Tropic of

¹ 5.2.1 It should be noted that where the words 'regions' or 'regional' are without a capital 'R' in these Regulations, they do not relate to the three Regions here defined for purposes of frequency allocation.



Cancer; thence along the meridian 60° East to the South Pole.

5.8 Line B: Line B extends from the North Pole along meridian 10° West of Greenwich to its intersection with parallel 72° North; thence by great circle arc to the intersection of meridian 50° West and parallel 40° North; thence by great circle arc to the intersection of meridian 20° West and parallel 10° South; thence along meridian 20° West to the South Pole.

5.9 Line C: Line C extends from the North Pole by great circle arc to the intersection of parallel 65° 30' North with the international boundary in Bering Strait; thence by great circle arc to the intersection of meridian 165° East of Greenwich and parallel 50° North; thence by great circle arc to the intersection of meridian 170° West and parallel 10° North; thence along parallel 10° North to its intersection with meridian 120° West; thence along meridian 120° West to the South Pole.

5.10 For the purposes of these Regulations, the term 'African Broadcasting Area' means:

5.11 a) African countries, parts of countries, territories and groups of territories situated between the parallels 40° South and 30° North;

5.12 b) islands in the Indian Ocean west of meridian 60° East of Greenwich, situated between the parallel 40° South and the great circle arc joining the points 45° East, 11° 30' North and 60° East, 15° North;

5.13 c) islands in the Atlantic Ocean east of line B defined in No. 5.8 of these Regulations, situated between the parallels 40° South and 30° North.

5.14 The 'European Broadcasting Area' is bounded on the west by the western boundary of Region 1, on the east by the meridian 40° East of Greenwich and on the south by the parallel 30° North so as to include the northern part of Saudi Arabia and that part of those countries bordering the Mediterranean within these limits. In addition, Armenia, Azerbaijan, Georgia and those parts of the territories of Iraq, Jordan, Syrian Arab Republic, Turkey and Ukraine lying outside the above limits are included in the European Broadcasting Area. (WRC-07)

5.15 The 'European Maritime Area' is bounded to the north by a line extending along parallel 72° North from its intersection with meridian 55° East of Greenwich to its intersection with meridian 5° West, then along meridian 5° West to its intersection with parallel 67° North, thence along parallel 67° North to its intersection with meridian 32° West; to the west by a line extending along meridian 32° West to its intersection with parallel 30° North; to the south by a line extending along parallel 30° North to its intersection with meridian 43° East; to the east by a line extending along meridian 43° East to its intersection with parallel 60° North, thence along parallel 60° North to its intersection with meridian 55° East and thence along meridian 55° East to its intersection with parallel 72° North.

5.16 1) The 'Tropical Zone' (see map in No. 5.2) is defined as:

5.17 a) the whole of that area in Region 2 between the Tropics of Cancer and Capricorn;

5.18 b) the whole of that area in Regions 1 and 3 contained between the parallels 30° North and 35° South with the addition of:

5.19 i) The area contained between the meridians 40° East and 80° East of Greenwich and the parallels 30° North and 40° North;

5.20 ii) that part of Libya north of parallel 30° North.

5.21 2) In Region 2, the Tropical Zone may be extended to parallel 33° North, subject to special agreements between the countries concerned in that Region (see Article 6).

5.22A sub-Region is an area consisting of two or more countries in the same Region.

Section II – Categories of services and allocations

5.23 *Primary and secondary services*

5.24 1) Where, in a box of the Table in Section IV of this Article, a band is indicated as allocated to more than one service, either on a worldwide or Regional basis, such services are listed in the following order:

5.25 a) services the names of which are printed in 'capitals' (example: FIXED); these are called 'primary' services;

5.26 b) services the names of which are printed in 'normal characters' (example: Mobile); these are called 'secondary' services (see Nos. 5.28 to 5.31).

5.27 2) Additional remarks shall be printed in normal characters (example: MOBILE except aeronautical mobile).

5.28 3) Stations of a secondary service:

5.29 a) shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date;

5.30 b) cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date;

5.31 c) can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

5.32 4) Where a band is indicated in a footnote of the Table as allocated to a service 'on a secondary basis' in an area smaller than a Region, or in a particular country, this is a secondary service (see Nos. 5.28 to 5.31).



5.33 5) Where a band is indicated in a footnote of the Table as allocated to a service 'on a primary basis', in an area smaller than a Region, or in a particular country, this is a primary service only in that area or country.

5.34 *Additional allocations*

5.35 1) Where a band is indicated in a footnote of the Table as 'also allocated' to a service in an area smaller than a Region, or in a particular country, this is an 'additional' allocation, i.e. an allocation which is added in this area or in this country to the service or services which are indicated in the Table (see No. **5.36**).

5.36 2) If the footnote does not include any restriction on the service or services concerned apart from the restriction to operate only in a particular area or country, stations of this service or these services shall have equality of right to operate with stations of the other primary service or services indicated in the Table.

5.37 3) If restrictions are imposed on an additional allocation in addition to the restriction to operate only in a particular area or country, this is indicated in the footnote of the Table.

5.38 *Alternative allocations*

5.39 1) Where a band is indicated in a footnote of the Table as 'allocated' to one or more services in an area smaller than a Region, or in a particular country, this is an 'alternative' allocation, i.e. an allocation which replaces, in this area or in this country, the allocation indicated in the Table (see No. **5.40**).

5.40 2) If the footnote does not include any restriction on stations of the service or services concerned, apart from the restriction to operate only in a particular area or country, these stations of such a service or services shall have an equality of right to operate with stations of the primary service or services, indicated in the Table, to which the band is allocated in other areas or countries.

5.41 3) If restrictions are imposed on stations of a service to which an alternative allocation is made, in addition to the restriction to operate only in a particular country or area, this is indicated in the footnote.

5.42 *Miscellaneous provisions*

5.43 1) Where it is indicated in these Regulations that a service or stations in a service may operate in a specific frequency band subject to not causing harmful interference to another service or to another station in the same service, this means also that the service which is subject to not causing harmful interference cannot claim protection from harmful interference caused by the other service or other station in the same service. (WRC-2000)

5.43A 1*bis*) Where it is indicated in these Regulations that a service or stations in a service may operate in a specific frequency band subject to not claiming protection from another service or from another station in the same service, this means also that the service which is subject to not claiming protection shall not cause harmful interference to the other service or other station in the same service. (WRC-2000)

5.44 2) Except if otherwise specified in a footnote, the term 'fixed service', where appearing in Section IV of this Article, does not include systems using ionospheric scatter propagation.

5.45 Not used.

Section III – Description of the Table of Frequency Allocations

5.46 1) The heading of the Table in Section IV of this Article includes three columns, each of which corresponds to one of the Regions (see No. **5.2**). Where an allocation occupies the whole of the width of the Table or only one or two of the three columns, this is a worldwide allocation or a Regional allocation, respectively.

5.47 2) The frequency band referred to in each allocation is indicated in the left-hand top corner of the part of the Table concerned.

5.48 3) Within each of the categories specified in Nos. **5.25** and **5.26**, services are listed in alphabetical order according to the French language. The order of listing does not indicate relative priority within each category.

5.49 4) In the case where there is a parenthetical addition to an allocation in the Table, that service allocation is restricted to the type of operation so indicated.

5.50 5) The footnote references which appear in the Table below the allocated service or services apply to more than one of the allocated services, or to the whole of the allocation concerned. (WRC-2000)

5.51 6) The footnote references which appear to the right of the name of a service are applicable only to that particular service.

5.52 7) In certain cases, the names of countries appearing in the footnotes have been simplified in order to shorten the text.

5.53 Administrations authorizing the use of frequencies below 8.3 kHz shall ensure that no harmful interference is caused to services to which the bands above 8.3 kHz are allocated. (WRC-12)

5.54 Administrations conducting scientific research using frequencies below 8.3 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded



all practicable protection from harmful interference. (WRC-12)

5.54A Use of the 8.3–11.3 kHz frequency band by stations in the meteorological aids service is limited to passive use only. In the band 9–11.3 kHz, meteorological aids stations shall not claim protection from stations of the radionavigation service submitted for notification to the Bureau prior to 1 January 2013. For sharing between stations of the meteorological aids service and stations in the radionavigation service submitted for notification after this date, the most recent version of Recommendation ITU-R RS.1881 should be applied. (WRC-12)

5.54B *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, the Russian Federation, Iran (Islamic Republic of), Iraq, Kuwait, Lebanon, Morocco, Qatar, the Syrian Arab Republic, Sudan and Tunisia, the frequency band 8.3–9 kHz is also allocated to the radionavigation, fixed and mobile services on a primary basis. (WRC-15)

5.54C *Additional allocation:* in China, the frequency band 8.3–9 kHz is also allocated to the maritime radionavigation and maritime mobile services on a primary basis. (WRC-12)

5.55 *Additional allocation:* in Armenia, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the frequency band 14–17 kHz is also allocated to the radionavigation service on a primary basis. (WRC-15)

5.56 The stations of services to which the bands 14–19.95 kHz and 20.05–70 kHz and in Region 1 also the bands 72–84 kHz and 86–90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-12)

5.57 The use of the bands 14–19.95 kHz, 20.05–70 kHz and 70–90 kHz (72–84 kHz and 86–90 kHz in Region 1) by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only). Exceptionally, the use of class J2B or J7B emissions is authorized subject to the necessary bandwidth not exceeding that normally used for class A1A or F1B emissions in the band concerned.

5.58 *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the band 67–70 kHz is also allocated to the radionavigation service on a primary basis. (WRC-2000)

5.59 *Different category of service:* in Bangladesh and Pakistan, the allocation of the bands 70–72 kHz and 84–86 kHz to the fixed and maritime mobile services is on a primary basis (see No. 5.33). (WRC-2000)

5.60 In the bands 70–90 kHz (70–86 kHz in Region 1) and 110–130 kHz (112–130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.

5.61 In Region 2, the establishment and operation of stations in the maritime radionavigation service in the bands 70–90 kHz and 110–130 kHz shall be subject to agreement obtained under No. 9.21 with administrations whose services, operating in accordance with the Table, may be affected. However, stations of the fixed, maritime mobile and radiolocation services shall not cause harmful interference to stations in the maritime radionavigation service established under such agreements.

5.62 Administrations which operate stations in the radionavigation service in the band 90–110 kHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.

5.63 (SUP – WRC-97)

5.64 Only classes A1A or F1B, A2C, A3C, F1C or F3C emissions are authorized for stations of the fixed service in the bands allocated to this service between 90 kHz and 160 kHz (148.5 kHz in Region 1) and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 160 kHz (148.5 kHz in Region 1). Exceptionally, class J2B or J7B emissions are also authorized in the bands between 110 kHz and 160 kHz (148.5 kHz in Region 1) for stations of the maritime mobile service.

5.65 *Different category of service:* in Bangladesh, the allocation of the bands 112–117.6 kHz and 126–129 kHz to the fixed and maritime mobile services is on a primary basis (see No. 5.33). (WRC-2000)

5.66 *Different category of service:* in Germany, the allocation of the band 115–117.6 kHz to the fixed and maritime mobile services is on a primary basis (see No. 5.33) and to the radionavigation service on a secondary basis (see No. 5.32).

5.67 *Additional allocation:* in Kyrgyzstan and Turkmenistan, the frequency band 130–148.5 kHz is also allocated to the radionavigation service on a secondary basis. Within and between these countries this service shall have an equal right to operate. (WRC-19)

5.67A Stations in the amateur service using frequencies in the band 135.7–137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. 5.67. (WRC-07)

5.67B The use of the frequency band 135.7–137.8 kHz in Algeria, Egypt, Iraq, Lebanon, Syrian Arab Republic, Sudan, South Sudan and Tunisia is limited to the fixed and maritime mobile services.



The amateur service shall not be used in the above-mentioned countries in the frequency band 135.7–137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-19)

5.68 Alternative allocation: in Congo (Rep. of the), the Dem. Rep. of the Congo and South Africa, the frequency band 160–200 kHz is allocated to the fixed service on a primary basis. (WRC-15)

5.69 Additional allocation: in Somalia, the band 200–255 kHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.70 Alternative allocation: in Angola, Botswana, Burundi, the Central African Rep., Congo (Rep. of the), Eswatini, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, South Africa, Tanzania, Chad, Zambia and Zimbabwe, the frequency band 200–283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis. (WRC-19)

5.71 (SUP – WRC-19)

5.72 (SUP – WRC-12)

5.73 The band 285–325 kHz (283.5–325 kHz in Region 1) in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service. (WRC-97)

5.74 Additional Allocation: in Region 1, the frequency band 285.3–285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis.

5.75 Different category of service: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Moldova, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and the Black Sea areas of Romania, the allocation of the band 315–325 kHz to the maritime radionavigation service is on a primary basis under the condition that in the Baltic Sea area, the assignment of frequencies in this band to new stations in the maritime or aeronautical radionavigation services shall be subject to prior consultation between the administrations concerned. (WRC-07)

5.76 The frequency 410 kHz is designated for radio direction-finding in the maritime radionavigation service. The other radionavigation services to which the band 405–415 kHz is allocated shall not cause harmful interference to radio direction-finding in the band 406.5–413.5 kHz.

5.77 Different category of service: in Australia, China, the French overseas communities of Region 3, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, Pakistan, Papua New Guinea, the Dem. People's Rep. of Korea and Sri Lanka, the allocation of the frequency band 415–495 kHz to the aeronautical radionavigation service is on a primary basis. In Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Latvia, Uzbekistan and Kyrgyzstan, the allocation of the frequency band 435–495 kHz to the aeronautical radionavigation service is on a primary basis. Administrations in all the aforementioned countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the frequency band 435–495 kHz do not cause interference to reception by coast stations of transmissions from ship stations on frequencies designated for ship stations on a worldwide basis. (WRC-19)

5.78 Different category of service: in Cuba, the United States of America and Mexico, the allocation of the band 415–435 kHz to the aeronautical radionavigation service is on a primary basis.

5.79 In the maritime mobile service, the frequency bands 415–495 kHz and 505–526.5 kHz are 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. (WRC-19)

5.79A When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4 209.5 kHz, administrations are strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution 339 (Rev.WRC-07)). (WRC-07)

5.80 In Region 2, the use of the band 435–495 kHz by the aeronautical radionavigation service is limited to non-directional beacons not employing voice transmission.

5.80A The maximum equivalent isotropically radiated power (e.i.r.p.) of stations in the amateur service using frequencies in the band 472–479 kHz shall not exceed 1 W. Administrations may increase this limit of e.i.r.p. to 5 W in portions of their territory which are at a distance of over 800 km from the borders of Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia, Ukraine and Yemen. In this frequency band, stations in the amateur service shall not cause harmful interference to, or claim protection from, stations of the aeronautical radionavigation service. (WRC-12)

5.80B The use of the frequency band 472–479 kHz in Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia and Yemen is limited to the maritime mobile and aeronautical radionavigation services. The amateur service shall not be used in the above-



mentioned countries in this frequency band, and this should be taken into account by the countries authorizing such use. (WRC-12)

5.81 (SUP – WRC-2000)

5.82 In the maritime mobile service, the frequency 490 kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles **31** and **52**. In using the frequency band 415–495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. In using the frequency band 472–479 kHz for the amateur service, administrations shall ensure that no harmful interference is caused to the frequency 490 kHz. (WRC-12)

5.82A (SUP – WRC-12)

5.82B (SUP – WRC-12)

5.82C 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. (WRC-19)

5.83 (SUP – WRC-07)

5.84 The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **31** and **52**. (WRC-07)

5.85 Not used.

5.86 In Region 2, in the band 525–535 kHz the carrier power of broadcasting stations shall not exceed 1 kW during the day and 250 W at night.

5.87 *Additional allocation:* in Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia and Niger, the frequency band 526.5–535 kHz is also allocated to the mobile service on a secondary basis. (WRC-19)

5.87A *Additional allocation:* in Uzbekistan, the band 526.5–1606.5 kHz is also allocated to the radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **9.21** with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-97)

5.88 *Additional allocation:* in China, the band 526.5–535 kHz is also allocated to the aeronautical radionavigation service on a secondary basis.

5.89 In Region 2, the use of the band 1605–1705 kHz by stations of the broadcasting service is subject to the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

The examination of frequency assignments to stations of the fixed and mobile services in the band 1625–1705 kHz shall take account of the allotments appearing in the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

5.90 In the band 1605–1705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.

5.91 *Additional allocation:* in the Philippines and Sri Lanka, the band 1606.5–1705 kHz is also allocated to the broadcasting service on a secondary basis. (WRC-97)

5.92 Some countries of Region 1 use radiodetermination systems in the bands 1606.5–1625 kHz, 1635–1800 kHz, 1850–2160 kHz, 2194–2300 kHz, 2502–2850 kHz and 3500–3800 kHz, subject to agreement obtained under No. **9.21**. The radiated mean power of these stations shall not exceed 50 W.

5.93 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Tajikistan, Chad, Turkmenistan and Ukraine, the frequency bands 1 625–1 635 kHz, 1 800–1 810 kHz and 2 160–2 170 kHz are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under No. 9.21. (WRC-15)

5.94 and **5.95** Not used.

5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Croatia, Denmark, Estonia, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the frequency bands 1 715–1 800 kHz and 1 850–2 000 kHz. However, when allocating the frequency bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W. (WRC-15)

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



5.98 Alternative allocation: in Armenia, Azerbaijan, Belarus, Belgium, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan and Turkey, the frequency band 1 810–1 830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-15)

5.99 Additional allocation: in Saudi Arabia, Austria, Iraq, Libya, Uzbekistan, Slovakia, Romania, Slovenia, Chad, and Togo, the band 1 810–1 830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

5.100 In Region 1, the authorization to use the band 1810–1830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. **5.98** and **5.99** to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. **5.98** and **5.99**.

5.101 (SUP – WRC-12)

5.102 Alternative allocation: in Bolivia, Chile, Paraguay and Peru, the frequency band 1 850–2 000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis. (WRC-15)

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

5.104 In Region 1, the use of the band 2025–2045 kHz by the meteorological aids service is limited to oceanographic buoy stations.

5.105 In Region 2, except in Greenland, coast stations and ship stations using radiotelephony in the band 2065–2107 kHz shall be limited to class J3E emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2065.0 kHz, 2079.0 kHz, 2082.5 kHz, 2086.0 kHz, 2093.0 kHz, 2096.5 kHz, 2100.0 kHz and 2103.5 kHz. In Argentina and Uruguay, the carrier frequencies 2068.5 kHz and 2075.5 kHz are also used for this purpose, while the frequencies within the band 2072–2075.5 kHz are used as provided in No. **52.165**.

5.106 In Regions 2 and 3, provided no harmful interference is caused to the maritime mobile service, the frequencies between 2065 kHz and 2107 kHz may be used by stations of the fixed service communicating only within national borders and whose mean power does not exceed 50 W. In notifying the frequencies, the attention of the Bureau should be drawn to these provisions.

5.107 Additional allocation: in Saudi Arabia, Eritrea, Eswatini, Ethiopia, Iraq, Libya and Somalia, the frequency band 2 160–2 170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W. (WRC-19)

5.108 The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5–2 190.5 kHz are prescribed in Articles **31** and **52**. (WRC-07)

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

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

5.111 The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **31**.

The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of ± 3 kHz about the frequency. (WRC-07)

5.112 Alternative allocation: in Sri Lanka, the frequency band 2 194–2 300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

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

5.114 Alternative allocation: in Iraq, the frequency band 2 502–2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

5.115 The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **31**, by stations of the maritime mobile service engaged in coordinated search and rescue operations. (WRC-07)

5.116 Administrations are urged to authorize the use of the band 3155–3195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these



devices may be assigned by administrations in the bands between 3155 kHz and 3400 kHz to suit local needs.

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

5.117 *Alternative allocation:* in Côte d'Ivoire, Egypt, Liberia, Sri Lanka and Togo, the frequency band 3 155–3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

5.118 *Additional allocation:* in the United States, Mexico and Peru, the frequency band 3 230–3 400 kHz is also allocated to the radiolocation service on a secondary basis. (WRC-19)

5.119 *Additional allocation:* in Peru, the frequency band 3 500–3 750 kHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)

5.120 (SUP – WRC-2000)

5.121 Not used.

5.122 *Alternative allocation:* in Bolivia, Chile, Ecuador, Paraguay and Peru, the frequency band 3 750–4 000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-15)

5.123 *Additional allocation:* in Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, the frequency band 3 900–3 950 kHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-19)

5.124 (SUP – WRC-2000)

5.125 *Additional allocation:* in Greenland, the band 3950–4000 kHz is also allocated to the broadcasting service on a primary basis. The power of the broadcasting stations operating in this band shall not exceed that necessary for a national service and shall in no case exceed 5 kW.

5.126 In Region 3, the stations of those services to which the band 3995–4005 kHz is allocated may transmit standard frequency and time signals.

5.127 The use of the band 4000–4063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. **5.2.20** and Appendix **17**).

5.128 Frequencies in the frequency bands 4 063–4 123 kHz and 4 130–4 438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Pakistan, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the frequency bands 4 063–4 123 kHz, 4 130–4 133 kHz and 4 408–4 438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service. (WRC-19)

5.129 (SUP – WRC-07)

5.130 The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **31** and **52**. (WRC-07)

5.131 The frequency 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. (WRC-97)

5.132 The frequencies 4210 kHz, 6314 kHz, 8416.5 kHz, 12579 kHz, 16806.5 kHz, 19680.5 kHz, 22376 kHz and 26100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendix **17**).

5.132A Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC-12)**. (WRC-12)

5.132B *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 4 438–4 488 kHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. (WRC-19)

5.133 *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Niger, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5 130–5 250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-12)

5.133A *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency bands 5 250–5 275 kHz and 26 200–26 350 kHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

5.133B Stations in the amateur service using the frequency band 5 351.5–5 366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.). However, in Region 2 in Mexico, stations in the amateur service using the frequency band 5 351.5–5 366.5 kHz shall not exceed a maximum radiated power of 20 W (e.i.r.p.). In the following Region 2 countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Dominica, El Salvador, Ecuador, Grenada, Guatemala, Guyana, Haiti, Honduras,



Jamaica, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela, as well as the overseas countries and territories within the Kingdom of the Netherlands in Region 2, stations in the amateur service using the frequency band 5 351.5–5 366.5 kHz shall not exceed a maximum radiated power of 25 W (e.i.r.p.). (WRC-19)

5.134 The use of the frequency bands 5 900–5 950 kHz, 7 300–7 350 kHz, 9 400–9 500 kHz, 11 600–11 650 kHz, 12 050–12 100 kHz, 13 570–13 600 kHz, 13 800–13 870 kHz, 15 600–15 800 kHz, 17 480–17 550 kHz and 18 900–19 020 kHz by the broadcasting service is subject to the application of the procedure of Article 12. Administrations are encouraged to use these frequency bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution **517 (Rev.WRC-19)**. (WRC-19)

5.135 (SUP – WRC-97)

5.136 *Additional allocation:* frequencies in the band 5 900–5 950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in Region 1), mobile except aeronautical mobile (R) service (in Regions 2 and 3), on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.137 On condition that harmful interference is not caused to the maritime mobile service, the bands 6200–6 213.5 kHz and 6220.5–6525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.

