

Besluit van de Staatssecretaris van Economische Zaken en Klimaat van [datum pm] 2018, nr. ETM / TM / [nummer pm], houdende wijziging van het Nationaal Frequentieplan 2014 (pakket 2018-2)

De Staatssecretaris 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)<sup>1</sup> wordt als volgt gewijzigd:

A

Aan paragraaf 8.3 (*Frequenties voor bezoekende strijdkrachten volgens NJFA*) wordt de volgende alinea toegevoegd:

***Frequencies for visiting forces in accordance with NJFA***

Deviating from the frequency table (NFP2014) the Radiocommunication Agency can, at the request of the Minister of Defense and for the duration of the visit, make frequencies available for visiting forces in accordance with agreements in the prevailing NJFA (NATO Joint Civil / Military Frequency Agreement), under the condition that these frequencies are available and that coordination with the entitled party/parties is feasible.

B

In het gehele NFP, dat wil zeggen in zowel de tekst, de tabel als de annexen worden de begrippen randapparaat, randapparaten en randapparatuur vervangen door respectievelijk de begrippen eindapparaat, eindapparaten en eindapparatuur

C

In de frequentietabel krijgen de hieronder vermelde regels de volgende nieuwe inhoud

Bandgrens	ITU dienst	Bestemming	Verdeelmechanisme
< 8,3 kHz	NA	Geen bestemming 5.53 5.54 <b>HOLoo1</b>	Vergunningverlening is niet van toepassing.
8,3 kHz			
	MAS	Meteorologische waarnemingen, passief 5.54A <b>HOLoo1</b>	Vergunningverlening is niet van toepassing.
9 kHz			
[Dit deel van de tabel blijft onveranderd]			
130 kHz			
	MMS	Maritiem mobiele communicatie 5.64	<b>Vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
	/ms/	Mobiele communicatie, kortereafstandapparatuur 5.64	Zonder vergunning, onder voorwaarden.
135,7 kHz			

<sup>1</sup> <https://zoek.officielebekendmakingen.nl/stcrt-2014-33116.html>

	MMS	Maritiemmobiele communicatie 5.64	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	as	Amateur 5.64 5.67A	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	/ms/	Mobiele communicatie, kortefstandapparatuur 5.64	Zonder vergunning, onder voorwaarden.
137,8 kHz			
	MMS	Maritiemmobiele communicatie 5.64	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	/ms/	Mobiele communicatie, kortefstandapparatuur 5.64	Zonder vergunning, onder voorwaarden.
148,5 kHz			
[Dit deel van de tabel blijft onveranderd]			
435 kHz			
	MMS	Maritiemmobiele communicatie 5.79 5.82 HOL001	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	arns	Luchtvaart radionavigatie, NDB 5.82 HOL001	Aangewezen voor Defensie & <b>Infrastructuur en Waterstaat</b> .
	/ms/	Mobiele communicatie, kortefstandapparatuur (457 kHz) HOL001	Zonder vergunning, onder voorwaarden.
472 kHz			
	MMS	Maritiemmobiele communicatie 5.79 5.82 HOL001	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	as	Amateur 5.80A 5.82 HOL001	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	arns	Luchtvaart radionavigatie, NDB 5.82 HOL001	Aangewezen voor Defensie & <b>Infrastructuur en Waterstaat</b> .
479 kHz			
	MMS	Maritiemmobiele communicatie 5.79 5.79A 5.82 HOL001	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	arns	Luchtvaart radionavigatie, NDB 5.82 HOL001	Aangewezen voor Defensie & <b>Infrastructuur en Waterstaat</b> .
495 kHz			
[Dit deel van de tabel blijft onveranderd]			
1625 kHz			
	RLS	Radioplaatsbepaling, DGPS HOL001	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
1635 kHz			
	MMS	Maritiemmobiele communicatie, kustwacht 5.92 HOL001	Aangewezen voor publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
1800 kHz			
	RLS	Radioplaatsbepaling HOL001	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
1810 kHz			

[Dit deel van de tabel blijft onveranderd]					
	2160	kHz	RLS	Radioplaatsbepaling HOL001	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	2170	kHz			
[Dit deel van de tabel blijft onveranderd]					
	2850	kHz	AMRS	Luchtvaartmobile vluchtveiligheid (route). Nood-, spoed- en veiligheidsverkeer 5.111 HOL001	Aangewezen voor Defensie & Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	3025	kHz			
[Dit deel van de tabel blijft onveranderd]					
	3400	kHz	AMRS	Luchtvaartmobile vluchtveiligheid (route) HOL001	Aangewezen voor Defensie & Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	3500	kHz			
[Dit deel van de tabel blijft onveranderd]					
	5480	kHz	AMRS	Luchtvaartmobile vluchtveiligheid (route). Op 5,68 MHz. nood-, spoed- en veiligheidsverkeer voor lucht- en scheepvaart 5.111 5.115 HOL001	Aangewezen voor Defensie & Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	5680	kHz	AMORS	Luchtvaartmobile vluchtveiligheid (off route) 5.111 5.115 HOL001	Aangewezen voor Defensie.
	5730	kHz			
[Dit deel van de tabel blijft onveranderd]					
	6525	kHz	AMRS	Luchtvaartmobile vluchtveiligheid (route) HOL001	Aangewezen voor Defensie & Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	6685	kHz			
[Dit deel van de tabel blijft onveranderd]					
	26200	kHz	MS	Mobiele communicatie HOL001	Aangewezen voor Justitie en Veiligheid en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
			rls	Radioplaatsbepaling 5.132A HOL001	Vergunningverlening op volgorde van binnenkomst van de aanvraag.

26350	kHz			
		MS	Mobiele communicatie 5.150 HOLO01	Aangewezen voor Justitie en Veiligheid en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, CB & kortefstandapparatuur 5.150 HOLO01	Zonder vergunning, onder voorwaarden.
27,5	MHz			
		FS	Vaste verbindingen HOLO01	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
		MS	Mobiele communicatie, portofonen & telemetrie & oproepsystemen HOLO01	Aangewezen voor Justitie en Veiligheid en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
28	MHz			
[Dit deel van de tabel blijft onveranderd]				
39,5	MHz			
		MS	Mobiele communicatie. Oproepsystemen	Aangewezen voor Defensie & Justitie en Veiligheid. Vergunningverlening voor oproepsystemen op volgorde van binnenkomst van de aanvraag.
39,9	MHz			
[Dit deel van de tabel blijft onveranderd]				
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			
		ARNS	Luchtvaart radionavigatie, ILS & markerbakens volgens ICAO-plan 5.180	Vergunningverlening niet van toepassing
75,2	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart	Aangewezen voor Defensie.
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			
[Dit deel van de tabel blijft onveranderd]				
117,975	MHz			
		AMRS	Luchtvaartmobiele vluchtveiligheid (route). ELT & PLB & EPIRB 5.111 5.200	Aangewezen voor Publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Voor ELT en PLB vergunningverlening op volgorde van binnenkomst van de aanvraag. EPIRB zonder vergunning, onder voorwaarden met meldingsplicht.
137	MHz			

