Annex F

Teleplan

In Association with

ICT Consultants (Pty) Ltd

Submitted to

Botswana Telecommunications Authority

National Frequency Plan

Part II Table of Frequency allocations

April 2008

FREQUENCY PLAN - BOTSWANA

BOTSWANA TABLE OF FREQUENCY ALLOCATIONS

1 TABLE OF FREQUENCY ALLOCATIONS

1.1 General

The table of frequency allocations presents the band plan for the future and present use of the radio spectrum in Botswana between 9 kHz and 105 GHz.

The information has been updated to take account of the outcome WRC-07. MOD indicates footnotes that have been modified at the WRC-07, ADD indicates footnotes that have been added at the WRC-07, BOT# indicates additional footnotes recommended for Botswana during the Spectrum Management Strategy project 2006 – 2008.

The table of allocations has the following columns:

1.1.1 Frequency Bands

This column indicates the frequency bands for the allocations.

1.1.2 ITU Region 1 Band allocations

These are divided into Primary and Secondary Services. The latest changes made at WRC-2007 are included.

1.1.3 National Allocations

These are also divided into Primary and Secondary Services. In most cases these will be identical to the Region 1 allocations, unless there is national footnotes describing other uses of the band or it is obvious that the Region 1 allocations are not suitable for Botswana (e.g. some maritime services and some space services).

1.1.4 Main Utilisation in Botswana

This column indicates the main service to which the band is to be allocated or the main service that presently uses the band. It does not mean that the service has exclusivity to the frequency band. Main services are presented here mainly as a guideline. BTA might make changes to the main service depending on technical possibilities of sharing frequencies. In some cases the future use of the spectrum is so uncertain that this column has been left blank. This is the case for many frequency bands above 60 GHz.

Where information is available this category also indicates the subcategory of the service. In these cases the notation follows that suggested by the ERO, which is

complementary to the list of radio services in the ITU Radio Regulations. This is shown in the table below.

Table 1. Service categories and subcategories

Layer 1	Layer 2	Layer 3
Aeronautical	AERONAUTICAL COMMUNICATIONS	AGA communications (civil) Aeronautical satcoms SAR (communications) TFTS
	Aeronautical navigation	Beacons (aeronautical) Airborne weather radar Airborne doppler navigation aids Altimeters ASDE DME ILS Loran C MLS SAR (navigation) VOR
	Aeronautical surveillance	ADS ASDE Primary radar SSR
	Aeronautical telemetry	
	Satellite navigation systems	Galileo GPS Glonass
Broadcasting	Broadcasting (terrestrial)	AM sound analogue DRM FM sound analogue MWS TV analogue (terrestrial) T-DAB DVB-T
	Broadcasting-satellite receivers	Satellite radio Satellite TV SIT/SUT
	SAP/SAB and ENG/OB	In-ear monitors Professional cordless cameras Professional radio microphones SAP/SAB airborne video links SAP/SAB engineering links SAP/SAB remote control SAP/SAB P to P audio links SAP/SAB P to P video links SAP/SAB vehicular audio links

Layer 1	Layer 2	Layer 3
		SAP/SAB vehicular video links Talkback
Fixed links	Point-to-Multipoint	MWS Scanning telemetry Subscriber access excluding MWS Unplanned, uncoordinated fixed links
	Point-to-Point	Private fixed networks Public fixed networks SAP/SAB P to P audio links SAP/SAB P to P video links Unplanned, uncoordinated fixed links
	Multipoint-to-Multipoint (Mesh)	
Defence systems	Aeronautical military systems	AGA communications (military) Beacons (tactical) IFF JTIDS/MIDS RSBN TACAN-DME
	Land military systems	Fixed radio relay (military) Tactical radio relay Tactical mobile
	Maritime military systems	Sonobuoy
	Meteorological aids (military)	
	Radiolocation (military)	Tactical radar Air-defence radar
	Satellite systems (military)	Earth exploration-satellite (military) GPS Glonass Satellite communications (military)
	Telemetry (military)	
Land mobile	Digital cellular	GSM GSM-R IMT-2000/UMTS
	Analogue cellular	NMT TACS
	Cordless telephones	DECT CT1 CT1+ CT2
	Emergency services	
	Inland waterway communications	
	Paging	ERMES

Layer 1	Layer 2	Layer 3
	PMR/PAMR	On-site paging Wide area paging DMO PMR 446 TETRA TETRAPOL
	SAP/SAB and ENG/OB	In-ear monitors Professional cordless cameras Professional radio microphones SAP/SAB airborne video links SAP/SAB engineering links SAP/SAB remote control SAP/SAB P to P audio links SAP/SAB P to P video links SAP/SAB vehicular audio links SAP/SAB vehicular video links Talkback
	Telemetry (civil)	Scanning telemetry
Maritime	GMDSS	DSC EPIRBs MSI NAVTEX SAR (communications) SAR (navigation)
	Satellite navigation systems	Galileo GPS Glonass
	Maritime communications	AIS Inland waterway communications INMARSAT Port operations On-board communications Ship movement
	Maritime navigation	Beacons (maritime) Inland waterway radar Loran C Maritime radar SAR (navigation)
Meteorology	Oceanographic buoys Sondes Weather radar Weather satellites Wind profilers	
Satellite systems (civil)	Aeronautical satcoms Amateur-satellite Broadcasting-satellite receivers	INMARSAT Satellite radio Satellite TV SIT/SUT

Layer 1	Layer 2	Layer 3
	Earth exploration-satellite	Active sensors (satellite) Passive sensors (satellite) Synthetic aperture radar Weather satellites
	Feeder links	
	FSS Earth stations	VSAT SIT/SUT SNG ESV
	Inter-satellite links	
	MSS Earth stations	INMARSAT IMT-2000 satellite component S-PCS
	Satellite navigation systems	Galileo GPS Glonass
	Standard frequency and time signal-satellite	
	Space operations	
	Space research	Active sensors (satellite) Deep space (satellite) Passive sensors (satellite)
Radio astronomy	Continuum measurements Spectral line observations VLBI observations	
Short range devices	Alarms	Social alarms
	Railway applications	AVI Eurobalise Euroloop
	Detection of avalanche victims	
	Detection of movement	
	Inductive applications	
	Medical implants	
	Model control	Model aircraft control
	Non-specific SRDs	
	Radio microphones	Professional radio microphones Consumer radio microphones
	Radio LANs	HIPERLANs
	RFID	
	RTTT	
	Wireless audio applications	
Other	Amateur	
	CB radio	AM CB PR 27
	D-GPS	
	HAPS	
	ISM	Microwave ovens

Layer 1	Layer 2	Layer 3
	Meteor scatter communications Land radionavigation	
	Radiolocation (civil) Standard frequency and time signal Tracking systems	

1.1.5 Frequency Band / Mid Frequency

This column gives specific details about services using the band and mid frequency where appropriate.

1.1.6 Duplex Band

This column presents duplex bands used by the services mentioned in the previous column. It is mostly relevant for mobile services.

1.1.7 Remarks

This column indicates several items such as: the name of the service that presently uses the band, future requirements in the band, name of the channel plan that is used/will be used for the band, indication of national footnotes for migration etc.

Frequency bands (kHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (kHz)	Duplex bands (kHz)	Remarks
1.2 Below 3 000 kHz (VLF, LF, MF, HF)						
Below 9	*Not allocated* *5.53 5.54*	*Not allocated* *5.53 5.54*	*Not allocated*			
9 – 14	*RADIONAVIGATION*	*RADIONAVIGATION*	*RADIONAVIGATION*			
14 – 19.95	*FIXED* *MARITIME MOBILE 5.57* *5.55 5.56*	*FIXED* *MARITIME MOBILE 5.57* *5.55 5.56*	*FIXED* *MARITIME MOBILE*			
19.95 – 20.05	*STANDARD FREQUENCY AND TIME SIGNAL* *(20 kHz)*	*STANDARD FREQUENCY AND TIME SIGNAL* *(20 kHz)*	*STANDARD FREQUENCY AND TIME SIGNAL* *(20 kHz)*			
20.05 – 70	*FIXED* *MARITIME MOBILE 5.57* *5.56 5.58*	*FIXED* *MARITIME MOBILE 5.57* *5.56 5.58*	*FIXED* *MARITIME MOBILE*			
70 – 72	*RADIONAVIGATION 5.60*	*RADIONAVIGATION 5.60*	*RADIONAVIGATION*			
72 – 84	*FIXED* *MARITIME MOBILE 5.57* *RADIONAVIGATION 5.60* *5.56*	*FIXED* *MARITIME MOBILE 5.57* *RADIONAVIGATION 5.60* *5.56*	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
84 – 86	*RADIONAVIGATION 5.60*	*RADIONAVIGATION 5.60*	*RADIONAVIGATION 5.60*			
86 – 90	*FIXED* *MARITIME MOBILE 5.57 5.56* *RADIONAVIGATION*	*FIXED* *MARITIME MOBILE 5.57 5.56* *RADIONAVIGATION*	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION*			
90 – 110	*RADIONAVIGATION 5.62* *Fixed* *5.63 5.64*	*RADIONAVIGATION 5.62* *Fixed* *5.63 5.64*	*RADIONAVIGATION* *Fixed*			Positioning systems such as Decca and Loran-C might be used in this band.
110 – 112	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION* *5.64*	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION* *5.64*	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION*			
112 – 115	*RADIONAVIGATION 5.60*	*RADIONAVIGATION 5.60*	*RADIONAVIGATION*			
115 – 117.6	*RADIONAVIGATION 5.60* *Fixed* *Maritime mobile* *5.64 5.66*	*RADIONAVIGATION 5.60* *Fixed* *Maritime mobile* *5.64 5.66*	*RADIONAVIGATION* *Fixed* *Maritime mobile*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
117.6 – 126	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION* *5.60* *5.64*	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION* *5.60* *5.64*	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION*			
126 – 129	*RADIONAVIGATION* *5.60*	*RADIONAVIGATION* *5.60*	*RADIONAVIGATION*			
129 – 130	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION* *5.60* *5.64*	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION* *5.60* *5.64*	*FIXED* *MARITIME MOBILE* *RADIONAVIGATION*			
130 – 135.7	*FIXED* *MARITIME MOBILE* *5.64 5.67*	*FIXED* *MARITIME MOBILE* *5.64 5.67*	*FIXED* *MARITIME MOBILE*			
135.7-137.8	*FIXED* *MARITIME MOBILE* *Amateur ADD 5.4C03* *5.64 5.67 ADD 5.4C04*	*FIXED* *MARITIME MOBILE* *5.64 5.67*	*FIXED* *MARITIME MOBILE*			
137.8-148.5	*FIXED* *MARITIME MOBILE* *5.64 5.67*	*FIXED* *MARITIME MOBILE* *5.64 5.67*	*FIXED* *MARITIME MOBILE*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
148.5 – 255	*BROADCASTING* *5.68 5.69 5.70*	*BROADCASTING* *5.68 5.69 5.70*	*BROADCASTING*			
255 – 283.5	*BROADCASTING* *AERONAUTICAL RADIONAVIGATION* *5.70 5.71*	*BROADCASTING* *AERONAUTICAL RADIONAVIGATION* *5.70 5.71*	*BROADCASTING* *AERONAUTICAL RADIONAVIGATION*			Aeronautical Radio Beacons.
283.5 – 315	*AERONAUTICAL RADIONAVIGATION* *MARITIME RADIONAVIGATION (RADIOBEACON)* *5.73* *5.72 5.74*	*AERONAUTICAL RADIONAVIGATION* *MARITIME RADIONAVIGATION (RADIOBEACON)* *5.73* *5.72 5.74*	*AERONAUTICAL RADIONAVIGATION* *MARITIME RADIONAVIGATION (RADIOBEACON)*			Aeronautical Radio Beacons.
315 – 325	*AERONAUTICAL RADIONAVIGATION* *Maritime Radionavigation (RADIOBEACON)* *5.73 5.72 5.75*	*AERONAUTICAL RADIONAVIGATION* *Maritime Radionavigation (RADIOBEACON)* *5.73 5.72 5.75*	*AERONAUTICAL RADIONAVIGATION* *Maritime Radionavigation (RADIOBEACON)*			Aeronautical Radio Beacons.

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
325 –405	*AERONAUTICAL RADIONAVIGATION* *5.72*	*AERONAUTICAL RADIONAVIGATION* *5.72*	*AERONAUTICAL RADIONAVIGATION*			Aeronautical Radio Beacons.
405 – 415	*RADIONAVIGATION 5.76 5.72*	*RADIONAVIGATION 5.76 5.72*	*RADIONAVIGATION*			Aeronautical Radio Beacons.
415 – 435	*MARITIME MOBILE 5.79* *AERONAUTICAL RADIONAVIGATION* *5.72*	*MARITIME MOBILE 5.79* *AERONAUTICAL RADIONAVIGATION* *5.72*	*MARITIME MOBILE* *AERONAUTICAL RADIONAVIGATION*			Aeronautical Radio Beacons.
435 – 495	*MARITIME MOBILE 5.79* *MOD 5.79A* *Aeronautical Radionavigation* *5.72 MOD 5.82*	*MARITIME MOBILE 5.79* *Aeronautical Radionavigation* *5.72 5.82*	*MARITIME MOBILE* *Aeronautical Radionavigation*			Aeronautical Radio Beacons.
495- 505	*MOBILE ADD 5.79B* *ADD 5.4C01*	*MOBILE (distress and calling)* *5.83*	*MOBILE (distress and calling)*			
505 – 526.5	*MARITIME MOBILE 5.79 MOD 5.79A MOD 5.84* *AERONAUTICAL RADIONAVIGATION* *5.72*	*MARITIME MOBILE 5.79 5.79A 5.84* *AERONAUTICAL RADIONAVIGATION* *5.72*	*MARITIME MOBILE* *AERONAUTICAL RADIONAVIGATION*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
526.5 – 1606.6	*BROADCASTING* *5.87 5.87A*	*BROADCASTING* *5.87*	*BROADCASTING (terrestrial)*			AM broadcasting stations.
1606.5 – 1625	*FIXED* *MARITIME MOBILE 5.90* *LAND MOBILE* *5.92*	*FIXED* *MARITIME MOBILE 5.90* *LAND MOBILE* *5.92*	*FIXED* *MARITIME MOBILE* *LAND MOBILE*			
1625 – 1635	*RADIOLOCATION* *5.93*	*RADIOLOCATION* *5.93*	*RADIOLOCATION*			
1635 – 1800	*FIXED* *MARITIME MOBILE 5.90* *LAND MOBILE* *5.92 5.96*	*FIXED* *MARITIME MOBILE 5.90* *LAND MOBILE* *5.92 5.96*	*FIXED* *MARITIME MOBILE* *LAND MOBILE*			Government.
1800 - 1810	*RADIOLOCATION* *5.93*	*RADIOLOCATION* *5.93*	*RADIOLOCATION*			Government.
1810 – 1850	*AMATEUR* *5.98 5.99 5.100 5.101*	*AMATEUR* *5.98 5.99 5.100 5.101*	*AMATEUR*			
1850 – 2000	*FIXED* *MOBILE except aeronautical mobile* *5. 92 5.96 5.103*	*FIXED* *MOBILE except aeronautical mobile* *5. 92 5.96 5.103*	*FIXED* *MOBILE except aeronautical mobile*			Government.

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
2000 – 2025	*FIXED* *MOBILE except aeronautical mobile(R)* *5.92 5.103*	*FIXED* *MOBILE except aeronautical mobile(R)* *5.92 5.103*	*FIXED* *MOBILE except aeronautical mobile(R)*			Government.
2025 – 2045	*FIXED* *MOBILE except aeronautical mobile(R)* *Meteorological Aids 5.104 5.92 5.103*	*FIXED* *MOBILE except aeronautical mobile(R)* *Meteorological Aids 5.104 5.92 5.103*	*FIXED* *MOBILE except aeronautical mobile(R)* *Meteorological Aids*			
2045 – 2160	*FIXED* *MARITIME MOBILE* *LAND MOBILE* *5.92*	*FIXED* *MARITIME MOBILE* *LAND MOBILE* *5.92*	*FIXED* *MARITIME MOBILE* *LAND MOBILE*			
2160 – 2170	*RADIOLOCATION* *5.93 5.107*	*RADIOLOCATION* *5.93 5.107*	*RADIOLOCATION*			
2170 – 2173.5	*MARITIME MOBILE*	*MARITIME MOBILE*	*MARITIME MOBILE*			
2173.5 – 2190.5	*MOBILE(distress and calling)* *5.108 5.109 5.110 5.111*	*MOBILE(distress and calling)* *5.108 5.109 5.110 5.111*	*MOBILE(distress and calling)*			
2190.5 – 2194	*MARITIME MOBILE*	*MARITIME MOBILE*	*MARITIME MOBILE*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
2194 – 2300	*FIXED* *MOBILE except aeronautical mobile(R)* *5.92 5.103 5.112*	*FIXED* *MOBILE except aeronautical mobile(R)* *5.92 5.103 5.112*	*FIXED* *MOBILE except aeronautical mobile(R)*			Government.
2300 – 2498	*FIXED* *MOBILE except aeronautical mobile(R)* *BROADCASTING 5.113* *5.103*	*FIXED* *MOBILE except aeronautical mobile(R)* *BROADCASTING 5.113* *5.103*	*FIXED* *MOBILE except aeronautical mobile(R)* *BROADCASTING*			
2498 – 2501	*STANDARD FREQUENCY AND TIME SIGNAL* *(2500 kHz)*	*STANDARD FREQUENCY AND TIME SIGNAL* *(2500 kHz)*	*STANDARD FREQUENCY AND TIME SIGNAL* *(2500 kHz)*			
2501 – 2502	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research*	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research*	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research*			
2502 – 2625	*FIXED* *MOBILE except aeronautical mobile(R)* *5.92 5.103 5.114*	*FIXED* *MOBILE except aeronautical mobile(R)* *5.92 5.103 5.114*	*FIXED* *MOBILE except aeronautical mobile(R)*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
2625 – 2650	*MARITIME MOBILE* *MARITIME RADIONAVIGATION* *5.92*	*MARITIME MOBILE* *MARITIME RADIONAVIGATION* *5.92*	*MARITIME MOBILE* *MARITIME RADIONAVIGATION*			
2650 – 2850	*FIXED* *MOBILE except aeronautical mobile(R)* *5.92 5.103*	*FIXED* *MOBILE except aeronautical mobile(R)* *5.92 5.103*	*FIXED* *MOBILE except aeronautical mobile(R)*			
2850 – 3025	*AERONAUTICAL MOBILE(R)* *5.111 5.115*	*AERONAUTICAL MOBILE(R)* *5.111 5.115*	*AERONAUTICAL MOBILE(R)*			

Frequency bands (kHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilities in Botswana	Frequ. bands Mid Frequ. (kHz)	Duplex bands (kHz)	Remarks
1.3 3 to 30 MHz (HF)						
3025 – 3155	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*			
3155 – 3200	*FIXED* *MOBILE* *except aeronautical (R)* *5.116 5.117*	*FIXED* *MOBILE* *except aeronautical (R)* *5.116*	*FIXED* *MOBILE* *except aeronautical (R)*			
3200 – 3230 kHz	*FIXED* *MOBILE* *except aeronautical (R)* *Broadcasting 5.113* *5.116*	*FIXED* *MOBILE* *except aeronautical (R)* *Broadcasting 5.113* *5.116*	*FIXED* *MOBILE* *except aeronautical (R)* *Broadcasting*			
3230 – 3400	*FIXED* *MOBILE* *except aeronautical* *BROADCASTING 5.113* *5.116 5.118*	*FIXED* *MOBILE* *except aeronautical* *BROADCASTING 5.113* *5.116*	*FIXED* *MOBILE* *except aeronautical* *BROADCASTING*			
3400 – 3500	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*			

Frequency bands (kHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilities in Botswana	Frequ. bands Mid Frequ. (kHz)	Duplex bands (kHz)	Remarks
3500 – 3800	*AMATEUR* *FIXED* *MOBILE except aeronautical mobile* *5.92*	*AMATEUR* *FIXED* *MOBILE except aeronautical mobile* *5.92*	*AMATEUR* *FIXED* *MOBILE except aeronautical mobile*			
3800 – 3900	*FIXED* *AERONAUTICAL MOBILE(OR)* *LAND MOBILE*	*FIXED* *AERONAUTICAL MOBILE(OR)* *LAND MOBILE*	*FIXED* *AERONAUTICAL MOBILE(OR)* *LAND MOBILE*			
3900 – 3950	*AERONAUTICAL MOBILE(OR)* *5.123*	*AERONAUTICAL MOBILE(OR)* *5.123*	*AERONAUTICAL MOBILE(OR)*			
3950 – 4000	*FIXED* *BROADCASTING*	*FIXED* *BROADCASTING*	*FIXED* *BROADCASTING*			
4000 – 4063	*FIXED* *MARITIME MOBILE 5.127* *5.126*	*FIXED* *MARITIME MOBILE 5.127*	*FIXED*			
4063 – 4438	*MARITIME MOBILE 5.79A 5.109 S5110 5.130 5.131 5.132* *5.128 5.129*	*MARITIME MOBILE 5.109 S5110 5.130 5.131 5.132* *5.128 5.129*				