5.138 The following bands:

- 6 765–6 795 kHz (centre frequency 6 780 kHz),
- 433.05–434.79 MHz (centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **5.280**,
- 61–61.5 GHz (centre frequency 61.25 GHz),
- 122–123 GHz (centre frequency 122.5 GHz), and
- 244–246 GHz (centre frequency 245 GHz)

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

5.138A (SUP – WRC-12)

5.139 (SUP – WRC-12)

5.140 *Additional allocation:* in Angola, Iraq, Somalia and Togo, the frequency band 7 000–7 050 kHz is also allocated to the fixed service on a primary basis. (WRC-15)

5.141 *Alternative allocation:* in Egypt, Eritrea, Ethiopia, Guinea, Libya, Madagascar and Niger, the band 7 000–7 050 kHz is allocated to the fixed service on a primary basis. (WRC-12)

5.141A *Additional allocation:* in Uzbekistan and Kyrgyzstan, the bands 7000–7100 kHz and 7100–7200 kHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-03)

5.141B *Additional allocation:* in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Guinea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya, Mali, Morocco, Mauritania, Niger, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the frequency band 7 100–7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC-19)

5.141C (SUP – WRC-12)

5.142 The use of the band 7200–7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. (WRC-12)

5.143 *Additional allocation:* frequencies in the band 7 300–7 350 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.143A In Region 3, frequencies in the band 7 350–7 450 kHz may be used by stations in the fixed service on a primary basis and land mobile service on a secondary basis, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal



use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-12)

5.143B In Region 1, frequencies in the band 7 350–7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located on condition that harmful interference is not caused to the broadcasting service. The total radiated power of each station shall not exceed 24 dBW. (WRC-12)

5.143C *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), Jordan, Kuwait, Libya, Morocco, Mauritania, Niger, Oman, Qatar, the Syrian Arab Republic, Sudan, South Sudan, Tunisia and Yemen, the bands 7 350–7 400 kHz and 7 400–7 450 kHz are also allocated to the fixed service on a primary basis. (WRC-12)

5.143D In Region 2, frequencies in the band 7 350–7 400 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-12)

5.143E (SUP – WRC-12)

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

5.145 The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles 31 and 52. (WRC-07)

5.145A Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed service. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution 612 (Rev.WRC-12). (WRC-12)

5.145B *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency bands 9 305–9 355 kHz and 16 100–16 200 kHz are allocated to the fixed service on a primary basis. (WRC-19)

5.146 *Additional allocation:* frequencies in the bands 9 400–9 500 kHz, 11 600–11 650 kHz, 12 050–12 100 kHz, 15 600–15 800 kHz, 17 480–17 550 kHz and 18 900–19 020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

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

5.148 (SUP – WRC-97)

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

13 360–13 410 kHz,	4 950–4 990 MHz,	102–109.5 GHz,
25 550–25 670 kHz,	4 990–5 000 MHz,	111.8–114.25 GHz,
37.5–38.25 MHz,	6 650–6 675.2 MHz,	128.33–128.59 GHz,
73–74.6 MHz in Regions 1 and 3,	10.6–10.68 GHz,	129.23–129.49 GHz,
150.05–153 MHz in Region 1,	14.47–14.5 GHz,	130–134 GHz,
322–328.6 MHz,	22.01–22.21 GHz,	136–148.5 GHz,
406.1–410 MHz,	22.21–22.5 GHz,	151.5–158.5 GHz,
608–614 MHz in Regions 1 and 3,	22.81–22.86 GHz,	168.59–168.93 GHz,
1 330–1 400 MHz,	23.07–23.12 GHz,	171.11–171.45 GHz,
1 610.6–1 613.8 MHz,	31.2–31.3 GHz,	172.31–172.65 GHz,
1 660–1 670 MHz,	31.5–31.8 GHz in Regions 1 and 3,	173.52–173.85 GHz,
1 718.8–1 722.2 MHz,	36.43–36.5 GHz,	195.75–196.15 GHz,
2 655–2 690 MHz,	42.5–43.5 GHz,	209–226 GHz,
3 260–3 267 MHz,	48.94–49.04 GHz,	241–250 GHz,



3 332–3 339 MHz,	76–86 GHz,	252–275 GHz
3 345.8–3 352.5 MHz,	92–94 GHz,	
4 825–4 835 MHz,	94.1–100 GHz,	

are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 4.5 and 4.6 and Article 29). (WRC-07)

5.149A *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 13 450–13 550 kHz is allocated to the fixed service on a primary basis and to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-19)

5.150 The following bands:

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

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

5.151 *Additional allocation:* frequencies in the bands 13 570–13 600 kHz and 13 800–13 870 kHz may be used by stations in the fixed service and in the mobile except aeronautical mobile (R) service, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.152 *Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14250–14350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW. (WRC-03)

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

5.154 *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18068–18168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW. (WRC-03)

5.155 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the band 21 850–21 870 kHz is also allocated to the aeronautical mobile (R) service on a primary basis. (WRC-07)

5.155A In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the use of the band 21 850–21 870 kHz by the fixed service is limited to provision of services related to aircraft flight safety. (WRC-07)

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

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

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

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

5.158 *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 24 450–24 600 kHz is allocated to the fixed and land mobile services on a primary basis. (WRC-19)

5.159 *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 39–39.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-19)

5.160 *Additional allocation:* in Botswana, Burundi, Dem. Rep. of the Congo and Rwanda, the band 41–44 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)

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



5.161A Additional allocation: in Korea (Rep. of), the United States and Mexico, the frequency bands 41.015–41.665 MHz and 43.35–44 MHz are also allocated to the radiolocation service on a primary basis. Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC-12)**. (WRC-19)

5.161B Alternative allocation: in Albania, Germany, Armenia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Cyprus, Vatican, Croatia, Denmark, Spain, Estonia, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malta, Moldova, Monaco, Montenegro, Norway, Uzbekistan, Netherlands, Portugal, Kyrgyzstan, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Slovenia, Sweden, Switzerland, Turkey and Ukraine, the frequency band 42–42.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-19)

5.162 Additional allocation: in Australia, the band 44–47 MHz is also allocated to the broadcasting service on a primary basis. (WRC-12)

5.162A Additional allocation: in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, the Russian Federation, Finland, France, Ireland, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland the frequency band 46–68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**. (WRC-19)

5.163 Additional allocation: in Armenia, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency bands 47–48.5 MHz and 56.5–58 MHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-19)

5.164 Additional allocation: in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Denmark, Spain, Estonia, Eswatini, Finland, France, Gabon, Greece, Hungary, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Slovakia, Czech Rep., Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Chad, Togo, Tunisia and Turkey, the frequency band 47–68 MHz, in South Africa the frequency band 47–50 MHz, and in Latvia the frequency bands 48.5–56.5 MHz and 58–68 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each frequency band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the frequency band. (WRC-19)

5.165 Additional allocation: in Angola, Cameroon, Congo (Rep. of the), Egypt, Madagascar, Mozambique, Niger, Somalia, Sudan, South Sudan, Tanzania and Chad, the frequency band 47–68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

5.166 (SUP – WRC-15)

5.166A Different category of service: in Austria, Cyprus, the Vatican, Croatia, Denmark, Spain, Finland, Hungary, Latvia, the Netherlands, the Czech Republic, the United Kingdom, Slovakia and Slovenia, the frequency band 50.0–50.5 MHz is allocated to the amateur service on a primary basis. Stations in the amateur service in these countries shall not cause harmful interference to, or claim protection from, stations of the broadcasting, fixed and mobile services operating in accordance with the Radio Regulations in the frequency band 50.0–50.5 MHz in the countries not listed in this provision. For a station of these services, the protection criteria in No. **5.169B** shall also apply. In Region 1, with the exception of those countries listed in No. **5.169**, wind profiler radars operating in the radiolocation service under No. **5.162A** are authorized to operate on the basis of equality with stations in the amateur service in the frequency band 50.0–50.5 MHz. (WRC-19)

5.166B In Region 1, stations in the amateur service operating on a secondary basis shall not cause harmful interference to, or claim protection from, stations of the broadcasting service. The field strength generated by an amateur station in Region 1 in the frequency band 50–52 MHz shall not exceed a calculated value of +6 dB(μ V/m) at a height of 10 m above ground for more than 10% of time along the border of a country with operational analogue broadcasting stations in Region 1 and of neighbouring countries with broadcasting stations in Region 3 listed in Nos. **5.167** and **5.168**. (WRC-19)

5.166C In Region 1, stations in the amateur service in the frequency band 50–52 MHz, with the exception of those countries listed in No. **5.169**, shall not cause harmful interference to, or claim protection from, wind profiler radars operating in the radiolocation service under No. **5.162A**. (WRC-19)

5.166D Different category of service: in Lebanon, the frequency band 50–52 MHz is allocated to the amateur service on a primary basis. Stations in the amateur service in Lebanon shall not cause



harmful interference to, or claim protection from, stations of the broadcasting, fixed and mobile services operating in accordance with the Radio Regulations in the frequency band 50–52 MHz in the countries not listed in this provision. (WRC-19)

5.166E In the Russian Federation, only the frequency band 50.080–50.280 MHz is allocated to the amateur service on a secondary basis. The protection criteria for the other services in the countries not listed in this provision are specified in Nos. **5.166B** and **5.169B**. (WRC-19)

5.167 *Alternative allocation:* in Bangladesh, Brunei Darussalam, India, Iran (Islamic Republic of), Pakistan and Singapore, the frequency band 50–54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-15)

5.167A *Additional allocation:* in Indonesia and Thailand, the frequency band 50–54 MHz is also allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-15)

5.168 *Additional allocation:* in Australia, China and the Dem. People's Rep. of Korea, the band 50–54 MHz is also allocated to the broadcasting service on a primary basis.

5.169 *Alternative allocation:* in Botswana, Eswatini, Lesotho, Malawi, Namibia, Rwanda, South Africa, Zambia and Zimbabwe, the frequency band 50–54 MHz is allocated to the amateur service on a primary basis. In Senegal, the frequency band 50–51 MHz is allocated to the amateur service on a primary basis. (WRC-19)

5.169A *Alternative allocation:* in the following countries in Region 1: Angola, Saudi Arabia, Bahrain, Burkina Faso, Burundi, the United Arab Emirates, Gambia, Jordan, Kenya, Kuwait, Mauritius, Mozambique, Oman, Uganda, Qatar, South Sudan and Tanzania, the frequency band 50–54 MHz is allocated to the amateur service on a primary basis. In Guinea-Bissau, the frequency band 50.0–50.5 MHz is allocated to the amateur service on a primary basis. In Djibouti, the frequency band 50–52 MHz is allocated to the amateur service on a primary basis. With the exception of those countries listed in No. **5.169**, stations in the amateur service operating in Region 1 under this footnote, in all or part of the frequency band 50–54 MHz, shall not cause harmful interference to, or claim protection from, stations of other services operating in accordance with the Radio Regulations in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Israel, Libya, Palestine², the Syrian Arab Republic, the Dem. People's Republic of Korea, Sudan and Tunisia. The field strength generated by an amateur station in the frequency band 50–54 MHz shall not exceed a value of +6 dB(µV/m) at a height of 10 m above ground for more than 10% of time along the borders of listed countries requiring protection. (WRC-19)

5.169B Except countries listed under No. **5.169**, stations in the amateur service used in Region 1, in all or part of the 50–54 MHz frequency band, shall not cause harmful interference to, or claim protection from, stations of other services used in accordance with the Radio Regulations in Algeria, Armenia, Azerbaijan, Belarus, Egypt, Russian Federation, Iran (Islamic Republic of), Iraq, Kazakhstan, Kyrgyzstan, Libya, Uzbekistan, Palestine³, the Syrian Arab Republic, Sudan, Tunisia and Ukraine. The field strength generated by an amateur station in the frequency band 50–54 MHz shall not exceed a value of +6 dB(µV/m) at a height of 10 m above ground for more than 10% of time along the borders of the countries listed in this provision. (WRC-19)

5.170 *Additional allocation:* in New Zealand, the frequency band 51–54 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)

5.171 *Additional allocation:* in Botswana, Eswatini, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Zambia and Zimbabwe, the frequency band 54–68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

5.172 *Different category of service:* in the French overseas departments and communities in Region 2 and Guyana, the allocation of the frequency band 54–68 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**). (WRC-15)

5.173 *Different category of service:* in the French overseas departments and communities in Region 2 and Guyana, the allocation of the frequency band 68–72 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**). (WRC-15)

5.174 (SUP – WRC-07)

5.175 *Alternative allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the bands 68–73 MHz and 76–87.5 MHz are allocated to the broadcasting service on a primary basis. In Latvia and Lithuania, the bands 68–73 MHz and 76–87.5 MHz are allocated to the broadcasting and mobile, except aeronautical mobile, services on a primary basis. The services to which these bands are allocated in other countries and the broadcasting service in the countries listed above are subject to agreements with the neighbouring countries concerned. (WRC-07)

5.176 *Additional allocation:* in Australia, China, Korea (Rep. of), the Philippines, the Dem. People's

² Pursuant to Resolution 99 (Rev. Dubai, 2018) and taking into account the Israeli-Palestinian interim- Agreement of 28 September 1995.

³ Pursuant to Resolution 99 (Rev. Dubai, 2018) and taking into account the Israeli-Palestinian interim- Agreement of 28 September 1995.



Rep. of Korea and Samoa, the band 68–74 MHz is also allocated to the broadcasting service on a primary basis. (WRC-07)

5.177 Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 73–74 MHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-07)

5.178 Additional allocation: in Colombia, Cuba, El Salvador, Guatemala, Guyana, Honduras and Nicaragua, the band 73–74.6 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)

5.179 Additional allocation: in Armenia, Azerbaijan, Belarus, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Mongolia, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the bands 74.6–74.8 MHz and 75.2–75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only. (WRC-12)

5.180 The frequency 75 MHz is assigned to marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the guardband to stations of other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons.

Every effort should be made to improve further the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.8 MHz and 75.2 MHz.

5.181 Additional allocation: in Egypt, Israel and the Syrian Arab Republic, the band 74.8–75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. 9.21. (WRC-03)

5.182 Additional allocation: in Western Samoa, the band 75.4–87 MHz is also allocated to the broadcasting service on a primary basis.

5.183 Additional allocation: in China, Korea (Rep. of), Japan, the Philippines and the Dem. People's Rep. of Korea, the band 76–87 MHz is also allocated to the broadcasting service on a primary basis.

5.184 (SUP – WRC-07)

5.185 Different category of service: in the United States, the French overseas departments and communities in Region 2, Guyana and Paraguay, the allocation of the frequency band 76–88 MHz to the fixed and mobile services is on a primary basis (see No. 5.33). (WRC-15)

5.186 (SUP – WRC-97)

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

5.188 Additional allocation: in Australia, the band 85–87 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service in Australia is subject to special agreements between the administrations concerned.

5.189 Not used.

5.190 Additional allocation: in Monaco, the band 87.5–88 MHz is also allocated to the land mobile service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-97)

5.191 Not used.

5.192 Additional allocation: in China and Korea (Rep. of), the band 100–108 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)

5.193 Not used.

5.194 Additional allocation: in Kyrgyzstan, Somalia and Turkmenistan, the frequency band 104–108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-19)

5.195 and **5.196** Not used.

5.197 Additional allocation: in the Syrian Arab Republic, the band 108–111.975 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedures invoked under No. 9.21. (WRC-12)

5.197A Additional allocation: the band 108–117.975 MHz is also allocated on a primary basis to the aeronautical mobile (R) service, limited to systems operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **413 (Rev.WRC-07)**⁴. The use of the band 108–112 MHz by the aeronautical mobile (R) service shall be limited to systems composed of ground-based transmitters and associated receivers that provide

⁴ Note by the Secretariat: This Resolution was revised by WRC-12.



navigational information in support of air navigation functions in accordance with recognized international aeronautical standards. (WRC-07)

5.198 (SUP – WRC-07)

5.199 (SUP – WRC-07)

5.200 In the band 117.975–137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article 31 for distress and safety purposes with stations of the aeronautical mobile service. (WRC-07)

5.201 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq (Republic of), Japan, Kazakhstan, Mali, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Romania, Senegal, Tajikistan, Turkmenistan and Ukraine, the frequency band 132–136 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-19)

5.202 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Mali, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, Senegal, Tajikistan, Turkmenistan and Ukraine, the frequency band 136–137 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-19)

5.203 (SUP – WRC-07)

5.203A (SUP – WRC-07)

5.203B (SUP – WRC-07)

5.203C 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 (WRC-19). Resolution 32 (WRC-19) 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. (WRC-19)

5.204 *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Singapore, Thailand and Yemen, the frequency band 137–138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. 5.33). (WRC-19)

5.205 *Different category of service:* in Israel and Jordan, the allocation of the band 137–138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33).

5.206 *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, the Russian Federation, Finland, France, Georgia, Greece, Kazakhstan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Syrian Arab Republic, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 137–138 MHz to the aeronautical mobile (OR) service is on a primary basis (see No. 5.33). (WRC-2000)

5.207 *Additional allocation:* in Australia, the band 137–144 MHz is also allocated to the broadcasting service on a primary basis until that service can be accommodated within regional broadcasting allocations.

5.208 The use of the band 137–138 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. (WRC-97)

5.208A In making assignments to space stations in the mobile-satellite service in the frequency bands 137–138 MHz, 387–390 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, administrations shall take all practicable steps to protect the radio astronomy service in the frequency bands 150.05–153 MHz, 322–328.6 MHz, 406.1–410 MHz and 608–614 MHz from harmful interference from unwanted emissions as shown in the most recent version of Recommendation ITU-R RA.769. (WRC-19)

5.208B⁵ In the frequency bands:

137–138 MHz,

157.1875–157.3375 MHz,

161.7875–161.9375 MHz,

387–390 MHz,

400.15–401 MHz,

1 452–1 492 MHz,

1 525–1 610 MHz,

⁵ This provision was previously numbered as No. 5.347A. It was renumbered to preserve the sequential order.



1 613.8–1 626.5 MHz,

2 655–2 690 MHz,

21.4–22 GHz,

Resolution **739 (Rev.WRC-19)** applies. (WRC-19)

5.209 The use of the bands 137–138 MHz, 148–150.05 MHz, 399.9–400.05 MHz, 400.15–401 MHz, 454–456 MHz and 459–460 MHz by the mobile-satellite service is limited to non-geostationary-satellite systems. (WRC-97)

5.209A 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 is not subject to No. **9.11A**. (WRC-19)

5.210 *Additional allocation:* in Italy, the Czech Rep. and the United Kingdom, the bands 138–143.6 MHz and 143.65–144 MHz are also allocated to the space research service (space-to-Earth) on a secondary basis. (WRC-07)

5.211 *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Guinea, Ireland, Israel, Kenya, Kuwait, Lebanon, Liechtenstein, Luxembourg, North Macedonia, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the frequency band 138–144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-19)

5.212 *Alternative allocation:* in Angola, Botswana, Cameroon, the Central African Rep., Congo (Rep. of the), Eswatini, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libya, Malawi, Mozambique, Namibia, Niger, Oman, Uganda, Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Chad, Togo, Zambia and Zimbabwe, the frequency band 138–144 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-19)

5.213 *Additional allocation:* in China, the band 138–144 MHz is also allocated to the radiolocation service on a primary basis.

5.214 *Additional allocation:* in Eritrea, Ethiopia, Kenya, North Macedonia, Montenegro, Serbia, Somalia, Sudan, South Sudan and Tanzania, the frequency band 138–144 MHz is also allocated to the fixed service on a primary basis. (WRC-19)

5.215 Not used.

5.216 *Additional allocation:* in China, the band 144–146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.

5.217 *Alternative allocation:* in Afghanistan, Bangladesh, Cuba, Guyana and India, the band 146–148 MHz is allocated to the fixed and mobile services on a primary basis.

5.218 *Additional allocation:* the band 148–149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21**. The bandwidth of any individual transmission shall not exceed ± 25 kHz.

5.218A 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 (WRC-19)** 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 flux-density does not exceed -149 dB(W/(m² × 4 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 countries mentioned in this footnote. (WRC-19)

5.219 The use of the frequency band 148–149.9 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the 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**. (WRC-19)

5.220 The use of the frequency bands 149.9–150.05 MHz and 399.9–400.05 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-15)

5.221 Stations of the mobile-satellite service in the frequency band 148–149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti,



Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Eswatini, Ethiopia, the Russian Federation, Finland, France, Gabon, Georgia, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-19)

5.222 (SUP – WRC-15)

5.223 (SUP – WRC-15)

5.224 (SUP – WRC-97)

5.224A (SUP – WRC-15)

5.224B (SUP – WRC-15)

5.225 *Additional allocation:* in Australia and India, the band 150.05–153 MHz is also allocated to the radio astronomy service on a primary basis.

5.225A *Additional allocation:* in Algeria, Armenia, Azerbaijan, Belarus, China, the Russian Federation, France, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and Viet Nam, the frequency band 154–156 MHz is also allocated to the radiolocation service on a primary basis. The usage of the frequency band 154–156 MHz by the radiolocation service shall be limited to space-object detection systems operating from terrestrial locations. The operation of stations in the radiolocation service in the frequency band 154–156 MHz shall be subject to agreement obtained under No. **9.21**. For the identification of potentially affected administrations in Region 1, the instantaneous field-strength value of 12 dB(μ V/m) for 10% of the time produced at 10 m above ground level in the 25 kHz reference frequency band at the border of the territory of any other administration shall be used. For the identification of potentially affected administrations in Region 3, the interference-to-noise ratio (I/N) value of –6 dB (N = –161 dBW/4 kHz), or –10 dB for applications with greater protection requirements, such as public protection and disaster relief (PPDR (N = –161 dBW/4 kHz)), for 1% of the time produced at 60 m above ground level at the border of the territory of any other administration shall be used. In the frequency bands 156.7625–156.8375 MHz, 156.5125–156.5375 MHz, 161.9625–161.9875 MHz, 162.0125–162.0375 MHz, out-of-band e.i.r.p. of space surveillance radars shall not exceed –16 dBW. Frequency assignments to the radiolocation service under this allocation in Ukraine shall not be used without the agreement of Moldova. (WRC-12)

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

The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency and the band 156.7625–156.8375 MHz are contained in Article **31** and Appendix **18**.

In the bands 156–156.4875 MHz, 156.5625–156.7625 MHz, 156.8375–157.45 MHz, 160.6–160.975 MHz and 161.475–162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **31** and **52**, and Appendix **18**).

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

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

5.227 *Additional allocation:* the bands 156.4875–156.5125 MHz and 156.5375–156.5625 MHz are also allocated to the fixed and land mobile services on a primary basis. The use of these bands by the fixed and land mobile services shall not cause harmful interference to nor claim protection from the maritime mobile VHF radiocommunication service. (WRC-07)

5.227A (SUP – WRC-12)

5.228 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. (WRC-12)

5.228AB 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-geostationary-satellite systems operating in accordance with Appendix 18. (WRC-19)
- 5.228AC** 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-geostationary-satellite systems operating in accordance with Appendix 18. 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. (WRC-19)
- 5.228A** The frequency bands 161.9625–161.9875 MHz and 162.0125–162.0375 MHz may be used by aircraft stations for the purpose of search and rescue operations and other safety-related communications. (WRC-12)
- 5.228AA** 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. (WRC-15)
- 5.228B** The use of the frequency bands 161.9625–161.9875 MHz and 162.0125–162.0375 MHz by the fixed and land mobile services shall not cause harmful interference to, or claim protection from, the maritime mobile service. (WRC-12)
- 5.228C** The use of the frequency bands 161.9625–161.9875 MHz and 162.0125–162.0375 MHz by the maritime mobile service and the mobile-satellite (Earth-to-space) service is limited to the automatic identification system (AIS). The use of these frequency bands by the aeronautical mobile (OR) service is limited to AIS emissions from search and rescue aircraft operations. The AIS operations in these frequency bands shall not constrain the development and use of the fixed and mobile services operating in the adjacent frequency bands. (WRC-12)
- 5.228D** The frequency bands 161.9625–161.9875 MHz (AIS 1) and 162.0125–162.0375 MHz (AIS 2) may continue to be used by the fixed and mobile services on a primary basis until 1 January 2025, at which time this allocation shall no longer be valid. Administrations are encouraged to make all practicable efforts to discontinue the use of these bands by the fixed and mobile services prior to the transition date. During this transition period, the maritime mobile service in these frequency bands has priority over the fixed, land mobile and aeronautical mobile services. (WRC-12)
- 5.228E** The use of the automatic identification system in the frequency bands 161.9625–161.9875 MHz and 162.0125–162.0375 MHz by the aeronautical mobile (OR) service is limited to aircraft stations for the purpose of search and rescue operations and other safety-related communications. (WRC-12)
- 5.228F** The use of the frequency bands 161.9625–161.9875 MHz and 162.0125–162.0375 MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system emissions from stations operating in the maritime mobile service. (WRC-12)
- 5.229** *Alternative allocation:* in Morocco, the band 162–174 MHz is allocated to the broadcasting service on a primary basis. The use of this band shall be subject to agreement with administrations having services, operating or planned, in accordance with the Table which are likely to be affected. Stations in existence on 1 January 1981, with their technical characteristics as of that date, are not affected by such agreement.
- 5.230** *Additional allocation:* in China, the band 163–167 MHz is also allocated to the space operation service (space-to-Earth) on a primary basis, subject to agreement obtained under No. 9.21.
- 5.231** *Additional allocation:* in Afghanistan and China, the band 167–174 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service into this band shall be subject to agreement with the neighbouring countries in Region 3 whose services are likely to be affected. (WRC-12)
- 5.232** (SUP – WRC-15)
- 5.233** *Additional allocation:* in China, the band 174–184 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis, subject to agreement obtained under No. 9.21. These services shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations.
- 5.234** (SUP – WRC-15)
- 5.235** *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174–223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.
- 5.236** Not used.
- 5.237** *Additional allocation:* in Congo (Rep. of the), Egypt, Eritrea, Ethiopia, Gambia, Guinea, Libya, Mali, Sierra Leone, Somalia and Chad, the band 174–223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)
- 5.238** *Additional allocation:* in Bangladesh, India, Pakistan and the Philippines, the band 200–216 MHz is also allocated to the aeronautical radionavigation service on a primary basis.