				[Dit deel van de tabel blijft onveranderd]
	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. Randapparaten zonder vergunning.
	149,9	MHz		
				[Dit deel van de tabel blijft onveranderd]
	158,04	MHz		
	MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart		Aangewezen voor Defensie & Justitie en Veiligheid en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	160,6	MHz		
	MMS	Maritiemmobiele communicatie 5.226		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.
	161,9375	MHz		
	MMS	Maritiemmobiele communicatie 5.226		Aangewezen voor Infrastructuur en Waterstaat en overigens vergunningverlening 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		Maritiemmobiel gebruik aan boord van schepen zonder vergunning onder voorwaarden met meldingsplicht.
	161,9625	MHz		
				[Dit deel van de tabel blijft onveranderd]
	399,9	MHz		
	MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte), randapparaten 5.209 5.220 5.224A		Randapparaten zonder vergunning.
	400,05	MHz		
				[Dit deel van de tabel blijft onveranderd]
	403	MHz		
	MAS	Meteorologische waarnemingen 5.265		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 5.265		Aangewezen voor publieke taken.
	/ms/	Mobiele communicatie, kortereafstandapparatuur 5.265		Zonder vergunning, onder voorwaarden.

<b>406 MHz</b>			
MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte), EPIRB & ELT & PLB 5.265 5.266 5.267		Aangewezen voor Defensie & <b>Infrastructuur en Waterstaat</b> . Voor ELT vergunningverlening op volgorde van binnenkomst van de aanvraag. EPIRB onder voorwaarden vergunningvrij met meldingsplicht.
<b>406,1 MHz</b>			
MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.149 5.265		Aangewezen voor de uitvoering van publieke taken en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
RAS	Radio-astronomie 5.265		Aangewezen voor Onderwijs, Cultuur en Wetenschap.
<b>410 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>430 MHz</b>			
AS	Amateur		Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
rls	Radioplaatsbepaling		<b>Vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
<b>432 MHz</b>			
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		<b>Vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
/ms/	Mobiele communicatie, kortereafstandapparatuur 5.138 5.282		Zonder vergunning, onder voorwaarden.
<b>436 MHz</b>			
RLS	Radioplaatsbepaling		<b>Vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
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.
<b>438 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>455.74 MHz</b>			
MS	Mobiele communicatie, landmobiele besloten netten & alarmering & lokale data netwerken 5.209		<b>Aangewezen voor Defensie &amp; Justitie en Veiligheid en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag. Voor commerciële telecommunicatiedienstverlening aan derden via veiling of vergelijkende toets.</b>
<b>456 MHz</b>			

[Dit deel van de tabel blijft onveranderd]				
791	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.316 5.316B	Vergunningverlening via veiling of vergelijkende toets.
821	MHz			
		/ms/	Mobiele communicatie, korteaftandapparatuur	Zonder vergunning, onder voorwaarden.
832	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.316, 5.316B	Vergunningverlening via veiling of vergelijkende toets.
862	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart	Vergunningverlening is onderwerp van studie.
863	MHz			
[Dit deel van de tabel blijft onveranderd]				
870	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart	Aangewezen voor Defensie en overige publieke taken.
876	MHz			
[Dit deel van de tabel blijft onveranderd]				
880	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. <b>Eindapparaten</b>	Vergunningverlening via veiling of vergelijkende toets. <b>Eindapparaten zonder vergunning.</b>
890	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. <b>Eindapparaten</b>	Vergunningverlening via veiling of vergelijkende toets. <b>Eindapparaten zonder vergunning.</b>
915	MHz			
[Dit deel van de tabel blijft onveranderd]				
925	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. <b>Mobiel elektronisch communicatienetwerk aan boord van schepen</b>	Vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden.
942	MHz			
		MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. <b>Mobiel elektronisch communicatienetwerk aan boord van schepen</b>	Vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden.
960	MHz			
		AMRS	Luchtvaartmobiele vluchtveiligheid (route) 5.327A <b>5.328AA</b>	Aangewezen voor Defensie & <b>Infrastructuur en Waterstaat</b> en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.

	ARNS	Luchtvaart radionavigatie, DME & TACAN & SSR 5.328 5.328AA	Aangewezen voor Defensie & <b>Infrastructuur en Waterstaat</b> en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>1164 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>1350 MHz</b>			
	RLS	Radioplaatsbepaling 5.149 5.338A 5.339	Aangewezen voor Defensie.
	ms	<b>Mobiele communicatie, laagvermogen audioverbindingen</b>	<b>Beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
<b>1375 MHz</b>			
	MS	Mobiele communicatie. ENG/OB 5.149 5.338A	Aangewezen voor Defensie. Voor ENG/OB beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag.
	ms	<b>Mobiele communicatie, laagvermogen audioverbindingen</b>	<b>Beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
<b>1400 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>1427 MHz</b>			
	MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.338A 5.341 5.341A	Aangewezen voor Defensie.
	fs	Vaste verbindingen, uitsluitend op continentaal plat vanaf 30 km uit de kust 5.338A 5.341	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>1429 MHz</b>			
	MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.338A 5.341 5.341A	Aangewezen voor Defensie.
	fs	Vaste verbindingen, uitsluitend op continentaal plat vanaf 30 km uit de kust 5.338A 5.341	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>1452 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>1492 MHz</b>			
	MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.341 5.341A	Aangewezen voor Defensie.
	fs	Vaste verbindingen, uitsluitend op continentaal plat vanaf 30 km uit de kust 5.341	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	ms	<b>Mobiele communicatie, laagvermogen audioverbindingen</b>	<b>Beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
<b>1518 MHz</b>			
	MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart 5.341	Aangewezen voor Defensie.
	MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde) 5.341 5.351A	Vergunningverlening is niet van toepassing.
	ms	<b>Mobiele communicatie, laagvermogen audioverbindingen</b>	<b>Beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
<b>1525 MHz</b>			



[Dit deel van de tabel blijft onveranderd]				
1710	MHz			
		MS	Mobiele communicatie. Eindapparaten 5.149 5.341 5.384A 5.385	Vergunningverlening via veiling of vergelijkende toets. Eindapparaten zonder vergunning.
1780	MHz			
		/ms/	Mobiele communicatie, eindapparaten duplex met 1875 – 1880 MHz 5.341 5.384A 5.385	Zonder vergunning, onder voorwaarden.
1785	MHz			
[Dit deel van de tabel blijft onveranderd]				
1920	MHz			
		MS	Mobiele communicatie. Eindapparaten	Vergunningverlening via veiling of vergelijkende toets. Eindapparaten zonder vergunning.
1930	MHz			
		MS	Mobiele communicatie. Eindapparaten	Vergunningverlening via veiling of vergelijkende toets. Eindapparaten zonder vergunning.
1970	MHz			
		MS	Mobiele communicatie. Eindapparaten	Vergunningverlening via veiling of vergelijkende toets. Eindapparaten zonder vergunning.
1980	MHz			
[Dit deel van de tabel blijft onveranderd]				
2110	MHz			
		MS	Mobiele communicatie. Mobiel elektronisch communicatienetwerk aan boord van luchtvaartuigen & Mobiel elektronisch communicatienetwerk aan boord van schepen	Vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door mobiel elektronisch communicatienetwerk aan boord van luchtvaartuigen boven een hoogte van 3000 meter, of aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden.
2120	MHz			
		MS	Mobiele communicatie. Mobiel elektronisch communicatienetwerk aan boord van luchtvaartuigen & Mobiel elektronisch communicatienetwerk aan boord van schepen	Vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door mobiel elektronisch communicatienetwerk aan boord van luchtvaartuigen boven een hoogte van 3000 meter, of aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden.
2160	MHz			
		MS	Mobiele communicatie. Mobiel elektronisch communicatienetwerk aan boord van luchtvaartuigen & Mobiel elektronisch communicatienetwerk aan boord van schepen	Vergunningverlening via veiling of vergelijkende toets. Gebruik van frequentieruimte door mobiel elektronisch communicatienetwerk aan boord van luchtvaartuigen boven een hoogte van 3000 meter, of aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden.
2170	MHz			