Frequency bands (kHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilities in Botswana	Frequ. bands Mid Frequ. (kHz)	Duplex bands (kHz)	Remarks
4438 – 4650	*FIXED* *MOBILE except aeronautical mobile(R)*	*FIXED* *MOBILE except aeronautical mobile(R)*	*FIXED* *MOBILE except aeronautical mobile(R)*			
4650 – 4700	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*			
4700 – 4750	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*			
4750 – 4850	*FIXED* *AERONAUTICAL MOBILE(OR)* *LANDMOBILE* *BROADCASTING* *5.113*	*FIXED* *AERONAUTICAL MOBILE(OR)* *LANDMOBILE* *BROADCASTING* *5.113*	*FIXED* *AERONAUTICAL MOBILE(OR)* *LANDMOBILE* *BROADCASTING*			
4850 – 4995	*FIXED* *LAND MOBILE* *BROADCASTING 5.113*	*FIXED* *LAND MOBILE* *BROADCASTING 5.113*	*FIXED* *LAND MOBILE* *BROADCASTING*			
4995 – 5003	*STANDARD FREQUENCY AND TIME (5000 kHz)*	*STANDARD FREQUENCY AND TIME (5000 kHz)*	*STANDARD FREQUENCY AND TIME (5000 kHz)*			

Frequency bands (kHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilities in Botswana	Frequ. bands Mid Frequ. (kHz)	Duplex bands (kHz)	Remarks
5003 – 5005	*STANDARD FREQUENCY AND TIME* *Space Research*	*STANDARD FREQUENCY AND TIME* *Space Research*	*STANDARD FREQUENCY AND TIME* *Space Research*			
5005 – 5060	*FIXED* *BROADCASTING* *5.113*	*FIXED* *BROADCASTING* *5.113*	*FIXED* *BROADCASTING*			
5060 – 5250	*FIXED* *Mobile except aeronautical mobile* *5.133*	*FIXED* *Mobile except aeronautical mobile*	*FIXED* *Mobile except aeronautical mobile*			
5250 – 5450	*FIXED* *Mobile except aeronautical mobile*	*FIXED* *Mobile except aeronautical mobile*	*FIXED* *Mobile except aeronautical mobile*			
5450 – 5480	*FIXED* *AERONAUTICAL MOBILE(OR)* *LAND MOBILE*	*FIXED* *AERONAUTICAL MOBILE(OR)* *LAND MOBILE*	*FIXED* *AERONAUTICAL MOBILE(OR)* *LAND MOBILE*			
5480 – 5680	*AERONAUTICAL MOBILE(R)* *5.111 5.115*	*AERONAUTICAL MOBILE(R)* *5.111 5.115*	*AERONAUTICAL MOBILE(R)*			
5680 – 5730	*AERONAUTICAL MOBILE(OR)* *5.111 5.115*	*AERONAUTICAL MOBILE(OR)* *5.111 5.115*	*AERONAUTICAL MOBILE(OR)*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
5730 – 5900	*FIXED* *LAND MOBILE*	*FIXED* *LAND MOBILE*	*FIXED* *LAND MOBILE*			
5900 – 5950	*BROADCASTING* *5.134 5.136*	*BROADCASTING* *5.134 5.136*	*BROADCASTING* *Fixed* *Land Mobile*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
5950 – 6200	*BROADCASTING*	*BROADCASTING*	*BROADCASTING*			
6200 – 6525	*MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137*	*MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137*	*MARITIME MOBILE*			
6525 – 6685	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*			
6685 – 6765	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*			
6765 – 7000	*FIXED* *MOBILE except aeronautical mobile (R) 5.138 5.138A 5.139*	*FIXED* *MOBILE except aeronautical mobile (R) 5.138 5.138A*	*FIXED* *Land Mobile* *5.138*			
7000 – 7100	*AMATEUR* *AMATEUR-SATELLITE* *5.140 5.141 5.141A*	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
7100 –7200	*AMATEUR* *5.141A 5.141B 5.141C 5.142*	*AMATEUR* *BROADCASTING* *5.141B 5.141C 5.142*	*BROADCASTING*			
7200 – 7300	*BROADCASTING*	*BROADCASTING*				
7300 – 7400	*BROADCASTING 5.134* *5.143* *5.143A 5.143B 5.143C 5.143D*	*BROADCASTING 5.134 FIXED* *Land Mobile* *5.143 5.143B*	*BROADCASTING*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
7400 – 7450	*BROADCASTING* *5.143B 5.143C*	*BROADCASTING* *FIXED* *Land Mobile* *5.143B*				
7450 –8100	*FIXED* *MOBILE except aeronautical mobile (R)* *5.143E 5.144*	*FIXED* *MOBILE except aeronautical mobile (R)* *5.143E*	*FIXED* *Land Mobile*			
8100 –8195	*FIXED* *MARITIME MOBILE*	*FIXED* *MARITIME MOBILE*	*FIXED* *MARITIME MOBILE*			
8195 – 8815	*MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111*	*MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111*	*MARITIME MOBILE*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
8815 – 8965	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*			
8965 – 9040	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*			
9040 – 9400	*FIXED*	*FIXED*	*FIXED*			
9400 – 9500	*BROADCASTING* *5.134 5.146*	*BROADCASTING* *5.134 5.146*	*BROADCASTING*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
9500 – 9900	*BROADCASTING* *5.147 5.148*	*BROADCASTING* *5.147 5.148*	*BROADCASTING*			
9900 – 9995	*FIXED*	*FIXED*	*FIXED*			
9995 – 10 003	*STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz)* *S5.111*	*STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz)* *S5.111*	*STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz)*			
10 003 – 10 005	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research* *5.111*	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research* *5.111*	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research*			
10 005 – 10 100	*AERONAUTICAL MOBILE(R)* *5.111*	*AERONAUTICAL MOBILE(R)* *5.111*	*AERONAUTICAL MOBILE(R)*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
10 100 – 10 150	*FIXED* *Amateur*	*FIXED* *Amateur*	*FIXED* *Amateur*			
10 150 – 11 175	*FIXED* *Mobile except aeronautical mobile(R)*	*FIXED* *Mobile except aeronautical mobile(R)*	*FIXED* *Mobile except aeronautical mobile(R)*			
11 175 – 11 275	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*			
11 275 – 11 400	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*			
11 400 – 11 600	*FIXED*	*FIXED*	*FIXED*			
11 600 – 11 650	*BROADCASTING* *5.134 5.146*	*BROADCASTING* *5.134 5.146*	*BROADCASTING*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
11 650 - 12 050	*BROADCASTING* *5.147*	*BROADCASTING* *5.147*	*BROADCASTING*			
12 050 – 12 100	*BROADCASTING* *5.134 5.146*	*BROADCASTING* *5.134 5.146*	*BROADCASTING*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
12 100 – 12 230	*FIXED*	*FIXED*	*FIXED*			
12 230 – 13 200	*MARITIME MOBILE 5.109 5.110 5.132 5.145*	*MARITIME MOBILE 5.109 5.110 5.132 5.145*	*MARITIME MOBILE*			
13 200 – 13 260	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
13 260 – 13 360	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*			
13 360 – 13 410	*FIXED* *RADIO ASTRONOMY* *5.149*	*FIXED* *RADIO ASTRONOMY* *5.149*	*FIXED* *RADIO ASTRONOMY*			
13 410 – 13 570	*FIXED* *Mobile except aeronautical mobile(R)* *5.150*	*FIXED* *Mobile except aeronautical mobile(R)* *5.150*	*FIXED* *Mobile except aeronautical mobile(R)*	13 410 – 13 570		ISM band
13 570 – 13 600	*BROADCASTING* *5.134 5.151*	*BROADCASTING* *5.134 5.151*	*BROADCASTING*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
13 600 – 13 800	*BROADCASTING*	*BROADCASTING*	*BROADCASTING*			
13 800 – 13 870	*BROADCASTING* *5.134 5.151*	*BROADCASTING* *5.134 5.151*	*BROADCASTING*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
13 870 – 14 000	*FIXED* *Mobile except aeronautical mobile(R)*	*FIXED* *Mobile except aeronautical mobile(R)*	*FIXED* *Mobile except aeronautical mobile(R)*			
14 000 – 14 250	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
14 250 – 14 350	*AMATEUR* *5.152*	*AMATEUR* *5.152*	*AMATEUR*			
14 350 – 14 990	*FIXED* *Mobile except aeronautical mobile(R)*	*FIXED* *Mobile except aeronautical mobile(R)*	*FIXED* *Mobile except aeronautical mobile(R)*			
14 990 – 15 005	*STANDARD FREQUENCY AND TIME SIGNAL* *(15 000 kHz)* *5.111*	*STANDARD FREQUENCY AND TIME SIGNAL* *(15 000 kHz)* *5.111*	*STANDARD FREQUENCY AND TIME SIGNAL* *(15 000 kHz)*			
15 005 - 15 100	*STANDARD FREQUENCY AND TIME SIGNAL* *Spaace Research*	*STANDARD FREQUENCY AND TIME SIGNAL* *Spaace Research*	*STANDARD FREQUENCY AND TIME SIGNAL* *Spaace Research*			
15 010 – 15 100	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*			
15 100 – 15 600	*BROADCASTING*	*BROADCASTING*	*BROADCASTING*			
15 600 – 15 800	*BROADCASTING* *5.134 5.146*	*BROADCASTING* *5.134 5.146*	*BROADCASTING*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
15 800 – 16 360	*FIXED* *5.153*	*FIXED*	*FIXED*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
16 360 – 17 410	*MARITIME MOBILE 5.109 5.110 5.132 5.145*	*MARITIME MOBILE 5.109 5.110 5.132 5.145*	*MARITIME MOBILE*			
17 410 – 17 480	*FIXED*	*FIXED*	*FIXED*			
17 480 – 17 550	*BROADCASTING* *5.134 5.146*	*BROADCASTING* *5.134 5.146*	*BROADCASTING*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
17 550 – 17 900	*BROADCASTING*	*BROADCASTING*	*BROADCASTING*			
17 900 – 17 970	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*			
17 970 – 18 030	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*	*AERONAUTICAL MOBILE(OR)*			
18 030 – 18 052	*FIXED*	*FIXED*	*FIXED*			
18 052 – 18 068	*FIXED* *Space Research*	*FIXED* *Space Research*	*FIXED* *Space Research*			
18 068 – 18 168	*AMATEUR* *AMATEUR-SATELLITE* *5.154*	*AMATEUR* *AMATEUR-SATELLITE* *5.154*	*AMATEUR* *AMATEUR-SATELLITE*			
18 168 – 18 780	*FIXED* *Mobile except aeronautical mobile*	*FIXED* *Mobile except aeronautical mobile*	*FIXED* *Mobile except aeronautical mobile*			
18 780 – 18 900	*MARITIME MOBILE*	*MARITIME MOBILE*	*MARITIME MOBILE*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
18 900 – 19 020	*BROADCASTING* *5.134 5.146*	*BROADCASTING* *5.134 5.135 5.146*	*BROADCASTING*			Existing fixed assignments on a no interference basis to broadcasting after 2007.
19 020 – 19 680	*FIXED*	*FIXED*	*FIXED*			
19 680 – 19 800	*MARITIME MOBILE* *5.132*	*MARITIME MOBILE* *5.132*	*MARITIME MOBILE*			
19 800 – 19 990	*FIXED*	*FIXED*	*FIXED*			
19 990 – 19 995	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research* *5.111*	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research* *5.111*	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research*			
19 995 – 20 010	*STANDARD FREQUENCY AND TIME SIGNAL* *(20 000 kHz)* *5.111*	*STANDARD FREQUENCY AND TIME SIGNAL* *(20 000 kHz)* *5.111*	*STANDARD FREQUENCY AND TIME SIGNAL* *(20 000 kHz)*			
20 010 – 21 000	*FIXED* *Mobile*	*FIXED* *Mobile*	*FIXED* *Mobile*			
21 000 – 21 450	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*			
21 450 – 21 850	*BROADCASTING*	*BROADCASTING*	*BROADCASTING*			

Frequency bands (kHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilities in Botswana	Frequ. bands Mid Frequ. (kHz)	Duplex bands (kHz)	Remarks
21 850 – 21 870	*FIXED 5.155A* *5.155*	*FIXED*	*FIXED*			
21 870 – 21 924	*FIXED* *5.155B*	*FIXED*	*FIXED*			
21 924 - 22 000	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*	*AERONAUTICAL MOBILE(R)*			
22 000 – 22 855	*MARITIME MOBILE 5.132* *5.156*	*MARITIME MOBILE 5.132*	*MARITIME MOBILE*			
22 855 – 23 000	*FIXED* *5.156*	*FIXED*	*FIXED*			
23 000 – 23 200	*FIXED* *Mobile except aeronautical mobile(R)* *5.156*	*FIXED* *Mobile except aeronautical mobile(R)*	*FIXED* *Mobile except aeronautical mobile(R)*			
23 200 – 23 350	*FIXED* *5.156A* *AERONAUTICAL MOBILE(OR)*	*FIXED* *5.156A* *AERONAUTICAL MOBILE(OR)*	*FIXED* *AERONAUTICAL MOBILE(OR)*			
23 350 – 24 000	*FIXED* *Mobile except aeronautical mobile 5.157*	*FIXED* *Mobile except aeronautical mobile 5.157*	*FIXED* *Mobile except aeronautical mobile*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
24 000 – 24 890	*FIXED* *LAND MOBILE*	*FIXED* *LAND MOBILE*	*FIXED* *LAND MOBILE*			
24 890 – 24 990	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*			
24 990 – 25 005	*STANDARD FREQUENCY AND TIME SIGNAL* *(25 000 kHz)*	*STANDARD FREQUENCY AND TIME SIGNAL* *(25 000 kHz)*	*STANDARD FREQUENCY AND TIME SIGNAL* *(25 000 kHz)*			
25 005 – 25 010	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research*	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research*	*STANDARD FREQUENCY AND TIME SIGNAL* *Space Research*			
25 010 – 25 070	*FIXED* *MOBILE except aeronautical mobile*	*FIXED* *MOBILE except aeronautical mobile*	*FIXED* *MOBILE except aeronautical mobile*			
25 070 – 25 210	*MARITIME MOBILE*	*MARITIME MOBILE*	*MARITIME MOBILE*			
25 210 –25 550	*FIXED* *MOBILE except aeronautical*	*FIXED* *MOBILE except aeronautical*	*FIXED* *MOBILE* *except aeronautical*			
25 550 – 25 670	*RADIO ASTRONOMY 5.149*	*RADIO ASTRONOMY 5.149*	*RADIO ASTRONOMY*			
25 670 – 26 100	*BROADCASTING*	*BROADCASTING*	*BROADCASTING*			

Frequency bands (kHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilities in Botswana**	**Frequ. bands Mid Frequ. (kHz)**	**Duplex bands (kHz)**	**Remarks**
26 100 – 26 175	*MARITIME MOBILE 5.132*	*MARITIME MOBILE 5.132*	*MARITIME MOBILE*			
26 175 – 27 500	*FIXED* *MOBILE except aeronautical* *5.150*	*FIXED* *MOBILE except aeronautical* *5.150*	*LANDMOBILE*	26 600 –26 650 26 690 –26 820 26 820 –27 200 26 960 –27 410 26 957- 27 283		Paging Paging Remote control and telemetry Citizen Band (excluding 26.995,27.045, 27.095,27.145,27.195 MHz) ISM band
27 500 – 28 000	*METEOROLOGICAL AIDS* *FIXED* *MOBILE*	*METEOROLOGICAL AIDS* *FIXED* *MOBILE*	*METEOROLOGICAL AIDS* *FIXED* *MOBILE*			
28 000 – 29 700	*AMATEUR* *AMATEUR SATELLITE*	*AMATEUR* *AMATEUR SATELLITE*	*AMATEUR* *AMATEUR SATELLITE*			
29 700 – 30 005	*FIXED* *MOBILE*	*FIXED* *MOBILE*	*FIXED* *LANDMOBILE*	29 700 – 30 005		10 kHz channel separation 10 kHz channel separation

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1.4 30 MHz - 300 MHz						
30.005 - 30.010	*SPACE OPERATION (satellite identification)* *FIXED* *MOBILE* *SPACE RESEARCH*	*SPACE OPERATION (satellite identification)* *FIXED* *MOBILE* *SPACE RESEARCH*	*SPACE OPERATION (satellite identification)* *FIXED* *LAND MOBILE* *SPACE RESEARCH*	30.005 – 30.010		10 kHz channel separation 10 kHz channel separation
30.01 - 37.50	*FIXED* *MOBILE*	*FIXED* *MOBILE*	*FIXED* *LANDMOBILE*	30.000 - 30.325 30.325 – 35.000 35.000 – 35.250 35.250 – 40.000		Telemetry and Remote control Government Model Aircraft Control Government
37.50 - 38.25	*FIXED* *MOBILE* *Radio Astronomy* *5.149*	*FIXED* *MOBILE* *Radio Astronomy* *5.149*	*FIXED* *LANDMOBILE*	36.000 –40.000		Government
38.250 - 39.986	*FIXED* *MOBILE*	*FIXED* *MOBILE*	*FIXED* *LANDMOBILE*	36.000 –40.000		Government
39.986 - 40.020	*FIXED* *MOBILE* *Space Research*	*FIXED* *MOBILE* *Space Research*	*FIXED* *LANDMOBILE*			Government

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
40.02 - 40.98	*FIXED* *MOBILE* *5.150*	*FIXED* *MOBILE* *5.150*	*FIXED* *LANDMOBILE*	40.000 – 40.600 40.600 – 41.000 40.660 - 40.700		Government Telemetry and Remote control ISM
40.980 - 41.015	*FIXED* *MOBILE* *Space Research* *5.160*	*FIXED* *MOBILE* *Space Research* *5.160*	*FIXED* *LANDMOBILE*			
41.015 - 44.000	*FIXED* *MOBILE* *5.160 5.161*	*FIXED* *MOBILE* *5.160*	*FIXED* *LANDMOBILE* *AERONAUTICAL RADIONAVIGATION*	41.000 – 44.000 42.400 - 43.600 41.000 - 44.000		Government Wireless microphone
44.0 – 47.0	*FIXED* *MOBILE* *5.162 5.162A*	*FIXED* *MOBILE* *5.162 5.162A*	*FIXED* *LANDMOBILE*	45.600 - 46.750 46.670 – 46.970	49.670 – 49.970	Government CT0 FB

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
47 – 68	*BROADCASTING* *5.162A 5.163 5.164 5.165 5.169 5.171*	*BROADCASTING* *5.165 5.169 5.171*	*BROADCASTING* *AMATEUR* *5.169* *FIXED* *LANDMOBILE* *5.171*	50.000 – 54.000 47.000 – 49.670 49.670 – 49.970 49.970 – 63.000 53.000 – 54.000 63.000 - 68.000	 49.670 – 49.970 	Television, Band I (ch 2-4). ST61 Government CT0 ML Government Wireless microphone Government
68.00 – 74.80	*FIXED* *MOBILE except Aeronautical* *5.149 5.174 5.175 5.177 5.179*	*FIXED* *MOBILE except Aeronautical* *5.149*	*FIXED* *LAND MOBILE (PMR)*	68.000 – 69.250 69.250 – 70.000 70.000 – 70.975 70.975 – 71.475 71.475 – 72.525 72.525 – 73.425 73.425 - 74.800	 76.175 – 76.925 75.200 – 76.175 76.925 – 77.975 78.625 – 80.000	FBML 1 FB 1 6.925 MHz duplex FB 2 5.200 MHz duplex FBML 2 FB 3 5.450 MHz duplex FBML 3 FB 4 5.200 MHz duplex
74.8 - 75.2	*AERONAUTICAL RADIONAVIGATION* *5.180 5.181*	*AERONAUTICAL RADIONAVIGATION* *5.180*	*AERONAUTICAL RADIONAVIGATION*	75.000		Marker Beacons ICAO SARP

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
75.2 – 87.5	*FIXED* *MOBILE except aeronautical mobile* *5.175 5.179 5.184 5.187*	*FIXED* *MOBILE* *except aeronautical mobile*	*FIXED* *LAND MOBILE (PMR)*	75.200 – 76.175	70.000 – 70.975	ML 2 5.200 MHz duplex
				76.175 – 76.925	69.250 – 70.000	ML 1 6.925 MHz duplex
				76.925 – 77.975	71.425 – 72.525	ML 3 5.500 MHz duplex
				77.975 – 78.625	82.975 – 83.625	FB 5 5,000 MHz duplex
				78.625 – 80.000	73.425 – 74.800	ML 4 5.2000 MHz duplex
				80.000 – 80.500	87.000 – 87.500	FB 6 7.000 MHz duplex
				80.500 – 81.000		FBML 4
				81.000 – 81.625	86.375 – 87.000	FB 7 5.375 MHz duplex
				81.625 – 82.975	85.025 – 86.375	FB 8 3.400 MHz duplex
				82.975 – 83.625	77.975 – 78.625	ML 5 5.000 MHz duplex
				83.625 – 85.025		FBML 5
				85.025 – 86.375	81.625 – 82.975	ML 8 3.400 MHz duplex
				86.375 – 87.000	81.000 – 81.625	ML 7 5.375 MHz duplex
				87.000 – 87.500	80.000 – 80.500	ML 6 7.000 MHz duplex