5.239 Not used.

5.240 *Additional allocation:* in China and India, the band 216–223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.

5.241 In Region 2, no new stations in the radiolocation service may be authorized in the band 216–225 MHz. Stations authorized prior to 1 January 1990 may continue to operate on a secondary basis.

5.242 *Additional allocation:* in Canada and Mexico, the frequency band 216–220 MHz is also allocated to the land mobile service on a primary basis. (WRC-19)

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

5.244 (SUP – WRC-97)

5.245 *Additional allocation:* in Japan, the band 222–223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.

5.246 *Alternative allocation:* in Spain, France, Israel and Monaco, the band 223–230 MHz is allocated to the broadcasting and land mobile services on a primary basis (see No. 5.33) on the basis that, in the preparation of frequency plans, the broadcasting service shall have prior choice of frequencies; and allocated to the fixed and mobile, except land mobile, services on a secondary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations in Morocco and Algeria.

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

5.248 and **5.249** Not used.

5.250 *Additional allocation:* in China, the band 225–235 MHz is also allocated to the radio astronomy service on a secondary basis.

5.251 *Additional allocation:* in Nigeria, the band 230–235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to agreement obtained under No. 9.21.

5.252 *Alternative allocation:* in Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, the frequency bands 230–238 MHz and 246–254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-19)

5.253 Not used.

5.254 The bands 235–322 MHz and 335.4–399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. 9.21, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote No. 5.256A. (WRC-03)

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

5.256 The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes. (WRC-07)

5.256A *Additional allocation:* in China, the Russian Federation and Kazakhstan, the frequency band 258–261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, or claim protection from, or constrain the use and development of, the mobile service systems and mobile-satellite service systems operating in the frequency band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries. (WRC-15)

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

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

5.259 *Additional allocation:* in Egypt and the Syrian Arab Republic, the band 328.6–335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. 9.21. (WRC-12)

5.260A 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. Administrations are requested that their mobile-satellite service satellite links in the 399.99–400.02 MHz frequency band comply with the e.i.r.p. limits as specified above, after 22 November 2019. (WRC-19)

5.260B In the frequency band 400.02–400.05 MHz, the provisions of No. **5.260A** are not applicable for telecommand uplinks within the mobile-satellite service. (WRC-19)

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

5.262 Additional allocation: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Botswana, Colombia, Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Singapore, Somalia, Tajikistan, Chad, Turkmenistan and Ukraine, the band 400.05–401 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

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

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

5.264A 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-satellite systems and non-geostationary-satellite 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-satellite 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-satellite systems and non-geostationary-satellite 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-satellite 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. (WRC-19)

5.264B 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 No. **5.264A** 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. (WRC-19)

5.265 In the frequency band 403–410 MHz, Resolution **205 (Rev.WRC-19)** applies. (WRC-19)

5.266 The use of the band 406–406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article **31**). (WRC-07)

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

5.268 Use of the frequency band 410–420 MHz by the space research service is limited to space-to-space communication links with an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from transmitting stations of the space research service (space-to-space) in the frequency band 410–420 MHz shall not exceed -153 dB(W/m²) for $0^\circ \leq \delta \leq 5^\circ$, $-153 + 0.077(\delta - 5)$ dB(W/m²) for $5^\circ \leq \delta \leq 70^\circ$ and -148 dB(W/m²) for $70^\circ \leq \delta \leq 90^\circ$, where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. In this frequency band, stations of the space research service (space-to-space) shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. No. **4.10** does not apply. (WRC-15)

5.269 Different category of service: in Australia, the United States, India, Japan and the United Kingdom, the allocation of the bands 420–430 MHz and 440–450 MHz to the radiolocation service is on a primary basis (see No. **5.33**).

5.270 Additional allocation: in Australia, the United States, Jamaica and the Philippines, the bands 420–430 MHz and 440–450 MHz are also allocated to the amateur service on a secondary basis.



5.271 Additional allocation: in Belarus, China, India, Kyrgyzstan and Turkmenistan, the band 420–460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis. (WRC-07)

5.272 (SUP – WRC-12)

5.273 (SUP – WRC-12)

5.274 Alternative allocation: in Denmark, Norway, Sweden and Chad, the bands 430–432 MHz and 438–440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

5.275 Additional allocation: in Croatia, Estonia, Finland, Libya, North Macedonia, Montenegro and Serbia, the frequency bands 430–432 MHz and 438–440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

5.276 Additional allocation: in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Djibouti, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Libya, Malaysia, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Switzerland, Thailand, Togo, Turkey and Yemen, the frequency band 430–440 MHz is also allocated to the fixed service on a primary basis and the frequency bands 430–435 MHz and 438–440 MHz are also allocated, except in Ecuador, to the mobile, except aeronautical mobile, service on a primary basis. (WRC-15)

5.277 Additional allocation: in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Uzbekistan, Poland, the Dem. Rep. of the Congo, Kyrgyzstan, Slovakia, Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the frequency band 430–440 MHz is also allocated to the fixed service on a primary basis. (WRC-19)

5.278 Different category of service: in Argentina, Brazil, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama, Paraguay, Uruguay and Venezuela, the allocation of the frequency band 430–440 MHz to the amateur service is on a primary basis (see No. 5.33). (WRC-19)

5.279 Additional allocation: in Mexico, the frequency bands 430–435 MHz and 438–440 MHz are also allocated on a primary basis to the mobile, except aeronautical mobile, service, and on a secondary basis to the fixed service, subject to agreement obtained under No. 9.21. (WRC-19)

5.279A The use of the frequency band 432–438 MHz by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R RS.1260-2. 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. (WRC-19)

5.280 In Germany, Austria, Bosnia and Herzegovina, Croatia, Liechtenstein, North Macedonia, Montenegro, Portugal, Serbia, Slovenia and Switzerland, the frequency band 433.05–434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this frequency band must accept harmful interference which may be caused by these applications. ISM equipment operating in this frequency band is subject to the provisions of No. 15.13. (WRC-19)

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

5.282 In the bands 435–438 MHz, 1260–1270 MHz, 2400–2450 MHz, 3400–3410 MHz (in Regions 2 and 3 only) and 5650–5670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. 5.43). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. 25.11. The use of the bands 1260–1270 MHz and 5650–5670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

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

5.284 Additional allocation: in Canada, the band 440–450 MHz is also allocated to the amateur service on a secondary basis.

5.285 Different category of service: in Canada, the allocation of the band 440–450 MHz to the radiolocation service is on a primary basis (see No. 5.33).

5.286 The band 449.75–450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. 9.21.

5.286A The use of the bands 454–456 MHz and 459–460 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. (WRC-97)

5.286AA The frequency band 450–470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolution 224 (Rev.WRC-19). 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. (WRC-19)
5.286B The use of the band 454–455 MHz in the countries listed in No. **5.286D**, 455–456 MHz and 459–460 MHz in Region 2, and 454–456 MHz and 459–460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)

5.286C The use of the band 454–455 MHz in the countries listed in No. **5.286D**, 455–456 MHz and 459–460 MHz in Region 2, and 454–456 MHz and 459–460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not constrain the development and use of the fixed and mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)

5.286D Additional allocation: in Canada, the United States and Panama, the band 454–455 MHz is also allocated to the mobile-satellite service (Earth-to-space) on a primary basis. (WRC-07)

5.286E Additional allocation: in Cape Verde, Nepal and Nigeria, the bands 454–456 MHz and 459–460 MHz are also allocated to the mobile-satellite (Earth-to-space) service on a primary basis. (WRC-07)

5.287 Use of the frequency 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 Recommendation ITU-R M.1174-4. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned. (WRC-19)

5.288 In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-4. (WRC-19)

5.289 Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460–470 MHz and 1690–1710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.

5.290 Different category of service: in Afghanistan, Azerbaijan, Belarus, China, the Russian Federation, Japan, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 460–470 MHz to the meteorological-satellite service (space-to-Earth) is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-12)

5.291 Additional allocation: in China, the band 470–485 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis subject to agreement obtained under No. **9.21** and subject to not causing harmful interference to existing and planned broadcasting stations.

5.291A Additional allocation: in Germany, Austria, Denmark, Estonia, Liechtenstein, the Czech Rep., Serbia and Switzerland, the frequency band 470–494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**. (WRC-15)

5.292 Different category of service: in Argentina, Uruguay and Venezuela, the allocation of the frequency band 470–512 MHz to the mobile service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-15)

5.293 Different category of service: in Canada, Chile, Cuba, the United States, Guyana, Jamaica and Panama, the allocation of the frequency bands 470–512 MHz and 614–806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In the Bahamas, Barbados, Canada, Chile, Cuba, the United States, Guyana, Jamaica, Mexico and Panama, the allocation of the frequency bands 470–512 MHz and 614–698 MHz to the mobile service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In Argentina and Ecuador, the allocation of the frequency band 470–512 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-15)

5.294 Additional allocation: in Saudi Arabia, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, Libya, the Syrian Arab Republic, Chad and Yemen, the frequency band 470–582 MHz is also allocated to the fixed service on a secondary basis. (WRC-15)

5.295 In the Bahamas, Barbados, Canada, the United States and Mexico, the frequency band 470–608 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT) – see Resolution **224 (Rev.WRC-19)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement obtained under No. **9.21** and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. **5.43** and **5.43A** apply. (WRC-19)

5.296 Additional allocation: in Albania, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican,



Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Eswatini, Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malawi, Mali, Malta, Morocco, Mauritius, Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech Republic, Romania, the United Kingdom, Rwanda, San Marino, Serbia, Sudan, South Africa, Sweden, Switzerland, Tanzania, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the frequency band 470–694 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme-making. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-19)

5.296A In Micronesia, the Solomon Islands, Tuvalu and Vanuatu, the frequency band 470–698 MHz, or portions thereof, and in Bangladesh, Maldives and New Zealand, the frequency band 610–698 MHz, or portions thereof, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolution **224 (Rev.WRC-19)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. The mobile allocation in this frequency band shall not be used for IMT systems unless subject to agreement obtained under No. **9.21** and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. **5.43** and **5.43A** apply. (WRC-19)

5.297 Additional allocation: in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana and Jamaica, the frequency band 512–608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. **9.21**. In the Bahamas, Barbados and Mexico, the frequency band 512–608 MHz is also allocated to the mobile service on a primary basis, subject to agreement obtained under No. **9.21**. In Mexico, the frequency band 512–608 MHz is also allocated on a secondary basis to the fixed service (see No. **5.32**). (WRC-19)

5.298 Additional allocation: in India, the band 549.75–550.25 MHz is also allocated to the space operation service (space-to-Earth) on a secondary basis.

5.299 Not used.

5.300 Additional allocation: in Saudi Arabia, Cameroon, Egypt, United Arab Emirates, Israel, Jordan, Libya, Oman, Qatar, the Syrian Arab Republic and Sudan, the frequency band 582–790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-15)

5.301 Not used.

5.302 (SUP – WRC-12)

5.303 Not used.

5.304 Additional allocation: in the African Broadcasting Area (see Nos. **5.10** to **5.13**), the band 606–614 MHz is also allocated to the radio astronomy service on a primary basis.

5.305 Additional allocation: in China, the band 606–614 MHz is also allocated to the radio astronomy service on a primary basis.

5.306 Additional allocation: in Region 1, except in the African Broadcasting Area (see Nos. **5.10** to **5.13**), and in Region 3, the band 608–614 MHz is also allocated to the radio astronomy service on a secondary basis.

5.307 Additional allocation: in India, the band 608–614 MHz is also allocated to the radio astronomy service on a primary basis.

5.308 Additional allocation: in Belize, Colombia and Guatemala, the frequency band 614–698 MHz is also allocated to the mobile service on a primary basis. Stations of the mobile service within the frequency band are subject to agreement obtained under No. **9.21**. (WRC-19)

5.308A In the Bahamas, Barbados, Belize, Canada, Colombia, the United States, Guatemala and Mexico, the frequency band 614–698 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT) – see Resolution **224 (Rev.WRC-19)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement obtained under No. **9.21** and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. **5.43** and **5.43A** apply. (WRC-19)

5.309 Different category of service: in El Salvador, the allocation of the frequency band 614–806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-15)

5.310 (SUP – WRC-97)

5.311 (SUP – WRC-07)

5.311A (SUP – WRC-19)

5.312 Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band



645–862 MHz, and in Bulgaria the frequency bands 646–686 MHz, 726–753 MHz, 778–811 MHz and 822–852 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-19)

5.312A In Region 1, the use of the frequency band 694–790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution **760 (Rev.WRC-19)**. See also Resolution **224 (Rev.WRC-19)**. (WRC-19)

5.313 (SUP – WRC-97)

5.313A The frequency band, or portions of the frequency band 698–790 MHz, in Australia, Bangladesh, Brunei Darussalam, Cambodia, China, Korea (Rep. of), Fiji, India, Indonesia, Japan, Kiribati, Lao P.D.R., Malaysia, Myanmar (Union of), New Zealand, Pakistan, Papua New Guinea, the Philippines, the Dem. People's Rep. of Korea, Solomon Islands, Samoa, Singapore, Thailand, Tonga, Tuvalu, Vanuatu and Viet Nam, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-19)

5.313B (SUP – WRC-15)

5.314 (SUP – WRC-15)

5.315 (SUP – WRC-15)

5.316 (SUP – WRC-15)

5.316A (SUP – WRC-15)

5.316B In Region 1, the allocation to the mobile, except aeronautical mobile, service in the frequency band 790–862 MHz is subject to agreement obtained under No. **9.21** with respect to the aeronautical radionavigation service in countries mentioned in No. **5.312**. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions **224 (Rev.WRC-19)** and **749 (Rev.WRC-19)** shall apply, as appropriate. (WRC-19)

5.317 Additional allocation: in Region 2 (except Brazil, the United States and Mexico), the frequency band 806–890 MHz is also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21**. The use of this service is intended for operation within national boundaries. (WRC-15)

5.317A The parts of the frequency band 698–960 MHz in Region 2 and the frequency bands 694–790 MHz in Region 1 and 790–960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions **224 (Rev.WRC-19)**, **760 (Rev.WRC-19)** and **749 (Rev.WRC-19)**, where applicable. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-19)

5.318 Additional allocation: in Canada, the United States and Mexico, the bands 849–851 MHz and 894–896 MHz are also allocated to the aeronautical mobile service on a primary basis, for public correspondence with aircraft. The use of the band 849–851 MHz is limited to transmissions from aeronautical stations and the use of the band 894–896 MHz is limited to transmissions from aircraft stations.

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

5.320 Additional allocation: in Region 3, the bands 806–890 MHz and 942–960 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service on a primary basis, subject to agreement obtained under No. **9.21**. The use of this service is limited to operation within national boundaries. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.

5.321 (SUP – WRC-07)

5.322 In Region 1, in the band 862–960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. **5.10** to **5.13**) excluding Algeria, Burundi, Egypt, Spain, Lesotho, Libya, Morocco, Malawi, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. **9.21**. (WRC-12)

5.323 Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 862–960 MHz, in Bulgaria the frequency bands 862–880 MHz and 915–925 MHz, and in Romania the frequency bands 862–880 MHz and 915–925 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **9.21** with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-19)



5.324 Not used.

5.325 *Different category of service:* in the United States, the allocation of the band 890–942 MHz to the radiolocation service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**.

5.325A *Different category of service:* in Argentina, Brazil, Costa Rica, Cuba, Dominican Republic, El Salvador, Ecuador, the French overseas departments and communities in Region 2, Guatemala, Paraguay, Uruguay and Venezuela, the frequency band 902–928 MHz is allocated to the land mobile service on a primary basis. In Mexico, the frequency band 902–928 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. In Colombia, the frequency band 902–905 MHz is allocated to the land mobile service on a primary basis. (WRC-19)

5.326 *Different category of service:* in Chile, the band 903–905 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21**.

5.327 *Different category of service:* in Australia, the allocation of the band 915–928 MHz to the radiolocation service is on a primary basis (see No. **5.33**).

5.327A The use of the frequency band 960–1 164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **417 (Rev.WRC-15)**. (WRC-15)

5.328 The use of the band 960–1 215 MHz by the aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities. (WRC-2000)

5.328A Stations in the radionavigation-satellite service in the band 1 164–1 215 MHz shall operate in accordance with the provisions of Resolution **609 (Rev.WRC-07)** and shall not claim protection from stations in the aeronautical radionavigation service in the band 960–1 215 MHz. No. **5.43A** does not apply. The provisions of No. **21.18** shall apply. (WRC-07)

5.328AA The frequency band 1 087.7–1 092.3 MHz is also allocated to the aeronautical mobile-satellite (R) service (Earth-to-space) 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 (Rev.WRC-19)** shall apply. (WRC-19)

5.328B The use of the bands 1 164–1 300 MHz, 1 559–1 610 MHz and 5 010–5 030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the 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)**⁶ shall also apply; however, in the case of radionavigation-satellite service (space-to-space) networks and systems, Resolution **610 (WRC-03)**⁷ shall only apply to transmitting space stations. In accordance with No. **5.329A**, for systems and networks in the radionavigation-satellite service (space-to-space) in the bands 1 215–1 300 MHz and 1 559–1 610 MHz, the provisions of Nos. **9.7**, **9.12**, **9.12A** and **9.13** shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space). (WRC-07)

5.329 Use of the radionavigation-satellite service in the frequency band 1 215–1 300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. **5.331**. Furthermore, the use of the radionavigation-satellite service in the frequency band 1 215–1 300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. **5.43** shall not apply in respect of the radiolocation service. Resolution **608 (Rev.WRC-19)** shall apply. (WRC-19)

5.329A Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1 215–1 300 MHz and 1 559–1 610 MHz is not intended to provide safety service applications, and shall not impose any additional constraints on radionavigation-satellite service (space-to-Earth) systems or on other services operating in accordance with the Table of Frequency Allocations. (WRC-07)

5.330 *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Nepal, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the band 1 215–1 300 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

5.331 *Additional allocation:* in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Liechtenstein,

⁶ Note by the Secretariat: This Resolution was revised by WRC-19.

⁷ Note by the Secretariat: This Resolution was revised by WRC-19.



Lithuania, Luxembourg, North Macedonia, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, the Kingdom of the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the frequency band 1 215–1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the frequency band 1 240–1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-19)

5.332 In the band 1 215–1 260 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis. (WRC-2000)

5.333 (SUP – WRC-97)

5.334 *Additional allocation:* in Canada and the United States, the band 1350–1370 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-03)

5.335 In Canada and the United States in the band 1240–1300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause interference to, claim protection from, or otherwise impose constraints on operation or development of the aeronautical radionavigation service. (WRC-97)

5.335A In the band 1 260–1 300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service and other services allocated by footnotes on a primary basis. (WRC-2000)

5.336 Not used.

5.337 The use of the bands 1300–1350 MHz, 2700–2900 MHz and 9000–9200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.

5.337A The use of the band 1 300–1 350 MHz by earth stations in the radionavigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to, nor constrain the operation and development of, the aeronautical-radionavigation service. (WRC-2000)

5.338 In Kyrgyzstan, Slovakia and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1 350–1 400 MHz. (WRC-12)

5.338A In the frequency bands 1 350–1 400 MHz, 1 427–1 452 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, 51.4–52.4 GHz, 52.4–52.6 GHz, 81–86 GHz and 92–94 GHz, Resolution **750 (Rev.WRC-19)** applies. (WRC-19)

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

5.339A (SUP – WRC-07)

5.340 All emissions are prohibited in the following bands:

- 1 400–1 427 MHz,
- 2 690–2 700 MHz, except those provided for by No. **5.422**,
- 10.68–10.7 GHz, except those provided for by No. **5.483**,
- 15.35–15.4 GHz, except those provided for by No. **5.511**,
- 23.6–24 GHz,
- 31.3–31.5 GHz,
- 31.5–31.8 GHz, in Region 2,
- 48.94–49.04 GHz, from airborne stations
- 50.2–50.4 GHz⁸,
- 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,

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



– 250–252 GHz. (WRC-03)

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

5.341A In Region 1, the frequency bands 1 427–1 452 MHz and 1 492–1 518 MHz are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**⁹. This identification does not preclude the use of these frequency bands by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of IMT stations is subject to agreement obtained under No. **9.21** with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. **5.342**. (WRC-15)

5.341B In Region 2, the frequency band 1 427–1 518 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)***. This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.341C The frequency bands 1 427–1 452 MHz and 1 492–1 518 MHz are identified for use by administrations in Region 3 wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)***. The use of these frequency bands by the above administrations for the implementation of IMT in the frequency bands 1 429–1 452 MHz and 1 492–1 518 MHz is subject to agreement obtained under No. **9.21** from countries using stations of the aeronautical mobile service. This identification does not preclude the use of these frequency bands by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.342 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Uzbekistan, Kyrgyzstan and Ukraine, the frequency band 1 429–1 535 MHz is also allocated to the aeronautical mobile service on a primary basis, exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the frequency band 1 452–1 492 MHz is subject to agreement between the administrations concerned. (WRC-15)

5.343 In Region 2, the use of the band 1435–1535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

5.344 *Alternative allocation:* in the United States, the band 1452–1525 MHz is allocated to the fixed and mobile services on a primary basis (see also No. **5.343**).

5.345 Use of the frequency band 1 452–1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-19)**. (WRC-19)

5.346 In Algeria, Angola, Saudi Arabia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kenya, Kuwait, Lesotho, Lebanon, Liberia, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Palestine¹⁰, Qatar, Dem. Rep. of the Congo, Rwanda, Senegal, Seychelles, Sudan, South Sudan, South Africa, Tanzania, Chad, Togo, Tunisia, Zambia, and Zimbabwe, the frequency band 1 452–1 492 MHz is identified for use by administrations listed above wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-19)**. This identification does not preclude the use of this frequency band by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. **9.21** with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. **5.342**. See also Resolution **761 (Rev.WRC-19)**. (WRC-19)

5.346A The frequency band 1 452–1 492 MHz is identified for use by administrations in Region 3 wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-19)** and Resolution **761 (Rev.WRC-19)**. The use of this frequency band by the above administrations for the implementation of IMT is subject to agreement obtained under No. **9.21** from countries using stations of the aeronautical mobile service. 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. (WRC-19)

5.347 (SUP – WRC-07)

⁹ *Note by the Secretariat:* This Resolution was revised by WRC-19.