[Dit deel van de tabel blijft onveranderd]			
2400	MHz		
	MS	Mobiele communicatie. ENG/OB & op afstand bestuurd luchtvaartuigen 5.150 5.384A	Voor ENG/OB en voor op afstand bestuurd luchtvaartuigen vergunningverlening op volgorde van binnenkomst van de aanvraag.
	ass	Amateur satelliet 5.150 5.282	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	/ms/	Mobiele communicatie, kortereafstandapparatuur 5.150	Zonder vergunning, onder voorwaarden.
2450	MHz		
[Dit deel van de tabel blijft onveranderd]			
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. Eindapparaten zonder vergunning. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee 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. Eindapparaten zonder vergunning. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee 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	Vergunningverlening via veiling of vergelijkende toets. Eindapparaten zonder vergunning. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden.
2670	MHz		
	MS_EX_AMS	Mobiele communicatie met uitzondering van de luchtvaart. Mobiel elektronisch communicatienetwerk aan boord van schepen. Eindapparaten 5.149	Vergunningverlening via veiling of vergelijkende toets. Eindapparaten zonder vergunning. Gebruik van frequentieruimte door basisstation aan boord van schepen in Nederlandse territoriale zee zonder vergunning, onder voorwaarden.
2690	MHz		
[Dit deel van de tabel blijft onveranderd]			
4200	MHz		
	AMRS	Luchtvaartmobiele vluchtveiligheid (route) 5.436 5.437 5.440	Vergunningverlening is onderwerp van studie
	ARNS	Luchtvaart radionavigatie, radarhoogtemeters 5.437 5.438 5.440	Aangewezen voor Defensie & Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
4400	MHz		

	MS	Mobiele communicatie. ENG/OB	Aangewezen voor Defensie en overige publieke taken. Beperkt vergunningverlening voor ENG/OB op volgorde van binnenkomst van de aanvraag.
<b>4500 MHz</b>			
	MS	Mobiele communicatie. ENG/OB	Aangewezen voor Defensie en overige publieke taken. Beperkt vergunningverlening voor ENG/OB op volgorde van binnenkomst van de aanvraag.
<b>4800 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>5091 MHz</b>			
	AMRS	Luchtvaartmobiele vluchtveiligheid (route) 5.444A 5.444B	Aangewezen voor <b>Infrastructuur en Waterstaat</b> en overigens is verdeling aangehouden.
	AMSRS	Luchtvaarmobiele satellietverbindingen (route) 5.443AA 5.444A	Verdeling is aangehouden.
	FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.444A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>5150 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>5725 MHz</b>			
	FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.150	<b>Vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
	RLS	Radioplaatsbepaling 5.150	Aangewezen voor Defensie.
	as	Amateur 5.150	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	ms	Mobiele communicatie, ENG/OB 5.150	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	/ms/	Mobiele communicatie, korteaafstandapparatuur 5.150	Zonder vergunning, onder voorwaarden.
<b>5830 MHz</b>			
	FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.150	<b>Vergunningverlening op volgorde van binnenkomst van de aanvraag.</b>
	RLS	Radioplaatsbepaling 5.150	Aangewezen voor Defensie.
	as	Amateur 5.150	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	ms	Mobiele communicatie, ENG/OB 5.150	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	/ms/	Mobiele communicatie, korteaafstandapparatuur 5.150	Zonder vergunning, onder voorwaarden.
<b>5850 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>6440 MHz</b>			
	FS	Vaste verbindingen, STM-1 netwerken. Duplex met 6,78 – 7,10 GHz 5.149 5.458	Vergunningverlening op volgorde van binnenkomst van de aanvraag.

	FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.149 5.458	Aangewezen voor Defensie en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>6700 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>7250 MHz</b>			
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.461	Vergunningverlening is niet van toepassing.
	MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde) 5.461	Vergunningverlening is niet van toepassing.
<b>7300 MHz</b>			
	FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.461	Vergunningverlening is niet van toepassing.
	MSS_SE	Mobiele satellietverbindingen (ruimte naar aarde) 5.461	Vergunningverlening is niet van toepassing.
<b>7375 MHz</b>			
	FS	Vaste verbindingen	Aangewezen voor <b>Infrastructuur en Waterstaat</b> en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
	MMSS_SE	Maritiemmobiele satellietcommunicatie (ruimte naar aarde) 5.461AA 5.461AB	Vergunningverlening is niet van toepassing.
<b>7450 MHz</b>			
	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	Maritiemmobiele satellietcommunicatie (ruimte naar aarde) 5.461AA 5.461AB	Vergunningverlening is niet van toepassing.
<b>7550 MHz</b>			
	FS	Vaste verbindingen	Aangewezen voor <b>Infrastructuur en Waterstaat</b> en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
	MMSS_SE	Maritiemmobiele satellietcommunicatie (ruimte naar aarde) 5.461AA 5.461AB	Vergunningverlening is niet van toepassing.
<b>7725 MHz</b>			
	FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde)	Vergunningverlening is niet van toepassing.
	MMSS_SE	Maritiemmobiele satellietcommunicatie (ruimte naar aarde) 5.461AA 5.461AB	Vergunningverlening is niet van toepassing.
<b>7750 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			

<b>8025 MHz</b>			
FS	Vaste verbindingen		Vergunningverlening op volgorde van binnenkomst van de aanvraag.
FSS_ES	Vaste satellietverbindingen (aarde naar ruimte)		Vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>8175 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>9200 MHz</b>			
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, kortereafstandapparatuur		Zonder vergunning, onder voorwaarden.
<b>9300 MHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>9900 MHz</b>			
EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.474A 5.474B 5.474C		Vergunningverlening op volgorde van binnenkomst van de aanvraag.
RLS	Radioplaatsbepaling		Aangewezen voor Defensie.
/ms/	Mobiele communicatie, kortereafstandapparatuur		Zonder vergunning, onder voorwaarden.
<b>10 GHz</b>			
EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.474A 5.474B 5.474C		Vergunningverlening op volgorde van binnenkomst van de aanvraag.
FS	Vaste verbindingen		Vergunningverlening op volgorde van binnenkomst van de aanvraag.
RLS	Radioplaatsbepaling		Aangewezen voor Defensie.
as	Amateur		Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>10,4 GHz</b>			
FS	Vaste verbindingen		Vergunningverlening op volgorde van binnenkomst van de aanvraag.
RLS	Radioplaatsbepaling		Aangewezen voor Defensie.
as	Amateur		Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>10,45 GHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>10,68 GHz</b>			
EESS_P	Aarde- en atmosfeeronderzoek (passief) 5.340		Beschermd voor passief gebruik.