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
87.5 - 100.0	*BROADCASTING* *5.190*	*BROADCASTING*	*BROADCASTING (terrestrial)*	87.500 – 108.000		FM broadcasting. GE84 FM micro transmitters allowed on an unlicensed basis
100 - 108	*BROADCASTING* *5.192 5.194*	*BROADCASTING*	*BROADCASTING (terrestrial)*	87.500 – 108.000		FM broadcasting. GE84 FM micro transmitters allowed on an unlicensed basis
108.000 - 117.975	*AERONAUTICAL RADIONAVIGATION* *5.197 MOD 5.197A*	*AERONAUTICAL RADIONAVIGATION* *MOD 5.197A*	*AERONAUTICAL RADIONAVIGATION*	108.000 – 117.975		ILS and VOR ICAO SARP
117.975 – 137.000	*AERONAUTICAL MOBILE (R)* *5.111 MOD 5.200 5.201 5.202*	*AERONAUTICAL MOBILE (R)* *5.111 5.198 5.199* *MOD 5.200 5.203A*	*AERONAUTICAL MOBILE (R)* *Fixed*	117.975 – 136.000 121.725		Test and demonstration

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
137.000 - 137.025	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth) MOD 5.208A 5.209 MOD 5.347A* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile except* *Aeronautical mobile (R) S* *5.204 5.205 5.206 5.207 5.208*	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth) MOD 5.208A 5.209 MOD 5.347A* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile except* *Aeronautical mobile (R) S* *5.208*	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth)* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile except* *Aeronautical mobile (R) S*			

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
137.025 - 137.175	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile-Satellite (space-to-Earth) MOD 5.208A 5.209 MOD 5.347A* *Mobile except aeronautical mobile (R)* *5.204 5.205 5.206 5.207 5.208*	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile-Satellite (space-to-Earth) MOD 5.208A 5.209 MOD 5.347A* *Mobile except aeronautical mobile (R)* *5.208*	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile-Satellite (space-to-Earth)* *Mobile except aeronautical mobile (R)*			

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
137.175 - 137.825	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL -SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth) MOD 5.208A 5.209 MOD 5.347A* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile except aeronautical mobile (R)* *5.204 5.205 5.206 5.207 5.208*	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL -SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth) MOD 5.208A 5.209 MOD 5.347A* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile except aeronautical mobile (R)* *5.208*	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL -SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-EarthSPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile except aeronautical mobile (R)*			Downlink. Analogue signal (NOAA)

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
137.825 - 138.000	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL -SATELLITE (space-to-Earth)* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile-Satellite (space-to-Earth) MOD 5.208A 5.209 MOD 5.347A* *Mobile except aeronautical mobile (R)* *5.204 5.205 5.206 5.207 5.208*	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL -SATELLITE (space-to-Earth)* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile-Satellite (space-to-Earth) MOD 5.208A 5.209 MOD 5.347A* *Mobile except aeronautical mobile (R)* *5.208*	*SPACE OPERATION (space-to-Earth)* *METEOROLOGICAL -SATELLITE (space-to-Earth)* *SPACE RESEARCH (space-to-Earth)* *Fixed* *Mobile-Satellite (space-to-Earth)* *Mobile except aeronautical mobile (R)*			Downlink. Analogue signal (Meteor)
138.0 - 143.6	*AERONAUTICAL MOBILE (OR)* *5.210 5.211 5.212 5.214*	*AERONAUTICAL MOBILE (OR)* *5.212*	*AERONAUTICAL MOBILE (OR)* *Fixed* *MOBILE*	138.000 – 138.500 138.500 – 138.700 143.500 – 143.700 138.700 – 143.500	 143.500 – 143.700 138.500 – 138.700	Alarms (P-MP) Alarms (P-MP), 5 MHz duplex Alarms (P-MP), 5 MHz duplex FBML 1

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
143.60 - 143.65	*AERONAUTICAL MOBILE (OR)* *SPACE RESEARCH (space-Earth)* *5.211 5.212 5.214*	*AERONAUTICAL MOBILE (OR)* *SPACE RESEARCH (space-Earth)* *5.212*	*AERONAUTICAL MOBILE (OR)* *Fixed* *MOBILE*	143.500 – 143.700	138.500 – 138.700	Alarms (P-MP), 5 MHz duplex
143.65 - 144.00	*AERONAUTICAL MOBILE (OR)* *5.210 5.211 5.212 5.214*	*AERONAUTICAL MOBILE (OR)* *5.212*	*AERONAUTICAL MOBILE (OR)* *Fixed* *MOBILE*	143.500 – 143.700 143.700 – 144.000	138.500 – 138.700	Alarms (P-MP), 5 MHz duplex FBML 2
144 - 146	*AMATEUR* *AMATEUR-SATELLITE* *5.216*	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*	144.000 – 146.000		
146.0 – 148.0	*FIXED* *MOBILE except aeronautical mobile (R)*	*FIXED* *MOBILE except aeronautical mobile (R)*	*LAND MOBILE (PMR)* *Fixed*	146.000 - 146.200 146.200 – 148.000	 151.200 – 153.000	FBML 3 ML 1, 5 MHz duplex
148.0 – 149.9	*FIXED* *MOBILE except aeronautical mobile (R)* *MOBILE-SATELLITE (Earth-to-space) 5.209* *5.218 5.219 5.221*	*FIXED* *MOBILE except aeronautical mobile (R)* *MOBILE-SATELLITE (Earth-to-space) 5.209* *5.218 5.219 5.221*	*LAND MOBILE (PMR)* *Fixed* *MOBILE-SATELLITE (Earth-to-space)*	148.000 - 149.900 148.000 – 149.500		FBML 4 MSS (WARC-92)

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
149.90 - 150.05	*MOBILE-SATELLITE (Earth-to-space)* *5.209 5.224A* *RADIONAVIGATION-SATELLITE 5.224B* *5.220 5.222 5.223*	*MOBILE-SATELLITE (Earth-to-space)* *5.209 5.224A* *RADIONAVIGATION-SATELLITE 5.224B* *5.220 5.222 5.223*	*MOBILE-SATELLITE (Earth-to-space)* *RADIONAVIGATION – SATELLITE*	149.900 – 150.050		MSS (WARC-92)
150.05 - 153.00	*FIXED* *MOBILE except aeronautical mobile* *RADIO ASTRONOMY* *5.149*	*FIXED* *MOBILE except aeronautical mobile* *RADIO ASTRONOMY* *5.149*	*LAND MOBILE (PMR)* *Fixed* *RADIO ASTRONOMY*	150.050 – 151.000 151.000 – 151.200 151.200 – 153.000	 146.200 – 148.000	Paging Alarm FB 1, 5 MHz duplex
153 - 154	*FIXED* *MOBILE except aeronautical mobile (R)* *Meteorological Aids*	*FIXED* *MOBILE except aeronautical mobile (R)* *Meteorological Aids*	*LAND MOBILE (PMR)* *Fixed* *Meteorological aids*	153.000 – 155.000	158.000 – 160.000	ML 2, 5 MHz duplex

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
154 – 156.4875	*FIXED* *MOBILE except aeronautical mobile (R)* *MOD 5.226*					
156.4875-156.5625	*MARITIME MOBILE (distress and calling via DSC)* *MOD 5.111 MOD 5.226 MOD 5.227*					
156.5625-156.7625	*FIXED* *MOBILE except aeronautical mobile (R)* *MOD 5.226*					
154.0 – 156.7625	*Se above*	*FIXED* *MOBILE except aeronautical mobile (R)* *5.226 5.227*	*LAND MOBILE (PMR)* *Fixed*	153.000 – 155.000 155.000 – 155.500 155.500 – 157.500	158.000 – 160.000 160.500 – 162.500	ML 2, 5 MHz duplex FBML 5 ML 3, 5 MHz duplex
156.7625 - 156.8375	*MARITIME MOBILE (distress and calling)* *MOD 5.111 MOD 5.226*	*MARITIME MOBILE (distress and calling)* *MOD 5.111 MOD 5.226*	*LAND MOBILE (PMR)* *Fixed*	155.500 – 157.500	160.500 – 162.500	ML 3, 5 MHz duplex

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
156.8375 - 174.0000	*FIXED* *MOBILE except Aeronautical mobile* *MOD 5.226 5.229 ADD 5.4C02*	*FIXED* *MOBILE except Aeronautical mobile* *MOD 5.226*	*LAND MOBILE (PMR)* *Fixed*	155.500 – 157.500	160.500 – 162.500	ML 3, 5 MHz duplex
				157.500 – 158.000		FBML 6
				158.000 – 160.000	153.000 – 155.000	FB 2, 5 MHz duplex
				160.000 – 160.500		FBML 7
				160.500 – 162.500	155.500 – 157.500	FB 3, 5 MHz duplex
				162.500 – 165.700		FBML 8
				165.700 – 166.300	170.700 – 171.300	ML 4, 5 MHz duplex
				166.300 – 166.800		FBML 9
				166.800 – 169.000	171.800 – 174.000	ML 5, 5 MHz duplex
				169.000 – 169.400		FBML 10
				169.400 – 169.800		Paging
				169.800 – 170.700		FBML 11
				170.700 – 171.300	165.700 – 166.300	FB 4, 5 MHz duplex
				171.300 – 171.800		FBML 12
				171.800 – 174.000	166.800 – 169.000	FB 5, 5 MHz duplex

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
174 – 223	*BROADCASTING* *5.235 5.237 5.243*	*BROADCASTING*	*BROADCASTING (terrestrial)*	174.000 – 230.000		Television. Band III. Channel 5 - 11. ST61. T-DAB. Block 11A-D. WI95
223 – 230	*BROADCASTING* *Fixed* *Mobile* *5.243 5.246 5.247*	*BROADCASTING* *Fixed* *Mobile*	*BROADCASTING (terrestrial)*	174.000 – 230.000		Television. Band III. Channel 12. ST61. T-DAB. Block 12A-D. WI95
230 – 235	*FIXED* *MOBILE* *5.247 5.251 5.252*	*BROADCASTING* *5.252* *FIXED* *MOBILE*	*BROADCASTING* *230 - 238*	230.000 – 238.000		T-DAB. Block 13A-C. WI95
235 – 267	*FIXED* *MOBILE* *5.111 5.199 5.252* *5.254 5.256 5.256A*	*BROADCASTING* *5.252* *FIXED* *MOBILE* *5.111 5.199 5.254 5.256*	*BROADCASTING* *230 - 238. 246 - 254* *FIXED* *MOBILE*	230.000 – 238.000 246.000 – 254.000 246.000 – 254.000 254.000 – 328.600 242.950 – 243.050 254.000 – 328.600		 T-DAB. Block 13D - F. WI95 Government International distress Government

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
267 - 272	*FIXED* *MOBILE* *Space Operation (space-to-Earth)* *5.254 5.257*	*FIXED* *MOBILE* *Space Operation (space-to-Earth)* *5.254 5.257*	*FIXED* *MOBILE*	254.000 – 328.600 254.000 – 328.600		Government Government
272 – 273	*SPACE OPERATION (space-to-Earth)* *FIXED* *MOBILE* *5.254*	*SPACE OPERATION (space-to-Earth)* *FIXED* *MOBILE* *5.254*	*FIXED* *MOBILE*	254.000 – 328.600 254.000 – 328.600		Government Government
273 – 312	*FIXED* *MOBILE* *5.254*	*FIXED* *MOBILE* *5.254*	*FIXED* *MOBILE*	254.000 – 328.600 254.000 – 328.600		Government Government

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1.5 300 MHz – 3 000 MHz						
312 - 315	*FIXED* *MOBILE* *Mobile-Satellite (Earth-to-space)* *5.254 5.255*	*FIXED* *MOBILE* *Mobile-Satellite (Earth-to-space)* *5.254 5.255*	*FIXED* *MOBILE* *Mobile-Satellite (Earth-to-space)*	254.000 – 328.600 254.000 – 328.600		Government Government
315 – 322	*FIXED* *MOBILE* *5.254*	*FIXED* *MOBILE* *5.254*	*FIXED* *MOBILE*	254.000 – 328.600 254.000 – 328.600		Government Government
322.0 – 328.6	*FIXED* *MOBILE* *RADIO ASTRONOMY* *5.149*	*FIXED* *MOBILE* *RADIO ASTRONOMY* *5.149*	*FIXED* *MOBILE* *RADIO ASTRONOMY*	254.000 – 328.600 254.000 – 328.600		Government Government
328.6 - 335.4	*AERONAUTICAL RADIONAVIGATION* *5.258 5.259*	*AERONAUTICAL RADIONAVIGATION* *5.258*	*AERONAUTICAL RADIONAVIGATION*	328.600 - 335.400		ILS Glideslope

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
335.4 - 387.0	*FIXED* *MOBILE* *5.254*	*FIXED* *MOBILE* *5.254*	*FIXED*	335.400 – 350.000		Government
				350.000 – 353.000	355.000 – 358.000	FX 1 5.000 MHz duplex
				353.000 – 355.000		Government
				355.000 – 358.000	350.000 – 353.000	FX 2 5.000 MHz duplex
				358.000 – 370.000		Government
				370.000 - 373.000	375.000 – 378.000	FX 3 5.000 MHz duplex
				373.000 – 375.000		Government
				375.000 – 378.000	370.000 – 373.000	FX 4 5.000 MHz duplex
				378.000 – 380.000		Government
			MOBILE	336.000 - 339.000	357.000 - 360.000	Portable equipment for broadcasting
				357.000 - 360.000	336.000 - 339.000	Portable equipment for broadcasting
				380.000 – 385.000	390.000 – 395.000	TETRA, Emergency, 10 MHz duplex
				380.0000 – 380.1500	390.000 – 390.1500	DMO, 10 MHz duplex
				384.8000 – 385.0000	394.8000 – 395.0000	AGA, 10 MHz duplex
				385.000 – 389.900	395.000 – 399.900	TETRA, Government, 10 MHz duplex

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
387 – 390	*FIXED* *MOBILE* *Mobile-Satellite (space-to-Earth)* *5.208A 5.254 5.255 MOD 5.347A*	*FIXED* *MOBILE* *Mobile-Satellite (space-to-Earth)* *5.208A 5.254 5.255*	*FIXED* *MOBILE* *Mobile-Satellite (space-to-Earth)*	385.000 – 389.900	395.000 – 399.900	TETRA, Government, 10 MHz duplex
390.0 – 399.5	*FIXED* *MOBILE* *5.254*	*FIXED* *MOBILE* *5.254*	*FIXED* *MOBILE*	390.000 – 395.000 390.000 – 390.15000 394.8000 – 395.0000 395.000 – 399.900	380.000 – 385.000 380.000 – 380.15000 384.8000 – 385.0000 385.000 – 389.900	TETRA, Emergency, 10 MHz duplex DMO, 10 MHz duplex AGA, 10 MHz duplex TETRA, Government, 10 MHz duplex
399.90 - 400.05	*MOBILE- SATELLITE (Earth-to-space)* *5.209 5.224A* *RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260* *5.220*	*MOBILE- SATELLITE (Earth-to-space)* *5.209 5.224A* *RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260* *5.220*	*LANDMOBILE – SATELLITE* *RADIONAVIGATION – SATELLITE*			

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
400.0500 - 400.1500	*STANDARD FREQUENCY AND TIME SIGNAL SATELLITE (400.1 MHz)* *5.261 5.262*	*STANDARD FREQUENCY AND TIME SIGNAL SATELLITE (400.1 MHz)* *5.261*	*STANDARD FREQUENCY AND TIME SIGNAL SATELLITE (400.1 MHz)*			
400.15 - 401.00	*METEOROLOGICAL AIDS* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth)* *5.208A 5.209 MOD 5.347A* *SPACE RESEARCH (space-to-Earth) 5.263* *Space Operation (space-to-Earth)* *5.262 5.264*	*METEOROLOGICAL AIDS* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth)* *5.208A 5.209* *SPACE RESEARCH (space-to-Earth) 5.263* *Space Operation (space-to-Earth)* *5.262 5.264*	*METEOROLOGICAL AIDS* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth)* *SPACE RESEARCH (space-to-Earth)* *Space Operation (space-to-Earth)*			Radio sondes (balloons)

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
401 – 402	*METEOROLOGICAL AIDS* *SPACE OPERATION (space-to-Earth)* *EARTH EXPLORATION-SAT (Earth-to-space)* *METEOROLOGICAL SATELLITE (Earth-to-space)* *Fixed* *Mobile except aeronautical mobile*	*METEOROLOGICAL AIDS* *SPACE OPERATION (space-to-Earth)* *EARTH EXPLORATION-SAT (Earth-to-space)* *METEOROLOGICAL SATELLITE (Earth-to-space)* *Fixed* *Mobile except aeronautical mobile*	*METEOROLOGICAL AIDS* *SPACE OPERATION (space-to-Earth)* *EARTH EXPLORATION-SAT (Earth-to-space)* *METEOROLOGICAL SATELLITE (Earth-to-space)* *Fixed* *Mobile except aeronautical mobile*	401.100 – 406.000		Radio sondes (ballons) ML Portables, max 5 W
402 - 403	*METEOROLOGICAL AIDS* *EARTH EXPLORATION-SATELLITE (Earth-to-space)* *METEOROLOGICAL SATELLITE (Earth-to-space)* *Fixed* *Mobile except aeronautical mobile*	*METEOROLOGICAL AIDS* *EARTH EXPLORATION-SATELLITE (Earth-to-space)* *METEOROLOGICAL SATELLITE (Earth-to-space)* *Fixed* *Mobile except aeronautical mobile*	*METEOROLOGICAL AIDS* *EARTH EXPLORATION – SATELLITE (Earth-to-space)* *METEOROLOGICAL – SATELITE (Earth-to-space)* *Fixed* *Land Mobile*	401.100 – 406.000		Radiosondes (ballons) ML Portables, max 5 W

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
403 - 406	*METEOROLOGICAL AIDS* *Fixed* *Mobile except aeronautical mobile*	*METEOROLOGICAL AIDS* *Fixed* *Mobile except aeronautical mobile*	*METEOROLOGICAL AIDS* *Fixed* *Land Mobile*	401.100 – 406.000		Radiosondes (ballons) ML Portables, max 5 W
406.0 - 406.1	*MOBILE-SATELLITE (Earth-to-space)* *5.266 5.267*	*MOBILE-SATELLITE (Earth-to-space)* *5.266 5.267*	*MOBILE-SATELLITE (Earth-to-space)*			
406.1 - 410.0	*FIXED* *MOBILE except aeronautical mobile* *RADIO ASTRONOMY* *5.149*	*FIXED* *MOBILE except aeronautical mobile* *RADIO ASTRONOMY* *5.149*	*FIXED* *LAND MOBILE* *RADIO ASTRONOMY*	409.900 – 410.400 406.100 – 409.000		FX 1 FBML 1

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
410 – 420	*FIXED* *MOBILE except aeronautical mobile* *SPACE RESEARCH (space-to-space)* *5.268*	*FIXED* *MOBILE except aeronautical mobile* *SPACE RESEARCH (space-to-space)* *5.268*	*FIXED* *LAND MOBILE*	409.900 – 410.400 414.900 – 415.400 419.900 – 420.400 410.400 – 411.900 411.900 – 412.900 412.900 – 413.400 413.400 – 414.900 415.400 – 419.900	 419.900 – 420.400 414.900 – 415.400 420.400 – 421.900 421.900 – 412.900 422.900 – 423.400 423.400 – 424.900 425.400 – 429.900	FX 1 FX 2. 5 MHz duplex FX 2. 5 MHz duplex Public trunking 1, National, 10 MHz duplex Public trunking 3, Regional, 10 MHz duplex ML 1, 10 MHz duplex Public trunking 2, National, 10 MHz duplex ML 2, 10 MHz duplex

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
420 - 430	*FIXED* *MOBILE except aeronautical mobile* *Radiolocation* *5.269 5.270 5.271*	*FIXED* *MOBILE except aeronautical mobile* *Radiolocation*	*FIXED* *LAND MOBILE* *Radiolocation*	419.900 – 420.400 424.900 – 425.400 420.400 – 421.900 421.900 – 412.900 422.900 – 423.400 423.400 – 424.900 425.400 – 429.900 429.900 – 430.000	414.900 – 415.400 410.400 – 411.900 411.900 – 412.900 412.900 – 413.400 413.400 – 414.900 415.400 – 419.900	FX 2. 5 MHz duplex FX 3 Public trunking 1, National, 10 MHz duplex Public trunking 3, Regional, 10 MHz duplex FB 1, 10 MHz duplex Public trunking 2, National, 10 MHz duplex FB 2, 10 MHz duplex FBML 2
430 – 432	*AMATEUR* *RADIOLOCATION* *5.271 5.272 5.273 5.274 5.275 5.276 5.277*	*AMATEUR* *RADIOLOCATION*	*AMATEUR* *RADIOLOCATION*	430.000 – 440.000 435.000 – 438.000 433.050 - 434.790		Amateur Amateur – Satellite ISM Remote control. Telemetry and alarm transmissions. Short range digital radio transmissions. Centre frequency 433.92 MHz.