¹⁰ The use by Palestine of the allocation to the mobile service in the frequency band 1 452–1 492 MHz identified for IMT is noted, pursuant to Resolution 99 (Rev. Dubai, 2018) and taking into account the Israeli-Palestinian interim- Agreement of 28 September 1995.



5.347A¹¹(SUP – WRC-07)

5.348 The use of the band 1518–1525 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. In the 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. (WRC-03)

5.348A In the band 1518–1525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. **9.11A** for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be –150 dB(W/m²) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix 5. In the band 1518–1525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. **5.43A** does not apply. (WRC-03)

5.348B In the band 1518–1525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. 5.343 and 5.344) and in the countries listed in No. **5.342**. No. **5.43A** does not apply. (WRC-03)

5.348C (SUP – WRC-07)

5.349 *Different category of service:* in Saudi Arabia, Azerbaijan, Bahrain, Cameroon, Egypt, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, Lebanon, North Macedonia, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the frequency band 1 525–1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-19)

5.350 *Additional allocation:* in Kyrgyzstan and Turkmenistan, the frequency band 1 525–1 530 MHz is also allocated to the aeronautical mobile service on a primary basis. (WRC-19)

5.351 The bands 1525–1544 MHz, 1545–1559 MHz, 1626.5–1645.5 MHz and 1646.5–1660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.

5.351A For the use of the bands 1 518–1 544 MHz, 1 545–1 559 MHz, 1 610–1 645.5 MHz, 1 646.5–1 660.5 MHz, 1 668–1 675 MHz, 1 980–2 010 MHz, 2 170–2 200 MHz, 2 483.5–2 520 MHz and 2 670–2 690 MHz by the mobile-satellite service, see Resolutions **212 (Rev.WRC-07)**¹² and **225 (Rev.WRC-07)**¹³. (WRC-07)

5.352 (SUP – WRC-97)

5.352A In the frequency band 1 525–1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-19)

5.353 (SUP – WRC-97)

5.353A In applying the procedures of Section II of Article **9** to the mobile-satellite service in the bands 1 530–1 544 MHz and 1 626.5–1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution **222(WRC-2000)**¹⁴ shall apply.) (WRC-2000)

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

5.355 *Additional allocation:* in Bahrain, Bangladesh, Congo (Rep. of the), Djibouti, Egypt, Eritrea, Iraq, Israel, Kuwait, Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the bands 1 540–1 559 MHz, 1 610–1 645.5 MHz and 1 646.5–1 660 MHz are also allocated to the fixed service on a secondary basis. (WRC-12)

5.356 The use of the band 1544–1545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article **31**).

5.357 Transmissions in the band 1545–1555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also

¹¹ *Note by the Secretariat:* This provision has been modified by WRC-07, and subsequently renumbered No. **5.208B** in order to preserve the sequential order.

¹² *Note by the Secretariat:* This Resolution was revised by WRC-15 and WRC-19.

¹³ *Note by the Secretariat:* This Resolution was revised by WRC-12.

¹⁴ *Note by the Secretariat:* This Resolution was revised by WRC-07 and WRC-12.



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

5.357A In applying the procedures of Section II of Article 9 to the mobile-satellite service in the frequency bands 1 545–1 555 MHz and 1 646.5–1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article 44. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44 shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution 222 (Rev.WRC-12)* shall apply.) (WRC-12)

5.358 (SUP – WRC-97)

5.359 *Additional allocation:* in Germany, Saudi Arabia, Armenia, Azerbaijan, Belarus, Cameroon, the Russian Federation, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Kuwait, Lithuania, Mauritania, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Tunisia, Turkmenistan and Ukraine, the frequency bands 1 550–1 559 MHz, 1 610–1 645.5 MHz and 1 646.5–1 660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these frequency bands. (WRC-19)

5.360 to **5.362** (SUP – WRC-97)

5.362A In the United States, in the bands 1555–1559 MHz and 1656.5–1660.5 MHz, the aeronautical mobile-satellite (R) service shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (WRC-97)

5.362B (SUP – WRC-15)

5.362C (SUP – WRC-15)

5.363 (SUP – WRC-07)

5.364 The use of the 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.

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

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

5.367 *Additional allocation:* The frequency band 1 610–1 626.5 MHz is also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-12)

5.368 The provisions of No. 4.10 do not apply with respect to the radiodetermination-satellite and mobile-satellite services in the frequency band 1 610–1 626.5 MHz. However, No. 4.10 applies in the frequency band 1 610–1 626.5 MHz with respect to the aeronautical radionavigation-satellite service when operating in accordance with No. 5.366, the aeronautical mobile satellite (R) service when operating in accordance with No. 5.367, and in the frequency band 1 621.35–1 626.5 MHz with respect to the maritime mobile-satellite service when used for GMDSS. (WRC-19)

5.369 *Different category of service:* in Angola, Australia, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, the Dem. Rep. of the Congo, Sudan, South Sudan, Togo and Zambia, the allocation of the band 1 610–1 626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision. (WRC-12)

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

5.371 *Additional allocation:* in Region 1, the band 1 610–1 626.5 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)

5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the frequency band 1 610.6–1 613.8 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 1 610.6–1 613.8 MHz by all space stations of a non-geostationary-satellite system in the mobile-satellite service (space-to-Earth) operating in frequency band 1 613.8–1 626.5 MHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769–2 and ITU-R RA.1513-2, using the methodology given in Recommendation ITU-R M.1583-1, and the radio astronomy antenna pattern described in Recommendation ITU-R RA.1631-0. (WRC-19)

5.373 Maritime mobile earth stations receiving in the frequency band 1 621.35–1 626.5 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 1 610–1 621.35 MHz or on earth stations operating in the maritime mobile-satellite service operating in accordance with the Radio Regulations in the frequency band 1 626.5–1 660.5 MHz, unless otherwise agreed between the notifying administrations. (WRC-19)

5.373A Maritime mobile earth stations receiving in the frequency band 1 621.35–1 626.5 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 1 621.35–1 626.5 MHz in networks for which complete coordination information has been received by the Radiocommunication Bureau before 28 October 2019. (WRC-19)

5.374 Mobile earth stations in the mobile-satellite service operating in the bands 1631.5–1634.5 MHz and 1656.5–1660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. **5.359**. (WRC-97)

5.375 The use of the band 1645.5–1646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article **31**).

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

5.376A Mobile earth stations operating in the band 1660–1660.5 MHz shall not cause harmful interference to stations in the radio astronomy service. (WRC-97)

5.377 (SUP – WRC-03)

5.378 Not used.

5.379 *Additional allocation:* in Bangladesh, India, Indonesia, Nigeria and Pakistan, the band 1660.5–1668.4 MHz is also allocated to the meteorological aids service on a secondary basis.

5.379A Administrations are urged to give all practicable protection in the band 1660.5–1668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1664.4–1668.4 MHz as soon as practicable.

5.379B The use of the band 1 668–1 675 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the band 1 668–1 668.4 MHz, Resolution **904 (WRC-07)** shall apply. (WRC-07)

5.379C In order to protect the radio astronomy service in the band 1668–1670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed -181 dB(W/m²) in 10 MHz and -194 dB(W/m²) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2000 s. (WRC-03)

5.379D For sharing of the band 1 668.4–1 675 MHz between the mobile-satellite service and the fixed and mobile services, Resolution **744 (Rev.WRC-07)** shall apply. (WRC-07)

5.379E In the band 1668.4–1675 MHz, stations in the mobile-satellite service shall not cause harmful interference to stations in the meteorological aids service in China, Iran (Islamic Republic of), Japan and Uzbekistan. In the band 1668.4–1675 MHz, administrations are urged not to implement new systems in the meteorological aids service and are encouraged to migrate existing meteorological aids service operations to other bands as soon as practicable. (WRC-03)

5.380 (SUP – WRC-07)

5.380A In the band 1 670–1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified before 1 January 2004. Any new assignment to these earth stations in this band shall also be protected from harmful interference from stations in the mobile-satellite service. (WRC-07)

5.381 *Additional allocation:* in Afghanistan, Cuba, India, Iran (Islamic Republic of) and Pakistan, the band 1 690–1 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

5.382 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea,



Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, North Macedonia, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Turkmenistan, Ukraine and Yemen, the allocation of the frequency band 1 690–1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33), and in the Dem. People's Rep. of Korea, the allocation of the frequency band 1 690–1 700 MHz to the fixed service is on a primary basis (see No. 5.33) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-19)

5.383 Not used.

5.384 *Additional allocation:* in India, Indonesia and Japan, the band 1700–1710 MHz is also allocated to the space research service (space-to-Earth) on a primary basis. (WRC-97)

5.384A The frequency bands 1 710–1 885 MHz, 2 300–2 400 MHz and 2 500–2 690 MHz, or portions thereof, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**¹⁵. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.385 *Additional allocation:* the band 1 718.8–1 722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations. (WRC-2000)

5.386 *Additional allocation:* the frequency band 1 750–1 850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2 (except in Mexico), in Australia, Guam, India, Indonesia and Japan on a primary basis, subject to agreement obtained under No. **9.21**, having particular regard to troposcatter systems. (WRC-15)

5.387 *Additional allocation:* in Belarus, Georgia, Kazakhstan, Kyrgyzstan, Romania, Tajikistan and Turkmenistan, the band 1 770–1 790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-12)

5.388 The frequency bands 1 885–2 025 MHz and 2 110–2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications (IMT). Such use does not preclude the use of these frequency bands by other services to which they are allocated. The frequency bands should be made available for IMT in accordance with Resolution **212 (Rev.WRC-15)*** (see also Resolution **223 (Rev.WRC-15)***). (WRC-15)

5.388A In Regions 1 and 3, the bands 1 885–1 980 MHz, 2 010–2 025 MHz and 2 110–2 170 MHz and, in Region 2, the bands 1 885–1 980 MHz and 2 110–2 160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications (IMT), in accordance with Resolution **221 (Rev.WRC-07)**. Their use by IMT applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-12)

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lebanon, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT base station in neighbouring countries, in the frequency bands referred to in No. **5.388A**, shall not exceed a co-channel power flux-density of -127 dB(W/(m² • MHz)) at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS. (WRC-19)

5.389 Not used.

5.389A The use of the bands 1 980–2 010 MHz and 2 170–2 200 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev.WRC-2000)**¹⁶. (WRC-07)

5.389B The use of the frequency band 1 980–1 990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela. (WRC-19)

5.389C The use of the bands 2 010–2 025 MHz and 2 160–2 170 MHz in Region 2 by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev.WRC-2000)**¹⁷ (WRC-07)

5.389D (SUP – WRC-03)

5.389E The use of the bands 2010–2025 MHz and 2160–2170 MHz by the mobile-satellite service in

¹⁵ Note by the Secretariat: This Resolution was revised by WRC-19.

¹⁶ Note by the Secretariat: This Resolution was revised by WRC-12.

¹⁷ Note by the Secretariat: This Resolution was revised by WRC-12.



Region 2 shall not cause harmful interference to or constrain the development of the fixed and mobile services in Regions 1 and 3.

5.389F In Algeria, Cape Verde, Egypt, Iran (Islamic Republic of), Mali, Syrian Arab Republic and Tunisia, the use of the frequency bands 1 980–2 010 MHz and 2 170–2 200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services. (WRC-19)

5.390 (SUP – WRC-07)

5.391 In making assignments to the mobile service in the frequency bands 2 025–2 110 MHz and 2 200–2 290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154-0, and shall take that Recommendation into account for the introduction of any other type of mobile system. (WRC-15)

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

5.392A (SUP – WRC-07)

5.393 *Additional allocation:* in Canada, the United States and India, the frequency band 2 310–2 360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-19)**, with the exception of resolves 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. Complementary terrestrial sound broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use. (WRC-19)

5.394 In the United States, the use of the band 2 300–2 390 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the band 2 360–2 400 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. (WRC-07)

5.395 In France and Turkey, the use of the band 2310–2360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service. (WRC-03)

5.396 (SUP – WRC-19)

5.397 (SUP – WRC-12)

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

5.398A Different category of service: in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Ukraine, the band 2 483.5–2 500 MHz is allocated on a primary basis to the radiolocation service. The radiolocation stations in these countries shall not cause harmful interference to, or claim protection from, stations of the fixed, mobile and mobile-satellite services operating in accordance with the Radio Regulations in the frequency band 2 483.5–2 500 MHz. (WRC-12)

5.399 Except for cases referred to in No. **5.401**, stations of the radiodetermination-satellite service operating in the frequency band 2 483.5–2 500 MHz for which notification information is received by the Bureau after 17 February 2012, and the service area of which includes Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Ukraine, shall not cause harmful interference to, and shall not claim protection from stations of the radiolocation service operating in these countries in accordance with No. **5.398A**. (WRC-12)

5.400 (SUP – WRC-12)

5.401 In Angola, Australia, Bangladesh, China, Eritrea, Eswatini, Ethiopia, India, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, Dem. Rep. of the Congo, Sudan, Togo and Zambia, the frequency band 2 483.5–2 500 MHz was already allocated on a primary basis to the radiodetermination-satellite service before WRC-12, subject to agreement obtained under No. **9.21** from countries not listed in this provision. Systems in the radiodetermination-satellite service for which complete coordination information has been received by the Radiocommunication Bureau before 18 February 2012 will retain their regulatory status, as of the date of receipt of the coordination request information. (WRC-19)

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

5.403 Subject to agreement obtained under No. **9.21**, the band 2 520–2 535 MHz may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of No. **9.11A** apply. (WRC-07)

5.404 *Additional allocation:* in India and Iran (Islamic Republic of), the band 2500–2516.5 MHz may



also be used for the radiodetermination-satellite service (space-to-Earth) for operation limited to within national boundaries, subject to agreement obtained under No. 9.21.

5.405 (SUP – WRC-12)

5.406 Not used.

5.407 In the band 2500–2520 MHz, the power flux-density at the surface of the Earth from space stations operating in the mobile-satellite (space-to-Earth) service shall not exceed $-152 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ in Argentina, unless otherwise agreed by the administrations concerned.

5.408 (SUP – WRC-2000)

5.409 (SUP – WRC-07)

5.410 The band 2 500–2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. 9.21. No. 9.21 does not apply to tropospheric scatter links situated entirely outside Region 1. Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in this band. When planning new tropospheric scatter radio-relay links in this band, all possible measures shall be taken to avoid directing the antennas of these links towards the geostationary-satellite orbit. (WRC-12)

5.411 (SUP – WRC-07)

5.412 *Alternative allocation:* in Kyrgyzstan and Turkmenistan, the band 2 500–2 690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

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

5.414 The allocation of the frequency band 2 500–2 520 MHz to the mobile-satellite service (space-to-Earth) is subject to coordination under No. 9.11A. (WRC-07)

5.414A In Japan and India, the use of the bands 2 500–2 520 MHz and 2 520–2 535 MHz, under No. 5.403, by a satellite network in the mobile-satellite service (space-to-Earth) is limited to operation within national boundaries and subject to the application of No. 9.11A. The following pfd values shall be used as a threshold for coordination under No. 9.11A, for all conditions and for all methods of modulation, in an area of 1 000 km around the territory of the administration notifying the mobile-satellite service network:

$-136 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for $0^\circ \leq \theta \leq 5^\circ$

$-136 + 0.55 (\theta - 5) \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for $5^\circ < \theta \leq 25^\circ$

$-125 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for $25^\circ < \theta \leq 90^\circ$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. Outside this area Table 21-4 of Article 21 shall apply. Furthermore, the coordination thresholds in Table 5-2 of Annex 1 to Appendix 5 of the Radio Regulations (Edition of 2004), in conjunction with the applicable provisions of Articles 9 and 11 associated with No. 9.11A, shall apply to systems for which complete notification information has been received by the Radiocommunication Bureau by 14 November 2007 and that have been brought into use by that date. (WRC-07)

5.415 The use of the bands 2 500–2 690 MHz in Region 2 and 2 500–2 535 MHz and 2 655–2 690 MHz in Region 3 by the fixed-satellite service is limited to national and regional systems, subject to agreement obtained under No. 9.21, giving particular attention to the broadcasting-satellite service in Region 1. (WRC-07)

5.415A *Additional allocation:* in India and Japan, subject to agreement obtained under No. 9.21, the band 2 515–2 535 MHz may also be used for the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within their national boundaries. (WRC-2000)

5.416 The use of the band 2 520–2 670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. 9.21. The provisions of No. 9.19 shall be applied by administrations in this band in their bilateral and multilateral negotiations. (WRC-07)

5.417 (SUP – WRC-2000)

5.417A (SUP – WRC-15)

5.417B (SUP – WRC-15)

5.417C (SUP – WRC-15)

5.417D (SUP – WRC-15)

5.418 *Additional allocation:* in India, the frequency band 2 535–2 655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (Rev.WRC-19). The provisions of No. 5.416 and Table 21-4 of Article 21 do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution 539 (Rev.WRC-19). Geostationary broadcasting-satellite service (sound) systems for which complete Appendix 4 coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the frequency band 2 630–2 655 MHz, and for which complete Appendix 4 coordination information has been received after 1 June 2005, shall



not exceed the following limits, for all conditions and for all methods of modulation:

- $-130 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for $0^\circ \leq \theta \leq 5^\circ$
- $-130 + 0.4 (\theta - 5) \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for $5^\circ < \theta \leq 25^\circ$
- $-122 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for $25^\circ < \theta \leq 90^\circ$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value of $-122 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ shall be used as a threshold for coordination under No. 9.11 in an area of 1 500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system.

In addition, an administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. 5.416 for systems for which complete Appendix 4 coordination information has been received after 1 June 2005. (WRC-19)

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

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

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

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

5.420 The band 2 655–2 670 MHz may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. 9.21. The coordination under No. 9.11A applies. (WRC-07)

5.420A (SUP – WRC-07)

5.421 (SUP – WRC-03)

5.422 Additional allocation: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Mauritania, Mongolia, Montenegro, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2 690–2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-12)

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

5.424 Additional allocation: in Canada, the band 2850–2900 MHz is also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars.

5.424A In the 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. (WRC-03)

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

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

5.427 In the bands 2900–3100 MHz and 9300–9500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. 4.9.

5.428 Additional allocation: in Kyrgyzstan and Turkmenistan, the frequency band 3 100–3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)

5.429 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Benin, Brunei Darussalam,



Cambodia, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, New Zealand, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Sudan and Yemen, the frequency band 3 300–3 400 MHz is also allocated to the fixed and mobile services on a primary basis. New Zealand and the countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-19)

5.429A *Additional allocation:* in Angola, Benin, Botswana, Burkina Faso, Burundi, Djibouti, Eswatini, Ghana, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sudan, South Sudan, South Africa, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300–3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3 300–3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-19)

5.429B In the following countries of Region 1 south of 30° parallel north: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Egypt, Eswatini, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of the Congo, Rwanda, Sudan, South Sudan, South Africa, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300–3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution **223 (Rev.WRC-19)**. The use of the frequency band 3 300–3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. 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. (WRC-19)

5.429C Different category of service: in Argentina, Belize, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, Ecuador, Guatemala, Mexico, Paraguay and Uruguay, the frequency band 3 300–3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. In Argentina, Brazil, the Dominican Republic, Guatemala, Mexico, Paraguay and Uruguay, the frequency band 3 300–3 400 MHz is also allocated to the fixed service on a primary basis. Stations in the fixed and mobile services operating in the frequency band 3 300–3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-19)

5.429D In the following countries in Region 2: Argentina, Belize, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, Ecuador, Guatemala, Mexico, Paraguay and Uruguay, the use of the frequency band 3 300–3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution **223 (Rev.WRC-19)**. This use in Argentina, Paraguay and Uruguay is subject to the application of No. **9.21**. The use of the frequency band 3 300–3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. 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. (WRC-19)

5.429E *Additional allocation:* in Papua New Guinea, the frequency band 3 300–3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3 300–3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-15)

5.429F In the following countries in Region 3: Cambodia, India, Indonesia, Lao P.D.R., Pakistan, the Philippines and Viet Nam, the use of the frequency band 3 300–3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution **223 (Rev.WRC-19)**. The use of the frequency band 3 300–3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service. Before an administration brings into use a base or mobile station of an IMT system in this frequency band, it shall seek agreement under No. **9.21** with neighbouring countries to protect the radiolocation service. 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. (WRC-19)

5.430 *Additional allocation:* in Kyrgyzstan and Turkmenistan, the frequency band 3 300–3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)

5.430A The allocation of the frequency band 3 400–3 600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. **9.21**. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not



establish priority in the Radio Regulations. The provisions of Nos. 9.17 and 9.18 shall also apply in the coordination phase. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W/(m}^2 \times 4 \text{ kHz))}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) and with the assistance of the Bureau if so requested. In case of disagreement, calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400–3 600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-15)

5.431 *Additional allocation:* in Germany, the frequency band 3 400–3 475 MHz is also allocated to the amateur service on a secondary basis. (WRC-19)

5.431A In Region 2, the allocation of the frequency band 3 400–3 500 MHz to the mobile, except aeronautical mobile, service on a primary basis is subject to agreement obtained under No. 9.21. (WRC-15)

5.431B In Region 2, the frequency band 3 400–3 600 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. 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 an IMT system, it shall seek agreement under No. 9.21 with other administrations and ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W/(m}^2 \times 4 \text{ kHz))}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service, including IMT systems, in the frequency band 3 400–3 600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-15)

5.432 *Different category of service:* in Korea (Rep. of), Japan, Pakistan and the Dem. People's Rep. of Korea, the allocation of the frequency band 3 400–3 500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 5.33). (WRC-19)

5.432A In Korea (Rep. of), Japan, Pakistan and the Dem. People's Rep. of Korea, the frequency band 3 400–3 500 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W/(m}^2 \times 4 \text{ kHz))}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400–3 500 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-19)

5.432B *Different category of service:* in Australia, Bangladesh, Brunei Darussalam, China, French overseas communities of Region 3, India, Indonesia, Iran (Islamic Republic of), Malaysia, New Zealand, the Philippines, Singapore and Thailand, the frequency band 3 400–3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. 9.21 with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency



band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W/(m}^2 \times 4 \text{ kHz))}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400–3 500 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-19)

5.433 In Regions 2 and 3, in the band 3400–3600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985. Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.