	RAS	Radio-astronomie 5.340	Aangewezen voor Onderwijs, Cultuur en Wetenschap.
	SRS_P	Ruimte-onderzoek (passief) 5.340	Beschermd voor passief gebruik.
<b>10,7 GHz</b>			
	FS	Vaste verbindingen	Geen nieuwe vergunningen voor vaste verbindingen.
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.441	Vergunningverlening is niet van toepassing.
<b>10,95 GHz</b>			
	FS	Vaste verbindingen	Geen nieuwe vergunningen voor vaste verbindingen.
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.484A 5.484B	Vergunningverlening is niet van toepassing.
<b>11,2 GHz</b>			
	FS	Vaste verbindingen	Geen nieuwe vergunningen voor vaste verbindingen.
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.441	Vergunningverlening is niet van toepassing.
<b>11,45 GHz</b>			
	FS	Vaste verbindingen	Geen nieuwe vergunningen voor vaste verbindingen.
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.484A	Vergunningverlening is niet van toepassing.
<b>11,7 GHz</b>			
	BSS	Omroepsatelliet 5.492	Vergunningverlening is niet van toepassing.
<b>12,5 GHz</b>			
	FSS_SE	Vaste satellietverbindingen (ruimte naar aarde) 5.484A 5.484B	Vergunningverlening is niet van toepassing.
<b>12,75 GHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>13,4 GHz</b>			
	RLS	Radioplaatsbepaling	Aangewezen voor Defensie & Justitie en Veiligheid.
	/ms/	Mobiele communicatie, kortereafstandapparatuur	Zonder vergunning, onder voorwaarden.
<b>13,65 GHz</b>			
	RLS	Radioplaatsbepaling	Aangewezen voor Publieke taken.
	/ms/	Mobiele communicatie, kortereafstandapparatuur	Zonder vergunning, onder voorwaarden.
<b>13,75 GHz</b>			
	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 Infrastructuur en Waterstaat en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	/ms/	Mobiele communicatie, kortereafstandapparatuur	Zonder vergunning, onder voorwaarden.
<b>14 GHz</b>			



				[Dit deel van de tabel blijft onveranderd]
	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		
				[Dit deel van de tabel blijft onveranderd]
	28,9485	GHz		
		FS	Vaste verbindingen. Duplex met 27.9405 – 28.0525 GHz 5.540	Aangewezen voor Justitie en Veiligheid.
	29,0605	GHz		
				[Dit deel van de tabel blijft onveranderd]
	29,5	GHz		
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). Niet gecoördineerde satellietgrondstations (aarde naar ruimte) 5.484A 5.484B 5.516B 5.527A 5.539 5.540	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Niet gecoördineerde satellietgrondstations zonder vergunning, onder voorwaarden.
	29,9	GHz		
		FSS_ES	Vaste satellietverbindingen (aarde naar ruimte). Niet gecoördineerde satellietgrondstations (aarde naar ruimte) 5.484A 5.484B 5.516B 5.525 5.527A 5.538 5.539 5.540	Vergunningverlening op volgorde van binnenkomst van de aanvraag. Niet gecoördineerde satellietgrondstations zonder vergunning, onder voorwaarden.
	30	GHz		
				[Dit deel van de tabel blijft onveranderd]
	59	GHz		
		FS	Vaste verbindingen	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortereafstandapparatuur 5.558	Zonder vergunning, onder voorwaarden.
	59,3	GHz		
		FS	Vaste verbindingen 5.138	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
		/ms/	Mobiele communicatie, kortereafstandapparatuur 5.138 5.558	Zonder vergunning, onder voorwaarden.
	64	GHz		
				[Dit deel van de tabel blijft onveranderd]
	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.
	<b>78 GHz</b>		
	[Dit deel van de tabel blijft onveranderd]		
	<b>81 GHz</b>		
	FS	Vaste verbindingen 5.149 5.338A 5.561A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.149 5.561A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	MS	Mobiele communicatie 5.149 5.561A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte) 5.149 5.561A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	RAS	Radio-astronomie	Beschermd voor passief gebruik.
	as	Amateur 5.149 5.561A	Zonder vergunning, onder voorwaarden met meldingsplicht en overigens vergunningverlening op volgorde van binnenkomst van de aanvraag.
	ass	Amateur satelliet 5.149 5.561A	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 5.561A	Vergunningverlening is niet van toepassing.
	<b>81,5 GHz</b>		
	FS	Vaste verbindingen 5.149 5.338A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	FSS_ES	Vaste satellietverbindingen (aarde naar ruimte) 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	MS	Mobiele communicatie 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	MSS_ES	Mobiele satellietverbindingen (aarde naar ruimte) 5.149	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.
	<b>84 GHz</b>		
	[Dit deel van de tabel blijft onveranderd]		
	<b>92 GHz</b>		
	FS	Vaste verbindingen 5.149 5.338A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	MS	Mobiele communicatie 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.

	RAS	Radio-astronomie	Beschermd voor passief gebruik.
	RLS	Radioplaatsbepaling 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>94 GHz</b>			
	EESS_A	Aarde- en atmosfeeronderzoek (actief) 5.562 5.562A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	RLS	Radioplaatsbepaling 5.562 5.562A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	SRS_A	Ruimte-onderzoek (actief) 5.562 5.562A	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	ras	Radio-astronomie 5.562 5.562A	Beschermd voor passief gebruik.
<b>94,1 GHz</b>			
	FS	Vaste verbindingen 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	MS	Mobiele communicatie 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	RAS	Radio-astronomie	Beschermd voor passief gebruik.
	RLS	Radioplaatsbepaling 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>95 GHz</b>			
	FS	Vaste verbindingen 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	MS	Mobiele communicatie 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	RAS	Radio-astronomie	Beschermd voor passief gebruik.
	RLS	Radioplaatsbepaling 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	RNS	Radionavigatie 5.149	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
	RNSS	Radionavigatie met satellieten 5.149 5.554	Vergunningverlening op volgorde van binnenkomst van de aanvraag.
<b>100 GHz</b>			
[Dit deel van de tabel blijft onveranderd]			
<b>3000 GHz</b>			

## D

De volgende lijst van ITU voetnoten vervangt de actuele inhoud van Annex 2.

**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)

**5.56** 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)

**5.60** 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.

**5.64** 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.

**5.66** *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).

**5.67A** 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)

**5.73** 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.

**5.76** 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.

**5.79** The use of the bands 415-495 kHz and 505-526.5 kHz (505-510 kHz in Region 2) by the maritime mobile service is limited to radiotelegraphy.