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
432 – 438	*AMATEUR* *RADIOLOCATION* *Earth exploration-satellite (active) 5.279A* *5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282*	*AMATEUR* *RADIOLOCATION* *Earth exploration-satellite (active) 5.279A* *5.138*				
438 – 440	*AMATEUR* *RADIOLOCATION* *5.271 5.273 5.274 5.275 5.276 5.277 5.283*					

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
440 - 450	*FIXED* *MOBILE except aeronautical mobile* *Radiolocation* *5.269 5.270 5.271 5.284 5.285 5.286*	*FIXED* *MOBILE except aeronautical mobile* *Radiolocation* *5.286*	*FIXED* *LAND MOBILE (PMR)* *Radiolocation*	440.000 – 441.100 444.000 – 445.000 449.000 - 450.000 441.100 – 444.000 445.000 - 446.000 446.000 – 446.100 446.100 – 446.200 446.000 - 449.000	 449.000 – 450.000 444.000 – 445.000 446.100 – 449.000 441.000 – 444.000	FX 4 FX 5, 5 MHz duplex FX 5, 5 MHz duplex ML 3, 5 MHz duplex FBML 3 (DMO, emergency 445.200-445.300 MHz) PMR446, on unlicensed basis DMR446, on unlicensed basis FB 3, 5 MHz duplex

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
450 - 455	*FIXED* *MOBILE ADD 5.XXX* *5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E*	*FIXED* *MOBILE* *5.209 5.286 5.286A*	*FIXED* *LAND MOBILE*	452.000 – 453.000 450.000 – 452.000 453.000 – 453.975 453.975 – 454.425 454.425 – 459.000	462.000 – 463.000 460.000 – 462.000 463.000 – 463.975 464.425 – 469.000	FX 6, 10 MHz duplex ML 4, 10 MHz duplex ML 5, 10 MHz duplex Paging ML 6, 10 MHz duplex 450 – 470 MHz identified as suitable for rural services (NTELETSA) using FDD technology with 10 MHz duplex distance
455 - 456	*FIXED* *MOBILE ADD 5.XXX* *5.209 5.271 5.286A 5.286B 5.286C 5.286E*	*FIXED* *MOBILE* *5.209 5.286A*	*FIXED* *LAND MOBILE*	454.425 – 459.000	464.425 – 469.000	ML 6, 10 MHz duplex 450 – 470 MHz identified as suitable for rural services (NTELETSA) using FDD technology with 10 MHz duplex distance
456 – 459	*FIXED* *MOBILE ADD 5.XXX* *5.271 MOD 5.287 5.288*	*FIXED* *MOBILE*	*FIXED* *LAND MOBILE*	454.425 – 459.000	464.425 – 469.000	ML 6, 10 MHz duplex 450 – 470 MHz identified as suitable for rural services (NTELETSA) using FDD technology with 10 MHz duplex distance
459 – 460	*FIXED* *MOBILE ADD 5.XXX* *5.209 5.271 5.286A 5.286B 5.286C 5.286E*	*FIXED* *MOBILE* *5.209 5.286A*	*FIXED* *LAND MOBILE*	459.000 – 460.000		FBML 4 450 – 470 MHz identified as suitable for rural services (NTELETSA) using FDD technology with 10 MHz duplex distance

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
460 – 470	*FIXED* *MOBILE ADD 5.XXX* *Meteorological-Satellite (space-to-Earth)* *MOD 5.287 5.288 5.289 5.290*	*FIXED* *MOBILE* *Meteorological-Satellite (space-to-Earth)* *5.289*	*FIXED* *LAND MOBILE* *Meteorological-Satellite (space-to-Earth)*	462.000 – 463.000 469.000 – 470.000 460.000 – 462.000 463.000 – 463.975 463.975 – 464.425 464.425 – 469.000	452.000 – 453.000 450.000 – 452.000 456.000 - 460.000 454.425 – 469.000	FX 6, 10 MHz duplex FX 7 FB 4, 10 MHz duplex FB 5, 10 MHz duplex Low power devices, mobile radios FB 6, 10 MHz duplex 450 – 470 MHz identified as suitable for rural services (NTELETSA) using FDD technology with 10 MHz duplex distance
470 – 790	*BROADCASTING* *5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 ADD 5.311 5.312*	*BROADCASTING* *5.149 5.304 5.306 5.311*	*BROADCASTING (terretsrial)*	470.000 – 790.000		Television band IV/V Channel 21-60. ST61 Support functions for broadcasting

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
790 –862	*FIXED* *BROADCASTING* *MOBILE except aeronautical mobile ADD 5.XXX* *MOD 5.317A* *5.312 5.314 5.315 MOD 5.316 ADD 5.316A 5.319*	*MOBILE* *BOT1* *FIXED* *BROADCASTING* *BOT1: 790 – 862 MHz is allocated to the Mobile service in Botswana on a primary basis.*	*FIXED (FIXED LINKS)* *BROADCASTING (terrestrial)*	825.000 - 835.000 790.000 – 806.000 800.000 - 814.000 854.000 - 862.000 824 - 835	 869 - 880	Govt. Television band V Channel 61-62. ST61 Digital Video Broadcasting according to Geneva06 Plan Wireless microphones. NIB Wireless microphones. NIB 824 – 835 MHz paired with 869 – 880 MHz identified as possible candidate for future wireless access.

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
862 – 890	*FIXED* *MOBILE except Aeronautical Mobile MOD 5.317A* *BROADCASTING 5.322* *5.319 MOD 5.323*	*FIXED* *MOBILE except Aeronautical Mobile MOD 5.317A* *BROADCASTING 5.322*	*FIXED (FIXED LINKS)* *LAND MOBILE* *BROADCASTING*	862.000 - 866.000 864.100 - 868.100 868.100 - 870.000 870.400 - 875.800 876.200 – 879.800 880.200 – 889.800 824 – 835	 915.400 – 920.800 921.200 – 924.800 925.200 – 934.800 869 – 880	Low power devices CT2 Low power devices Reserved ML GSM-R ML Extended GSM Allocated for service neutral licenses 824 – 835 MHz paired with 869 – 880 MHz identified as possible candidate for future wireless access.

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
890 – 942	*FIXED* *MOBILE except aeronautical mobile MOD 5.317A* *BROADCASTING* *5.322* *Radiolocation* *MOD 5.323*	*FIXED* *MOBILE except aeronautical mobile MOD 5.317A* *BROADCASTING* *5.322* *Radiolocation*	*FIXED* *LAND MOBILE (GSM)* *BROADCASTING* *(862-960 MHz)*	890.200 - 898.000 898.400 - 907.200 907.600 - 913.800 914.000 - 914.800 914.800 – 915.400 915.400 – 920.800 921.200 – 924.800 925.200 – 934.800	935.200 - 943.000 943.400 - 947.200 952.600 - 958.800 959.000 - 959.800 870.400 - 875.800 876.200 – 879.800 880.200 – 889.800	GSM MLMascom GSM MLOrange GSM MLVacant CT-1 Paging and low power device Reserved FB GSM-R FB Extended GSM FB Allocated for service neutral licensing

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
942 – 960	*FIXED* *MOBILE except aeronautical mobile MOD 5.317A* *BROADCASTING 5.322* *MOD 5.323*	*FIXED* *MOBILE except aeronautical mobile MOD 5.317A* *BROADCASTING 5.322*	*FIXED* *LAND MOBILE (GSM)* *BROADCASTING*	935.200 - 943.000 943.400 - 947.200 952.600 - 958.800 959.000 - 959.800	890.200 - 898.000 898.400 - 907.200 907.600 - 913.800 914.000 - 914.800	GSM FB GSM FB GSM FB CT-1
960 – 1164	*AERONAUTICAL RADIONAVIGATION* *5.328* *AERONAUTICAL MOBILE (R) ADD 5.4B06*	*AERONAUTICAL RADIONAVIGATION* *5.328*	*AERONAUTICAL RADIONAVIGATION*	1030.0 1090.0	1090.0 1030.0	DME. Duplex 63 MHz SSR SSR
1164 – 1215	*AERONAUTICAL RADIONAVIGATION 5.328* *RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space)* *5.328B* *5.328A*	*AERONAUTICAL RADIONAVIGATION 5.328* *RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space)* *5.328B* *5.328A*				

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
1215 - 1240	*EARTH EXPLORATION SATELLITE (active)* *RADIOLOCATION* *RADIONAVIGATION -SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A* *SPACE RESEARCH (active)* *5.330 5.331 5.332*	*EARTH EXPLORATION SATELLITE (active)* *RADIOLOCATION* *RADIONAVIGATION -SATELLITE (space-to-Earth) (space-to-space) 5.329* *SPACE RESEARCH (active)* *5.332*	*EARTH EXPLORATION – SATELLITE (active)* *RADIOLOCATION* *RADIONAVIGATION -SATELLITE (space-to-Earth) (space-to-space)*			GPS L2 1227 MHz
1240 – 1300	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *RADIONAVIGATION -SATELLITE(space-to-Earth) (space-to-space) 5.328B 5.329 5.329A* *SPACE RESEARCH (active)* *Amateur* *5.282 5.330 5.331 5.332 5.335 5.335A*	*EARTH EXPLORATION - SATELLITE (active)* *RADIOLOCATION* *RADIONAVIGATION -SATELLITE(space-to-Earth) (space-to-space) 5.329 5.329A* *SPACE RESEARCH (active)* *Amateur* *5.332 5.335A*	*EARTH EXPLORATION – SATELLITE (active)* *RADIOLOCATION* *RADIONAVIGATION -SATELLITE (space-to-Earth) (space-to-space)* *SPACE RESEARCH (active)* *Amateur*			Radar

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
1300 - 1350	*AERONAUTICAL RADIONAVIGATION 5.337* *RADIOLOCATION* *RADIONAVIGATION SATELLITE (Earth-to-space)* *5.149 5.337A*	*AERONAUTICAL RADIONAVIGATION 5.337* *RADIOLOCATION* *RADIONAVIGATION SATELLITE (Earth-to-space)* *5.149 5.337A*	*AERONAUTICAL RADIONAVIGATION* *RADIOLOCATION* *RADIONAVIGATION SATELLITE (Earth-to-space)*	1330.0 – 1400.0		Air Route Surveillance Radars.
1350 - 1400	*FIXED* *MOBILE* *RADIOLOCATION* *5.149 5.338 5.339 ADD 5.BA03*	*FIXED* *MOBILE* *RADIOLOCATION* *5.149 5.339 ADD 5.BA03*	*FIXED (FIXED LINKS)* *LAND MOBILE* *RADIOLOCATION* *Radio Astronomy*	1350.0 – 1375.0 1375.0 – 1400.0 1350.0 - 1355.0 1330.0 – 1400.0	1492.0 – 1517.0 1427.0 – 1452.0	Channel plan CEPT Rec T/R 13-01. Annex A Channel plan CEPT Rec T/R 13-01. Annex B Point-to-point and point-to-multipoint low capacity systems

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
1400 - 1427	*EARTH EXPLORATION SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340 5.341*	*EARTH EXPLORATION SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340 5.341*	*EARTH EXPLORATION - SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)*			
1427 - 1429	*SPACE OPERATION (Earth-to-space)* *FIXED* *MOBILE except aeronautical mobile* *5.341 ADD 5.BA03*	*SPACE OPERATION (Earth-to-space)* *FIXED* *MOBILE except aeronautical mobile* *5.341*	*FIXED (FIXED LINKS)* *LAND MOBILE*	1427.0 – 1452.0	1375.0 – 1400.0	Channel plan (CEPT Rec T/R 13-01. Annex B) Point-to-point and point-to-multipoint low capacity systems
1429 - 1452	*FIXED* *MOBILE except aeronautical mobile* *5.341 5.342 ADD 5.BA03*	*FIXED* *MOBILE except aeronautical mobile* *5.341 ADD 5.BA03*	*FIXED (FIXED LINKS)* *LAND MOBILE*	1427.0 – 1452.0	1375.0 – 1400.0	Channel plan (CEPT Rec T/R 13-01. Annex B) Point-to-point and point-to-multipoint low capacity systems

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
1452 - 1492	*FIXED* *MOBILE except aeronautical mobile* *BROADCASTING* *5.345* *BROADCASTING - SATELLITE 5.345 5.347A* *5.341 5.342*	*FIXED* *MOBILE except aeronautical mobile* *BROADCASTING* *5.345* *BROADCASTING - SATELLITE 5.345 5.347A* *5.341*	*FIXED* *LAND MOBILE* *BROADCASTING* *BROADCASTING - SATELLITE*	1452.0 - 1467.5 1467.5 – 1492.0		T-DAB S-DAB
1492 – 1518	*FIXED* *MOBILE except aeronautical mobile* *5.341 5.342*	*FIXED* *MOBILE except aeronautical mobile* *5.341*	*FIXED (FIXED LINKS)* *LAND MOBILE*	1492.0 – 1517.0	1350.0 – 1375.0	Channel plan CEPT Rec T/R 13-01. Annex AA
1518 – 1525	*FIXED* *MOBILE except aeronautical mobile* *MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B MOD 5.351A* *5.341 5.342*	*FIXED* *MOBILE except aeronautical mobile* *MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A MOD 5.351A* *5.341*				

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1525 - 1530	*SPACE OPERATION (space-to-Earth)* *FIXED* *MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A* *Earth exploration-satellite* *Mobile except aeronautical mobile 5.349* *5.341 5.342 5.350 5.351 5.352A 5.354*	*SPACE OPERATION (space-to-Earth)* *FIXED* *MOBILE-SATELLITE (space-to-Earth) 5 347A 5.351A* *Earth Exploration Satellite* *Mobile except aeronautical mobile* *5.341 5.351 5.354*	*SPACE OPERATION (space-to-Earth)* *FIXED* *MOBILE-SATELLITE (space-to-Earth)* *Land Mobile*			

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1530 - 1535	*SPACE OPERATION (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A 5.353A* *Earth exploration-satellite* *Fixed* *Mobile except aeronautical mobile* *5.341 5.342 5.351 5.354*	*SPACE OPERATION (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A 5.353A* *Earth exploration-satellite* *Fixed* *Mobile except aeronautical mobile* *5.341 5.351 5.354*	*SPACE OPERATION (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth)* *Fixed* *Land Mobile*			
1535 - 1559	*MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A* *5.341 5.351 5.353A* *5.354 5.355 5.356 5.357 5.357A 5.359 5.362A*	*MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A* *5.341 5.351 5.353A* *5.354 5.356 5.357 5.357A*	*MOBILE-SATELLITE (space-to-Earth)*			

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1559 - 1610	*AERONAUTICAL RADIONAVIGATION* *RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space)* *5.328B 5.329A MOD 5.347A* *5.341 5.362B 5.362C 5.363*	*AERONAUTICAL RADIONAVIGATION* *RADIONAVIGATION-SATELLITE (space-to-Earth))(space-to-space)* *5.328B 5.329A MOD 5.347A* *5.341*	*AERONAUTICAL RADIONAVIGATION* *RADIONAVIGATION-SATELLITE (space-to-Earth))(space-to-space)*	1575.42		GPS L1 1575.42 MHz
1610.0 - 1610.6	*MOBILE SATELLITE (Earth-to-space) 5.351A* *AERONAUTICAL RADIONAVIGATION* *5.341 5.355 5.359 5.363 5.364 5.366 5.367 5.368 5.369 5.371 5.372*	*MOBILE SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION* *5.341 5.364 5.366 5.367 5.368 5.371 5.372*	*MOBILE SATELLITE (Earth-to-space* *AERONAUTICAL RADIONAVIGATION*			MSS 1610 - 1626.5

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1610.6 - 1613.8	*MOBILE SATELLITE (Earth-to-space)* *RADIO ASTRONOMY* *AERONAUTICAL RADIONAVIGATION* *5.149 5.341 5.355 5.359 5.363 5.364 5.366 5.367 5.368 5.369 5.371 5.372*	*MOBILE SATELLITE (Earth-to-space)* *RADIO ASTRONOMY* *AERONAUTICAL RADIONAVIGATION* *5.149 5.341 5.364 5.366 5.367 5.368 5.371 5.372*	*MOBILE SATELLITE (Earth-to-space)* *RADIO ASTRONOMY* *AERONAUTICAL RADIONAVIGATION*			MSS 1610 - 1626.5
1613.8 - 1626.5	*MOBILE-SATELLITE (Earth-to-space) 5.351A* *AERONAUTICAL RADIONAVIGATION* *Mobile-Satellite (space-to-Earth) 5.347A* *5.341 5.355 5.359 5.363 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372*	*MOBILE-SATELLITE (Earth-to-space) 5.351A* *AERONAUTICAL RADIONAVIGATION* *Mobile-Satellite (space-to-Earth) 5.347A* *5.341 5.364 5.365 5.366 5.367 5.368 5.371 5.372*	*MOBILE - SATELLITE (Earth-to-space)* *AERONAUTICAL RADIONAVIGATION* *Mobile-Satellite (space-to-Earth)*			MSS 1610 - 1626.5

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1626.5 – 1660.0	*MOBILE-SATELLITE (Earth-to-space)* *5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376*	*MOBILE-SATELLITE (Earth-to-space)* *5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376*	*MOBILE -SATELLITE (Earth-to-space)*			
1660.0 - 1660.5	*MOBILE-SATELLITE (Earth-to-space)* *RADIO ASTRONOMY* *5.149 5.341 5.351* *5.354 5.362A 5.376A*	*MOBILE-SATELLITE (Earth-to-space)* *RADIO ASTRONOMY* *5.149 5.341 5.351* *5.354 5.376A*	*MOBILE - SATELLITE (Earth-to-space)*			
1660.5 - 1668	*RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *Fixed* *Mobile except Aeronautical Mobile* *5.149 5.341 5.379 5.379A*	*RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *Fixed* *Mobile except Aeronautical Mobile* *5.149 5.341 5.379A*	*RADIO ASTRONOMY* *Fixed* *Land Mobile*			

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1668 – 1668.4	*MOBILE-SATELLITE (Earth-to-space) MOD 5.351A MOD 5.379B 5.379C* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *Fixed* *Mobile except Aeronautical Mobile* *5.149 5.341 5.379 5.379A*	*MOBILE-SATELLITE (Earth-to-space) MOD 5.351A MOD 5.379B 5.379C* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *Fixed* *Mobile except Aeronautical Mobile* *5.149 5.341 5.379A*				
1668.4 - 1670	*METEOROLOGICAL AIDS* *FIXED* *MOBILE except aeronautical mobile* *MOBILE-SATELLITE (Earth-to-space) MOD 5.351A MOD 5.379B 5.379C* *RADIO ASTRONOMY* *5.149 5.341 MOD 5.379D 5.379E*	*METEOROLOGICAL AIDS* *FIXED* *MOBILE except aeronautical mobile* *MOBILE-SATELLITE (Earth-to-space) MOD 5.351A MOD 5.379B 5.379C* *RADIO ASTRONOMY* *5.149 5.341 MOD 5.379D 5.379E*	*METEOROLOGICAL AIDS* *FIXED* *LAND MOBILE* *RADIO ASTRONOMY*			

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
1670 - 1675	*METEOROLOGICAL AIDS* *FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE 5.380* *MOBILE-SATELLITE (Earth-to-space) MOD 5.351A MOD 5.379B* *5.341 MOD 5.379D 5.379E 5.380A*	*METEOROLOGICAL AIDS* *FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE 5.380* *MOBILE-SATELLITE (Earth-to-space) MOD 5.351A MOD 5.379B* *5.341 MOD 5.379D 5.379E 5.380A*	*METEOROLOGICAL AIDS* *FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *LAND MOBILE* *AERONAUTICAL MOBILE*	1670.0 – 1675.0	1800.0 – 1805.0	Terrestrial Flight Telephone System (TFTS) uplink
1675 – 1690	*METEOROLOGICAL AIDS* *FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE except Aeronautical Mobile* *5.341*	*METEOROLOGICAL AIDS* *FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE except Aeronautical Mobile* *5.341*	*METEOROLOGICAL AIDS* *FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *LAND MOBILE* *AERONAUTICAL MOBILE*	1675.0 – 1700.0 1680.0		Video