5.433A In Australia, Bangladesh, Brunei Darussalam, China, French overseas communities of Region 3, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, New Zealand, Pakistan, the Philippines and the Dem. People's Rep. of Korea, the frequency band 3 500–3 600 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W/(m}^2 \times 4 \text{ kHz))}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 500–3 600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-19)

5.434 In Canada, Chile, Colombia, Costa Rica, El Salvador, the United States and Paraguay, the frequency band 3 600–3 700 MHz, or portions thereof, is identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. 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 an IMT system, it shall seek agreement under No. 9.21 with other administrations and ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W/(m}^2 \times 4 \text{ kHz))}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service, including IMT systems, in the frequency band 3 600–3 700 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-19)

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

5.436 Use of the frequency band 4 200–4 400 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 (WRC-15). (WRC-15)

5.437 Passive sensing in the Earth exploration-satellite and space research services may be authorized in the frequency band 4 200–4 400 MHz on a secondary basis. (WRC-15)

5.438 Use of the frequency band 4 200–4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. (WRC-15)

5.439 *Additional allocation:* in Iran (Islamic Republic of), the band 4 200–4 400 MHz is also allocated



to the fixed service on a secondary basis. (WRC-12)

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

5.440A In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4 400–4 940 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of this band by other mobile service applications or by other services to which this band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-07)

5.441 The use of the bands 4 500–4 800 MHz (space-to-Earth), 6 725–7 025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix **30B**. The use of the bands 10.7–10.95 GHz (space-to-Earth), 11.2–11.45 GHz (space-to-Earth) and 12.75–13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Appendix **30B**. The use of the bands 10.7–10.95 GHz (space-to-Earth), 11.2–11.45 GHz (space-to-Earth) and 12.75–13.25 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

5.441A In Brazil, Paraguay and Uruguay, the frequency band 4 800–4 900 MHz, or portions thereof, is identified for the implementation of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained with neighbouring countries, and IMT stations shall not claim protection from stations of other applications of the mobile service. Such use shall be in accordance with Resolution **223 (Rev.WRC-19)**. (WRC-19)

5.441B In Angola, Armenia, Azerbaijan, Benin, Botswana, Brazil, Burkina Faso, Burundi, Cambodia, Cameroon, China, Côte d'Ivoire, Djibouti, Eswatini, Russian Federation, Gambia, Guinea, Iran (Islamic Republic of), Kazakhstan, Kenya, Lao P.D.R., Lesotho, Liberia, Malawi, Mauritius, Mongolia, Mozambique, Nigeria, Uganda, Uzbekistan, the Dem. Rep. of the Congo, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, South Africa, Tanzania, Togo, Viet Nam, Zambia and Zimbabwe, the frequency band 4 800–4 990 MHz, or portions thereof, is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of IMT stations is subject to agreement obtained under No. **9.21** with concerned administrations, and IMT stations shall not claim protection from stations of other applications of the mobile service. In addition, before an administration brings into use an IMT station in the mobile service, it shall ensure that the power flux-density (pfd) produced by this station does not exceed -155 dB(W/(m² · 1 MHz)) produced up to 19 km above sea level at 20 km from the coast, defined as the low-water mark, as officially recognized by the coastal State. This pfd criterion is subject to review at WRC-23. Resolution **223 (Rev.WRC-19)** applies. This identification shall be effective after WRC-19. (WRC-19)

5.442 In the frequency bands 4 825–4 835 MHz and 4 950–4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Mexico, Paraguay, Uruguay and Venezuela), and in Australia, the frequency band 4 825–4 835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to the fixed service. (WRC-15)

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

5.443A (SUP – WRC-03)

5.443AA In the frequency bands 5 000–5 030 MHz and 5 091–5 150 MHz, the aeronautical mobile-satellite (R) service is subject to agreement obtained under No. **9.21**. The use of these bands by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems. (WRC-12)



5.443B In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth's surface in the frequency band 5 030–5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the frequency band 5 010–5 030 MHz shall not exceed -124.5 dB(W/m²) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the frequency band 4 990–5 000 MHz, radionavigation-satellite service systems operating in the frequency band 5 010–5 030 MHz shall comply with the limits in the frequency band 4 990–5 000 MHz defined in Resolution **741 (Rev.WRC-15)**. (WRC-15)

5.443C The use of the frequency band 5 030–5 091 MHz by the aeronautical mobile (R) service is limited to internationally standardized aeronautical systems. Unwanted emissions from the aeronautical mobile (R) service in the frequency band 5 030–5 091 MHz shall be limited to protect RNSS system downlinks in the adjacent 5 010–5 030 MHz band. Until such time that an appropriate value is established in a relevant ITU-R Recommendation, the e.i.r.p. density limit of -75 dBW/MHz in the frequency band 5 010–5 030 MHz for any AM(R)S station unwanted emission should be used. (WRC-12)

5.443D In the frequency band 5 030–5 091 MHz, the aeronautical mobile-satellite (R) service is subject to coordination under No. **9.11A**. The use of this frequency band by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems. (WRC-12)

5.444 The frequency band 5 030–5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the frequency band 5 030–5 091 MHz, the requirements of this system shall have priority over other uses of this frequency band. For the use of the frequency band 5 091–5 150 MHz, No. **5.444A** and Resolution **114 (Rev.WRC-15)** apply. (WRC-15)

5.444A The use of the allocation to the fixed-satellite service (Earth-to-space) in the frequency band 5 091–5 150 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 the frequency band 5 091–5 150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be subject to application of Resolution **114 (Rev.WRC-15)**. 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. (WRC-15)

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

- systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (Rev.WRC-19)**;
- aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (Rev.WRC-19)**. (WRC-19)

5.445 Not used.

5.446 *Additional allocation:* in the countries listed in No. **5.369**, the frequency band 5 150–5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21**. In Region 2 (except in Mexico), the frequency band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in No. **5.369** and Bangladesh, the frequency band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the frequency bands 1 610–1 626.5 MHz and/or 2 483.5–2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed -159 dB(W/m²) in any 4 kHz band for all angles of arrival. (WRC-15)

5.446A The use of the frequency bands 5 150–5 350 MHz and 5 470–5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution **229 (Rev.WRC-19)**. (WRC-19)

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

5.446C *Additional allocation:* in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan and Tunisia), the frequency band 5 150–5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. **1.83**), in accordance with Resolution **418 (Rev.WRC-19)**. These stations shall not claim protection from other stations operating in accordance with Article 5. No. **5.43A** does not apply. (WRC-19)

5.446D *Additional allocation:* in Brazil, the band 5 150–5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft



stations (see No. **1.83**), in accordance with Resolution **418 (Rev.WRC-19)**. (WRC-19)

5.447 Additional allocation: in Côte d'Ivoire, Egypt, Lebanon, the Syrian Arab Republic and Tunisia, the frequency band 5 150–5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. **9.21**. In this case, the provisions of Resolution **229 (Rev.WRC-19)** do not apply. (WRC-19)

5.447A The allocation to the fixed-satellite service (Earth-to-space) in the band 5 150–5 250 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**.

5.447B Additional allocation: the band 5150–5216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. **9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5150–5216 MHz shall in no case exceed -164 dB(W/m²) in any 4 kHz band for all angles of arrival.

5.447C Administrations responsible for fixed-satellite service networks in the band 5150–5250 MHz operated under Nos. **5.447A** and **5.447B** shall coordinate on an equal basis in accordance with No. **9.11A** with administrations responsible for non-geostationary-satellite networks operated under No. **5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **5.447A** and **5.447B**.

5.447D The allocation of the band 5250–5255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)

5.447E Additional allocation: The frequency band 5 250–5 350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, the Philippines, Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam. The use of this frequency band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU-R F.1613-0. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. **5.43A** do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations. (WRC-15)

5.447F In the frequency band 5 250–5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). The radiolocation service, the Earth exploration-satellite service (active) and the space research service (active) shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution **229 (Rev.WRC-19)**. (WRC-19)

5.448 Additional allocation: in Kyrgyzstan, Romania and Turkmenistan, the frequency band 5 250–5 350 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)

5.448A The Earth exploration-satellite (active) and space research (active) services in the frequency band 5250–5350 MHz shall not claim protection from the radiolocation service. No. **5.43A** does not apply. (WRC-03)

5.448B The Earth exploration-satellite service (active) operating in the band 5350–5570 MHz and space research service (active) operating in the band 5460–5570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5350–5460 MHz, the radionavigation service in the band 5460–5470 MHz and the maritime radionavigation service in the band 5470–5570 MHz. (WRC-03)

5.448C The space research service (active) operating in the band 5350–5460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated. (WRC-03)

5.448D In the frequency band 5350–5470 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the aeronautical radionavigation service operating in accordance with No. **5.449**. (WRC-03)

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

5.450 Additional allocation: in Austria, Azerbaijan, Iran (Islamic Republic of), Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 5 470–5 650 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)

5.450A In the frequency band 5 470–5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. The radiodetermination services shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution **229 (Rev.WRC-19)**. (WRC-19)



5.450B 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. (WRC-03)

5.451 *Additional allocation:* in the United Kingdom, the band 5 470–5850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. **21.2**, **21.3**, **21.4** and **21.5** shall apply in the band 5725–5850 MHz.

5.452 Between 5600 MHz and 5650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.

5.453 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the frequency band 5 650–5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution **229 (Rev.WRC-19)** do not apply. In addition, in Afghanistan, Angola, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Dem. Rep. of the Congo, Fiji, Ghana, Kiribati, Lesotho, Malawi, Maldives, Mauritius, Micronesia, Mongolia, Mozambique, Myanmar, Namibia, Nauru, New Zealand, Papua New Guinea, Rwanda, Solomon Islands, South Sudan, South Africa, Tonga, Vanuatu, Zambia and Zimbabwe, the frequency band 5 725–5 850 MHz is allocated to the fixed service on a primary basis, and stations operating in the fixed service shall not cause harmful interference to and shall not claim protection from other primary services in the frequency band. (WRC-19)

5.454 *Different category of service:* in Azerbaijan, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 5 670–5 725 MHz to the space research service is on a primary basis (see No. **5.33**). (WRC-12)

5.455 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Uzbekistan, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency band 5 670–5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-19)

5.456 (SUP – WRC-15)

5.457 In Australia, Burkina Faso, Cote d'Ivoire, Mali and Nigeria, the allocation to the fixed service in the bands 6 440–6 520 MHz (HAPS-to-ground direction) and 6 560–6 640 MHz (ground-to-HAPS direction) may also be used by gateway links for high-altitude platform stations (HAPS) within the territory of these countries. Such use is limited to operation in HAPS gateway links and shall not cause harmful interference to, and shall not claim protection from, existing services, and shall be in compliance with Resolution **150 (WRC-12)**. Existing services shall not be constrained in future development by HAPS gateway links. The use of HAPS gateway links in these bands requires explicit agreement with other administrations whose territories are located within 1 000 kilometres from the border of an administration intending to use the HAPS gateway links. (WRC-12)

5.457A In the frequency bands 5 925–6 425 MHz and 14–14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution **902(WRC-03)**. In the frequency band 5 925–6 425 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 (WRC-03)** shall apply. (WRC-15)

5.457B In the frequency bands 5 925–6 425 MHz and 14–14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902 (WRC-03)** in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Jordan, Kuwait, Libya, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, Tunisia and Yemen, in the maritime mobile-satellite service on a secondary basis. Such use shall be in accordance with Resolution **902 (WRC-03)**. (WRC-15)

5.457C In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Mexico, Paraguay, Uruguay and Venezuela), the frequency band 5 925–6 700 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, or claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of this frequency band by other mobile 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. (WRC-15)

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



Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6425–7075 MHz and 7075–7250 MHz.

5.458A In making assignments in the band 6700–7075 MHz to space stations of the fixed-satellite service, administrations are urged to take all practicable steps to protect spectral line observations of the radio astronomy service in the band 6650–6675.2 MHz from harmful interference from unwanted emissions.

5.458B The space-to-Earth allocation to the fixed-satellite service in the band 6700–7075 MHz is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service and is subject to coordination under No. **9.11A**. The use of the band 6700–7075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to No. **22.2**.

5.458C (SUP – WRC-15)

5.459 *Additional allocation:* in the Russian Federation, the frequency bands 7 100–7 155 MHz and 7 190–7 235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21**. In the frequency band 7 190–7 235 MHz, with respect to the Earth exploration-satellite service (Earth-to-space), No. **9.21** does not apply. (WRC-15)

5.460 No emissions from space research service (Earth-to-space) systems intended for deep space shall be effected in the frequency band 7 190–7 235 MHz. Geostationary satellites in the space research service operating in the frequency band 7 190–7 235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. **5.43A** does not apply. (WRC-15)

5.460A The use of the frequency band 7 190–7 250 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 7 190–7 250 MHz shall not claim protection from existing and future stations in the fixed and mobile services, and No. **5.43A** does not apply. 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. (WRC-15)

5.460B Space stations on the geostationary orbit operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7 190–7 235 MHz shall not claim protection from existing and future stations of the space research service, and No. **5.43A** does not apply. (WRC-15)

5.461 *Additional allocation:* the bands 7250–7375 MHz (space-to-Earth) and 7900–8025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21**.

5.461A The use of the band 7450–7550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary-satellite systems. Non-geostationary meteorological-satellite systems in this band notified before 30 November 1997 may continue to operate on a primary basis until the end of their lifetime. (WRC-97)

5.461AA The use of the frequency band 7 375–7 750 MHz by the maritime mobile-satellite service is limited to geostationary-satellite networks. (WRC-15)

5.461AB In the frequency band 7 375–7 750 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. No. **5.43A** does not apply. (WRC-15)

5.461B The use of the band 7 750–7 900 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems. (WRC-12)

5.462 (SUP – WRC-97)

5.462A In Regions 1 and 3 (except for Japan), in the band 8 025–8 400 MHz, the Earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following values for angles of arrival (θ), without the consent of the affected administration:

- -135 dB(W/m²) in a 1 MHz band for $0 \leq \theta < 5^\circ$
- $-135 + 0.5 (\theta - 5)$ dB(W/m²) in a 1 MHz band for $5^\circ \leq \theta < 25^\circ$
- -125 dB(W/m²) in a 1 MHz band for $25^\circ \leq \theta \leq 90^\circ$ (WRC-12)

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

5.464 (SUP – WRC-97)

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

5.466 *Different category of service:* in Singapore and Sri Lanka, the allocation of the band 8 400–8 500 MHz to the space research service is on a secondary basis (see No. **5.32**). (WRC-12)

5.467 (SUP – WRC-03)

5.468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon,



Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Chad, Togo, Tunisia and Yemen, the frequency band 8 500–8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-19)

5.469 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 8 500–8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis. (WRC-12)

5.469A In the band 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. (WRC-97)

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

5.471 *Additional allocation:* in Algeria, Germany, Bahrain, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya, the Netherlands, Qatar and Sudan, the frequency bands 8 825–8 850 MHz and 9 000–9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only. (WRC-15)

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

5.473 *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency bands 8 850–9 000 MHz and 9 200–9 300 MHz are also allocated to the radionavigation service on a primary basis. (WRC-19)

5.473A In the band 9 000–9 200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. **5.337** operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. **5.471**. (WRC-07)

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

5.474A The use of the frequency bands 9 200–9 300 MHz and 9 900–10 400 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 9 300–9 900 MHz. Such use is subject to agreement to be obtained under No. **9.21** from Algeria, Saudi Arabia, Bahrain, Egypt, Indonesia, Iran (Islamic Republic of), Lebanon and Tunisia. An administration that has not replied under No. **9.52** is considered as not having agreed to the coordination request. In this case, the notifying administration of the satellite system operating in the Earth exploration-satellite service (active) may request the assistance of the Bureau under Sub-Section IID of Article **9**. (WRC-15)

5.474B Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2066-0. (WRC-15)

5.474C Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2065-0. (WRC-15)

5.474D Stations in the Earth exploration-satellite service (active) shall not cause harmful interference to, or claim protection from, stations of the maritime radionavigation and radiolocation services in the frequency band 9 200–9 300 MHz, the radionavigation and radiolocation services in the frequency band 9 900–10 000 MHz and the radiolocation service in the frequency band 10.0–10.4 GHz. (WRC-15)

5.475 The use of the band 9 300–9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300–9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. (WRC-07)

5.475A The use of the band 9 300–9 500 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9 500–9 800 MHz band. (WRC-07)

5.475B In the band 9 300–9 500 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the radionavigation service in conformity with the Radio Regulations. Ground-based radars used for meteorological purposes have priority over other radiolocation uses. (WRC-07)

5.476 (SUP – WRC-07)

5.476A In the band 9 300–9 800 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from, stations of the radionavigation and radiolocation services. (WRC-07)

5.477 *Different category of service:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia,



Malaysia, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Trinidad and Tobago, and Yemen, the allocation of the frequency band 9 800–10 000 MHz to the fixed service is on a primary basis (see No. **5.33**). (WRC-15)

5.478 Additional allocation: in Azerbaijan, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the frequency band 9 800–10 000 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)

5.478A The use of the band 9 800–9 900 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9 300–9 800 MHz band. (WRC-07)

5.478B In the band 9 800–9 900 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis. (WRC-07)

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

5.480 Additional allocation: in Argentina, Brazil, Chile, Cuba, El Salvador, Ecuador, Guatemala, Honduras, Paraguay, the overseas countries and territories within the Kingdom of the Netherlands in Region 2, Peru and Uruguay, the frequency band 10–10.45 GHz is also allocated to the fixed and mobile services on a primary basis. In Colombia, Costa Rica, Mexico and Venezuela, the frequency band 10–10.45 GHz is also allocated to the fixed service on a primary basis. (WRC-19)

5.481 Additional allocation: in Algeria, Germany, Angola, Brazil, China, Côte d'Ivoire, Egypt, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Pakistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania, Tunisia and Uruguay, the frequency band 10.45–10.5 GHz is also allocated to the fixed and mobile services on a primary basis. In Costa Rica, the frequency band 10.45–10.5 GHz is also allocated to the fixed service on a primary basis. (WRC-19)

5.482 In the band 10.6–10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical mobile, services shall not exceed –3 dBW. This limit may be exceeded, subject to agreement obtained under No. **9.21**. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except aeronautical mobile, services is not applicable. (WRC-07)

5.482A For sharing of the band 10.6–10.68 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services, Resolution **751 (WRC-07)** applies. (WRC-07)

5.483 Additional allocation: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Tajikistan, Turkmenistan and Yemen, the frequency band 10.68–10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-19)

5.484 In Region 1, the use of the band 10.7–11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.

5.484A The use of the bands 10.95–11.2 GHz (space-to-Earth), 11.45–11.7 GHz (space-to-Earth), 11.7–12.2 GHz (space-to-Earth) in Region 2, 12.2–12.75 GHz (space-to-Earth) in Region 3, 12.5–12.75 GHz (space-to-Earth) in Region 1, 13.75–14.5 GHz (Earth-to-space), 17.8–18.6 GHz (space-to-Earth), 19.7–20.2 GHz (space-to-Earth), 27.5–28.6 GHz (Earth-to-space), 29.5–30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

5.484B Resolution **155 (WRC-15)**¹⁸ shall apply. (WRC-15)

5.485 In Region 2, in the band 11.7–12.2 GHz, transponders on space stations in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided

¹⁸ Note by the Secretariat: This Resolution was revised by WRC-19.

that such transmissions do not have a maximum e.i.r.p. greater than 53 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service.

5.486 *Different category of service:* in the United States, the allocation of the frequency band 11.7–12.1 GHz to the fixed service is on a secondary basis (see No. 5.32). (WRC-15)

5.487 In the band 11.7–12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to, or claim protection from, broadcasting-satellite stations operating in accordance with the Regions 1 and 3 Plan in Appendix 30. (WRC-03)

5.487A *Additional allocation:* in Region 1, the band 11.7–12.5 GHz, in Region 2, the band 12.2–12.7 GHz and, in Region 3, the band 11.7–12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-03)

5.488 The use of the band 11.7–12.2 GHz by geostationary-satellite networks in the fixed-satellite service in Region 2 is subject to application of the provisions of No. 9.14 for coordination with stations of terrestrial services in Regions 1, 2 and 3. For the use of the band 12.2–12.7 GHz by the broadcasting-satellite service in Region 2, see Appendix 30. (WRC-03)

5.489 *Additional allocation:* in Peru, the band 12.1–12.2 GHz is also allocated to the fixed service on a primary basis.

5.490 In Region 2, in the band 12.2–12.7 GHz, existing and future terrestrial radiocommunication services shall not cause harmful interference to the space services operating in conformity with the broadcasting-satellite Plan for Region 2 contained in Appendix 30.

5.491 (SUP – WRC-03)

5.492 Assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix 30 may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference, or require more protection from interference, than the broadcasting-satellite service transmissions operating in conformity with the Plan or the List, as appropriate. (WRC-2000)

5.493 The broadcasting-satellite service in the band 12.5–12.75 GHz in Region 3 is limited to a power flux-density not exceeding $-111 \text{ dB(W)/(m}^2 \cdot 27 \text{ MHz)}$ for all conditions and for all methods of modulation at the edge of the service area. (WRC-97)

5.494 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Oman, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 12.5–12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-15)

5.495 *Additional allocation:* in Greece, Monaco, Montenegro, Uganda and Tunisia, the frequency band 12.5–12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-19)

5.496 *Additional allocation:* in Austria, Azerbaijan, Kyrgyzstan and Turkmenistan, the band 12.5–12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those listed in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries listed in this footnote. The power flux-density limit at the Earth's surface given in Table 21-4 of Article 21, for the fixed-satellite service shall apply on the territory of the countries listed in this footnote. (WRC-2000)

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

5.498 (SUP – WRC-97)

5.498A The Earth exploration-satellite (active) and space research (active) services operating in the band 13.25–13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service. (WRC-97)

5.499 *Additional allocation:* in Bangladesh and India, the band 13.25–14 GHz is also allocated to the



fixed service on a primary basis. In Pakistan, the band 13.25–13.75 GHz is allocated to the fixed service on a primary basis. (WRC-12)

5.499A 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. (WRC-15)

5.499B 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). (WRC-15)

5.499C 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 frequency band by the space research service are on a secondary basis. (WRC-15)

5.499D 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. (WRC-15)

5.499E 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 these Regulations, and No. **5.43A** does not apply. The provisions of No. **22.2** do not apply to the Earth exploration-satellite service (active) with respect to the fixed-satellite service (space-to-Earth) in this frequency band. (WRC-15)

5.500 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Morocco, Mauritania, Niger, Nigeria, Oman, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Chad and Tunisia, the frequency band 13.4–14 GHz is also allocated to the fixed and mobile services on a primary basis. In Pakistan, the frequency band 13.4–13.75 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)

5.501 *Additional allocation:* in Azerbaijan, Hungary, Japan, Kyrgyzstan, Romania and Turkmenistan, the band 13.4–14 GHz is also allocated to the radionavigation service on a primary basis. (WRC-12)

5.501A The allocation of the frequency 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 frequency band by the space research service are on a secondary basis. (WRC-15)

5.501B In the band 13.4–13.75 GHz, the Earth exploration-satellite (active) and space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service. (WRC-97)

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

- $-115 \text{ dB(W)/(m}^2 \cdot 10 \text{ MHz)}$ 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;
- $-115 \text{ dB(W)/(m}^2 \cdot 10 \text{ MHz)}$ for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.

For earth stations within the fixed-satellite service having an antenna diameter greater than or equal to 4.5 m, the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW. (WRC-03)

5.503 In the band 13.75–14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January



1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band:

- in the band 13.77–13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed:
 - i) $4.7D + 28 \text{ dB(W/40 kHz)}$, 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;
 - ii) $49.2 + 20 \log(D/4.5) \text{ dB(W/40 kHz)}$, 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;
 - iii) 66.2 dB(W/40 kHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m;
 - iv) 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater;
- the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in **non**-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz.

Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions. (WRC-03)

5.503A (SUP – WRC-03)

5.504 The use of the band 14–14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service.

5.504A In the band 14–14.5 GHz, aircraft earth stations in the secondary aeronautical mobile-satellite service may also communicate with space stations in the fixed-satellite service. The provisions of Nos. **5.29**, **5.30** and **5.31** apply. (WRC-03)

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the frequency 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 frequency band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC-15)

5.504C In the frequency band 14–14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Nigeria, Oman, the Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)

5.505 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Chad, Viet Nam and Yemen, the frequency band 14–14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-19)

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

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

5.506B Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14–14.5 GHz without the need for prior agreement from Cyprus and Malta, within the minimum distance given in Resolution **902** (WRC-03) from these countries. (WRC-15)

5.507 Not used.

5.508 *Additional allocation:* in Germany, France, Italy, Libya, North Macedonia and the United Kingdom, the frequency band 14.25–14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-19)



5.508A In the frequency band 14.25–14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)

5.509 (SUP – WRC-07)

5.509A In the frequency band 14.3–14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)

5.509B The use of the frequency bands 14.5–14.75 GHz in countries listed in Resolution **163** (WRC-15) and 14.5–14.8 GHz in countries listed in Resolution **164** (WRC-15) by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service is limited to geostationary-satellites. (WRC-15)

5.509C For the use of the frequency bands 14.5–14.75 GHz in countries listed in Resolution **163** (WRC-15) and 14.5–14.8 GHz in countries listed in Resolution **164** (WRC-15) 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 dBW/Hz at the input of the antenna. The earth stations shall be notified at known locations on land. (WRC-15)

5.509D Before an administration brings into use an earth station in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service in the frequency bands 14.5–14.75 GHz (in countries listed in Resolution **163** (WRC-15)) and 14.5–14.8 GHz (in countries listed in Resolution **164** (WRC-15)), it shall ensure that the power flux-density produced by this earth station does not exceed -151.5 dB(W/(m² · 4 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. (WRC-15)

5.509E In the frequency bands 14.50–14.75 GHz in countries listed in Resolution **163** (WRC-15) and 14.50–14.8 GHz in countries listed in Resolution **164** (WRC-15), 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. 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. (WRC-15)

5.509F In the frequency bands 14.50–14.75 GHz in countries listed in Resolution **163** (WRC-15) and 14.50–14.8 GHz in countries listed in Resolution **164** (WRC-15), 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. (WRC-15)

5.509G The frequency band 14.5–14.8 GHz is also allocated to the space research service on a primary basis. However, such use is limited to the satellite systems operating in the space research service (Earth-to-space) to relay data to space stations in the geostationary-satellite orbit from associated earth stations. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services and in the fixed-satellite service limited to feeder links for the broadcasting-satellite service and associated space operations functions using the guardbands under Appendix **30A** and feeder links for the broadcasting-satellite service in Region 2. Other uses of this frequency band by the space research service are on a secondary basis. (WRC-15)

5.510 Except for use in accordance with Resolution **163** (WRC-15) and Resolution **164** (WRC-15), 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. This use is reserved for countries outside Europe. Uses other than feeder links for the broadcasting-satellite service are not authorized in Regions 1 and 2 in the frequency band 14.75–14.8 GHz. (WRC-15)

5.511 *Additional allocation:* in Saudi Arabia, Bahrain, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, Kuwait, Lebanon, Oman, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the band 15.35–15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)

5.511A Use of the frequency 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**. (WRC-15)



5.511B (SUP – WRC-97)

5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340-0. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. **4.10** applies) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340-0. (WRC-15)

5.511D (SUP – WRC-15)

5.511E In the frequency band 15.4–15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the aeronautical radionavigation service. (WRC-12)

5.511F In order to protect the radio astronomy service in the frequency band 15.35–15.4 GHz, radiolocation stations operating in the frequency band 15.4–15.7 GHz shall not exceed the power flux-density level of -156 dB(W/m²) in a 50 MHz bandwidth in the frequency band 15.35–15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time. (WRC-12)

5.512 *Additional allocation:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Montenegro, Nepal, Nicaragua, Niger, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 15.7–17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)

5.513 *Additional allocation:* in Israel, the band 15.7–17.3 GHz is also allocated to the fixed and mobile services on a primary basis. These services shall not claim protection from or cause harmful interference to services operating in accordance with the Table in countries other than those included in No. **5.512**.

5.513A Spaceborne active sensors operating in the band 17.2–17.3 GHz shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis. (WRC-97)

5.514 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Cameroon, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kuwait, Libya, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Sudan and South Sudan, the frequency band 17.3–17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **21.3** and **21.5** shall apply. (WRC-15)

5.515 In the band 17.3–17.8 GHz, sharing between the fixed-satellite service (Earth-to-space) and the broadcasting-satellite service shall also be in accordance with the provisions of § 1 of Annex 4 of Appendix **30A**.

5.516 The use of the band 17.3–18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. The use of the band 17.3–17.8 GHz in Region 2 by systems in the fixed-satellite service (Earth-to-space) is limited to geostationary satellites. For the use of the band 17.3–17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2–12.7 GHz, see Article **11**. The use of the bands 17.3–18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8–18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

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

- 17.3–17.7 GHz (space-to-Earth) in Region 1,
- 18.3–19.3 GHz (space-to-Earth) in Region 2,
- 19.7–20.2 GHz (space-to-Earth) in all Regions,
- 39.5–40 GHz (space-to-Earth) in Region 1,



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

This identification does not preclude the use of these frequency bands by other fixed-satellite service applications or by other services to which these frequency bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the frequency bands. Administrations should take this into account when considering regulatory provisions in relation to these frequency bands. See Resolution **143 (Rev.WRC-19)**. (WRC-19)
5.517 In Region 2, use of the fixed-satellite (space-to-Earth) service in the band 17.7–17.8 GHz shall not cause harmful interference to nor claim protection from assignments in the broadcasting-satellite service operating in conformity with the Radio Regulations. (WRC-07)

5.517A 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 (WRC-19)**. (WRC-19)
5.518 (SUP – WRC-07)

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

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

5.521 *Alternative allocation:* in the United Arab Emirates and Greece, the frequency band 18.1–18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. **5.33**). The provisions of No. **5.519** also apply. (WRC-15)

5.522 (SUP – WRC-2000)

5.522A The emissions of the fixed service and the fixed-satellite service in the band 18.6–18.8 GHz are limited to the values given in Nos. **21.5A** and **21.16.2**, respectively. (WRC-2000)

5.522B The use of the band 18.6–18.8 GHz by the fixed-satellite service is limited to geostationary systems and systems with an orbit of apogee greater than 20.000 km. (WRC-2000)

5.522C In the band 18.6–18.8 GHz, in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, Jordan, Lebanon, Libya, Morocco, Oman, Qatar, the Syrian Arab Republic, Tunisia and Yemen, fixed-service systems in operation at the date of entry into force of the Final Acts of WRC-2.000 are not subject to the limits of No. **21.5A**. (WRC-2000)

5.523 (SUP – WRC-2000)

5.523A The use of the bands 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. **9.11A** and No. **22.2** does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. **9.11A** with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **4** notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

5.523B The use of the band 19.3–19.6 GHz (Earth-to-space) by the fixed-satellite service is limited to feeder links for non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A**, and No. **22.2** does not apply.

5.523C No. **22.2** shall continue to apply in the bands 19.3–19.6 GHz and 29.1–29.4 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **4** coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

5.523D The use of the band 19.3–19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of No. **9.11A**, but not subject to the provisions of No. **22.2**. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. **5.523C** and **5.523E**, is not subject to the provisions of No. **9.11A** and shall



continue to be subject to Articles 9 (except No. 9.11A) and 11 procedures, and to the provisions of No. 22.2. (WRC-97)

5.523E No. 22.2 shall continue to apply in the bands 19.6–19.7 GHz and 29.4–29.5 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix 4 coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997. (WRC-97)

5.524 *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Tunisia, the frequency band 19.7–21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the frequency band 19.7–21.2 GHz and of space stations in the mobile-satellite service in the frequency band 19.7–20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter frequency band. (WRC-15)

5.525 In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7–20.2 GHz and 29.5–30 GHz.

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

5.527 In the bands 19.7–20.2 GHz and 29.5–30 GHz, the provisions of No. 4.10 do not apply with respect to the mobile-satellite service.

5.527A The operation of earth stations in motion communicating with the FSS is subject to Resolution 156 (WRC-15). (WRC-15)

5.528 The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7–20.1 GHz in Region 2 and in the band 20.1–20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. 5.524.

5.529 The use of the bands 19.7–20.1 GHz and 29.5–29.9 GHz by the mobile-satellite service in Region 2 is limited to satellite networks which are both in the fixed-satellite service and in the mobile-satellite service as described in No. 5.526.

5.530 (SUP – WRC-12)

5.530A Unless otherwise agreed between the administrations concerned, any station in the fixed or mobile services of an administration shall not produce a power flux-density in excess of $-120.4 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ at 3 m above the ground of any point of the territory of any other administration in Regions 1 and 3 for more than 20% of the time. In conducting the calculations, administrations should use the most recent version of Recommendation ITU-R P.452 (see also the most recent version of Recommendation ITU-R BO.1898). (WRC-15)

5.530B In the band 21.4–22 GHz, in order to facilitate the development of the broadcasting-satellite service, administrations in Regions 1 and 3 are encouraged not to deploy stations in the mobile service and are encouraged to limit the deployment of stations in the fixed service to point-to-point links. (WRC-12)

5.530C (SUP – WRC-15)

5.530D (SUP – WRC-19)

5.530E The allocation to the fixed service in the frequency band 21.4–22 GHz is identified for use in Region 2 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 it 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 is limited to the HAPS-to-ground direction, and shall be in accordance with the provisions of Resolution 165 (WRC-19). (WRC-19)

5.531 *Additional allocation:* in Japan, the band 21.4–22 GHz is also allocated to the broadcasting service on a primary basis.

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

5.532A The location of earth stations in the space research service shall maintain a separation distance of at least 54 km from the respective border(s) of neighbouring countries to protect the existing and future deployment of fixed and mobile services unless a shorter distance is otherwise



agreed between the corresponding administrations. Nos. **9.17** and **9.18** do not apply. (WRC-12)

5.532AA The allocation to the fixed service in the frequency band 24.25–25.25 GHz is identified for use in Region 2 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 is limited to the HAPS-to-ground direction and shall be in accordance with the provisions of Resolution **166 (WRC-19)**. (WRC-19)

5.532AB The frequency band 24.25–27.5 GHz is identified for use by administrations wishing to implement 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 (WRC-19)** applies. (WRC-19)

5.532B Use of the band 24.65–25.25 GHz in Region 1 and the band 24.65–24.75 GHz in Region 3 by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m. (WRC-12)

5.533 The inter-satellite service shall not claim protection from harmful interference from airport surface detection equipment stations of the radionavigation service.

5.534 (SUP – WRC-03)

5.534A The allocation to the fixed service in the frequency band 25.25–27.5 GHz is identified in Region 2 for use by high-altitude platform stations (HAPS) in accordance with the provisions of Resolution **166 (WRC-19)**. Such use of the fixed-service allocation by HAPS shall be limited to the ground-to-HAPS direction in the frequency band 25.25–27.0 GHz and to the HAPS-to-ground direction in the frequency band 27.0–27.5 GHz. Furthermore, the use of the frequency band 25.5–27.0 GHz by HAPS shall be limited to gateway links. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this band is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. (WRC-19)

5.535 In the band 24.75–25.25 GHz, feeder links to stations of the broadcasting-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.

5.535A The use of the band 29.1–29.5 GHz (Earth-to-space) by the fixed-satellite service is limited to geostationary-satellite systems and feeder links to non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A**, but not subject to the provisions of No. **22.2**, except as indicated in Nos. **5.523C** and **5.523E** where such use is not subject to the provisions of No. **9.11A** and shall continue to be subject to Articles **9** (except No. **9.11A**) and **11** procedures, and to the provisions of No. **22.2**. (WRC-97)

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

5.536A Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account the most recent version of Recommendation ITU-R SA.1862. Resolution **242 (WRC-19)** applies. (WRC-19)

5.536B In Algeria, Saudi Arabia, Austria, Bahrain, Belgium, Brazil, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Iraq, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Slovenia, Sudan, Sweden, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the frequency band 25.5–27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. Resolution **242 (WRC-19)** applies. (WRC-19)

5.536C In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5–27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-12)

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

5.537A In Bhutan, Cameroon, China, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the frequency band 27.9–28.2 GHz



may also be used by high altitude platform stations (HAPS) within the territory of these countries. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution **145 (Rev.WRC-19)**. (WRC-19)

5.538 Additional allocation: the bands 27.500–27.501 GHz and 29.999–30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. (WRC-07)

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

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

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

5.541A Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the band 29.1–29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix 4 coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix 4 information for coordination before this date are encouraged to utilize these techniques to the extent practicable. (WRC-2000)

5.542 Additional allocation: in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Oman, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, South Sudan, Sri Lanka and Chad, the band 29.5–31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. 21.3 and 21.5 shall apply. (WRC-12)

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

5.543A (SUP – WRC-19)

5.543B 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 (WRC-19)**. (WRC-19)

5.544 In the band 31–31.3 GHz the power flux-density limits specified in Article 21, Table 21-4 shall apply to the space research service.

5.545 Different category of service: in Armenia, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 31–31.3 GHz to the space research service is on a primary basis (see No. 5.33). (WRC-12)

5.546 Different category of service: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the frequency band 31.5–31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33). (WRC-19)

5.547 The bands 31.8–33.4 GHz, 37–40 GHz, 40.5–43.5 GHz, 51.4–52.6 GHz, 55.78–59 GHz and 64–66 GHz are available for high-density applications in the fixed service (see Resolution **75 (WRC-2000)**¹⁹. Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5–40 GHz and 40.5–42 GHz (see No. 5.516B), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. (WRC-07)

¹⁹ Note by the Secretariat: This Resolution was revised by WRC-12.



5.547A Administrations should take practical measures to minimize the potential interference between stations in the fixed service and airborne stations in the radionavigation service in the 31.8–33.4 GHz band, taking into account the operational needs of the airborne radar systems. (WRC-2000)

5.547B *Alternative allocation:* in the United States, the band 31.8–32 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-97)

5.547C *Alternative allocation:* in the United States, the band 32–32.3 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-03)

5.547D *Alternative allocation:* in the United States, the band 32.3–33 GHz is allocated to the inter-satellite and radionavigation services on a primary basis. (WRC-97)

5.547E *Alternative allocation:* in the United States, the band 33–33.4 GHz is allocated to the radionavigation service on a primary basis. (WRC-97)

5.548 In designing systems for the inter-satellite service in the band 32.3–33 GHz, for the radionavigation service in the band 32–33 GHz, and for the space research service (deep space) in the band 31.8–32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation **707**). (WRC-03)

5.549 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4–36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

5.549A In the band 35.5–36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed -73.3 dB(W/m²) in this band. (WRC-03)

5.550 *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 34.7–35.2 GHz to the space research service is on a primary basis (see No. **5.33**). (WRC-12)

5.550A For sharing of the band 36–37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **752 (WRC-07)** shall apply. (WRC-07)

5.550B The frequency band 37–43.5 GHz, or portions thereof, is identified for use by administrations wishing to implement 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 in Region 1, 40–40.5 GHz in all Regions and 40.5–42 GHz in Region 2 (see No. **5.516B**), administrations should further take into account potential constraints to IMT in these frequency bands, as appropriate. Resolution **243 (WRC-19)** applies. (WRC-19)

5.550C 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 (WRC-19)** shall also apply, and No. **22.2** shall continue to apply. (WRC-19)

5.550D 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 and does not establish priority in the Radio Regulations. 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 (WRC-19)**. (WRC-19)

5.550E 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** shall continue to apply for non-geostationary-satellite-systems. (WRC-19)

5.551 (SUP – WRC-97)

5.551A (SUP – WRC-03)



5.551AA (SUP – WRC-03)

5.551B (SUP – WRC-2000)

5.551C (SUP – WRC-2000)

5.551D (SUP – WRC-2000)

5.551E (SUP – WRC-2000)

5.551F Different category of service: in Japan, the allocation of the band 41.5–42.5 GHz to the mobile service is on a primary basis (see No. **5.33**). (WRC-97)

5.551G (SUP – WRC-03)

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

- -230 dB(W/m²) in 1 GHz and -246 dB(W/m²) in any 500 kHz of the frequency band 42.5–43.5 GHz at the site of any radio astronomy station registered as a single-dish telescope; and
- -209 dB(W/m²) in any 500 kHz of the frequency band 42.5–43.5 GHz at the site of any radio astronomy station registered as a very long baseline interferometry station.

These epfd values shall be evaluated using the methodology given in Recommendation ITU-R S.1586-1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU-R RA.1631-0 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θ_{min} of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).

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

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

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply.

The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-15)

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

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

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

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

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply.

The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-03)

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

5.552A The allocation to the fixed service in the frequency 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 in the Radio Regulations. Such use of the fixed-service allocation in the frequency bands 47.2–47.5 GHz and 47.9–48.2 GHz by HAPS shall be in accordance with the provisions of Resolution **122 (Rev.WRC-19)**. (WRC-19)

5.553 In the bands 43.5–47 GHz and 66–71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **5.43**). (WRC-2000)

5.553A In Algeria, Angola, Bahrain, Belarus, Benin, Botswana, Brazil, Burkina Faso, Cabo Verde, Korea (Rep. of), Côte d'Ivoire, Croatia, United Arab Emirates, Estonia, Eswatini, Gabon, Gambia, Ghana, Greece, Guinea, Guinea-Bissau, Hungary, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lesotho, Latvia, Liberia, Lithuania, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania,



Mozambique, Namibia, Niger, Nigeria, Oman, Qatar, Senegal, Seychelles, Sierra Leone, Slovenia, Sudan, South Africa, Sweden, Tanzania, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 45.5–47 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT), taking into account No. 5.553. With respect to the aeronautical mobile service and radionavigation service, the use of this frequency band for the implementation of IMT is subject to agreement obtained under No. 9.21 with concerned administrations and shall not cause harmful interference to, or claim protection from these services. 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 244 (WRC-19) applies. (WRC-19)

5.553B In Region 2 and Algeria, Angola, Saudi Arabia, Australia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Rep., Comoros, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lesotho, Liberia, Libya, Lithuania, Madagascar, Malaysia, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Singapore, Slovenia, Somalia, Sudan, South Sudan, South Africa, Sweden, Tanzania, Chad, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 47.2–48.2 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated, and does not establish any priority in the Radio Regulations. Resolution 243 (WRC-19) applies. (WRC-19)

5.554 In the bands 43.5–47 GHz, 66–71 GHz, 95–100 GHz, 123–130 GHz, 191.8–200 GHz and 252–265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service. (WRC-2000)

5.554A The use of the bands 47.5–47.9 GHz, 48.2–48.54 GHz and 49.44–50.2 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary satellites. (WRC-03)

5.555 *Additional allocation:* the band 48.94–49.04 GHz is also allocated to the radio astronomy service on a primary basis. (WRC-2000)

5.555A (SUP – WRC-03)

5.555B The power flux-density in the band 48.94–49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2–48.54 GHz and 49.44–50.2 GHz shall not exceed -151.8 dB(W/m²) in any 500 kHz band at the site of any radio astronomy station. (WRC-03)

5.555C 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. (WRC-19)

5.556 In the bands 51.4–54.25 GHz, 58.2–59 GHz and 64–65 GHz, radio astronomy observations may be carried out under national arrangements. (WRC-2000)

5.556A Use of the bands 54.25–56.9 GHz, 57–58.2 GHz and 59–59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1.000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/(m² · 100 MHz)) for all angles of arrival. (WRC-97)

5.556B *Additional allocation:* in Japan, the band 54.25–55.78 GHz is also allocated to the mobile service on a primary basis for low-density use. (WRC-97)

5.557 *Additional allocation:* in Japan, the band 55.78–58.2 GHz is also allocated to the radiolocation service on a primary basis. (WRC-97)

5.557A In the band 55.78–56.26 GHz, in order to protect stations in the Earth exploration-satellite service (passive), the maximum power density delivered by a transmitter to the antenna of a fixed service station is limited to -26 dB(W/MHz). (WRC-2000)

5.558 In the bands 55.78–58.2 GHz, 59–64 GHz, 66–71 GHz, 122.25–123 GHz, 130–134 GHz, 167–174.8 GHz and 191.8–200 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. 5.43). (WRC-2000)

5.558A Use of the band 56.9–57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1.000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/(m² · 100 MHz)) for all angles of arrival. (WRC-97)

5.559 In the band 59–64 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. 5.43). (WRC-2000)

5.559A (SUP – WRC-07)

5.559AA The frequency band 66–71 GHz is identified for use by administrations wishing to



implement 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 this frequency band is allocated and does not establish priority in the Radio Regulations. Resolution **241 (WRC-19)** applies. (WRC-19)

5.559B 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 No. **4.10** do not apply. (WRC-15)

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

5.561 In the band 74–76 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to stations of the fixed-satellite service or stations of the broadcasting-satellite service operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service. (WRC-2000)

5.562 The use of the band 94–94.1 GHz by the Earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars. (WRC-97)

5.562A In the bands 94–94.1 GHz and 130–134 GHz, transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible. (WRC-2000)

5.562B In the frequency bands 105–109.5 GHz, 111.8–114.25 GHz and 217–226 GHz, the use of this allocation is limited to space-based radio astronomy only. (WRC-19)

5.562C Use of the band 116–122.25 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 km to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed $-148 \text{ dB(W)/(m}^2 \times \text{MHz)}$ for all angles of arrival. (WRC-2000)

5.562D *Additional allocation:* In Korea (Rep. of), the frequency bands 128–130 GHz, 171–171.6 GHz, 172.2–172.8 GHz and 173.3–174 GHz are also allocated to the radio astronomy service on a primary basis. Radio astronomy stations in Korea (Rep. of) operating in the frequency bands referred to in this footnote shall not claim protection from, or constrain the use and development of, services in other countries operating in accordance with the Radio Regulations. (WRC-15)

5.562E The allocation to the Earth exploration-satellite service (active) is limited to the band 133.5–134 GHz. (WRC-2000)

5.562F (SUP – WRC-19)

5.562G (SUP – WRC-19)

5.562H Use of the bands 174.8–182 GHz and 185–190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed $-144 \text{ dB(W)/(m}^2 \times \text{MHz)}$ for all angles of arrival. (WRC-2000)

5.563 (SUP – WRC-03)

5.563A In the bands 200–209 GHz, 235–238 GHz, 250–252 GHz and 265–275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents. (WRC-2000)

5.563B The band 237.9–238 GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for spaceborne cloud radars only. (WRC-2000)

5.564 (SUP – WRC-2000)

5.564A 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 use by administrations 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 (Rev.WRC-19)**.

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 (Rev.WRC-19)**.

The use of the above-mentioned 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. (WRC-19)

5.565 The following frequency bands in the range 275–1 000 GHz are identified for use by administrations for passive service applications:

- 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 275–1 000 GHz by the passive services does not preclude use of this range by active services. Administrations wishing to make frequencies in the 275–1 000 GHz range 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 275–1 000 GHz frequency range.

All frequencies in the range 1 000–3 000 GHz may be used by both active and passive services. (WRC-12)

AZ

In annex 3 worden op numerieke volgorde de volgende nationale voetnoten ingevoegd:

HOL008C

De bestemming vaste satellietdienst – ruimte naar aarde (FSS_SE) is ingeperkt tot het passief gebruik van frequentieruimte ten behoeve van de vaste satellietdienst dat al plaatsvond voor 1 december 2023.

HOL012

De band van 24,25 GHz tot 26,65 GHz is op NIB-basis mede bestemd voor kortbereikradarapparatuur in motorvoertuigen voor zover typegoedkeuring van het voertuig voor 1 januari 2018 is verleend. Zie verder Regeling gebruik van frequentieruimte zonder vergunning en zonder meldingsplicht 2015.

BA

In Annex 4 worden op alfabetische volgorde de volgende afkortingen ingevoegd:

AMRD – Autonomous Maritime Radio Device / autonoom maritiem radiobaken
NMR-toepassingen – Nuclear Magnetic Resonance, afgekort NMR-sensoren, zijn toestellen waarbij het onderzochte materiaal of voorwerp in de behuizing van het NMR-apparaat wordt geplaatst. NMR-technieken maken gebruik van NMR-bekrachtiging en de respons van de magnetische veldsterkte van een te testen materiaal/voorwerp om informatie over materiaaleigenschappen te verzamelen op basis van de resonantiefrequentie-responsen van de isotopen van atomen. Systemen voor NMR-beeldvorming en kernspintomografie vallen hier niet onder.

ARTIKEL II

Dit besluit treedt in werking met ingang van de dag na de datum van uitgifte van de Staatscourant waarin het wordt geplaatst.

Dit besluit wordt met de toelichting in de Staatscourant geplaatst.

*De Minister van Economische Zaken en Klimaat,
M.A.M. Adriaansens*

Tegen dit besluit kan degene wiens belang rechtstreeks bij dit besluit is betrokken binnen 6 weken na de dag van dagtekening van deze Staatscourant een gemotiveerd beroepschrift indienen bij de rechtbank Rotterdam, Postbus 50950, 3007 BL, Rotterdam.



TOELICHTING

I Algemeen

1 Nationaal Frequentieplan

Bij besluit van 3 november 2014 is op grond van artikel 3.1, eerste lid, van de Telecommunicatiewet het Nationaal Frequentieplan 2014 (hierna NFP) vastgesteld. In het NFP licht de Rijksoverheid de systematiek van de ordening van het frequentiespectrum toe en beschrijft zij de doelstellingen van het frequentiebeleid en frequentiebeheer. Het vermijden van schadelijke interferentie (storing) is hierbij het hoofddoel.