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

**5.80A** 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)

**5.82** 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)

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

**5.92** Some countries of Region 1 use radiodetermination systems in the bands 1 606.5-1 625 kHz, 1 635-1 800 kHz, 1 850-2 160 kHz, 2 194-2 300 kHz, 2 502-2 850 kHz and 3 500-3 800 kHz, subject to agreement obtained under No. 9.21. The radiated mean power of these stations shall not exceed 50 W.

**5.98** *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 1 810-1 830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. 5.98 and 5.99 to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. 5.98 and 5.99.

**5.103** In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1 850-2 045 kHz, 2 194-2 498 kHz, 2 502-2 625 kHz and 2 650-2 850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.

**5.104** In Region 1, the use of the band 2 025-2 045 kHz by the meteorological aids service is limited to oceanographic buoy stations.

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

**5.109** The frequencies 2 187.5 kHz, 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz and 16 804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article 31.

**5.110** The frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article 31.

**5.111** The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article 31. The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of □ 3 kHz about the frequency. (WRC-07)

**5.115** 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)

**5.132** The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendix 17).

**5.132A** 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)

**5.133B** 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 territories 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-15)

**5.134** The use of the bands 5 900-5 950 kHz, 7 300-7 350 kHz, 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 13 570-13 600 kHz, 13 800-13 870 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz by the broadcasting service is subject to the application of the procedure of Article **12**. Administrations are encouraged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution **517 (Rev.WRC-07)\***. (WRC-07)

**5.136 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)

**5.138** 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)

**5.141C** (SUP - 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)

**5.143E** (SUP - WRC-12)

**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)

**5.146 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)

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

13 360-13 410 kHz,

25 550-25 670 kHz,

37.5-38.25 MHz,

73-74.6 MHz in Regions 1 and 3,

150.05-153 MHz in Region 1,

322-328.6 MHz,

406.1-410 MHz,

608-614 MHz in Regions 1 and 3,

1 330-1 400 MHz,

1 610.6-1 613.8 MHz,

1 660-1 670 MHz,

1 718.8-1 722.2 MHz,

2 655-2 690 MHz,

3 260-3 267 MHz,

3 332-3 339 MHz,

3 345.8-3 352.5 MHz,

4 825-4 835 MHz,

4 950-4 990 MHz,

4 990-5 000 MHz,

6 650-6 675.2 MHz,

10.6-10.68 GHz,

14.47-14.5 GHz,

22.01-22.21 GHz,

22.21-22.5 GHz,

22.81-22.86 GHz,

23.07-23.12 GHz,

31.2-31.3 GHz,

31.5-31.8 GHz in Regions 1 and 3,

36.43-36.5 GHz,  
42.5-43.5 GHz,  
48.94-49.04 GHz,  
76-86 GHz,  
92-94 GHz,  
94.1-100 GHz,  
102-109.5 GHz,  
111.8-114.25 GHz,  
128.33-128.59 GHz,  
129.23-129.49 GHz,  
130-134 GHz,  
136-148.5 GHz,  
151.5-158.5 GHz,  
168.59-168.93 GHz,  
171.11-171.45 GHz,  
172.31-172.65 GHz,  
173.52-173.85 GHz,  
195.75-196.15 GHz,  
209-226 GHz,  
241-250 GHz,  
252-275 GHz

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)

**5.150** 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**.

**5.155B** The band 21 870-21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.

**5.156A** The use of the band 23 200-23 350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

**5.161B 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, The Former Yugoslav Rep. of Macedonia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, Norway, Uzbekistan, Netherlands, Portugal, Kyrgyzstan, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Slovenia, Sweden, Switzerland, Turkey and Ukraine, the frequency band 42-42.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-15)

**5.162A Additional allocation:** in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, the Russian Federation, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland the band 46-68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**. (WRC-12)

**5.164 Additional allocation:** in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Slovakia, Czech Rep., Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the frequency band 47-68 MHz, in South Africa the frequency band 47-50 MHz, and in Latvia the frequency band 48.5-56.5 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each 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-15)

**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.

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

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

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

**5.208A** In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions. The threshold levels of interference detrimental to the radio astronomy service are shown in the relevant ITU-R Recommendation. (WRC-07)

**5.208B\*** In the frequency bands:

137-138 MHz,

387-390 MHz,  
400.15-401 MHz,  
1 452-1 492 MHz,  
1 525-1 610 MHz,  
1 613.8-1 626.5 MHz,  
2 655-2 690 MHz,  
21.4-22 GHz,

Resolution **739 (Rev.WRC-15)** applies. (WRC-15)

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

**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)

**5.211 Additional allocation:** in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Guinea, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Liechtenstein, Luxembourg, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the frequency band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-15)

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

**5.220** The use of the 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, 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, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-15)

**5.223** (SUP - WRC-15)

**5.224A** (SUP - WRC-15)

**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)

**5.228AA** 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)

**5.228E** 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)

**5.235 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.

**5.254** 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)

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

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

**5.261** Emissions shall be confined in a band of  $\square$  25 kHz about the standard frequency 400.1 MHz.

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

**5.265** In the frequency band 403-410 MHz, Resolution **205 (Rev.WRC-15)** applies. (WRC-15)

**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.

**5.279A** 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.1260-1. 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-15)

**5.282** In the bands 435-438 MHz, 1 260-1 270 MHz, 2 400-2 450 MHz, 3 400-3 410 MHz (in Regions 2 and 3 only) and 5 650-5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. **5.43**). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. **25.11**. The use of the bands 1 260-1 270 MHz and 5 650-5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

**5.287** 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.1174-3. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned. (WRC-15)

**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)

**5.296 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, Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malawi, Mali, Malta, Morocco, Mauritius, Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech Republic, the United Kingdom, Rwanda, San Marino, Serbia, Sudan, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the frequency band 470-694 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme-making. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-15)

**5.316 (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-15)** and **749 (Rev.WRC-15)** shall apply, as appropriate. (WRC-15)

**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 groundbased 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 (WRC-15)** shall apply. (WRC-15)

**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)** shall also apply; however, in the case of radionavigation-satellite service (space-to-space) networks and systems, Resolution **610 (WRC-03)** shall only apply to transmitting space stations. In accordance with No. **5.329A**, for systems and networks in the radionavigation-satellite service (space-to-space) in the bands 1 215-1 300 MHz and 1 559-1 610 MHz, the provisions of Nos. **9.7**, **9.12**, **9.12A** and **9.13** shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space). (WRC-07)

**5.329** Use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. **5.331**. Furthermore, the use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. **5.43** shall not apply in respect of the radiolocation service. Resolution **608 (WRC-03)\*** shall apply. (WRC-03)

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

**5.331 Additional allocation:** in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa,

Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-12)

**5.337** The use of the bands 1 300-1 350 MHz, 2 700-2 900 MHz and 9 000-9 200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.

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

**5.338A** In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution **750 (Rev.WRC-15)** applies. (WRC-15)

**5.339** The bands 1 370-1 400 MHz, 2 640-2 655 MHz, 4 950-4 990 MHz and 15.20-15.35 GHz are also allocated to the space research (passive) and Earth exploration-satellite (passive) services on a secondary basis.