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
1690 – 1700	*METEOROLOGICAL AIDS* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *Fixed* *Mobile except aeronautical mobile* *5.289 5.341 5.382*	*METEOROLOGICAL AIDS* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *Fixed* *Mobile except aeronautical mobile* *5.289 5.341*	*METEOROLOGICAL AIDS* *FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *LAND MOBILE* *AERONAUTICAL MOBILE*	1675.0 – 1700.0		
1700 - 1710	*FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE except aeronautical mobile* *5.289 5.341*	*FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE except aeronautical mobile* *5.289 5.341*	*FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *LAND MOBILE*	1706.5 - 1790.5	1825.5 - 1909.5	

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
1710 - 1930	*FIXED* *MOBILE 5.384A 5.388A 5.388B* *5.149 5.341 5.385 5.386 5.387 5.388*	*FIXED* *MOBILE 5.384A 5.388A 5.388B* *5.149 5.341 5.385 5.388*	*FIXED* *LAND MOBILE (GSM, UMTS)* *Cordless telephones (DECT)*	1710.0 – 1785.0	1805.0 – 1880.0	GSM 1800, CEPT/ERC/Decision (95)03. GSM capacity increase, MTOs. Long term: possible in-band deployment of UMTS
				1785.0-1805.0		iBurst or similar wireless mobile, nomadic or fixed service, VAOs, .Test licences can be awarded
				1800.0 – 1805.0	1670.0 – 1675.0	Terrestrial Flight Telephone System (TFTS) downlink
				1805.0 – 1880.0	1710.0 – 1785.0	GSM 1800, CEPT/ERC/Decision (95)03. GSM capacity increase,MTOs. Long term: possible in-band deployment of UMTS
				1880.5 – 1900.0		DECT CEPT Rec. T/R 22 - 02)
				1900-1920		UMTS TDD might be introduce in long-term.
				1920-1980	2110 - 2170	UMTS FDD to be assigned according to migration plan
1930 - 1970	*FIXED* *MOBILE 5.388A* *5.388*	*FIXED* *MOBILE 5.388A* *5.388*	*FIXED* *LAND MOBILE (UMTS)*	1920-1980	2110 – 2170	UMTS FDD to be assigned according to migration plan

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1970 - 1980	*FIXED* *MOBILE 5.388A* *5.388*	*FIXED* *MOBILE 5.388A* *5.388*	*FIXED* *LAND MOBILE (UMTS)*	1920-1980	2110 - 2170	UMTS FDD to be assigned according to migration plan
1980 - 2010	*FIXED* *MOBILE* *MOBILE-SATELLITE (Earth-to-space) 5.351A* *5.388 5.389A 5.389B 5.389F*	*FIXED* *MOBILE* *MOBILE-SATELLITE (Earth-to-space) 5.351A* *5.388 5.389A*	*FIXED* *MOBILE* *MOBILE - SATELLITE (Earth-to-space)*			MSS
2010 - 2025	*FIXED* *MOBILE 5.388A 5.388B* *5.388*	*FIXED* *MOBILE 5.388A 5.388B* *5.388*	*FIXED* *LAND MOBILE*	2010-2025		Possible UMTS TDD licensing in long-term

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
2025 - 2110	*SPACE OPERATION (Earth-to-space) (space-to-Earth)* *EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space)* *FIXED* *MOBILE 5.391* *SPACE RESEARCH (Earth-to-space) (space-to-space)* *5.392*	*SPACE OPERATION (Earth-to-space) (space-to-Earth)* *EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space)* *FIXED* *MOBILE 5.391* *SPACE RESEARCH (Earth-to-space) (space-to-space)* *5.392*	*FIXED* *MOBILE*	2025.0 – 2110.0 2100.0 – 2300.0	2200.0 – 2290.0	Channel plan (CEPT Rec. T/R 13-01 Annex C) Government
2110 - 2120	*FIXED* *MOBILE 5.388A* *SPACE RESEARCH (deep space)(Earth-to-space)* *5.388*	*FIXED* *MOBILE 5.388A* *SPACE RESEARCH (deep space)(Earth-to-space)* *5.388*	*FIXED* *LAND MOBILE (UMTS)*	2100.0 – 2300.0 2110.0 – 2170.0	1920 - 1980	Government UMTS FDD to be assigned according to migration plan
2120 - 2160	*FIXED* *MOBILE 5.388A* *5.388*	*FIXED* *MOBILE 5.388A* *5.388*	*FIXED* *LAND MOBILE (UMTS)*	2100.0 – 2300.0 2110.0 – 2170.0	1920 - 1980	Government UMTS FDD to be assigned according to migration plan

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
2160 - 2170	*FIXED* *MOBILE 5.388A 5.388B* *5.388 5.392A*	*FIXED* *MOBILE 5.388A 5.388B*	*FIXED* *LAND MOBILE (UMTS)*	2100.0 – 2300.0 2110.0 – 2170.0	 1920 - 1980	Government UMTS FDD to be assigned according to migration plan
2170 - 2200	*FIXED* *MOBILE 5.388* *MOBILE-SATELLITE (space-to-Earth) 5.351A* *5.389A 5.389F 5.392A*	*FIXED* *MOBILE 5.388* *MOBILE-SATELLITE (space-to-Earth) 5.351A 5.389A*	*FIXED* *MOBILE* *MOBILE-SATELLITE (space-Earth)*	2100.0 – 2300.0		Government

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
2200 - 2290	*SPACE OPERATION (space-to-Earth) (space-to-space)* *EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space)* *FIXED* *MOBILE 5.391* *SPACE RESEARCH (space-to-Earth) (space-to-space)* *5.392*	*SPACE OPERATION (space-to-Earth) (space-to-space)* *EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space)* *FIXED* *MOBILE 5.391* *SPACE RESEARCH (space-to-Earth) (space-to-space)* *5.392*	*SPACE OPERATION (space-to-Earth) (space-to-space)* *EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space)* *FIXED* *MOBILE* *SPACE RESEARCH (space-to-Earth) (space-to-space)*	2200.0 – 2290.0 2100.0 – 2300.0 2200.0 – 2290.0	2025.0 – 2110.0	Channel plan (CEPT Rec. T/R 13-01 Annex C) Government
2290 - 2300	*FIXED* *MOBILE except Aeronautical Mobile* *SPACE RESEARCH (deep space)(space-to-Earth)*	*FIXED* *MOBILE except Aeronautical Mobile* *SPACE RESEARCH (deep space)(space-to-Earth)*	*FIXED* *LAND MOBILE* *SPACE RESEARCH (deep space)(space-Earth)*	2100.0 – 2300.0		Government

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
2300 - 2450	*FIXED* *MOBILE MOD 5.384A* *Amateur* *Radiolocation* *5.150 5.282 5.395*	*FIXED* *MOBILE MOD 5.384A* *Amateur* *Radiolocation* *5.150 5.282*	*FIXED (FIXED LINKS, Radio LAN)* *MOBILE* *Amateur* *Radiolocation*	2300.0 - 2500.0 2300-2400 2400.0 – 2500		Government Possible mobile data licensing in medium or long-term ISM
2450 - 2483.5	*FIXED* *MOBILE* *Radiolocation* *5.150 5.397*	*FIXED* *MOBILE* *Radiolocation* *5.150*	*FIXED (Radio LAN)* *MOBILE* *Radiolocation*	2300.0 - 2500.0 2400.0 – 2500.0		Government ISM
2483.5 - 2500	*FIXED* *MOBILE* *MOBILE-SATELLITE (space-to-Earth)* *5.351A Radiolocation* *5.150 5.371 5.397 5.398 5.399 5.400 5.402*	*FIXED* *MOBILE* *MOBILE-SATELLITE (space-to-Earth)* *5.351A Radiolocation* *5.150 5.371 5.398 5.399 5.402*	*FIXED (Radio LAN)* *MOBILE* *MOBILE-SATELLITE (space-Earth)* *Radiolocation*	2300.0 – 2500.0 2483.5 - 2484.5 2484.5 – 2568.5 2483.5 – 2484.5 2483.5 – 2500.0 2400.0 – 2500.0	2603.5 – 2687.5	Government MSS ISM

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
2500 - 2520	*FIXED MOD 5.410* *MOBILE except Aeronautical Mobile 5.384A* *5.405 5.412*	*FIXED MOD 5.410* *MOBILE except Aeronautical Mobile 5.384A* *5.405 5412*	*FIXED (FWA)* *LAND MOBILE* *MOBILE - SATELLITE (space-Earth)*	2484.5 - 2568.5 2500-2690	2603.5 - 2687.5	This band is allocated for technology and service neutral licensing in short-term This is an IMT-2000 extension band
2520 - 2655	*FIXED MOD 5.410* *MOBILE except aeronautical mobile 5.384A* *BROADCASTING-SATELLITE* *5.413 MOD 5.416* *5.339 5.405 5.412 5.417C 5.417D 5.418B 5.418C*	*FIXED MOD 5.410* *MOBILE except aeronautical mobile 5.384A* *BROADCASTING-SATELLITE* *5.413 MOD 5.416* *5.339 5.417C 5.417D 5.418B 5.418C*	*FIXED (FWA)* *LAND MOBILE* *BROADCASTING - SATELLITE*	2484.5 – 2568.5 2520.0 – 2593.0 2597.0 – 2670.0 2603.5 – 2687.5 2500-2690	2603.5 – 2687.5 2597 .0-2670.0 2520.0 – 2593.0 2484.5 – 2568.5	Channel plan (CEPT Rec. T/R 13-01 Annex D) Channel plan (CEPT Rec. T/R 13-01 Annex D) This band is allocated for technology and service neutral licensing in short-term This is an IMT-2000 extension band.

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
2655 - 2670	*FIXED MOD 5.410* *MOBILE except aeronautical mobile 5.384A* *BROADCASTING-SATELLITE* *5.347A 5.413 MOD 5.416* *Earth Exploration-Satellite (passive)* *Radio Astronomy* *Space Research (passive)* *5.149 5.412*	*FIXED MOD 5.410* *MOBILE except aeronautical mobile 5.384A* *BROADCASTING-SATELLITE* *5.347A 5.413 MOD 5.416* *Earth Exploration-Satellite (passive)* *Radio Astronomy* *Space Research (passive)* *5.149 5.412*	*FIXED (FWA)* *LAND MOBILE* *BROADCASTING - SATELLITE* *Earth Exploration Satellite (passive)* *Radio Astronomy*	2597.0 – 2670.0 2603.5 – 2687.5 2500-2690	2520.0 – 2593.0 2484.5 – 2568.5	Channel plan (CEPT Rec. T/R 13-01 Annex D) This band is allocated for technology and service neutral licensing in short-term This is an IMT-2000 extension band

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
2670 - 2690	*FIXED MOD 5.410* *MOBILE except Aeronautical Mobile 5.384A* *Earth Exploration-Satellite (passive)* *Radio Astronomy* *Space Research (passive)* *5.149 5.412*	*FIXED MOD 5.410* *MOBILE except Aeronautical Mobile 5.384A* *Earth Exploration-Satellite (passive)* *Radio Astronomy* *Space Research (passive)* *5.149*	*FIXED (FWA)* *LAND MOBILE* *MOBILE - SATELLITE (Earth-space)* *Earth Exploration - Satellite (passive)* *Radio Astronomy* *Space Research (passive)*	2603.5 – 3687.5 2500-2690	2484.5 – 2568.5	This band is allocated for technology and service neutral licensing in short-term This is an IMT-2000 extension band.
2690 - 2700	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340 5.422*	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340*	*EARTH EXPLORATION - SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)*			

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
2700 - 2900	*AERONAUTICAL RADIONAVIGATION 5.337* *Radiolocation* *5.423*	*AERONAUTICAL RADIONAVIGATION 5.337* *Radiolocation* *5.423*	*AERONAUTICAL RADIONAVIGATION*			Airport Surveillance Radars.
2900 - 3100	*RADIOLOCATION 5.424A* *RADIONAVIGATION 5.426* *5.425 5.427*	*RADIOLOCATION 5.424A* *RADIONAVIGATION 5.426* *5.425 5.427*	*RADIONAVIGATION*			Radar

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
1.6 3000 MHz – 10000 MHz						
3100 – 3300	*RADIOLOCATION* *Earth Exploration-Satellite (active)* *Space Research (active)* *5.149 5.428*	*RADIOLOCATION* *Earth Exploration-Satellite (active)* *Space Research (active)* *5.149*	*RADIOLOCATION*			Government Radiolocation.
3300 –3400	*RADIOLOCATION* *5.149 5.429 5.430*	*RADIOLOCATION* *5.149*	*RADIOLOCATION*			Government Radiolocation.
3400 – 3600	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *Mobile ADD 5.AAA* *Radiolocation* *5.431*	*Mobile ADD 5.AAA* *BOT2* *FIXED* *FIXED-SATELLITE (space-to-Earth)* *Radiolocation* *BOT2: 3400 – 3600 MHz is allocated to the Mobile service in Botswana on a primary basis.*	*FIXED (FWA)* *Land Mobile*			Used for Fixed Wireless Access, according to national channel plan based on CEPT/ERC/Recommendation 14-03 Annex B. The band is allocated for service and technology neutral licensing of TDD or FDD systems.

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
3600 – 4200	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *Mobile*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *BOT3* *Mobile* *BOT3: Fixed Satellite to have priority in the band 3700 – 4200 MHz in Botswana.*	*FIXED (FWA)* *FIXED-SATELLITE (FSS) (space-to-Earth)*	3600-3700 3700 - 4200		The band is allocated for service and technology neutral licensing of TDD systems. Reserved for Fixed Links (point-to-point). VSAT/SNG on a coordinated basis. FSS to have priority in the band 3700 - 4200
4200 – 4400	*AERONAUTICAL RADIONAVIGATION 5.438* *5.437 5.439 5.440*	*AERONAUTICAL RADIONAVIGATION 5.438* *5.440*	*AERONAUTICAL RADIONAVIGATION*			Radio altimeters
4400 – 4500	*FIXED* *MOBILE ADD 5.4B01*	*FIXED* *MOBILE ADD 5.4B01*				
4500 – 4800	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.441* *MOBILE ADD 5.4B01*	*FIXED* *FIXED-SATELLITE (space-Earth) 5.441* *MOBILE ADD 5.4B01*				Government

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
4800 – 4990	*FIXED* *MOBILE MOD 5.442 ADD 5.4B01* *Radio Astronomy* *5.149 5.339 5.443*	*FIXED* *MOBILE MOD 5.442 ADD 5.4B01* *Radio Astronomy* *5.149 5.339*				Government
4990 – 5000	*FIXED* *MOBILE except Aeronautical Mobile* *RADIO ASTRONOMY* *Space Research (passive)* *5.149*	*FIXED* *MOBILE except Aeronautical Mobile* *RADIO ASTRONOMY* *Space Research (passive)* *5.149*				Government
5000 – 5010	*AERONAUTICAL RADIONAVIGATION* *RADIONAVIGATION –SATELLITE (Earth-to-space) 5.367*	*AERONAUTICAL RADIONAVIGATION* *RADIONAVIGATION –SATELLITE (Earth-to-space) 5.367*	*AERONAUTICAL RADIONAVIGATION*			Microwave Landing systems. NGSO MSS feeder links (5091-5150 MHz)

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
5010 – 5030	*AERONAUTICAL RADIONAVIGATION* *RADIONAVIGATION –SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B* *5.367*	*AERONAUTICAL RADIONAVIGATION* *RADIONAVIGATION –SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B* *5.367*				
5030 – 5091	*AERONAUTICAL RADIONAVIGATION* *5.367 MOD 5.444*	*AERONAUTICAL RADIONAVIGATION* *5.367 MOD 5.444*				
5091 - 5150	*AERONAUTICAL RADIONAVIGATION* *AERONAUTICAL MOBILE ADD 5.4B03* *5.367 MOD 5.444 MOD 5.444A*					

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
5150 – 5250	*AERONAUTICAL RADIONAVIGATION* *FIXED-SATELLITE (Earth-to-space) 5.447A* *MOBILE except Aeronautical Mobile MOD 5.446A 5.446B* *5.446 5.447 5.447B* *5.447C ADD 5.4B04*	*AERONAUTICAL RADIONAVIGATION* *FIXED-SATELLITE (Earth-to-space) 5.447A* *MOBILE except Aeronautical Mobile MOD 5.446A 5.446B* *5.446 5.447B* *5.447C ADD 5.4.B04*	*MOBILE except Aeronautical Mobile (Radio LAN)*			This band is allocated for licence-exempt RLANs Hiperlan NGSO MSS feeder links
5250 – 5255	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH 5.447D* *MOBILE except Aeronautical Mobile* *5.446A 5.447F* *5.447E 5.448 5.448A*	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH 5.447D* *MOBILE except Aeronautical Mobile* *5.446A 5.447F* *5.447D 5.448A*	*MOBILE except Aeronautical Mobile (Radio LAN)*	5250 - 5350		This band is allocated for licence-exempt RLANs Hiperlan

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
5255 – 5350	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *MOBILE except Aeronautical Mobile 5.446A 5.447F* *5.447E 5.448 5.448A*	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *MOBILE except Aeronautical Mobile 5.446A 5.447F* *5.448A*	*MOBILE except Aeronautical Mobile (Radio LAN)*	5250 - 5350		This band is allocated for licence-exempt RLANs Hiperlan
5350 – 5460	*EARTH EXPLORATION-SATELLITE (active) 5.448B* *SPACE RESEARCH (active) 5.448C* *AERONAUTICAL RADIONAVIGATION 5.449* *RADIOLOCATION 5.448D*	*EARTH EXPLORATION-SATELLITE (active) 5.448B* *SPACE RESEARCH (active) 5.448C* *AERONAUTICAL RADIONAVIGATION 5.449* *RADIOLOCATION 5.448D*				Airborne Weather Radar (Centre frequency 5400 MHz)

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
5460 – 5470	*RADIONAVIGATION 5.449* *EARTH EXPLORATION-SATELLITE (active)* *SPACE RESEARCH (active)* *RADIOLOCATION 5.448D* *5.448B*	*RADIONAVIGATION 5.449* *EARTH EXPLORATION-SATELLITE (active)* *SPACE RESEARCH (active)* *RADIOLOCATION 5.448D* *5.448B*				
5470 – 5570	*MARITIME RADIONAVIGATION* *MOBILE except Aeronautical Mobile 5.446A 5.450A* *EARTH EXPLORATION-SATELLITE (active)* *SPACE RESEARCH (active)* *RADIOLOCATION 5.450B* *5.448B 5.450 5.451*	*MARITIME RADIONAVIGATION* *MOBILE except Aeronautical Mobile 5.446A 5.450A* *EARTH EXPLORATION-SATELLITE (active)* *SPACE RESEARCH (active)* *RADIOLOCATION 5.450B* *5.448B*	*MOBILE except Aeronautical Mobile (Radio LAN)*	5470 - 5725		This band is allocated for licence-exempt RLANs Hiperlan

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
5570 – 5650	*MARITIME RADIONAVIGATION* *MOBILE except Aeronautical Mobile 5.446A 5.450A* *RADIOLOCATION 5.450B* *5.450 5.451 5.452*	*MARITIME RADIONAVIGATION* *MOBILE except Aeronautical Mobile 5.446A 5.450A* *RADIOLOCATION 5.450B* *5.452*	*MOBILE except Aeronautical Mobile (Radio LAN)*	5470 - 5725		This band is allocated for licence-exempt RLANs
5650 – 5725	*RADIOLOCATION* *MOBILE except Aeronautical Mobile 5.446A 5.450A* *Amateur* *Space Research (deep space)* *5.282 5.451 5.453 5.454 5.455*	*RADIOLOCATION* *MOBILE except Aeronautical Mobile 5.446A 5.450A* *Amateur* *Space Research (deep space)* *5.282*	*MOBILE except Aeronautical Mobile (Radio LAN)*	5470 - 5725		This band is allocated for licence-exempt RLANs .