Het belangrijkste onderdeel van het NFP is de frequentietabel waarin per frequentieband wordt aangegeven voor welk type gebruik deze band bestemd is en volgens welk verdeelmechanisme deze band beschikbaar wordt gesteld voor frequentiegebruikers. In feite is het NFP een bestemmingsplan voor het radiospectrum. Op basis van dit plan wordt de vergunningverlening, het gebruik en het beheer van het spectrum uitgevoerd.

2 Aanleiding en inhoud van het besluit

De veranderingen in technologie, in de markt en de maatschappij maken het gewenst het NFP van tijd tot tijd aan te passen zodat ruimte kan worden gegeven aan de nieuwe ontwikkelingen en spectrumbehoeften en ook zodat recente harmoniserende (internationale) spectrumbesluiten kunnen worden geïmplementeerd.

Dit wijzigingspakket bestaat ook uit het bijplaatsen van voetnoten zoals gebruikt in de frequentietabel²⁰ van de International Telecommunication Union (hierna ITU). Het wijzigingspakket voorziet verder in het uitbreiden van bestemmingen, correcties en in een enkel geval het inperken van het gebruik van frequentieruimte. Alle wijzigingen zijn nader toegelicht.

Een groot deel van de aanpassingen vloeien voort uit de implementatie van de afspraken zoals die zijn gemaakt in de World Radio Conference van 2019 (hierna: WRC-19). De details van deze afspraken zijn terug te vinden in het document R-ACT-WRC.14-2019-PDF-E²¹. In de toelichting op dit wijzigingsbesluit zijn in voorkomende gevallen de toevoeging van ITU-voetnoten in bepaalde banddelen vermeld, zonder deze, met het oog op de leesbaarheid, inhoudelijk toe te lichten. Alle ITU-voetnoten zijn terug te vinden in dit wijzigingsbesluit in de wijzigingsopdracht 'AY'. De overige aanpassingen betreffen de implementatie van EU-regelgeving en aanbevelingen van het Electronic Communications Committee (hierna: ECC) van de Europese Conferentie van Telecom en Post (hierna: CEPT).

Andere aanpassingen hebben te maken met de implementatie van besluiten in EU- dan wel in ECC-CEPT-verband. Verwijzingen naar de hiertoe strekkende besluiten zijn opgenomen in de artikels-gewijze toelichting.

3 Voorschriften en beperkingen

Om storing te voorkomen en doelmatig gebruik van het frequentiespectrum te bevorderen worden aan het gebruik van frequenties voorschriften en beperkingen verbonden. In de regel worden deze voorschriften en beperkingen in de vergunning bepaald. Echter, wanneer het gebruik van het frequentiespectrum is vrijgesteld van een vergunning worden in de Regeling gebruik van frequentieruimte met meldingsplicht 2015 of de Regeling gebruik van frequentieruimte zonder vergunning en zonder meldingsplicht 2015 (hierna: de Regeling) de nadere eisen gesteld.

4 Uniforme openbare voorbereidingsprocedure (UOV)

4.1. UOV Algemeen

Dit NFP-besluit is voorbereid met toepassing van de uniforme openbare voorbereidingsprocedure, bedoeld in afdeling 3.4 van de Algemene wet bestuursrecht. Van 6 juli 2023 tot en met 17 augustus 2023 konden belanghebbenden, gebruikers en consumenten zienswijzen naar voren brengen omtrent een ontwerp van dit besluit.

²⁰ <https://www.itu.int/pub/R-REG-RR5>

²¹ Het document is hier te vinden: <https://www.itu.int/pub/R-ACT-WRC.14-2019>



4.2. Ontvangen zienswijzen m.b.t. de afzonderlijke wijzigingen en de reactie hierop

Zienswijze op het wijzigingsvoorstel als geheel

Eén van de respondenten maakt zich zorgen om de blootstelling aan elektromagnetische velden en verzocht om in het Nationaal Frequentieplan op te nemen dat de vergunningen per direct kunnen worden stopgezet wanneer de gevaren van elektromagnetische straling is aangetoond. De intrekingsgronden van vergunning zijn al opgenomen in hoofdstuk 3 van de Telecommunicatiewet. Aan de zienswijze van de respondent wordt derhalve geen vervolg gegeven.

Zienswijze op de wijziging in het banddeel 148–149,9 MHz, wijziging onder L en de banddelen 401–402 MHz en 402–403 MHz, wijziging onder T

Eén van respondenten gaf aan dat in de ITU Radio Regulation ook voetnoot 5.218 is opgenomen. Op basis van deze zienswijze voegen we voetnoot 5.218 ook toe in de tabel in het banddeel 148–149,9 MHz.

De respondent stelde ook voor de vermelding Space Operation Service op te nemen in de tabel voor de banddelen 401 tot 403 MHz. Daar gaan wij niet toe over. De huidige bestemming Mobile Satellietverbindingen (aarde naar ruimte) geeft dit gebruik al in voldoende mate weer.

Zienswijze op het wijzigingsvoorstel in het banddeel 400,15 – 401 MHz, wijziging onder S en 5030–5091 MHz, wijziging onder AC

Er is een verduidelijkende vraag gesteld over wat bedoeld is met professioneel dronegebruik. Het antwoord daarop is al het dronegebruik dat niet voor recreatieve doeleinden is bedoeld. Denkt u hierbij aan drones gebruikt voor (medische)transportdoeleinden, inspecties, metingen, etc. De openstelling van de band gaat gepaard met een regime van vergunningverlening en is daarmee onderhevig aan weigerings-, wijzigings- en intrekingsgronden als blijkt dat het gebruiksdoel niet overeenstemt de bepalingen zoals opgenomen in het Nationaal Frequentieplan.

Zienswijzen ontvangen op de wijziging in het banddeel 430–440 MHz, wijziging onder U

Een groot aantal respondenten, 628 radiozendamateurs, reageerde min of meer gelijklopend op dit wijzigingsvoorstel in de veronderstelling dat de betreffende frequentieband ook bestemd zou gaan worden voor een groot aantal varianten van vergunningvrije kortereafstandsapparatuur-toepassingen en dat hiermee, als gevolg van het te verwachten grote en wijdverspreide aantal, het gebruik van de betreffende frequentieruimte voor amateurdoeleinden onmogelijk zou worden. Dat berust op een misverstand. Het gaat om de toevoeging van een bestemming voor één zeer specifieke inwendige medische toepassing met ultra laag zendvermogen, de zgn. capsule-endoscopie. De wijziging betreft bovendien een verplichte implementatie van een EU-uitvoeringsbesluit. Bij de wijziging van dit EU-uitvoeringsbesluit is de kans op verstoringen als nihil ingeschat. De zeer specifieke voorwaarden, zoals opgenomen in het EU-uitvoeringsbesluit en waaronder dit gebruik van de frequentieruimte mag plaatsvinden wordt nationaal geregeld in Regeling gebruik van frequentieruimte zonder vergunning en zonder meldingsplicht 2015. In de tabel wordt hiernaar verwezen door de vermelding 'onder voorwaarden'.

Zienswijze op het wijzigingsvoorstel in het banddeel 694 MHz, wijziging onder V

Eén van de respondenten wees erop dat met het aanpassen van de bandgrens 698 MHz naar de ITU-bandgrens 694 de aanwijzing van frequentieruimte aan de Minister van JenV voor publieke taken dan meebeweegt met deze aanpassing.

N.a.v. deze opmerking wordt in het ontwerpbesluit de bandgrens gecorrigeerd naar de ITU-bandgrens 694 MHz en tegelijk wordt een nationale bandgrens toegevoegd van 698 MHz om het bereik van de aanwijzing aan de Minister van JenV juist te begrenzen en markeren.

Zienswijze op het wijzigingsvoorstel in het banddeel 3800–4200 MHz, wijziging onder AB

Meerdere respondenten hebben aangegeven moeite te hebben met de planning van het beleidstraject van de 3800–4200 MHz-band zoals deze zomer is gepubliceerd. Zij vinden een doorlooperperiode van 9 tot 18 maanden te lang. Een respondent stelt dat voorafgaande aan de 3,5 GHz-veiling al duidelijkheid moet worden gegeven over onder meer de 3800–4200 MHz-band vanwege de diverse onzekerheden waarmee de 3,5 GHz-band is behept.

De vraag die voor ligt is welke inrichting van onder meer de 3800–4200 MHz-band het meest doelmatig is voor Nederland. Waarbij bestaand en potentieel nieuw gebruik onbevooroordeeld ten opzichte van elkaar zullen worden behandeld en de beide banden ook in onderlinge samenhang worden bekeken. Die vraag is des te meer relevant, omdat er voor beide banden diverse mogelijkhe-

den en belangen aan de orde zijn die ook met elkaar concurreren. EZK heeft oog voor de behoefte aan extra, flexibeler exploiteerbaar spectrumruimte voor bedrijfs- en missie-kritische toepassingen, maar ziet ook andere gegadigden die ruimte bepleiten voor landelijk mobiel of voor Fixed Wireless Access-toepassingen (hierna: FWA). De keuze om bestaande belangen niet zwaarder te laten wegen ten opzichte van nieuwe mogelijkheden versterkt nog eens het gewicht van de randvoorwaarde dat het onderzoek naar de gebruiksmogelijkheden grondig en zorgvuldig dient te worden uitgevoerd. Als voorafgaand aan deze onderzoeken al eerder bepaalde afslagen worden genomen op basis van suggesties van verschillende respondenten, dan is het risico zeer groot dat deze vroege keuzes de latere opvolging van de aanbevelingen van de onderzoeken in de weg gaan zitten. EZK is zich bewust van de urgentie die door de markt (terecht) onder de aandacht wordt gebracht en zij pakt daarom het te volgen proces voortvarend aan [waarbij ook externe onderzoeksbureaus worden betrokken]. Toezeggingen dat al op kortere termijn dan aangegeven besluiten genomen kunnen worden, kunnen niet worden gedaan. Ten aanzien van de relatie met de 3,5 GHz-band het volgende. Er is EZK alles aan gelegen om maximale duidelijkheid te geven over de 3,5 GHz-band voorafgaande aan de veiling. Zoals bekend zijn er in die band diverse onzekerheden aan de orde geweest waar deze respondent ook aan refereert. EZK heeft er inmiddels alle vertrouwen in dat de indeling en de uitgifte van frequenties in de 3,5 GHz geheel wordt zoals voorgenomen, zij het later dan gepland. EZK ziet daarom niet de genoemde onzekerheden in de 3,5 GHz-band als aanleiding om nog voor de veiling de gevraagde duidelijkheid ook over de 3800–4200 en de 26 GHz te bieden.

Een respondent vestigt de aandacht op het belang om bij de keuzes voor de 3.8–4.2 GHz de internationale context qua beleid/regelgeving, qua ontwikkeling van apparatuur ecosysteem en qua behoefte aan standaardisatie van oplossingen bij internationale gebruikers van dit spectrum mee te nemen.

EZK waardeert de boodschap om de gehele internationale context in alle genoemde facetten goed bij de besluitvorming te betrekken. EZK deelt de visie dat harmonisatie van dit spectrum binnen Europa belangrijk is teneinde maximaal te profiteren van een internationaal apparatuur ecosysteem, maar constateert tegelijkertijd dat er zowel binnen CEPT als ook nationaal verschillende visies zijn op de vraag hoe de bestaande en nieuwe belangen ten aanzien van deze belangrijke band moeten worden gewogen. De aangekondigde onderzoeken hebben tot doel dit zo zuiver mogelijk in beeld te krijgen, rekening houdend met voornoemde internationale ontwikkelingen en spin-off-effecten daarvan maar ook met de specifiek Nederlandse situatie.

Twee respondenten stellen zich niet te kunnen vinden in een eventueel (al vroegtijdig genomen) besluit om de gehele 3800–4200 MHz-band in te zetten voor lokale netwerken. Een respondent merkt daarbij op dat er diverse implementatie strategieën denkbaar zijn waarvoor moet worden voorkomen dat er te vroeg (onnodige) beperkingen worden opgelegd. Tevens geeft deze respondent aan dat de beschikbaarstelling van landelijk mobiel spectrum onderdeel zou moeten zijn van een integrale visie op spectrum voor landelijk mobiel waarin ook andere banden zijn meegenomen.

In aanvulling op de voorgaande antwoorden signaleert EZK in Nederland en in andere Europese landen de roep van Mobiele Netwerk Operators om ook spectrum in de 3800–4200 MHz beschikbaar te stellen voor landelijk mobiel. Tegelijkertijd neemt EZK ook het voornemen van de Europese Commissie serieus in haar streven naar Europees geharmoniseerd spectrum in deze band ten behoeve van de zogenaamde 'verticals'. Last but not least wordt onder andere in Nederland deze band intensief gebruikt voor satellietcommunicatie. De komende tijd zullen die behoeften objectief op hun merites worden beoordeeld. Daar kan uitkomen dat er significante maatschappelijke baten zijn bij het combineren van verschillende toepassingen in deze band. Dit moet worden afgewacht. Het is aldus zeer beslist in Nederland niet vooraf al bepaald dat de gehele band zal worden herbestemd voor lokale netwerken. De aangekondigde nationale onderzoeken in combinatie met het werk in CEPT-verband gaan bepalen welke beleidsruimte er is voor de toekomst van de 3800–4200 MHz en hoe dat uiteindelijk zijn beslag krijgt in een bestemmingsplan voor deze band met daarbij behorende (noodzakelijke) bepalingen. Daar wordt nu niet op vooruit gelopen. Tenslotte ligt het in de rede om een eventueel beleidsvoornemen voor landelijk mobiel in de 3800–4200 MHz ook onderdeel te maken van een bredere visie op toekomstig spectrum voor landelijk mobiel.

Zienswijze op het wijzigingsvoorstel in het banddeel 26 GHz, wijziging onder AO

Ten aanzien van zienswijzen over het door EZK voorgestelde beleidsproces en daarmee corresponderende tijdslijnen voor de 26 GHz-band wordt verwezen naar de betreffende antwoorden voor de 3800–4200 MHz-band die gelijkloidend zijn. Hierna wordt ingegaan op enkele specifiek opgebrachte punten.

Een respondent stelt dat als er voor FWA een migratie naar de 26 GHz aan de orde is, vanwege de gemaakte keuzes in de 3,5 GHz-band, er wel tijdig voldoende perspectief moet zijn dat de vereiste investeringen voor deze nieuwe band terugverdiend kunnen worden, concreet in de vorm van een



voldoende lange licentietermijn. Een andere respondent vraagt zich af of er überhaupt vergunningen voor FWA zijn c.q. kunnen worden verleend in de 26 GHz-band.

EZK erkent het belang van de 26 GHz-band voor FWA en het besluit om FWA niet langer meer te faciliteren in de 3,5 GHz is onder andere gestoeld op de visie dat FWA zijn plek moet gaan krijgen in hogere frequentiebanden zoals de 26 GHz-band. Er is ten opzichte van de in 2020 gepubliceerde voornemens inderdaad sprake van een reset waarbij in combinatie met de 3800–4200 MHz is gekozen voor een neutraal en robuust behoeftenonderzoek voor de gehele band, gegeven de verschillende mogelijke toepassingen in deze band, waaronder FWA. Dit beleidsproces resulteert aanzienlijk later dan voorzien in de gewenste duidelijkheid over de toekomst van de 26 GHz-band, maar daar staat tegenover dat er in de markt nog geen sprake is van een sterke drang onder partijen met lokale aspiraties om de 26 GHz te gaan exploiteren. Bij FWA is echter sprake van een specifieke situatie. Er is om die reden de mogelijkheid gecreëerd om vergunningen aan te vragen voor FWA (TDD-spectrum) in de onderste 200 MHz (26,25–26,45 GHz). Dit is een geclausuleerde vergunning met een looptijd van 5 jaar, omdat rekening moet worden gehouden met mogelijke migratie zodra tot de definitieve bandindeling is besloten. Deze optie is bedoeld als een tijdelijk noodverband om een introductie van FWA in de 26 GHz-band alvast mogelijk te maken. Hoewel niet op de uitkomsten van de aangekondigde onderzoeken vooruit kan worden gelopen, lijkt het uiterst onrealistisch dat FWA als toepassing niet terugkomt in het definitieve bestemmingsplan voor de 26 GHz-band.

Een respondent stelt de vraag of de vermelde einddatum voor vergunningen voor vaste verbindingen van 31/12/2027 betekent dat daarna pas de 26 GHz beschikbaar komt of dat dat eerder al voor delen van de band het geval is. Het antwoord hierop is dat de onderste helft van de 26 GHz-band (en in ieder geval de subband 25,1–26,1 GHz) zal tot/met uiterlijk 2027 in gebruik zijn voor vaste verbindingen. Andere delen van de band zullen mogelijk al eerder beschikbaar komen, op een wijze die recht doet aan de uitkomsten van de nu aangekondigde onderzoeken.

II Artikelsgewijs

Artikel I

Wijzigingen A tot en met E, redactionele wijzigingen en aanpassing hoofdstuk 8.2

Betreft hoofdzakelijk redactionele wijzigingen en verder de aanpassing van het hoofdstuk 'Bijzondere vergunningvrije toepassingen', hoofdstuk 8.2, annex 4. Naast een redactionele wijziging in 8.2.1 is in 8.2.2 het vergunningvrij gebruik opgenomen van de zogeheten 'Nuclear Magnetic Resonance'-toepassingen in delen van het frequentiebereik van 9 kHz tot 130 MHz. De genoemde wijziging strekt tot de implementatie van de Short Range Device-aanbeveling.²²

Wijzigingen onder F en G, 415–435 kHz en 495–505 kHz, toevoeging voetnoten en verdeling aangehouden

Het aanhouden van de verdeling betekent dat er (verder) geen vergunningen worden verleend met deze bestemming in het NFP. De reden voor deze beleidswijziging betreft het gegeven dat deze frequentieband internationaal in de WRC-19 is bestemd voor het gebruik van navigatiedata (NAVDAT) uitgezonden door kuststations.

Wijziging onder H, 50 tot 52 MHz, toevoeging voetnoten en wijziging status radiozendamateurs.

Met deze wijziging van secundaire naar primaire status voor radiozendamateurs binnen de nationale bandgrenzen van 50 tot 50,5 MHz worden de afspraken nagekomen die hierover in de WRC-19 zijn gemaakt. Ten behoeve van deze aanpassing wordt de nationale bandgrens 50,5 MHz toegevoegd aan de tabel, alsmede de toevoeging van de voetnoten: 5.166A, 5.166B en 5.166C, welke zien op het meer in detail regelen van het voorkomen van interferentie tussen verschillende toepassingen en vormen van spectrumgebruik in het betreffende banddeel. Voor de details wordt verwezen naar de voetnoten-tabel zoals opgenomen in het onderdeel AY.

Wijziging onder I, stopzetting aanwijzing van frequentieruimte voor publieke taken van min JenV

Het Ministerie van Justitie en Veiligheid heeft aangegeven geen gebruik meer te maken van de

²² ERC Recommendation 70-03: <https://docdb.cept.org/document/845>



frequentieruimte in de 70,5 tot 74,8 MHz. De aanwijzing van frequentieruimte voor de publieke taken aan de Minister van Justitie en Veiligheid komt met deze wijziging te vervallen.

Wijziging onder J, stopzetting aanwijzing van frequentieruimte voor publieke taken van min JenV en toevoeging hoogfrequent-installaties in wegtunnels voor de banddelen in het bereik 87,5 tot 108 MHz

Het Ministerie van Justitie en Veiligheid heeft aangegeven geen gebruik meer te maken van de frequentieruimte in de frequentieband 84 tot 87,5 MHz. De aanwijzing van frequentieruimte voor de publieke taken aan de Minister van Justitie en Veiligheid komt met deze wijziging te vervallen.

Een groot deel van de tunnels voor het wegverkeer bevat een hoogfrequent-installatie die het spectrum bedoeld voor de FM-omroep, heruitzend in een wegtunnel zodat zonder onderbreking geluisterd kan worden naar: de FM-omroep, een deel van de FM-omroep of informatie voor bestuurders tijdens bijzondere omstandigheden of calamiteiten. Deze voorzieningen bevorderen de verkeers- en tunnelveiligheid.

De verwijzing 'onder voorwaarden' komt met deze wijziging ten aanzien van deze installaties te vervallen. De installaties zijn naar hun aard en bedoeling beperkt tot, de afgeschermd, heruitzending van de omroepsignalen in de tunnelbuis of -buizen en daarmee is de kans op verstoring van het frequentiegebruik buiten het tunnelcomplex zeer gering. Het opnemen in het NFP van de mogelijkheid tot het stellen van nadere beperkende voorwaarden is daarom overbodig. Bij deze wijziging is verder gekozen voor het toevoegen van de bestemming 'hoogfrequent-installaties zonder vergunning', omdat het evenwel niet opportuun is om deze radiozendinrichtingen onder de vergunningplicht te laten vallen. Deze vaste installaties hebben een tertiaire status en mogen functioneren op Non Interference Basis (hierna: NIB).

Wijziging onder K, toevoeging van de radiodienst Space Operations van ruimte naar aarde in het bereik 137 tot 138 MHz

Met de toevoeging van de ITU-radiodienst Space Operations, van ruimte naar aarde, op co-primaire basis wordt hetgeen is overeengekomen in de WRC-19 geïmplementeerd. Er is geen actief gebruik (lees: zenden) van het frequentiespectrum op aarde voorzien dus vergunningverlening is niet van toepassing.

Hierbij is verder de voetnoot 5.203C toegevoegd welke regelt dat de genoemde radiodienst geen storing mag veroorzaken op bestaande toepassingen met een primaire status. Ook mag deze radiodienst geen bescherming claimen ten opzichte van deze andere primaire radiodiensten.

Wijziging onder L, toevoeging van de radiodienst Space Operations van aarde naar ruimte in het bereik 148 tot 149,9 MHz

Met de toevoeging van de ITU-radiodienst Space Operations, van aarde naar ruimte, op co-primaire basis, worden de afspraken nagekomen die hierover in de WRC-19 gemaakt zijn. Er is actief gebruik (lees: zenden) van het frequentiespectrum op aarde voorzien dus vergunningverlening ter coördinatie van het gebruik is van toepassing. Voorts toevoeging van de voetnoot 5.218A dat het gebruik beperkt tot de communicatie met niet-geostationaire satellieten met een korte duur missie. Meer details zijn terug te vinden bij de uitleg van voetnoot 5.218A.

Wijziging onder M, N, O en P diverse toevoegingen van gebruik in de bereiken 156,4875–156,5625 MHz, 156,8375–158,04 MHz, 160,6–161,9875 MHz en 162,0125–162,0375 MHz

In het bereik van 156,4875 tot 156,5625 MHz, 160,6 tot 161,7875 MHz en 161,9625 tot 161,9875 MHz is de radiodienst Maritime Mobile Services met Maritime Radio Devices) toegevoegd. Hierbij gaat het om digitaal selectieve oproepen met behulp van autonome maritieme radioapparaten. De de radiotoepassing DSC-AMRD (Digital Selective Calling – Autonomous toevoeging regelt het bieden van frequentieruimte aan het gebruik van kleine apparaten die kunnen alarmeren, welke gedragen kunnen worden op het lichaam, vest of pak van zeegaanden en watersporters ten behoeve van hun persoonlijke veiligheid op- en in het water. Het gebruik is vergunningvrij, onder voorwaarden. Deze voorwaarden zijn opgenomen in de Regeling.

Hier zijn tevens de extra nationale bandgrenzen 157,1875 MHz en 157,3375 MHz toegevoegd ten behoeve van het beperken van het gebruik van maritiem mobiele satellietverbindingen binnen dit banddeel. Met de aanpassing wordt het ontvangen van AIS-signalen door satellieten formeel geregeld in het NFP overeenkomstig de in de voetnoten 5.208B, 5.226, 5.228AB en 5.228AC vastgelegde



bepalingen. Deze wijziging sluit aan bij het huidige en wereldwijde gebruik van deze frequentieruimte.