**5.339A** (SUP - WRC-07)

**5.340** All emissions are prohibited in the following bands:

1 400-1 427 MHz,  
2 690-2 700 MHz, except those provided for by No. **5.422**,  
10.68-10.7 GHz, except those provided for by No. **5.483**,  
15.35-15.4 GHz, except those provided for by No. **5.511**,  
23.6-24 GHz,  
31.3-31.5 GHz,  
31.5-31.8 GHz, in Region 2,  
48.94-49.04 GHz, from airborne stations  
50.2-50.4 GHz<sup>2</sup>,  
52.6-54.25 GHz,  
86-92 GHz,  
100-102 GHz,  
109.5-111.8 GHz,  
114.25-116 GHz,  
148.5-151.5 GHz,  
164-167 GHz,  
182-185 GHz,  
190-191.8 GHz,  
200-209 GHz,  
226-231.5 GHz,  
250-252 GHz. (WRC-03)

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

**5.341** In the bands 1 400-1 727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

**5.341A** 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)**. 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)

**5.345** Use of the band 1 452-1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (WARC-92)\***.

**5.348C** (SUP - WRC-07)

**5.351** The bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 626.5-1 645.5 MHz and 1 646.5-1 660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.

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

**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)\*** shall apply.) (WRC-2000)

**5.354** The use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite services is subject to coordination under No. **9.11A**.



**5.356** The use of the band 1 544-1 545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article 31).

**5.357** Transmissions in the band 1 545-1 555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.

**5.357A** In applying the procedures of Section II of Article 9 to the mobile-satellite service in the 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)

**5.359 Additional allocation:** in Germany, Saudi Arabia, Armenia, Azerbaijan, Belarus, Benin, Cameroon, the Russian Federation, France, 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-15)

**5.365** The use of the band 1 613.8-1 626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. 9.11A.

**5.366** The band 1 610-1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. 9.21.

**5.367 Additional allocation:** The frequency 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** With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. 4.10 do not apply in the band 1 610-1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.

**5.372** Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6-1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. 29.13 applies).

**5.374** Mobile earth stations in the mobile-satellite service operating in the bands 1 631.5-1 634.5 MHz and 1 656.5-1 660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. 5.359. (WRC-97)

**5.375** The use of the band 1 645.5-1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for intersatellite links is limited to distress and safety communications (see Article 31).

**5.376** Transmissions in the band 1 646.5-1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

**5.376A** Mobile earth stations operating in the band 1 660-1 660.5 MHz shall not cause harmful interference to stations in the radio astronomy service. (WRC-97)

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

**5.379C** In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power fluxdensity values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed  $-181$  dB(W/m<sup>2</sup>) in 10 MHz and  $-194$  dB(W/m<sup>2</sup>) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2 000 s. (WRC-03)

**5.384A** 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). 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)

**5.391** 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)

**5.402** The use of the band 2 483.5-2 500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under No. 9.11A. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2 483.5-2 500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4 990-5 000 MHz band allocated to the radio astronomy service worldwide.

**5.413** In the design of systems in the broadcasting-satellite service in the bands between 2 500 MHz and 2 690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2 690-2 700 MHz.

**5.424A** In the band 2 900-3 100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service. (WRC-03)

**5.426** The use of the band 2 900-3 100 MHz by the aeronautical radionavigation service is limited to groundbased Radars

**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  $-154.5$  dB(W/(m<sup>2</sup> □ 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory

of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) 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)

**5.437** 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)

**5.441** 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)

**5.443AA** 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/m<sup>2</sup>) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the frequency band 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-15); – aeronautical telemetry transmissions from aircraft stations (see No. 1.83) in accordance with Resolution 418 (Rev.WRC-15). (WRC-15)

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

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

**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 5 150-5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. 9.11A. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed  $-164$  dB(W/m<sup>2</sup>) in any 4 kHz band for all angles of arrival.

**5.447C** Administrations responsible for fixed-satellite service networks in the band 5 150-5 250 MHz operated under Nos. 5.447A and 5.447B shall coordinate on an equal basis in accordance with No. 9.11A with administrations responsible for non-geostationary-satellite networks operated under No. 5.446 and brought into use prior to 17 November 1995. Satellite networks operated under No. 5.446 brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. 5.447A and 5.447B.

**5.447D** The allocation of the band 5 250-5 255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)

**5.447F** 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). These services shall not impose on the mobile service more stringent

protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU-R M.1638-0 and ITU-R RS.1632-0. (WRC-15)

**5.448A** The Earth exploration-satellite (active) and space research (active) services in the frequency band 5 250-5 350 MHz shall not claim protection from the radiolocation service. No. **5.43A** does not apply. (WRC-03)

**5.448D** In the frequency band 5 350-5 470 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the aeronautical radionavigation service operating in accordance with No. **5.449**. (WRC-03)

**5.449** The use of the band 5 350-5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

**5.450A** In the frequency band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638-0. (WRC-15)

**5.450B** In the frequency band 5 470-5 650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5 600-5 650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service. (WRC-03)

**5.452** Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.

**5.457A** 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)

**5.458** In the band 6 425-7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075-7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425-7 075 MHz and 7 075-7 250 MHz.

**5.458A** In making assignments in the band 6 700-7 075 MHz to space stations of the fixed-satellite service, administrations are urged to take all practicable steps to protect spectral line observations of the radio astronomy service in the band 6 650-6 675.2 MHz from harmful interference from unwanted emissions.

**5.458C** (SUP - WRC-15)

**5.461** *Additional allocation:* the bands 7 250-7 375 MHz (space-to-Earth) and 7 900-8 025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21**.

**5.461A** The use of the band 7 450-7 550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary-satellite systems. Non-geostationary meteorological-satellite systems in this band notified before 30 November 1997 may continue to operate on a primary basis until the end of their lifetime. (WRC-97)

**5.461AA** 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)

**5.469A** In the band 8 550-8 650 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service. (WRC-97)

**5.470** The use of the band 8 750-8 850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz.

**5.471** *Additional allocation:* in Algeria, Germany, Bahrain, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya, the Netherlands, Qatar 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)

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

**5.474** In the band 9 200-9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article **31**).

**5.474A** 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)

**5.475** 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)

**5.476A** 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)

**5.478A** 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)

**5.482** 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)

**5.484** 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)** shall apply. (WRC-15)

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

**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  $2^\circ$  and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna diameter smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed:

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

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

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

**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)

**5.506A** 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)

**5.508A** 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)

**5.511C** 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)

**5.511E** 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/m<sup>2</sup>) in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time. (WRC-12)

**5.516** The use of the band 17.3-18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. The use of the band 17.3-17.8 GHz in Region 2 by systems in the fixed-satellite service (Earth-to-space) is limited to geostationary satellites. For the use of the band 17.3-17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2-12.7 GHz, see Article 11.

The use of the bands 17.3-18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8-18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

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

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

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

**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)

**5.522A** 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)

**5.525** 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.

**5.527A** The operation of earth stations in motion communicating with the FSS is subject to Resolution 156 (WRC-15). (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** See Resolution 555 (WRC-12)\*. (WRC-12)

**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)

**5.536A** 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. (WRC-12)

**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  $\square 10$  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.