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
5725 – 5830	*FIXED-SATELLITE (Earth-to-space)* *RADIOLOCATION* *Amateur* *5.150 5.451 5.453* *5.455 5.456*	*FIXED-SATELLITE (Earth-to-space)* *RADIOLOCATION* *Amateur* *5.150*	*FIXED (Radio LAN)*	5725 - 5875		This band is allocated for RLANs, lightly licensed Short Range Devices - ISM (5725-5875 MHz, centre frequency 5800 MHz). Possible us of Road Transport Informatics in the band 5795-5815 MHz.
5830 – 5850	*FIXED-SATELLITE (Earth-to-space)* *RADIOLOCATION* *Amateur* *Amateur-Satellite (space-to-Earth)* *5.150 5.451 5.453* *5.455 5.456*	*FIXED-SATELLITE (Earth-to-space)* *RADIOLOCATION* *Amateur* *Amateur-Satellite (space-Earth)* *5.150*	*FIXED (Radio LAN)*	5725 - 5875		This band is allocated for RLANs, lightly licensed Short Range Devices - ISM (5725-5875 MHz, centre frequency 5800 MHz)
5850 – 5925	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE* *5.150*	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE* *5.150*	*FIXED (Radio LAN)* *MOBILE* *FIXED-SATELLITE (Earth-to-space)*	5725-5875		This band is allocated for RLANs, lightly licensed Short Range Devices - ISM (5725-5875 MHz, centre frequency 5800 MHz) VSAT/SNG

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
5925 – 6700	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B* *MOBILE ADD 5.4B02* *5.149 5.440 5.458*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A* *MOBILE ADD 5.4B02* *5.149 5.440 5.458*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (FSS) (Earth-to-space)*			The band 5.925-6.425 GHz to be used for FSS transmit. ITU-R Recommendation F.383 applies. The band 6.425-6.700 GHz is used for fixed links (pont-to-point) with high capacity telecommunications services. ITU-R Recommendation F.384 applies. This band is also used for VSAT/SNG on a coordinated basis.
6700 – 7075	*FIXED* *FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441* *MOBILE* *5.458 5.458A 5.458B* *5.458C*	*FIXED* *FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441* *MOBILE* *5.458 5.458A 5.458B* *5.458C*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (Earth-to-space) (space-to-Earth)*			This band is used for fixed links (pont-to-point) with high capacity telecommunications services. ITU-R Recommendation F.384 applies.
7075 – 7145	*FIXED* *MOBILE* *5.458 5.459*	*FIXED* *MOBILE* *5.458*	*FIXED (FIXED LINKS)*			This band is used for fixed links (pont-to-point) with medium to high capacity telecommunications services ITU-R Recommendation F.385-6 Annex 3 applies.

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
7145 – 7235	*FIXED* *MOBILE* *SPACE RESEARCH (Earth-to-space) 5.460* *5.458 5.459*	*FIXED* *MOBILE* *SPACE RESEARCH (Earth-to-space) 5.460* *5.458*	*FIXED (FIXED LINKS)*			This band is used for fixed links (pont-to-point) with medium to high capacity telecommunications services ITU-R Recommendation F.385-6 Annex 3 applies
7235 – 7250	*FIXED* *MOBILE* *5.458*	*FIXED* *MOBILE* *5.458*	*FIXED (FIXED LINKS)*			This band is used for fixed links (pont-to-point) with medium to high capacity telecommunications services ITU-R Recommendation F.385-6 Annex 3 applies
7250 – 7300	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *5.461*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *5.461*	*FIXED (FIXED LINKS)*			This band is used for fixed links (point-to-point) with medium to high capacity telecommunications services ITU-R Recommendation F.385-6 Annex 3 applies.
7300 – 7450	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE except Aeronautical Mobile* *5.461*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE except Aeronautical Mobile* *5.461*	*FIXED (FIXED LINKS)*			This band is used for fixed links (pont-to-point) with medium to high capacity telecommunications services ITU-R Recommendation F.385-6 Annex 3 applies.

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
7450 – 7550	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE except Aeronautical Mobile* *5.461A*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *METEOROLOGICAL-SATELLITE (space-to-Earth)* *MOBILE except Aeronautical Mobile* *5.461A*	*FIXED (FIXED LINKS)*			This band is used for fixed links (pont-to-point) with medium to high capacity telecommunications services ITU-R Recommendation F.385-6 Annex 3 applies.
7550 – 7750	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE except Aeronautical Mobile*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE except Aeronautical Mobile*	*FIXED (FIXED LINKS)*			This band is used for fixed links (pont-to-point) with medium to high capacity telecommunications services. ITU-R Recommendation F.385-6 Annex 3 applies.
7750 – 7850	*FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B* *MOBILE except Aeronautical Mobile*	*FIXED* *METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B* *MOBILE except Aeronautical Mobile*	*FIXED (FIXED LINKS)*	7725 - 8275		This band is reserved for future fixed links (point-to-point) used for high capacity telecommunication services. ITU-R Recommendation F.386 Annex 1 applies
7850 – 7900	*FIXED* *MOBILE except Aeronautical Mobile*	*FIXED* *MOBILE except Aeronautical Mobile*	*FIXED (FIXED LINKS)*	7725 - 8275		This band is reserved for future fixed links (point-to-point) used for high capacity telecommunication services. ITU-R Recommendation F.386 Annex 1 applies

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
7900 – 8025	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE* *5.461*	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE*	*FIXED (FIXED LINKS)*	7725 - 8275		This band is reserved for future fixed links (point-to-point) used for high capacity telecommunication services. ITU-R Recommendation F.386 Annex 1 applies
8025 – 8175	*EARTH EXPLORATION-SATELLITE (space-to-Earth)* *FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE 5.463* *5.462A*	*EARTH EXPLORATION-SATELLITE (space-to-Earth)* *FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE 5.463* *5.462A*	*FIXED (FIXED LINKS)*	7725 - 8275		This band is reserved for future fixed links (point-to-point) used for high capacity telecommunication services. ITU-R Recommendation F.386 Annex 1 applies

Frequency bands (MHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (MHz)	Duplex bands (MHz)	Remarks
8175 – 8215	*EARTH EXPLORATION-SATELLITE (space-to-Earth)* *FIXED* *FIXED-SATELLITE (Earth-to-space)* *METEOROLOGICAL-SATELLITE (Earth-to-space)* *MOBILE 5.463* *5.462A*	*EARTH EXPLORATION-SATELLITE (space-to-Earth)* *FIXED* *FIXED-SATELLITE (Earth-to-space)* *METEOROLOGICAL-SATELLITE (Earth-to-space)* *MOBILE 5.463* *5.462A*	*FIXED (FIXED LINKS)*	7725 - 8275		This band is reserved for future fixed links (point-to-point) used for high capacity telecommunication services. ITU-R Recommendation F.386 Annex 1 applies
8215 – 8400	*EARTH EXPLORATION-SATELLITE (space-to-Earth)* *FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE 5.463* *5.462A*	*EARTH EXPLORATION-SATELLITE (space-to-Earth)* *FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE 5.463* *5.462A*	*FIXED (FIXED LINKS)*	7725 – 8275 8275 – 8500		This band is reserved for future fixed links (point-to-point) used for high capacity telecommunication services. ITU-R Recommendation F.386 Annex 1 applies. This band is reserved for future fixed links (point-to-point) used for medium capacity telecommunication services. ITU-R Recommendation F.386 Annex 3 applies

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
8400 – 8500	*FIXED* *MOBILE except Aeronautical Mobile* *SPACE RESEARCH (space-to-Earth) 5.465 5.466*	*FIXED* *MOBILE except Aeronautical Mobile* *SPACE RESEARCH (space-to-Earth) 5.465*	*FIXED (FIXED LINKS)*	8275 – 8500		This band is reserved for future fixed links (point-to-point) used for medium capacity telecommunication services. ITU-R Recommendation F.386 Annex 3 applies.
8500 – 8550	*RADIOLOCATION* *5.468 5.469*	*RADIOLOCATION*				
8550 – 8650	*EARTH EXPLORATION SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *5.468 5.469 5.469A*	*EARTH EXPLORATION SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *5.469A*				
8650 – 8750	*RADIOLOCATION* *5.468 5.469*	*RADIOLOCATION*				
8750 – 8850	*RADIOLOCATION* *AERONAUTICAL RADIONAVIGATION 5.470* *5.471*	*RADIOLOCATION* *AERONAUTICAL RADIONAVIGATION 5.470*				Airborne Doppler Radar (centre frequency 8800 MHz)

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
8850 – 9000	*RADIOLOCATION* *MARITIME RADIONAVIGATION 5.472* *5.473*	*RADIOLOCATION* *MARITIME RADIONAVIGATION 5.472*	*RADIOLOCATION*			
9000 – 9200	*AERONAUTICAL RADIONAVIGATION 5.337* *RADIOLOCATION* *MOD 5.471 ADD 5.475A*	*AERONAUTICAL RADIONAVIGATION 5.337* *RADIOLOCATION* *MOD 5.471 ADD 5.475A*	*AERONAUTICAL RADIONAVIGATION*			Precision Approach Radars.
9200 – 9300	*RADIOLOCATION* *MARITIME RADIONAVIGATION 5.472* *5.473 5.474*	*RADIOLOCATION* *MARITIME RADIONAVIGATION 5.472* *5.474*	*RADIOLOCATION*			Radars.

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
9300 – 9500	*RADIONAVIGATION 5.476* *EARTH EXPLORATION-SATELLITE (active)* *SPACE RESEARCH (active)* *RADIOLOCATION* *5.427 5.474 MOD 5.475 ADD 5.475B MOD 5.476A ADD 5.4B07*	*RADIONAVIGATION 5.476* *EARTH EXPLORATION-SATELLITE (active)* *SPACE RESEARCH (active)* *RADIOLOCATION* *5.427 5.474 MOD 5.475 ADD 5.475B MOD 5.476A* *ADD 5.4B07*	*RADIONAVIGATION*			Radars.
9500 – 9800	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *RADIONAVIGATION* *SPACE RESEARCH (active)* *MOD 5.476A*	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *RADIONAVIGATION* *SPACE RESEARCH (active)* *MOD 5.476A*	*RADIONAVIGATION*			Radars.

Frequency bands (MHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (MHz)**	**Duplex bands (MHz)**	**Remarks**
9800 – 9900	*RADIOLOCATION* *Earth exploration-satellite (active)* *Space research (active)* *Fixed* *5.477 5.478 ADD 5.xyz ADD 5.xyy*	*RADIOLOCATION* *Earth exploration-satellite (active)* *Space research (active)* *Fixed* *5.479 5.478 ADD 5.xyz ADD 5.xyy*	*RADIOLOCATION*			
9900 - 10000	*RADIOLOCATION* *Fixed* *5.477 5.478 5.479*	*RADIOLOCATION* *Fixed* *5.477 5.478 5.479*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
1.7 10 GHz – 30 GHz						
10 - 10.45	*FIXED* *MOBILE* *RADIOLOCATION* *Amateur* *5.479*	*FIXED* *MOBILE* *RADIOLOCATION* *Amateur* *5.479*	*FIXED*			The band 10.15-10.45 GHz is reserved for future Fixed Wireless Access applications
10.45 - 10.50	*RADIOLOCATION* *Amateur* *Amateur-Satellite* *5.481*	*RADIOLOCATION* *Amateur* *Amateur-Satellite*	*RADIOLOCATION*			The band 10.45-10.50 GHz is reserved for future Fixed Wireless Access applications
10.50 - 10.55	*FIXED* *MOBILE* *Radiolocation*	*FIXED* *MOBILE* *Radiolocation*	*FIXED*			The band 10.50-10.55 GHz is reserved for future Fixed Wireless Access applications
10.55 - 10.60	*FIXED* *MOBILE except Aeronautical Mobile* *Radiolocation*	*FIXED* *MOBILE except Aeronautical Mobile* *Radiolocation*	*FIXED*			The band 10.55-10.60 GHz is reserved for future Fixed Wireless Access applications

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
10.60 - 10.68	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE except Aeronautical Mobile* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *Radiolocation* *5.149 MOD 5.482 ADD 5.BA01*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE except Aeronautical Mobile* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *Radiolocation* *5.149 MOD 5.482 ADD 5.BA01*	*FIXED*			The band 10.60-10.65 GHz is reserved for future Fixed Wireless Access applications.
10.68 - 10.70	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340 5.483*	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340 5.483*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
10.70 - 11.70	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484* *MOBILE except Aeronautical Mobile*	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (space-to-earth)*			This band is reserved for future Fixed Links (point-to-point) with high capacity. ITU Recommendation F-387 applies. The bands 10.95-11.2 GHz and 11.45-11.7 GHz is also used by DTH applications on a secondary basis.
11.70 - 12.50	*FIXED* *BROADCASTING* *BROADCASTING-SATELLITE* *Mobile except Aeronautical Mobile* *5.487 5.487A 5.492*	*FIXED* *BROADCASTING* *BROADCASTING-SATELLITE* *Mobile except Aeronautical Mobile* *5.487 5.487A 5.492*	*BROADCASTING-SATELLITE*			
12.50 - 12.75	*FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space)* *5.494 5.495 5.496*	*FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space)*	*FIXED-SATELLITE (space-to-Earth)*			This band used for FSS downlink. License exempt .

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
12.75 - 13.25	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.441* *MOBILE* *Space Research (deep space)(space-to-Earth)*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.441* *MOBILE* *Space Research (deep space)(space-to-Earth)*	*FIXED (FIXED LINKS)*			Reserved for Fixed Links (point-to-point). ITU Recommendation 497 applies
13.25 - 13.40	*Earth Exploration-Satellite (active)* *AERONAUTICAL RADIONAVIGATION 5.497* *SPACE RESEARCH (active)* *5.498A 5.499*	*Earth Exploration-Satellite (active)* *AERONAUTICAL RADIONAVIGATION 5.497* *SPACE RESEARCH (active)* *5.498A 5.499*				Airborne Doppler Radar.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
13.40 - 13.75	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH* *S.5.501A* *Standard Frequency and Time Signal-Satellite (Earth-to-space)* *5.499 5.500 5.501 5.501B*	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH* *5.501A* *Standard Frequency and Time Signal-Satellite (Earth-space)* *5.501B*	*RADIOLOCATION*			
13.75 - 14	*FIXED-SATELLITE (Earth-to-space) 5.484A* *RADIOLOCATION* *Earth exploration-satellite* *Standard Frequency and Time Signal-Satellite (Earth-to-space)* *Space Research* *5.499 5.500 5.501 5.502 5.503*	*FIXED-SATELLITE (Earth-to-space) 5.484A* *RADIOLOCATION* *Earth exploration-satellite* *Standard Frequency and Time Signal-Satellite (Earth-to-space)* *Space Research* *5.502 5.503*	*FIXED-SATELLITE (Earth-to-space)* *RADIOLOCATION*			Reserved for VSAT/SNG

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
14 - 14.25	*FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B* *RADIONAVIGATION 5.504* *Mobile-Satellite (Earth-to-space) 5.504C 5.506A* *Space Research* *5.504A 5.505*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506* *RADIONAVIGATION 5.504* *Mobile-Satellite (Earth-to-space)* *Space Research* *5.504A 5.505*	*FIXED-SATELLITE (Earth-to-space)* *RADIONAVIGATION*	14 – 14.5		This band used for FSS downlink. License exempt .
14.25 - 14.30	*FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B* *RADIONAVIGATION 5.504* *Mobile-Satellite (Earth-to-space) 5.506A 5.508A* *Space Research* *5.504A 5.505 5.508 5.509*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506* *RADIONAVIGATION 5.504* *Mobile-Satellite (Earth-to-space) 5.508A* *Space Research* *5.504A 5.505*	*FIXED-SATELLITE (Earth-to-space)* *RADIONAVIGATION*	14 – 14.5		This band used for FSS downlink. License exempt .

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
14.30 - 14.40	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B* *MOBILE except Aeronautical Mobile* *Mobile-Satellite (Earth-to-space) 5.506A 5.509A* *Radionavigation-Satellite* *5.504A*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506* *MOBILE except Aeronautical Mobile* *Mobile-Satellite (Earth-to-space) 5.506A 5.509A* *Radionavigation-Satellite* *5.504A*	*FIXED-SATELLITE (Earth-to-space)*	14 – 14.5		This band used for FSS downlink. License exempt .

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
14.40 - 14.47	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B* *MOBILE except Aeronautical Mobile* *Mobile-Satellite (Earth-to-space) 5.506A 5.509A* *Radionavigation-Satellite* *5.504A*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506* *MOBILE except Aeronautical Mobile* *Mobile-Satellite (Earth-to-space) 5.506A 5.509A* *Radionavigation-Satellite* *5.504A*	*FIXED-SATELLITE (Earth-space)*	14 -1 4.5		This band used for FSS downlink. License exempt . 1 Fixed link in this band. No new assignments.

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
14.47 - 14.50	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B* *MOBILE except Aeronautical Mobile* *Mobile-Satellite (Earth-to-space) 5.504B 5.506A 5.509A* *Radio Astronomy* *5.149 5.504A*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506* *MOBILE except Aeronautical Mobile* *Mobile-Satellite (Earth-to-space) 5.504B 5.506A 5.509A* *Radio Astronomy* *5.149 5.504A*	*FIXED-SATELLITE (Earth-to-space)*	14 – 14.5		This band used for FSS downlink. License exempt
14.50 - 14.80	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.510* *MOBILE* *Space Research*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.510* *MOBILE* *Space Research*	*FIXED (FIXED LINKS)*			Used for Fixed Links. ITU Recommendation F-636 Annex 3 applies.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
14.80 - 15.35	*FIXED* *MOBILE* *Space Research* *5.339*	*FIXED* *MOBILE* *Space Research* *5.339*	*FIXED (FIXED LINKS)*			Used for Fixed Links. ITU Recommendation F-636 Annex 3 applies.
15.35 - 15.40	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340 5.511*	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340*				
15.40 - 15.43	*AERONAUTICAL RADIONAVIGATION* *5.511D*	*AERONAUTICAL RADIONAVIGATION* *5.511D*	*AERONAUTICAL RADIONAVIGATION*			Radio altimeters/Radars
15.43 – 15.63	*FIXED-SATELLITE (space-to-Earth)(Earth-to-space) 5.511A* *AERONAUTICAL RADIONAVIGATION* *5.511C*	*FIXED-SATELLITE (space-to-Earth)(Earth-to-space) 5.511A* *AERONAUTICAL RADIONAVIGATION* *5.511C*	*AERONAUTICAL RADIONAVIGATION*			Radio altimeters/Radars

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
15.63 – 15.7	*AERONAUTICAL RADIONAVIGATION* *5.511D*	*AERONAUTICAL RADIONAVIGATION* *5.511D*	*AERONAUTICAL RADIONAVIGATION*			Radio altimeters/Radars
15.70 - 16.60	*RADIOLOCATION* *5.512 5.513*	*RADIOLOCATION*	*RADIOLOCATION*			Radio Altimeters/Distance Measuring Equipment.
16.60 - 17.10	*RADIOLOCATION* *Space Research (deep space)(Earth-to-space)* *5.512 5.513*	*RADIOLOCATION* *Space Research (deep space)(Earth-to-space)*				
17.10 - 17.20	*RADIOLOCATION* *5.512 5.513*	*RADIOLOCATION*				This band will be used for RLAN in the future.
17.20 - 17.30	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *5.512 5.513 5.513A*	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *5.513A*				This band will be used for RLAN in the future.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
17.30 - 17.70	*FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B* *Radiolocation* *5.514*	*FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B* *Radiolocation*	*FIXED-SATELLITE (Earth-to-space)*			Future use of BSS feeder links. There is a possible future use of this band for FSS/SNG applications. There is an agenda item of WRC-03 to possibly introduce a primary FS allocation in this band.
17.70 - 18.10	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516* *MOBILE*	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516* *MOBILE*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE*	17.7 – 19,7		Reserved for Fixed links. ITU Recommendation F-595 Annex 1 applies. Future use of BSS feeder links.
18.10 - 18.40	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B* *(Earth-to-space) 5.520* *MOBILE* *MOD 5.519 5.521*	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B* *(Earth-to-space) 5.520* *MOBILE* *MOD 5.519*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE*	17.7 – 19.7		Reserved for Fixed Links. ITU Recommendation F.595 Annex 1 applies. Fixed Satellite Service must be used on a coordinated basis .