Wijzigingen onder Q, toevoeging hoogfrequent-installaties in wegtunnels voor de banddelen in het bereik 174 tot 230 MHz

In wegtunnels kan gebruik worden gemaakt van hoogfrequent-installaties die (delen van) het spectrum voor de digitale omroep heruitzenden in de tunnelbuizen zodat zonder onderbreking geluisterd kan worden naar de radio-omroep. Deze voorzieningen bevorderen de verkeers- en tunnelveiligheid.

De installaties zijn naar hun aard en bedoeling beperkt tot de afgeschermd heruitzending van de omroepsignalen in de tunnelbuis of -buizen en is de kans op verstoring zo gering dat het stellen van voorwaarden overbodig is. Deze vaste installaties hebben een tertiaire status en mogen functioneren op basis van NIB.

Wijziging onder R, invoeging voetnoten in het bereik 399,9–400,05 MHz

Met de doorhaling van voetnoot 5.224A en de toevoeging van de voetnoten 5.260A en 5.260B wordt invulling gegeven aan de afspraken zoals gemaakt in de WRC-19.

Wijziging onder S, invoering ontwikkelen en testen onbemande vaar-, voer- en vliegtuigen in het bereik 400,15–401 MHz

De Rijksinspectie Digitale Infrastructuur (hierna: RDI) stelt voor om de frequentieruimte ook te bestemmen voor de draadloze communicatie naar en van onbemande vaar-, voer- en vliegtuigen, ook wel aangeduid als en hierna vermeld als drones. De bestemming beperkt zich tot de draadloze communicatie ten behoeve van het professioneel ontwikkelen en testen van de drones zelf dan wel met het oog op de ontwikkeling van de toepassing(en) die met de drone wordt beoogd. Het gebruik is ingeperkt tot dit gebruiksdoel en kent een secundaire status in verband met de geringe hoeveelheid bandbreedte en het medegebruik dat een primaire status kent. Vergunningen worden verleend op volgorde van binnenkomst en per geval kunnen individuele voorwaarden en beperkingen worden opgelegd ter voorkoming van interferentie.

Wijziging onder T, invoeging aarde- en atmosfeeronderzoek en voetnoten

Met dit onderdeel wordt tegemoetgekomen aan de vraag naar frequentiegebruik ten behoeve van aarde- en atmosfeeronderzoek (eess_a) in de 401–403 MHz band. Het gebruik van eess_a in de 401–403 MHz-band heeft onder andere tot doel het bestuderen van de migratiepaden en foerageergebieden van dieren. De mogelijkheid tot gedeeld gebruik van deze band is door de ITU onderzocht²³.

De genoemde bakens worden al jaren door diverse onderzoeksinstituten gebruikt. De dieren die de bakens dragen overschrijden ook de Nederlandse grens. Gelet op het voorgaande, de ITU-aanbevelingen en het gegeven dat er bij de RDI geen storings bekend zijn over dit gebruik, is ertoe gekozen om bij deze wijziging dit frequentiegebruik op te nemen in het NFP. Hiermee is het frequentiegebruik voor Nederland vastgelegd, kunnen er vergunningen worden verleend voor het gebruik en kan een passende mate van bescherming geboden worden.

Wijziging onder U, SRD-besluit in het bereik 430 tot 440 MHz

Met deze wijziging wordt invulling gegeven aan de bepalingen van het uitvoeringsbesluit van de Europese Commissie.²⁴ De delen van het frequentiespectrum lopende van 430 tot 432 MHz, 436 tot 438 en 438 tot 440 MHz worden op tertiaire basis en onder voorwaarden zoals opgenomen in de Regeling ook opengesteld voor het gebruik van apparatuur voor verzameling van medische gegevens en voor delen van de band voor niet-specifieke kortereafstandapparatuur. Dit geldt alléén voor draadloze medische toepassingen voor capsule-endoscopie met een ultra-laag vermogen.

Tegelijk wordt de voormalige naam van het Ministerie van 'Infrastructuur en Milieu' gewijzigd naar de huidige naam 'Infrastructuur en Waterstaat'.

²³ De mogelijkheden tot gedeeld gebruik is door de ITU onderzocht. De ITU concludeert dat gedeeld gebruik mogelijk is onder voorwaarden. De conclusies van de ITU zijn te vinden in aanbeveling ITU-R SA.12584 en ITU-R SA.2045.

²⁴ UITVOERINGSBESLUIT (EU) 2022/180 VAN DE COMMISSIE van 8 februari 2022 tot wijziging van Beschikking 2006/771/EG wat betreft de actualisering van de geharmoniseerde technische voorwaarden betreffende het gebruik van radiospectrum voor kortereafstandsapparatuur. https://eur-lex.europa.eu/eli/dec_impl/2022/180/oj



Wijziging onder V, correctie van de bandgrens 698 MHz

De bandgrens van 698 MHz in de tabel wordt gecorrigeerd naar 694 MHz. Het gaat hierbij om het herstellen van een verschrijving. Hiermee komt de bandgrens overeen zoals bepaald door de ITU.

Wijziging onder W, correctie van het woord installies naar installaties

Met deze wijziging wordt in het tabeldeel tussen 758 en 788 MHz, onder de ITU-dienst MS, in de kolom 'Bestemming, het woord 'installies' aangepast naar 'installaties'. Het gaat hierbij om het herstellen van een verschrijving.

Wijziging onder X, extra frequentieruimte voor vergunningsvrij gebruik

Ter implementatie van EU-uitvoeringsbesluit 2019/1345²⁵ wordt de frequentieband 862–863 MHz beschikbaar gesteld voor vergunningsvrij gebruik. Dit was niet eerder mogelijk wegens het gebruik voor publieke taken in deze band.

Wijziging onder Y, toevoeging ITU-bandgrens en de toevoeging van de radiodienst MMSS_SE, in het bereik 1613,8 tot 1626,5 MHz

Met de toevoeging van de radiodienst Maritime Mobile Satellite Services- Space to Earth (MMSS_SE) wordt invulling gegeven aan de afspraken zoals gemaakt in de WRC-19.

In hetzelfde bereik wordt de voormalige naam 'Ministerie van Infrastructuur en Milieu' gewijzigd naar de huidige naam 'Infrastructuur en Waterstaat'.

Wijziging onder Z, toevoeging van het woord 'eindapparaten' in bereik 1670 tot 1675 MHz

Het woord 'eindapparaten' ontbrak en is hierbij toegevoegd. De term 'eindapparaten' is gedefinieerd in annex 4 bij het NFP.

Wijziging onder AA, toevoeging van 'onder voorwaarden' in het bereik 2500 tot 2670 MHz

Abusievelijk was onder voorwaarden' bij eindapparaten niet opgenomen in de tabel. Het begrip 'onder voorwaarden' verwijst hierbij naar de relevante bepalingen zoals opgenomen in de Regeling.

Wijziging onder AB, verwijdering van de radiodienst FS alsook invoeging van de nationale voetnoot HOL008C bij de bestemming FSS_SE in het bereik 3800–4200 MHz

Met de verwijdering van de radiodienst FS, vaste verbindingen, wordt voorgesorteerd op de mogelijkheid om in deze band in de toekomst het gebruik van lokale netwerken onder de bestemming mobiele dienst (MS) te faciliteren.

De invoeging van de nationale voetnoot HOL008C heeft tot doel de bestemming FSS_SE, vaste satelliet service – ruimte naar aarde, in te perken tot het passief gebruik dat voor de datum van 1 december 2023 al in gebruik was voor dit doel. Dit met het oog op de uitkomst van aanstaande studies naar de toekomst van de band 3800–4200 MHz in Nederland en de mogelijk daaruit voortvloeiende wijziging(en) van de bestemming van deze band.

Wijziging onder AC, toevoeging ms t.b.v. onbemande luchtvaartuigen in het bereik 5030–5091 MHz

Op voorstel van de RDI en met in achtneming van de marktverkenning onbemande luchtvaartuigen²⁶ wordt de onderhavige frequentieruimte ook aangewezen voor het professioneel gebruik van onbemande luchtvaartuigen ook wel aangeduid als drones. Gelet op de andere bestaande bestemmingen en het mogelijke gebruik daarvan in het buitenland krijgt het frequentiegebruik voor onbemande luchtvaartuigen een secundaire status. Onder professioneel gebruik wordt ook het gebruik ten behoeve van het ontwikkelen of testen van drones verstaan.

Tegelijk wordt de voormalige naam van het Ministerie van 'Infrastructuur en Milieu' gewijzigd naar de huidige naam 'Infrastructuur en Waterstaat'.

²⁵ http://data.europa.eu/eli/dec_impl/2019/1345/oj

²⁶ <https://www.rdi.nl/documenten/rapporten/2023/04/19/onbemande-luchtvaartuigen>



Wijziging onder AD, toevoeging van de radiodienst ARNS in het bereik 5150–5250 MHz en voetnoten

Met de toevoeging van de radiodienst ARNS, luchtvaart radionavigatie en bijbehorende voetnoten (5.446C 5.447B 5.447C), wordt de aanwijzing aan de Minister van Infrastructuur en Waterstaat en eventuele vergunningverlening uitgebreid en in lijn gebracht met de afspraken zoals deze zijn gemaakt in de WRC-19.

Wijziging onder AE, toevoeging voetnoot en aanpassing 'Milieu' naar 'Waterstaat' in het bereik 5350 tot 5460 MHz

De voormalige naam 'Ministerie van Infrastructuur en Milieu' wordt gewijzigd naar de huidige naam 'Infrastructuur en Waterstaat'. Verder wordt met de toevoeging van de voetnoot 5.448B voor de radiodienst Aarde- en atmosfeeronderzoek (actief), EESS_A, de tabel in lijn gebracht met de afspraken zoals gemaakt in de WRC-19.

Wijziging onder AF en AG, correctie van de afkorting radiodienst METSS_SE in het bereik 7450 tot 7900 MHz

Met deze wijziging worden de onjuiste afkortingen van de radiodienst METS_SE en MLSS_SE aangepast naar METSS_SE. Het betreft het herstel van een verschrijving. De radiodienst omvat meteorologische satellietwaarnemingen (ruimte naar aarde). Vergunningverlening is hierbij niet toepassing.

Wijziging onder AH, wijziging verdeelmechanisme in het bereik 8750 tot 9000 MHz en 9200 tot 10,5 GHz

In het bereik 8750 tot 9500 MHz wordt de voormalige naam 'Ministerie van Infrastructuur en Milieu' gewijzigd naar de huidige naam 'Infrastructuur en Waterstaat'.

Steeds meer radartoepassingen doen hun intrede. Naast de klassieke radarfuncties ten behoeve van navigatie en verkeersbegeleiding in de lucht- en scheepvaart, worden radars ook ingezet voor de detectie van vogels of drones of zelfs (kleine) luchtvaartuigen.

Uit onderzoek²⁷ blijkt dat radarsystemen zeer goed om kunnen gaan met de signalen van andere vergelijkbare radarsystemen. Deze systemen hebben naar hun werking en constructie weinig tot geen last van (onderlinge-) interferentie. De combinatie van verschillende radarmodulatietechnieken in dezelfde frequentieruimte vraagt hierbij wel om aandacht bij de uitgifte van frequentierechten en de voorkeur gaat dan ook uit om deze systemen in frequentieruimte te scheiden. Omdat het NFP technologieneutraal is ingericht, wordt bij de vergunningverlening toegezien op het voorkomen van schadelijke interferentie.

Om tegemoet te komen aan het toenemende aantal radartoepassingen en om het bestaande gebruik in lijn te brengen met de bepalingen van het NFP, worden ook de navolgende wijzigingen doorgevoerd:

1. In het banddeel 9000 tot 9200 MHz wordt de bestemming maritieme radionavigatie ook aangewezen aan de Minister van Infrastructuur en Waterstaat.
2. In het banddeel 9200 tot 9300 MHz wordt voor radiolocatie toepassingen (hierna: RLS) de frequentieruimte ook aangewezen aan de Minister van Justitie en Veiligheid t.b.v. drone-detectietoepassingen.
3. In het banddeel 9000 tot 9300 MHz wordt voor maritieme radionavigatie doeleinden (MRNS), walradarstations, de frequentieruimte ook aangewezen aan de Minister van Infrastructuur en Waterstaat in verband met de invoering van vast opgestelde multi-carrierradars ten behoeve van de scheepvaartbegeleiding.
4. In de banddelen 9200 tot 9300 MHz en 9300 tot 9500 MHz wordt voor de radiodienst RLS beperkt vergunningverlening mogelijk voor bijvoorbeeld de toepassing van (kleine) luchtvaarttuigdetectie ten behoeve van het schakelen van de obstakelverlichting op windparken.
5. In de banddelen 9200–9300 MHz en 9300–9500 MHz wordt de frequentieruimte voor de radiodienst RLS ook aangewezen aan de Minister van Infrastructuur en Waterstaat ten behoeve van (statische) vogeldetectiesystemen.

²⁷ <https://www.rdi.nl/documenten/rapporten/2021/02/15/radar-interference-study>



Wijziging onder AI, de toevoeging satelliet(grond)stations aan boord van vliegtuigen in het bereik 12,75 tot 13,25 GHz

Met deze wijziging van het NFP wordt invulling gegeven aan de implementatie van het ECC-besluit ECC(19)04.²⁸ Het frequentiegebruik in deze band is vergunningsvrij en de voorwaarden waaronder dit gebruik van frequentieruimte mag plaatsvinden zijn opgenomen in de Regeling.

Wijziging onder AJ, 13,65–14 GHz aanpassing aanwijzing aan de Minister van IenW ten behoeve van walradarstations in het bereik 13,65 tot 14 GHz en de verwijdering van de aanwijzing aan de Minister van JenV in het bereik 13,65 tot 13,75 GHz

De aanwijzing aan de Minister van Infrastructuur en Waterstaat wordt voor wat betreft de radiodienst aangepast van RLS naar Maritieme Radio Navigatie Service (MRNS) omdat deze vorm van frequentiegebruik ten behoeve van de begeleiding van de scheepvaart overeenkomt met de definitie zoals die in ITU-verband gehanteerd wordt.

De Minister van Justitie en Veiligheid heeft aangegeven dat er geen gebruik meer wordt gemaakt van het banddeel 13,65 tot 13,75 GHz en dat de aanwijzing voor publieke taken kan vervallen. Met de onderhavige wijziging van het Nationaal Frequentieplan wordt hier invulling aangegeven.

Wijziging onder AK, aanpassing satellietterminologie in het bereik 14 tot 14,5 GHz

Omwille van het consequent gebruik van begrippen in het NFP wordt de aanduiding 'niet gecoördineerde satellietgrondstations' hierbij toegevoegd. Deze toevoeging heeft geen invloed op de mogelijkheden van deze vorm van frequentiegebruik.

Wijziging onder AL, toevoeging radiodienst FSS_SE in het bereik 17,7 tot 18,1 GHz, alsmede de toevoeging van voetnoot 5.517A in het bereik 17,7 tot 19,7 GHz

Met de toevoeging van de radiodienst Fixed Satellite Service, Space to Earth en de voetnoot 5.517A wordt invulling gegeven aan de afspraken zoals gemaakt in de WRC-19.

Tegelijk wordt de voormalige naam van het Ministerie van 'Infrastructuur en Milieu' gewijzigd naar de huidige naam 'Infrastructuur en Waterstaat'.

Wijziging onder AM, verwijdering van de voetnoot 5.530C in het bereik 21,4 tot 22 GHz

Met de verwijdering van voetnoot 5.530C wordt invulling gegeven aan de afspraken zoals gemaakt in de WRC-19.

Wijziging onder AN, toevoeging vergunningverlening in het bereik 24,05 tot 24,25 GHz

In het banddeel 24,05 tot 24,25 GHz wordt het gebruik van de frequentieruimte uitgebreid met de mogelijkheid om beperkt vergunningen te kunnen verlenen voor systemen ten behoeve van weerradarsystemen voor wetenschappelijk onderzoek.

Wijziging onder AO, toevoeging van een einddatum voor vaste verbindingen en de radiodienst mobiele services met aanhouding van de verdeling in het bereik 24,25 tot 27,5 GHz en toevoeging voetnoot 5.532AB

De band 24,25 tot 27,5 GHz is Europees geharmoniseerd voor mobiele communicatie. Op grond van EU-Uitvoeringsbesluit 2019/784²⁹ dienen de EU-lidstaten, onder de voorwaarden zoals opgenomen in het Uitvoeringsbesluit, op enig moment te zorgen voor de toewijzing en beschikbaarstelling, op niet-exclusieve basis, van deze band aan terrestrische systemen die draadloze breedbanddiensten voor elektronische communicatie kunnen leveren. Ook Nederland moet de 26 GHz-band hiervoor (deels) gaan bestemmen. Er is een onderzoek gestart naar de (op termijn) gewenste bestemming, bandindeling en uitgifte.

Daarop vooruitlopend worden in het banddeel 24,55 tot 27,5 GHz geen vergunningen meer voor vaste verbindingen uitgegeven met een einddatum later dan de datum zoals vermeld in de tabel.

Het frequentiegebruik van de uitgegeven vergunningen vindt plaats ten behoeve van straalverbindingen.

²⁸ <https://docdb.cept.org/document/13856>

²⁹ http://data.europa.eu/eli/dec_impl/2019/784/oj



gen. Vaak voor aansluiting van mobiele basisstations, en daarnaast Fixed Wireless Access cameranetwerken ten behoeve van toezicht en veiligheid op het spoor en in stations. Deze vergunningen kunnen, vanwege het ontbreken van overgangsrecht en uitgiftebeleid, niet meer (van rechtswege) worden verlengd na de implementatie van de bepalingen uit de telecomcode. Om in voorkomende gevallen het huidige frequentiegebruik onder een bestaande, maar aflopende vergunning toch voort te kunnen zetten, wordt daarom een 'nieuwe' vergunning verleend ter vervanging van de aflopende vergunning.

Met deze wijziging van het Nationaal Frequentieplan wordt een einddatum vermeld bij de bestemming voor vaste verbindingen (ITU-afkorting FS). Daardoor kennen, na vaststelling van dit wijzigingsbesluit, een nieuwe vergunning een einddatum die gelijkloopt met de in de tabel vermelde einddatum. Hiermee wordt bereikt dat al het gebruik van de frequentieruimte door vaste verbindingen in het bereik 24,25 tot 27,5 GHz is of wordt beëindigd op de vermelde einddatum. Tenslotte wordt met de toevoeging van voetnoot 5.532AB bij de bestemming mobiele communicatie in de banddelen 26,5 GHz tot 27 GHz en 27 tot 27,5 GHz invulling gegeven aan de afspraken zoals gemaakt in de WRC-19.

Wijziging AP, correctie radiodienst weerradars en aanwijzing aan de Minister van IenW in het bereik 34,7–36 GHz

Het frequentiegebruik ten behoeve van weerradars wordt door de ITU aangeduid met de radiodienst: radiolocation service (RLS). Op basis van het behoefte-onderbouwingsplan van het Ministerie van Infrastructuur en Waterstaat 2017 wordt de frequentieruimte aangewezen voor de betreffende publieke taak.

Tegelijk wordt de voormalige naam van het Ministerie van 'Infrastructuur en Milieu' gewijzigd naar de huidige naam 'Infrastructuur en Waterstaat'.

Wijziging AQ, toevoeging ITU-voetnoten 5.550B, 5.550C, 5.550D en 5.550E in het bereik 37,5–43,5 GHz

Met de toevoeging van de voetnoten 5.550B, 5.550C, 5.550D en 5.550E wordt invulling gegeven aan de afspraken zoals gemaakt in de WRC-19.

Wijziging AR en AS, toevoeging FSS_ES en toevoeging van de ITU-bandgrens 52,4 GHz in het bereik 47,2–50,2 GHz en 51,4–52,6 GHz

De toevoeging van de radiodienst vaste satelliet-service van aarde naar ruimte, FS in het banddeel 51,4 tot 52,6 GHz houdt verband met de implementatie van de ECC decision ECC DEC 21/01.³⁰ Ook wordt de bandgrens 52,4 GHz toegevoegd in de tabel overeenkomstig de bandgrensindeling in de ITU-tabel.

Wijziging onder AT, Securityscanners t.b.v. de luchthavens in het bereik 66–79 GHz

De Minister van JenV heeft in 2019 een aanvulling op het behoefte-onderbouwingsplan JenV 2017 ingediend ten behoeve van het frequentiegebruik van securityscanners op luchthavens.

De verantwoordelijkheid voor deze publieke taak is vastgelegd in artikel 37ab, van de Luchtvaartwet. In het kader van deze verantwoordelijkheid schrijft de Minister voor welke beveiligingsmaatregelen genomen dienen te worden op de Nederlandse luchthavens, keurt deze goed en houdt toezicht op de kwaliteit van de beveiligingsmaatregelen. De feitelijke uitvoering van de securitymaatregelen is in artikel 37c, van de Luchtvaartwet opgedragen aan de luchthavenexploitanten.

Vanwege het spoedeisend karakter van de publieke taak is gebruik gemaakt van de procedure onder artikel 3.5 lid b. van de Telecommunicatiewet. Op die grond is een toewijzing toegekend aan de Minister van JenV. Met deze wijziging van het NFP wordt ook de aanwijzing van frequentieruimte afgerond.

Wijziging onder AU, correctie van het verdeelmechanisme voor de radiodienst EESS_A in het bereik 130 tot 134 GHz

Voor de actieve radiodienst aarde-exploratie satelliet-service, oftewel Earth Exploration Satellite Service Active (EESS_A), ontbrak in de kolom verdeelmechanisme de aanduiding; 'vergunningverlening op volgorde van binnenkomst van de aanvraag' en dat wordt met deze wijziging gecorrigeerd.

³⁰ <https://docdb.cept.org/document/22510>



Wijziging onder AV, doorhalen radiodiensten EESS_P en SRS_P in het bereik 155.5 tot 158,5 GHz

Met het doorhalen van de radiodiensten aarde exploratie satelliet-service passief (EESS_P) en teledetectiesystemen passief (SRS_P) wordt invulling gegeven aan de afspraken zoals gemaakt in de WRC-19.

Wijziging onder AW, toevoeging voetnoot 5.564A in het bereik 275 tot 3000 GHz

Met de toevoeging van voetnoot 5.564A wordt invulling gegeven aan de afspraken zoals gemaakt in de WRC-19.

Wijziging onder AX, wijzigingen in Annex 1 Lijst van ITU-radiodiensten

In Annex 1 is op alfabetische volgorde een overzicht en verklaring gegeven van de ITU-radiodiensten. Hieraan worden de radiodiensten MMSS_ES: maritime mobile-satellite service_Earth to Space en SOS space operation service, inclusief de respectievelijke verklaringen toegevoegd.

Tevens is het onjuist gebruikte woord 'passief' vervangen door 'actief' bij de verklaring van de radiodienst EESS_A_Exploration (Active).

Wijziging onder AY, wijzigingen in Annex 2, Betekenis van ITU-voetnoten

Met deze wijziging wordt de verklarende ITU-voetnotenlijst integraal overgenomen in het NFP. Voorheen waren alleen de voetnoten overgenomen indien zij waren opgenomen in de frequentietabel. Vanuit het oogpunt van een efficiënt beheer is besloten de lijst integraal over te nemen.

Wijziging onder AZ, wijzigingen in Annex 3, De nationale voetnoten

In annex 3 worden twee nationale voetnoten opgenomen: **HOL008C** en **HOL012**.

Wijziging onder BA, gebruikte afkortingen en begrippen

Toegevoegd zijn de afkorting AMRD – Autonomous Maritime Radio Device/autonoom maritiem radiobaken en het begrip NMR-toepassingen, inclusief toelichtingen.

Artikel II

Artikel II regelt de inwerkingtreding van dit besluit. De wijzigingen van artikel I, treden in werking op de dag na de datum van uitgifte van de Staatscourant waarin dit besluit wordt geplaatst.

*De Minister van Economische Zaken en Klimaat,
M.A.M. Adriaansens*