**5.541A** 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)

**5.547** The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolution **75 (WRC-2000)**\*). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5-40 GHz and 40.5-42 GHz (see No. **5.516B**), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. (WRC-07)

**5.547A** Administrations should take practical measures to minimize the potential interference between stations in the fixed service and airborne stations in the radionavigation service in the 31.8-33.4 GHz band, taking into account the operational needs of the airborne radar systems. (WRC-2000)

**5.548** 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)

**5.550A** 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)

**5.551F** *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)

**5.551H** 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 broadcastingsatellite 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/m<sup>2</sup>) in 1 GHz and –246 dB(W/m<sup>2</sup>) in any 500 kHz of the frequency band 42.5-43.5 GHz at the site of any radio astronomy station registered as a single-dish telescope; and

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

These 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  $\theta_{min}$  of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).

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

– was in operation prior to 5 July 2003 and has been notified to the 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 fixedsatellite 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/m<sup>2</sup>) in 1 GHz and –153 dB(W/m<sup>2</sup>) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

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

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

– was in operation prior to 5 July 2003 and has been notified to the 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.

**5.553** In the bands 43.5-47 GHz and 66-71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **5.43**). (WRC-2000)

**5.554** In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 123-130 GHz, 191.8-200 GHz and 252-265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service. (WRC-2000)

**5.556** 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)

**5.557A** 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, 12.2-123 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)

**5.559A** (SUP - WRC-07)

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

**5.561** In the band 74-76 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to stations of the fixed-satellite service or stations of the broadcasting-satellite service operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service. (WRC-2000)

**5.561A** The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis. (WRC-2000)

**5.561B** In Japan, use of the band 84-86 GHz, by the fixed-satellite service (Earth-to-space) is limited to feeder links in the broadcasting-satellite service using the geostationary-satellite orbit. (WRC-2000)

**5.562A** In the bands 94-94.1 GHz and 130-134 GHz, transmissions from space stations of the Earth explorationsatellite 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 bands 105-109.5 GHz, 111.8-114.25 GHz, 155.5-158.5 GHz and 217-226 GHz, the use of this allocation is limited to space-based radio astronomy only. (WRC-2000)

**5.562C** Use of the band 116-122.25 GHz by the inter-satellite service is limited to satellites in the geostationarysatellite 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  $-148 \text{ dB(W/(m}^2 \square \text{ MHz))}$  for all angles of arrival. (WRC-2000)

**5.562E** The allocation to the Earth exploration-satellite service (active) is limited to the band 133.5-134 GHz. (WRC-2000)

**5.562F** In the band 155.5-158.5 GHz, the allocation to the Earth exploration-satellite (passive) and space research (passive) services shall terminate on 1 January 2018. (WRC-2000)

**5.562G** The date of entry into force of the allocation to the fixed and mobile services in the band 155.5-158.5 GHz shall be 1 January 2018. (WRC-2000)

**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  $\square 144 \text{ dB(W/(m}^2 \square \text{ MHz))}$  for all angles of arrival. (WRC-2000)

**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)

**5.565** 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)

E

In annex 4, Gebruikte afkortingen en begrippen, wordt in de alfabetische volgorde ingevoegd:

**Eindapparaten** - Radioapparaten die via elektromagnetische golven direct of indirect zijn aangesloten op de netwerkaansluitpunten van een openbaar telecommunicatienetwerk ten behoeve van overbrenging, verwerking of ontvangst van informatie; een aansluiting is indirect wanneer een radioapparaat geplaatst is tussen het eindapparaat en het netwerkaansluitpunt van een openbaar telecommunicatienetwerk;

**ESIM** - Earth Station In-Motion, Satelliet grondstation op een rijdend voertuig werkend onder de frequentieallocatie FSS-ES

**RED** – Radio Equipment Directive. Europese richtlijn voor radioapparatuur (2014/53/EU), die per 2014 de voorheen geldende richtlijn voor radioapparatuur en telecommunicatie-eindapparatuur R&TTE (1999/5/EG) heeft opgevolgd.

## **Artikel II**

Dit besluit treedt in werking met ingang van de dag na de dagtekening van de Staatscourant waarin het wordt geplaatst.

Dit besluit wordt met de toelichting in de Staatscourant geplaatst.

De Staatssecretaris van Economische Zaken en Klimaat  
mr. drs. M.C.G. Keijzer

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.

## **I Algemeen**

### **Nationaal Frequentie Plan**

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 de doelstellingen van het frequentiebeleid en frequentiebeheer; het vermijden van interferentie (storing) tussen frequentiegebruikers is hierbij de hoofddoelstelling. 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. Het Nationaal Frequentieregister (NFR) geeft nadere informatie omtrent laatstgenoemde zaken.

### **Aanleiding en inhoud van het besluit**

Veranderingen in technologie, markt en maatschappij maken het gewenst het nationaal frequentieplan 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 bevat de volgende onderdelen.

Er wordt in het tekstdeel een Engelse vertaling toegevoegd van de paragraaf die spectrumbeschikbaarheid voor bezoekende NAVO-strijdkrachten beschrijft.

Besluiten van Wereld Radio Conferentie van 2015 (WRC15) worden geïmplementeerd.



Spectrumaanwijzingen aan departementen voor de uitvoering publieke taken worden geactualiseerd.

In de L band worden draadloze microfonen toegevoegd aan de bestemming.

In de 14 GHz band worden ESIMs toegevoegd.

Er worden enkele harmoniserende EU besluiten geïmplementeerd, en daarnaast zijn er aanpassingen van zogenaamde 'ondergeschikte aard', bijvoorbeeld actualisering van termen.

Er worden in de Annex 4 nieuwe begrippen met definities toegevoegd.

Dit besluit is voorbereid met toepassing van afdeling 3.4 van de Algemene wet bestuursrecht. Dit houdt in dat dit voorgenomen besluit zes weken als ontwerp publiek ter inzage heeft gelegen zodat een ieder zijn/haar zienswijze hierop kon geven. Dit besluit is via de site

[www.internetconsultatie.nl](http://www.internetconsultatie.nl) in ontwerpvorm voor reacties aangeboden van ..... tot en met ....

..... [Daarop zijn \[x\] openbare reacties ontvangen.](#)

[\[Pm bespreking van deze reacties\]](#)

### **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 de nadere eisen gesteld.

### **Gevolgen voor de regeldruk**

Dit besluit brengt geen verandering in de regeldruk. Onderdeel B actualiseert slechts termen. Onderdeel C actualiseert termen, voegt groepen toe die vergunningvrij van bepaalde banden gebruik kunnen gaan maken, wijzigt spectrumaanwijzingen voor overheidsdiensten, implementeert EC besluiten voor vergunningvrij gebruik en -apparatuur. Tevens implementeert dit onderdeel het internationale WRC15-verdrag; hier gaat het om vooraanwijzing van bestemmingen en internationale/mondiale beschermingsverplichting voor andere diensten, dit gaat (nog) niet in op Nederlandse verdeelmechanismes, waardoor deze aanpassingen niet relateren aan regeldruk in Nederland. Veel wijzigingen in dit pakket betreffen vergunningvrije bestemmingen. Betreffende apparaten kunnen dan zonder vergunning of administratieve verplichtingen worden aangeschaft en in gebruik worden genomen.