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
18.40 - 18.60	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *5.484A 5.516B* *MOBILE*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *5.484A 5.516B* *MOBILE*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (space-to-Earth)*	17.7 – 17.9		Reserved for Fixed links. ITU Recommendation F-595 Annex 1 applies. Fixed Satellite Service must be used on a coordinated basis
18.60 - 18.80	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *FIXED-SATELLITE (space-to-Earth) 5.522B* *MOBILE except Aeronautical Mobile* *Space Research (passive)* *5.522A 5.522C*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *FIXED-SATELLITE (space-to-Earth) 5.522B* *MOBILE except Aeronautical Mobile* *Space Research (passive)* *5.522A*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (space-to-Earth)*	17.7 – 19.7		ITU-R Recommendation F.595 Annex 1 applies. Fixed Satellite Service must be used on a coordinated basis
18.80 - 19.30	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A* *MOBILE*	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A* *MOBILE*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (space-to-Earth)*	17.7 – 19.7		ITU-R Recommendation F.595 Annex 1 applies. Fixed Satellite Service must be used on a coordinated basis

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
19.30 – 19.70	*FIXED* *FIXED-SATELLITE (space-to-Earth)(Earth-to-space) 5.523B* *5.523C 5.523D 5.523E* *MOBILE*	*FIXED* *FIXED-SATELLITE (space-to-Earth))(Earth-to-space) 5.523B* *5.523C 5.523D 5.523E* *MOBILE*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (space-to-Earth))(Earth-to-space)*	17.7 – 19.7		Reserved for Fixed links. ITU Recommendation F-595 Annex 1 applies. Future NGSO MSS feeder links. Possible future use of this band for HDFSS applications (downlink).
19.70 - 20.10	*FIXED-SATELLITE (space-to-Earth)* *5.484A 5.516B* *Mobile-Satellite (space-to-Earth)* *5.524*	*FIXED-SATELLITE (space-to-Earth)* *5.484A 5.516B* *Mobile-Satellite (space-to-Earth)*	*FIXED-SATELLITE (space-to-Earth)*			Reserved for Fixed Satellite Service (GSO). Possibly used for HDFSS. Allocated to the fixed and Mobile Services on a primary basis in many African and Arab countries.
20.10 - 20.20	*FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B* *MOBILE-SATELLITE (space-to-Earth)* *5.524 5.525 5.526* *5.527 5.528*	*FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B* *MOBILE-SATELLITE (space-to-Earth)* *5.525 5.526* *5.527 5.528*	*FIXED-SATELLITE (space-to-Earth)*			Reserved for Fixed Satellite Service (GSO). Possibly used for HDFSS. Allocated to the fixed and Mobile Services on a primary basis in many African and Arab countries.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
20.20 - 21.20	*FIXED-SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth)* *Standard Frequency and Time Signal-Satellite (space-to-Earth)* *5.524*	*FIXED-SATELLITE (space-to-Earth)* *MOBILE-SATELLITE (space-to-Earth)* *Standard Frequency and Time Signal-Satellite (space-to-Earth)*				Government.
21.20 - 21.40	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE* *SPACE RESEARCH (passive)*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE* *SPACE RESEARCH (passive)*				
21.40 - 22	*FIXED* *MOBILE* *BROADCASTING-SATELLITE* *5.347A 5.530*	*FIXED* *MOBILE* *BROADCASTING-SATELLITE* *5.347A 5.530*	*FIXED* *BROADCASTING-SATELLITE*			Some Fixed Links in this band. The band is allocated to the Broadcast Satellitte Service (High Definition Television – HDTV) from 1 April 2007 on a primary basis.
22 - 22.21	*FIXED* *MOBILE except Aeronautical Mobile* *5.149*	*FIXED* *MOBILE except Aeronautical Mobile* *5.149*	*FIXED (FIXED LINKS)*			The band 22-22.6 GHz and 23-23.6 GHz is used for fixed links. CEPT/ERC/RECOMMENDATION T/R 13-02 applies.

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
22.21 - 22.50	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE except Aeronautical Mobile* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.149 5.532*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE except Aeronautical Mobile* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.149 5.532*	*FIXED (FIXED LINKS)*	22 – 22.6	23 – 23.6	The band 22-22.6 GHz and 23-23.6 GHz is used for fixed links. CEPT/ERC/RECOMMENDATION T/R 13-02 applies.
22.50 - 22.55	*FIXED* *MOBILE*	*FIXED* *MOBILE*	*FIXED (FIXED LINKS)*	22 – 22.6	23 – 23.6	The band 22-22.6 GHz and 23-23.6 GHz is used for fixed links. CEPT/ERC/RECOMMENDATION T/R 13-02 applies.
22.55 – 23.55	*FIXED* *INTER-SATELLITE ADD 5.BA03* *MOBILE* *5.149*	*FIXED* *INTER-SATELLITE ADD 5.BA03* *MOBILE* *5.149*	*FIXED (FIXED LINKS)*	22 – 22.6	23 – 23.6	The band 22-22.6 GHz and 23-23.6 GHz is used for fixed links. CEPT/ERC/RECOMMENDATION T/R 13-02 applies.
23.55 - 23.60	*FIXED* *MOBILE*	*FIXED* *MOBILE*	*FIXED (FIXED LINKS)*	23 – 23.6	22 – 22.6	The band 22-22.6 GHz and 23-23.6 GHz is used for fixed links. CEPT/ERC/RECOMMENDATION T/R 13-02 applies.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
23.60 - 24	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340*	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340*				
24 - 24.05	*AMATEUR* *AMATEUR-SATELLITE* *5.150*	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*			The band 24-24.25 GHz (center frequency 24.125 GHz) is reserved for future ISM applications.
24.05 - 24.25	*RADIOLOCATION* *Amateur* *Earth Exploration-Satellite (active)* *5.150*	*RADIOLOCATION* *Amateur* *Earth Exploration-Satellite (active)* *5.150*				The band 24-24.25 GHz (center frequency 24.125 GHz) is reserved for future ISM applications
24.25 - 24.45	*FIXED*	*FIXED*	*FIXED*			
24.45 - 24.65	*FIXED* *INTER-SATELLITE*	*FIXED* *INTER-SATELLITE*	*FIXED (FIXED LINKS/FWA)*	24.5 – 26.5		The band 24.5-26.5 GHz is reserved for Fixed Links (point-to-point) and for Fixed Wireless Access (point-to-multipoint). CEPT Recommendation T/R 13-02 Annex B applies.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
24.65 - 24.75	*FIXED* *INTER-SATELLITE*	*FIXED* *INTER-SATELLITE*	*FIXED (FIXED LINKS/FWA)*	24.5 – 26.5		The band 24.5-26.5 GHz is reserved for Fixed Links (point-to-point) and for Fixed Wireless Access (point-to-multipoint). CEPT Recommendation T/R 13-02 Annex B applies.
24.75 - 25.25	*FIXED*	*FIXED*	*FIXED (FIXED LINKS/FWA)*	24.5 – 26.5		The band 24.5-26.5 GHz is reserved for Fixed Links (point-to-point) and for Fixed Wireless Access (point-to-multipoint). CEPT Recommendation T/R 13-02 Annex B applies.
25.25 – 25.50	*FIXED* *INTER-SATELLITE* *5.536* *MOBILE* *Standard Frequency and Time Signal-Satellite(Earth-to-space)*	*FIXED* *INTER-SATELLITE* *5.536* *MOBILE* *Standard Frequency and Time Signal-Satellite(Earth-to-space)*	*FIXED (FIXED LINKS/FWA)*	24.5 – 26.5		The band 24.5-26.5 GHz is reserved for Fixed Links (point-to-point) and for Fixed Wireless Access (point-to-multipoint). CEPT Recommendation T/R 13-02 Annex B applies.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
25.50 - 27	*EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536A 5.536B* *FIXED* *INTER-SATELLITE 5.536* *MOBILE* *SPACE RESEARCH (space-to-Earth) 5.536A 5.536C* *Standard Frequency and Time Signal-Satellite (Earth-to-space)*	*EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536A* *FIXED* *INTER-SATELLITE 5.536* *MOBILE* *SPACE RESEARCH (space-to-Earth) 5.536A 5.536C* *Standard Frequency and Time Signal-Satellite (Earth-to-space)*	*FIXED (FIXED LINKS/FWA)*	24.5 – 26.5		The band 24.5-26.5 GHz is reserved for Fixed Links (point-to-point) and for Fixed Wireless Access (point-to-multipoint). CEPT Recommendation T/R 13-02 Annex B applies.
27 - 27.50	*FIXED* *INTER-SATELLITE 5.536* *MOBILE*	*FIXED* *INTER-SATELLITE 5.536* *MOBILE*				Government.

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
27.50 - 28.50	*FIXED 5.537A* *FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539* *MOBILE* *5.538 5.540*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539* *MOBILE* *5.538 5.540*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (Earth-to-space)*	27.5 – 29.5		The band 27.5 - 29.5 GHz is reserved for fixed links and for uncoordinated Earth stations of the Fixed-satellite Service (Earth-to-space) CEPT/ERC/DEC/(00)09) applies.
28.50 - 29.10	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *5.484A 5.516B 5.523A 5.539* *MOBILE* *Earth Exploration-Satellite (Earth-to-space) 5.541* *5.540*	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *5.484A 5.516B 5.523A 5.539* *MOBILE* *Earth Exploration-Satellite (Earth-to-space) 5.541* *5.540*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (Earth-to-space)*	27.5 – 29.5		The band 27.5 - 29.5 GHz is reserved for fixed links and for uncoordinated Earth stations of the Fixed-satellite Service (Earth-to-space) CEPT/ERC/DEC/(00)09) applies.

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
29.1 – 29.50	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.516B* *5.523C 5.523E 5.535A 5.539 5.541A* *MOBILE* *Earth Exploration-Satellite (Earth-to-space) 5.541* *5.540*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.516B* *5.523C 5.523E 5.535A 5.539 5.541A* *MOBILE* *Earth Exploration-Satellite (Earth-to-space) 5.541* *5.540*	*FIXED (FIXED LINKS)* *FIXED-SATELLITE (Earth-to-space)*	27.5 – 29.5		The band 27.5 - 29.5 GHz is reserved for fixed links and for uncoordinated Earth stations of the Fixed-satellite Service (Earth-to-space) CEPT/ERC/DEC/(00)09) applies.
29.50 - 29.90	*FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539* *Earth Exploration-Satellite (Earth-to-space) 5.541* *Mobile-Satellite (Earth-to-space)* *5.540 5.542*	*FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539* *Earth Exploration-Satellite (Earth-to-space) 5.541* *Mobile-Satellite (Earth-to-space)* *5.540*				Future feeder links for FSS/BSS (29.25-30 GHz). Allocated to the fixed and Mobile Services on a secondary basis in many African and Arab countries.

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
29.90 – 30.00	*FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539* *MOBILE-SATELLITE (Earth-to-Space)* *Earth Exploration-Satellite (Earth-to-space) 5.541 5.543* *5.525 5.526 5.527 5.538 5.540 5.542*	*FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539* *MOBILE-SATELLITE (Earth-to-Space)* *Earth Exploration-Satellite (Earth-to-space) 5.541 5.543* *5.525 5.526 5.527 5.538 5.540*				Future feeder links for FSS/BSS (29.25-30 GHz). Allocated to the fixed and Mobile Services on a secondary basis in many African and Arab countries.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
1.8 30 GHz – 105 GHz						
30 - 31	*FIXED-SATELLITE (Earth-to-space) ADD 5.BA03* *MOBILE-SATELLITE (Earth-to-space)* *Standard Frequency and Time Signal-Satellite (space-to-Earth)* *5.542*	*FIXED-SATELLITE (Earth-to-space) ADD 5.BA03* *MOBILE-SATELLITE (Earth-to-space)* *Standard Frequency and Time Signal-Satellite (space-to-Earth)*				Government.
31 - 31.30	*FIXED 5.543A ADD 5.BA03* *MOBILE* *Standard Frequency and Time Signal-Satellite (space-to-Earth)* *Space Research 5.544 5.545* *5.149*	*FIXED* *MOBILE* *Standard Frequency and Time Signal-Satellite (space-to-Earth)* *Space Research 5.544* *5.149*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
31.30 - 31.50	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340*	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340*				
31.50 - 31.80	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *Fixed* *Mobile except Aeronautical Mobile* *5.149 5.546*	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *Fixed* *Mobile except Aeronautical Mobile* *5.149*				
31.80 - 32	*FIXED 5.547A* *RADIONAVIGATION* *SPACE RESEARCH (deep space)(space-to-Earth)* *5.547 5.547B 5.548*	*FIXED 5.547A* *RADIONAVIGATION* *SPACE RESEARCH (deep space)(space-to-Earth)* *5.547 5.548*	*FIXED*			This band is reserved for the Fixed Service. CEPT/ERC/RECOMMENDATION (01)02 applies.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
32 - 32.30	*FIXED 5.547A* *RADIONAVIGATION* *SPACE RESEARCH (deep space)(space-to-Earth)* *5.547 5.547C 5.548*	*FIXED 5.547A* *RADIONAVIGATION* *SPACE RESEARCH (deep space)(space-to-Earth)* *5.547 5.548*	*FIXED*			This band is reserved for the Fixed Service. CEPT/ERC/RECOMMENDATION (01)02 applies.
32.30 - 33	*FIXED 5.547A* *INTER-SATELLITE* *RADIONAVIGATION* *5.547 5.547D 5.548*	*FIXED 5.547A* *INTER-SATELLITE* *RADIONAVIGATION* *5.547 5.548*	*FIXED*			This band is reserved for the Fixed Service. CEPT/ERC/RECOMMENDATION (01)02 applies.
33 - 33.40	*FIXED 5.547A* *RADIONAVIGATION* *5.547 5.547E*	*FIXED 5.547A* *RADIONAVIGATION* *5.547*	*FIXED*			This band is reserved for the Fixed Service. CEPT/ERC/RECOMMENDATION (01)02 applies.
33.40 - 34.20	*RADIOLOCATION* *5.549*	*RADIOLOCATION*				May be reserved for Government use.
34.20 - 34.70	*RADIOLOCATION* *SPACE RESEARCH (deep space)(Earth-to-space)* *5.549*	*RADIOLOCATION* *SPACE RESEARCH (deep space)(Earth-to-space)*				May be reserved for Government use.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
34.70 - 35.20	*RADIOLOCATION* *Space Research* *5.550 5.549*	*RADIOLOCATION* *Space Research*				May be reserved for Government use.
35.20 – 35.5	*METEOROLOGICAL AIDS* *RADIOLOCATION* *5.549*	*METEOROLOGICAL AIDS* *RADIOLOCATION*				May be reserved for Government use.
35.5 –36	*METEOROLOGICAL AIDS* *EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *5.549 5.549A*	*METEOROLOGICAL AIDS* *EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *5.549A*				May be reserved for Government use.
36 - 37	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE* *SPACE RESEARCH (passive)* *5.149 ADD 5.BA02*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE* *SPACE RESEARCH (passive)* *5.149 ADD 5.BA02*				Government.

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
37 - 37.50	*FIXED* *MOBILE* *SPACE RESEARCH (space-to-Earth)* *5.547*	*FIXED* *MOBILE* *SPACE RESEARCH (space-to-Earth)* *5.547*	*FIXED (FIXED LINKS)*	37 – 39.5		This band is to be reserved for the use of Fixed Links (point-to-point) ITU-R Recommendation F.749 Annex 1 applies (similar to CEPT Rec 12-01).
37.50 - 38	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *SPACE RESEARCH (space-to-Earth)* *Earth exploration-satellite (space-to-Earth)* *5.547*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *SPACE RESEARCH (space-to-Earth)* *Earth exploration-satellite (space-to-Earth)* *5.547*	*FIXED (FIXED LINKS)*	37 – 39.5		This band is reserved for the use of Fixed Links (point-to-point). ITU-R Recommendation F.749 Annex 1 applies (similar to CEPT Rec 12-01).
38 - 39.50	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *Earth exploration-satellite (space-to-Earth)* *5.547*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *Earth exploration-satellite (space-to-Earth)* *5.547*	*FIXED (FIXED LINKS)*	37 – 39.5		This band is resevrved for the use of Fixed Links (point-to-point). ITU-R Recommendation F.749 Annex 1 applies (similar to CEPT Rec 12-01).

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
39.50 - 40	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.516B* *MOBILE* *MOBILE-SATELLITE (space-to-Earth)* *Earth exploration-satellite (space-to-Earth)* *5.547*	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.516B* *MOBILE* *MOBILE-SATELLITE (space-to-Earth)* *Earth exploration-satellite (space-to-Earth)* *5.547*				High definition applications in the Fixed Satellite Service. Government.

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
40 - 40.50	*EARTH EXPLORATION-SATELLITE (Earth-to-space)* *FIXED* *FIXED-SATELLITE (space-to-Earth) 5.516B* *MOBILE* *MOBILE-SATELLITE (space-to-Earth)* *SPACE RESEARCH (Earth-to-space)* *Earth exploration-satellite (space-to-Earth)*	*EARTH EXPLORATION-SATELLITE (Earth-to-space)* *FIXED* *FIXED-SATELLITE (space-to-Earth) 5.516B* *MOBILE* *MOBILE-SATELLITE (space-to-Earth)* *SPACE RESEARCH (Earth-to-space)* *Earth exploration-satellite (space-to-Earth)*				Government.
40.5 - 41	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *BROADCASTING* *BROADCASTING-SATELLITE* *Mobile* *5.547*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *BROADCASTING* *BROADCASTING-SATELLITE* *Mobile* *5.547*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *BROADCASTING* *BROADCASTING-SATELLITE*	40.5 – 43.5		This band is reserved for future broadband Fixed Wireless Acess systems such as MVDS and MWS and for High Definition applications in the Fixed Satellite Service. Possible use for fixed links. ECC Rec. (01)04 applies

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
41 - 42.50	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.516B* *BROADCASTING* *BROADCASTING-SATELLITE* *Mobile* *5.547 5.551F 5.551H 5.551I*	*FIXED* *FIXED-SATELLITE (space-to-Earth) 5.516B* *BROADCASTING* *BROADCASTING-SATELLITE* *Mobile* *5.547 5.551H 5.551I*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *BROADCASTING* *BROADCASTING-SATELLITE*	40.5 – 43.5		This band is reserved for future broadband Fixed Wireless Acess systems such as MVDS and MWS and for High Definition applications in the Fixed Satellite Service. ECC Rec. (01)04 applies .. Possible use for fixed links.
42.50 - 43.50	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *MOBILE except Aeronautical Mobile* *RADIO ASTRONOMY* *5.149 5.547*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *MOBILE except Aeronautical Mobile* *RADIO ASTRONOMY* *5.149 5.547*	*FIXED* *FIXED-SATELLITE (Earth-to-space)*	40.5 – 43.5		This band is reserved for future broadband Fixed Wireless Acess systems such as MVDS and MWS. ECC Rec. (01)04 applies. Possible use for fixed links.
43.50 – 47.00	*MOBILE 5.553* *MOBILE-SATELLITE* *RADIONAVIGATION* *RADIONAVIGATION-SATELLITE* *5.554*	*MOBILE 5.553* *MOBILE-SATELLITE* *RADIONAVIGATION* *RADIONAVIGATION-SATELLITE* *5.554*				The band 43.5-45.5 GHz is reserved for government use.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
47 - 47.20	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*	*AMATEUR* *AMATEUR-SATELLITE*			
47.20 – 47.5	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *MOBILE* *5.552A*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *MOBILE* *5.552A*	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE*			The bands 47.2-47.5 GHz and 47.9-48.2 GHz are reserved for possible future use by stations in the High Altitude Platform Service. BSS feeder links.
47.5 – 47.9	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *(space-to-Earth) 5.516B 5.554A* *MOBILE*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *(space-to-Earth) 5.516B 5.554A* *MOBILE*				
47.9 – 48.2	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *MOBILE* *5.552A*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *MOBILE* *5.552A*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
48.2 – 48.54	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *(space-to-Earth) 5.516B 5.554A 5.555B* *MOBILE*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *(space-to-Earth) 5.516B 5.554A 5.555B* *MOBILE*				
48.54 – 49.44	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *MOBILE* *5.149 5.340 5.555*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552* *MOBILE* *5.149 5.340 5.555*				
49.44 – 50.2	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552 ADD 5.BA03* *(space-to-Earth) 5.516B 5.554A 5.555B* *MOBILE*	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.552 ADD 5.BA03* *(space-to-Earth) 5.516B 5.554A 5.555B* *MOBILE*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
50.20 - 50.40	*EARTH EXPLORATION-SATELLITE (passive)* *SPACE RESEARCH (passive)* *5.340*	*EARTH EXPLORATION-SATELLITE (passive)* *SPACE RESEARCH (passive)* *5.340*				
50.40 - 51.40	*FIXED* *FIXED-SATELLITE (Earth-to-space) ADD 5.BA03* *MOBILE* *Mobile-Satellite (Earth-to-space)*	*FIXED* *FIXED-SATELLITE (Earth-to-space) ADD 5.BA03* *MOBILE* *Mobile-Satellite (Earth-to-space)*				There are filings for FSS systems in this band. There is an expected harmonized government use of this band in all 3 ITU regions.
51.40 - 52.6	*FIXED* *MOBILE* *5.547 5.556*	*FIXED* *MOBILE* *5.547 5.556*	*FIXED (FIXED LINKS)*			Reserved for the Fixed Service. CEPT Recommendation 12-11 applies.
52.6 – 54.25	*EARTH EXPLORATION-SATELLITE (passive)* *SPACE RESEARCH (passive)* *5.340 5.556*	*EARTH EXPLORATION-SATELLITE (passive)* *SPACE RESEARCH (passive)* *5.340 5.556*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
54.25 - 55.78	*EARTH EXPLORATION-SATELLITE (passive)* *INTER-SATELLITE 5.556A* *SPACE RESEARCH (passive)* *5.556B*	*EARTH EXPLORATION-SATELLITE (passive)* *INTER-SATELLITE 5.556A* *SPACE RESEARCH (passive)*				
55.78 - 56.9	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED 5.557A* *INTER-SATELLITE 5.556A* *MOBILE 5.558* *SPACE RESEARCH (passive)* *5.547 5.557*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED 5.557A* *INTER-SATELLITE 5.556A* *MOBILE 5.558* *SPACE RESEARCH (passive)* *5.547*	*FIXED (FIXED LINKS)*	55.78 – 57		This band is reserved for the Fixed Service. CEPT/ERC/RECOMMENDATION 12-12 applies.