## **II Artikelen**

### **Artikel I**

#### *Onderdeel A*

In hoofdstuk 8.3 van het NFP wordt een tekstdeel in het Engels toegevoegd, betreffende NATO Joint Civil / Military Frequency Agreement (NJFA), om het NFP informatiever en internationaal toegankelijker te maken ten behoeve niet-Nederlandstalige bezoekende strijdkrachten die bezig zijn een activiteit in Nederland voor te bereiden, en die als onderdeel daarvan zich op de hoogte willen stellen welke mogelijkheden en procedure in Nederland geldt waar het gaat om frequenties die zij hier te lande zouden kunnen gebruiken.

#### *Onderdeel B*

In de nieuwe Europese richtlijn voor radioapparatuur (2014/53/EU), die de R&TTE (1999/5/EG) heeft opgevolgd, is het begrip randapparaat gewijzigd in eindapparaat.

### Onderdeel C

Dit onderdeel bevat wijzigingen met uiteenlopende aanleidingen en achtergronden.<sup>2</sup> In dit onderdeel zijn concreet de hieronder beschreven aanleidingen aan de orde.

In de band 1375 MHz tot 1400 MHz en tevens in de band 1492 MHz tot 1525 MHz wordt een wijziging van CEPT/ECC ERC Recommendation 70-03 betreffende het gebruik van SRD's geïmplementeerd. Hier wordt secundair gebruik van draadloze microfonen toegestaan, met beperkt vergunningverlening op volgorde van binnenkomst van de aanvraag. 'Beperkt' houdt hier in dat vooraf coördinatie met het Ministerie van Defensie nodig is vanwege primair gebruik door Defensie in deze banden. Verder is dit gebruik beperkt tot indoor gebruik. In Noord Nederland zijn er extra beperkingen ter bescherming van Astron te Westerbork, voor de waarnemingen in de band 1400 MHz tot 1427 MHz. De vergunningen worden met korte looptijd verleend, dus geen voortrollende vijfjaarsvergunningen. Na een evaluatie op termijn van dit medegebruik kan dit punt van de vergunningduur eventueel worden aangepast.

In deze banden wordt naar aanleiding van WRC15 ook een nieuwe ITU voetnoot toegevoegd. In de band 1375 MHz tot 1400 MHz wordt de ITU dienst aangepast naar MS; hier stond abusievelijk MS-EX-AMS.

In de band 14 GHz tot 14,5 GHz wordt ECC besluit 18/04 geïmplementeerd (*The harmonised use, exemption from individual licensing and free circulation and use of land based Earth Stations In-Motion (ESIM) operating with GSO FSS satellite systems in the frequency bands 10.7-12.75 GHz and 14.0-14.5 GHz*). Tevens is dit onderdeel ter implementatie van ECC besluit 18/05 (*The harmonised use, exemption from individual licensing and free circulation and use of Earth Stations In-Motion (ESIM) operating with NGSO FSS satellite systems in the frequency bands 10.7-12.75 GHz and 14.0-14.5 GHz*).

Een aanzienlijk deel van de tabelwijzigingen komt voort vanuit de tweede ronde behoefte-onderbouwingsplannen (BOP), gebaseerd op Telecommunicatiewet art 3.2. In 2017 hebben de departementen, dat wil zeggen degenen die spectrum gebruiken voor publieke taken, hun behoefte-onderbouwingsplannen aan het Ministerie van Economische Zaken en Klimaat aangeleverd. Dit gaat vier departementen aan namelijk Defensie, Justitie & Veiligheid, Infrastructuur & Waterstaat en Onderwijs, Cultuur & Wetenschap.

Het ministerie van Economische Zaken en Klimaat heeft de onderbouwing van de aangegeven spectrumbehoeften van deze departementen kritisch beoordeeld. De bevindingen daarvan hebben geleid tot voorzetting van aanwijzingen, beëindiging daarvan, dan wel tot nieuwe aanwijzingen. Deze wijzigingen worden niet afzonderlijk toegelicht. Het meeste van de behoefte-onderbouwingsplannen is betrouwbaar in verband met het karakter van veiligheid van de staat en de openbare orde. De veranderingen van eerste BOP ronde zijn meegenomen in het NFP2014.

Ook komen veel van de tabelwijzigingen voort vanuit de Wereld Radio Conferentie van 2015 (WRC15). Betreffende wijzigingen van onderhavig ontwerpbesluit zijn minder belangwekkend. In NFP wijzigingspakket 2018-1 zijn reeds enkele meer belangwekkende NFP-wijzigingen naar aanleiding van de WRC15 doorgevoerd. De betreffende tabelwijzigingen worden niet specifiek toegelicht. (Dit in verband met Telecomwet art 3.3 lid 3 en lid 4 welke de soorten NFP wijzigingen vermeldt die niet geconsulteerd behoeven worden, c.q. verdragen van een volkenrechtelijke organisatie).

Een resterend deel van gewijzigde tabelregels van dit onderdeel betreft aanpassingen van terminologie om deze *up to date* en consequent te maken (zoals aan de richtlijn 2014/53/EU voor radioapparatuur, RED), opschoning van verlopen bestemmingen, en de implementatie van EU uitvoeringsbesluit 2017/191 betreffende MCV.<sup>3</sup> In lijn met Tw art 3.3 lid 3. hoeven NFP wijzigingen

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<sup>2</sup> Via de bijgevoegde leeswijzer wordt duidelijk gemaakt welke aanleiding aan bepaalde tabelwijzigingen ten grond liggen.

<sup>3</sup> UITVOERINGSBESLUIT (EU) 2017/191 VAN DE COMMISSIE van 1 februari 2017 tot wijziging van Besluit 2010/166/EU met het oog op de invoering van nieuwe technologieën en frequentiebanden voor mobiele communicatiediensten aan boord van vaartuigen (MCV-diensten) in de Europese Unie. Dit betreft de 2 GHz- en de 2,6 GHz mobiele banden.

van ook deze categorieën niet geconsulteerd te worden, reden waarom betreffende wijzigingen niet afzonderlijk worden toegelicht.

*Onderdeel D*

Dit onderdeel betreft de geactualiseerde integrale lijst van ITU voetnoten, zoals aangenomen tijdens Wereld Radio Conferentie van 2015 (WRC15), voor zover van toepassing in de Nederlandse NFP-frequentietabel. Deze lijst geeft de betekenis van deze voetnoten uit de ITU Radio Regulations. Deze lijst van dit onderdeel vervangt als geheel de actuele inhoud van Annex 2 van het NFP.

Tussen haakjes staat steeds na elke voetnoot in welke Wereld Radio Conferentie (jaartal) betreffende voetnoot is aangenomen. In rood aangegeven zijn de nieuwe dan wel gewijzigde ITU voetnoten.

De Staatssecretaris van Economische Zaken en Klimaat  
mr. drs. M.C.G. Keijzer