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
56.9 - 57.0	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *INTER-SATELLITE 5.558A* *MOBILE 5.558* *SPACE RESEARCH (passive)* *5.547 5.557*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *INTER-SATELLITE 5.558A* *MOBILE 5.558* *SPACE RESEARCH (passive)* *5.547*	*FIXED (FIXED LINKS)*	55.78 – 57		This band is reserved for the Fixed Service. CEPT/ERC/RECOMMENDATION 12-12 applies.
57 – 58.2	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *INTER-SATELLITE 5.556A* *MOBILE 5.558* *SPACE RESEARCH (passive)* *5.547 5.557*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *INTER-SATELLITE 5.556A* *MOBILE 5.558* *SPACE RESEARCH (passive)* *5.547*	*FIXED (FIXED LINKS)*	57 – 59		This band is reserved for Fixed Links. General frequency assignment. CEPT/ERC/RECOMMENDATION 12-09 applies.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
58.20 - 59	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE* *SPACE RESEARCH (passive)* *5.547 5.556*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *MOBILE* *SPACE RESEARCH (passive)* *5.547 5.556*	*FIXED (FIXED LINKS)*	57 – 59		This band is reserved for the Fixed Links. General frequency assignment. CEPT/ERC/RECOMMENDATION 12-09 applies
59 – 59.3	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *INTER-SATELLITE 5.556A* *MOBILE 5.558* *RADIOLOCATION 5.559* *SPACE RESEARCH (passive)*	*EARTH EXPLORATION-SATELLITE (passive)* *FIXED* *INTER-SATELLITE 5.556A* *MOBILE 5.558* *RADIOLOCATION 5.559* *SPACE RESEARCH (passive)*				Government.

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
59.3 - 64	*FIXED* *INTER-SATELLITE* *MOBILE 5.558* *RADIOLOCATION 5.559* *5.138*	*FIXED* *INTER-SATELLITE* *MOBILE 5.558* *RADIOLOCATION 5.559* *5.138*	*MOBILE* *FIXED*			The band 61-61.5 GHz (centre frequency 61.25 GHz) is reserved for future ISM use. Parts of this band might be used for transport applications. The band 59-61 GHz is reserved for government use.
64 - 65	*FIXED* *INTER-SATELLITE* *MOBILE except aeronautical mobile* *5.547 5.556*	*FIXED* *INTER-SATELLITE* *MOBILE except aeronautical mobile* *5.547 5.556*	*FIXED*			Future requirement for HDFS in the band 64-66 GHz (WRC-2000)
65 - 66	*EARTH EXPLORATION-SATELLITE* *FIXED* *INTER-SATELLITE* *MOBILE except aeronautical mobile* *SPACE RESEARCH* *5.547*	*EARTH EXPLORATION-SATELLITE* *FIXED* *INTER-SATELLITE* *MOBILE except aeronautical mobile* *SPACE RESEARCH* *5.547*	*FIXED*			Future requirement for HDFS in the band 64-66 GHz (WRC-2000)

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
66 - 71	*INTER-SATELLITE* *MOBILE 5.553 5.558* *MOBILE-SATELLITE* *RADIONAVIGATION* *RADIONAVIGATION-SATELLITE* *5.554*	*INTER-SATELLITE* *MOBILE 5.553 5.558* *MOBILE-SATELLITE* *RADIONAVIGATION* *RADIONAVIGATION-SATELLITE* *5.554*				
71 - 74	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *MOBILE-SATELLITE (space-to-Earth)*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *MOBILE-SATELLITE (space-to-Earth)*				Government.

Frequency bands (GHz)	**ITU Region 1 Radio Regulations**	**National Allocations**	**Main Utilisations in Botswana**	**Frequ. bands Mid Frequ. (GHz)**	**Duplex bands (GHz)**	**Remarks**
74 - 76	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *BROADCASTING* *BROADCASTING-SATELLITE* *Space Research (space-to-Earth)* *5.561*	*FIXED* *FIXED-SATELLITE (space-to-Earth)* *MOBILE* *BROADCASTING* *BROADCASTING-SATELLITE* *Space Research (space-to-Earth)* *5.561*				
76 – 77.5	*RADIO ASTRONOMY* *RADIOLOCATION* *Amateur* *Amateur-satellite* *Space Research (space-to-Earth)* *5.149*	*RADIO ASTRONOMY* *RADIOLOCATION* *Amateur* *Amateur-satellite* *Space Research (space-to-Earth)* *5.149*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
77.5 - 78	*AMATEUR* *AMATEUR-SATELLITE* *Radio astronomy* *Space research (space-to-Earth)* *5.149*	*AMATEUR* *AMATEUR-SATELLITE* *Radio astronomy* *Space research (space-to-Earth)* *5.149*				
78 - 79	*RADIOLOCATION* *Amateur* *Amateur-satellite* *Radio astronomy* *Space research (space-to-Earth)* *5.149 5.560*	*RADIOLOCATION* *Amateur* *Amateur-satellite* *Radio astronomy* *Space research (space-to-Earth)* *5.149 5.560*				
79 - 81	*RADIO ASTRONOMY* *RADIOLOCATION* *Amateur* *Amateur-satellite* *Space research (space-to-Earth)* *5.149*	*RADIO ASTRONOMY* *RADIOLOCATION* *Amateur* *Amateur-satellite* *Space research (space-to-Earth)* *5.149*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
81 - 84	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE* *MOBILE-SATELLITE (Earth-to-space)* *RADIO ASTRONOMY* *Space Research (space-to-Earth)* *5.149 5.560A*	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE* *MOBILE-SATELLITE (Earth-to-space)* *RADIO ASTRONOMY* *Space Research (space-to-Earth)* *5.149 5.560A*				This could be a candidate band for future HDFSS systems. Any deployment of HDFSS must ensure the protection of the Radio Astronomy Service.
84 - 86	*FIXED* *FIXED-SATELLITE (Earth-to-space) 5.561A* *MOBILE* *RADIO ASTRONOMY* *5.149*	*FIXED* *FIXED-SATELLITE (Earth-to-space)* *MOBILE* *RADIO ASTRONOMY* *5.149*				This could be a candidate band for future HDFSS systems. Any deployment of HDFSS must ensure the protection of the Radio Astronomy Service

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
86 - 92	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340*	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340*				
92 - 94	*FIXED* *MOBILE* *RADIO ASTRONOMY* *RADIOLOCATION* *5.149*	*FIXED* *MOBILE* *RADIO ASTRONOMY* *RADIOLOCATION* *5.149*				
94.0 – 94.1	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *Radio astronomy* *5.562 5.FFF*	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *Radio astronomy* *5.562 5.FFF*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
94.1 – 95.0	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *Radio astronomy* *5.562 5.FFF*	*EARTH EXPLORATION-SATELLITE (active)* *RADIOLOCATION* *SPACE RESEARCH (active)* *Radio astronomy* *5.562 5.FFF*				
95 - 100	*FIXED* *MOBILE* *RADIO ASTRONOMY* *RADIOLOCATION* *RADIONAVIGATION* *RADIONAVIGATION-SATELLITE* *5.149 5.554*	*FIXED* *MOBILE* *RADIO ASTRONOMY* *RADIOLOCATION* *RADIONAVIGATION* *RADIONAVIGATION-SATELLITE* *5.149 5.554*				

Frequency bands (GHz)	ITU Region 1 Radio Regulations	National Allocations	Main Utilisations in Botswana	Frequ. bands Mid Frequ. (GHz)	Duplex bands (GHz)	Remarks
100 - 102	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340 5.341*	*EARTH EXPLORATION-SATELLITE (passive)* *RADIO ASTRONOMY* *SPACE RESEARCH (passive)* *5.340*				
102 - 105	*FIXED* *MOBILE* *RADIO ASTRONOMY* *5.149 5.341*	*FIXED* *MOBILE* *RADIO ASTRONOMY* *5.149*				

1.9 FOOTNOTES – NATIONAL FREQUENCY PLAN

5.AAA *Different category of service:* in Albania, Algeria, Germany, Andorra, Saudi Arabia, Austria, Azerbaijan, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Cyprus, Vatican, Congo (Re. of the), Côte d'Ivoire, Croatia, Denmark, Egypt, Spain, Estonia, Finland, France and French Overseas Departments and Communities in Region 1, Gabon, Georgia, Greece, Guinea, Hungary, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Lesotho, Latvia, Macedonia (ex Yugoslav Rep. of), Liechtenstein, Lithuania, Malawi, Mali, Malta, Morocco, Mauritania, Moldova, Monaco, Mongolia, Montenegro, Mozambique, Namibia, Niger, Norway, Oman, Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Senegal, Serbia, Sierra Leone, Slovenia, South Africa, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the band 3 400-3 600 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis subject to agreement obtained under No. **9.21** with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dBW/(m2 ⊕ 4 kHz) for more than 20 per cent of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004).This allocation is effective from 17 November 2010. (WRC-07)

5.BA01 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 **[COM5/5] (WRC-07)** applies. (WRC-07)

5.BA02 For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **[COM5/6] (WRC-07)** shall apply. (WRC-07)

5.BA03 In the bands 1 350-1 400 MHz, 1 427-1 429 MHz, 1 429-1 452 MHz, 22.55-23.55 GHz, 30-31 GHz, 31-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz and 51.4-52.6 GHz, Resolution **[COM5/4] (WRC-07)** applies. (WRC-07)

5.XXX The band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution **224 (Rev.WRC-07)**. This identification does not preclude the use of this band by any

application of the services to which it is allocated and does not establish priority in the Radio Regulations.

5.XXX In Region 1, the allocation to the mobile, except aeronautical mobile service, on a primary basis in the frequency band 790-862 MHz shall come into effect from 17 June 2015 and shall be subject to agreement obtained under No. **9.21** with respect to the aeronautical radionavigation service in countries mentioned in No. **5.312**. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolution **224 (Rev. WRC-07)** and Resolution **[COM4/13]** shall apply. (WRC-07)

5.XYY 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.

5.XYZ 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.

5.4B01 In Region 2 (except Brazil, Cuba, French Overseas Departments and Communities, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4 400-4 940 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **[COM4/2] (WRC-07)** and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-07)

5.4B03 The use of the band 5 091-5 150 MHz by the aeronautical mobile service is limited to:

– systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **[COM4/4] (WRC-07)**;

– aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **[COM4/7] (WRC-07)**;

– aeronautical security transmissions. Such use shall be in accordance with Resolution **[COM4/8] (WRC-07)**. (WRC-07)

5.4B04 *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 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 **[COM4/7] (WRC-07)**. These stations shall not claim protection from other stations operating in accordance with Article 5. No. **5.43A** does not apply. (WRC-07)

5.4B06 The use of the band 960-1 164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **[COM4/5] (WRC-07)**. (WRC-07)

5.4B07 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)

5.4C01 Administrations authorizing the use of frequencies in the band 495-505 kHz by services other than the maritime mobile service shall ensure that no harmful interference is caused to the maritime mobile service in this band or to the services having allocations in the adjacent bands, noting in particular the conditions of use of the frequencies 490 kHz and 518 kHz, as prescribed in Articles **31** and **52**. (WRC-07)

5.4C02 *Additional allocation:* the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz are also allocated to the mobile-satellite service (Earth-to-space) on a secondary basis for the reception of automatic identification system (AIS) emissions from stations operating in the maritime-mobile service (see Appendix 18). (WRC-07)

5.4C03 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)

5.4C04 The use of the band 135.7-137.8 kHz in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Libyan Arab Jamahiriya, Lebanon, Syrian Arab Republic, Sudan and Tunisia is limited to the fixed and maritime mobile services. The amateur service shall not be used in the above-mentioned countries in the band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-07)

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

5.53 Administrations using the frequencies below 9 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 9 kHz are allocated.

5.54 Administrations conducting scientific research using frequencies below 9 kHz are urged to advice other administrations that may be concerned in order that such research may be afforded all practical protection from harmful interference.

5.55 *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the band 14-17 kHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.56 The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-07)

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

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

5.60 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.

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

5.63 (SUP - WRC-97)

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

5.67 *Additional allocation*: in Mongolia, Kyrgyzstan and Turkmenistan, the band 130-148.5 kHz is also allocated to the radionavigation service on a secondary basis. Within and between these countries this service shall have an equal right to operate. (WRC-07)

5.68 *Alternative allocation:* in Angola, Burundi, Congo (Rep. of the), Malawi, the Dem. Rep. of the Congo, Rwanda and South Africa, the band 160-200 kHz is allocated to the fixed service on a primary basis. (WRC-03)

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

5.70 *Alternative allocation:* in Angola, Botswana, Burundi, the Central African Rep., Congo (Rep. of the), Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Tanzania, Chad, Zambia and Zimbabwe, the band 200-283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis. (WRC-07)

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

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

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

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

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

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

5.79 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)

5.79B The use of the band 495-505 kHz is limited to radiotelegraphy. (WRC-07)

5.81 (SUP – WRC-2000)

5.82 In the maritime mobile service, the frequency 490 kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles **31** and **52**. In using the 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. (WRC-07)

5.83 SUP (WRC-07)

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

5.87 *Additional allocation:* in Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 526.5-535 kHz is also allocated to the mobile service on a secondary basis.

5.87A *Additional allocation:* in Uzbekistan, the band 526.5-1 606.5 kHz is also allocated to the radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-97)

5.90 In the band 1 605-1 705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.

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

5.93 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Chad, Turkmenistan and Ukraine, the bands 1 625-1 635 kHz, 1 800-1 810 kHz and 2 160-2 170 kHz are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-07)

5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Denmark, Estonia, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland Israel, Kazakhstan, Latvia, , Liechtenstein, Lithuania Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1 715-1 800 kHz and 1 850-2 000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior

consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W. (WRC-03)

5.98 *Alternative allocation: :* in Angola, Armenia, Azerbaijan, Belarus, Belgium, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, Moldova, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan, Turkey and Ukraine, the band 1 810-1 830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.99 *Additional allocation:* in Saudi Arabia, Austria, Iraq, the Libyan Arab Jamahiriya, Uzbekistan, Slovakia, Romania, Serbia, 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-07)

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

5.101 *Alternative allocation:* in Burundi and Lesotho, the band 1 810-1 850 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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.

5.107 *Additional allocation:* in Saudi Arabia, Eritrea, Ethiopia, Iraq, Lesotho, the Libyan Arab Jamahiriya, Lesotho, Somalia and Swaziland, the band 2 160-2 170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of the stations in these services shall not exceed 50 W. (WRC-03)

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 2 187.5 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.

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

5.112 *Alternative allocation: :* in Denmark, Malta, Serbia and Sri Lanka, the band 2 194-2 300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.113 For the conditions for the use of the bands 2 300-2 495 kHz (2 498 kHz in Region 1), 3 200-3 400 kHz, 4 750-4 995 kHz and 5 005-5 060 kHz by the broadcasting service, see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10.

5.114 *Alternative allocation:* in Denmark, Iraq, Malta, and Serbia , the band 2 502-2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (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)

5.116 Administrations are urged to authorize the use of the band 3 155-3 195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3 155 kHz and 3400 kHz to suit local needs.
It should be noted that frequencies in the range 3000 to 4000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.

5.117 *Alternative allocation:* in Côte d'Ivoire, Denmark, Egypt, Liberia, Malta, Serbia, Sri Lanka and Togo, the band 3 155-3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.118 *Additional allocation:* in the United States, Japan, Mexico, Peru and Uruguay, the band 3 230-3 400 kHz is also allocated to the radiolocation service on a secondary basis.

5.120 (SUP – WRC-2000)

5.123 *Additional allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 3 900-3 950 kHz is also

allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21.
5.124 (SUP – WRC-2000)

5.127 The use of the band 4 000-4 063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. 52.220 and Appendix 17).

5.128 Frequencies in the bands 4 063-4 123 kHz and 4 130-4 438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Azerbaijan, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the bands 4 063-4 123 kHz, 4 130-4 133 kHz and 4 408-4 438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service. (WRC-07)

5.129 SUP (WRC-07)

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

5.131 The frequency 4 209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques. (WRC-97)

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

5.133 *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5 130-5 250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-07)

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

5.135 SUP (WRC-97)

5.136 *Additional allocation:* Frequencies in the band 5 900-5 950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in

Region 1), mobile except aeronautical mobile (R) service (in Regions 2 and 3), on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.137 On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200-6 213.5 kHz and 6 220.5-6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above-mentioned conditions.

5.138 The following bands:

6765-6795 kHz	(center frequency 6 780 kHz),
433.05-434.79 MHz	(center frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. 5.280,
61-61.5 GHz	(center frequency 61.25 GHz),
122-123 GHz	(center frequency 122.5 GHz), and
244-246 GHz	(center frequency 245 GHz)

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

5.138A Until 29 March 2009, the band 6 765-7 000 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. After this date, this band is also allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis. (WRC-03)

5.139 *Different category of service*: until 29 March 2009, in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 6 765-7 000 kHz to the land mobile service is on a primary basis (see No. **5.33**). (WRC-07)

5.140 *Additional allocation:* in Angola, Iraq, Kenya, Rwanda, Somalia and Togo, the band 7 000-7 050 kHz is also allocated to the fixed service on a primary basis. (WRC-03)

5.141 *Alternative allocation*: in Egypt, Eritrea, Ethiopia, Guinea, Libya and Madagascar, the band 7 000-7 050 kHz is allocated to the fixed service on a primary basis. (WRC-97)

5.141A *Additional allocation:* in Uzbekistan and Kyrgyzstan, the bands 7 000-7 100 kHz and 7 100-7 200 kHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-03)

5.141B *Additional allocation:* after 29 March 2009, in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei, Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, the Libyan Arab Jamahiriya, Morocco, Mauritania, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, Singapore, Sudan, Tunisia, Viet Nam and Yemen, the band 7 100-7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC-03)

5.141C In regions 1 and 3, the band 7 100-7 200 kHz is also allocated to the broadcasting service until 29 March 2009 on a primary basis. (WRC-03)

5.142 Until 29 March 2009, the band 7350 – 7450 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After 29 March 2009 the use of the band 7200 – 7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. (WRC-03)

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

5.143B In Region 1, the band 7 350-7 450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, on condition that harmful interference is not caused to the broadcasting service, frequencies in the band 7 350- 7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located, each station using a total radiated power that shall not exceed 24 dBW. (WRC-03)

5.143C *Additional allocation:* after 29 March 2009, in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, Jordan, Kuwait, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, Tunisia, and Yemen, the bands 7 350-7 400 kHz and 7 400-7 450 kHz are also allocated to the fixed service on a primary basis. (WRC-03)

5.143E Until 29 March 2009, the band 7 450-8 100 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. (WRC-03)

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

5.146 *Additional allocation:* Frequencies in the bands 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz may be used by stations in the fixed service, communicating only within the

boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.147 On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9 775-9 900 kHz, 11 650-11 700 kHz and 11 975-12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each stations using a total radiated power not exceeding 24 dBW.

5.148 (SUP - WRC-97)

5. 149 In making assignments to stations of other services to which the bands:

13 360-13 410 kHz,	4 990-5 000 MHz,	94,1-100 GHz,,
25 550-25 670 kHz,	6650-6 675.2 MHz,	102-109.5 GHz,
37.5-38.25 MHz,	10.6-10.68 GHz,	111.8-114.25 GHz,
73-74.6 MHz in Regions 1 and 3,	14.47-14.5 GHz,	128.33-128.59 GHz,
150.05-153 MHz in Region 1,	22.01-22.21 GHz,	129.23-129.49 GHz,
322-328.6 MHz,	22.21- 22.5 GHz,	130-134 GHz,
406.1-410 MHz,	22.81-22.86 GHz,	136-148.5 GHz,
608-614 MHz in Regions 1 and 3,	23.07-23.12 GHz	151.5-158.5 GHz,
1 330-1 400 MHz,	31.2-31.3 GHz,	168.59-168.93 GHz,
1 610.6-1 613.8 MHz,	31.5-31.8 GHz in Regions 1 and 3,	171.11-171.45 GHz,
1 660-1 670 MHz,	36.43-36.5 GHz,	172.31-172.65 GHz,
1 718.8-1 722.2 MHz,	42.5-43.5 GHz,	173.52-173.85 GHz,
2 655-2 690 MHz,	42.77-42.87 GHz,	195.75-196.15 GHz,
3 260-3 267 MHz,	43.07-43.17 GHz,	209-226 GHz,
3 332-3 339 MHz,	43.37-43.47 GHz,	241-250 GHz,
3 345.8-3 352.5 MHz,	48.94-49.04 GHz,	252-275 GHz
4 825-4 835 MHz,	76 - 86 GHz,	
4 950-4 990 MHz,	92 - 94 GHz,	

are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos.4.5 and 4.6 and Article 29). (WRC-2000)

5. 150 The following bands:

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

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

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

5.152 *Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14 250-14 350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 23 dBW. (WRC-03)

5.154 *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18 068-18 168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW. (WRC-03)

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

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

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

5.156 *Additional allocation:* in Nigeria, the band 22 720-23 200 kHz is also allocated to the meteorological aids services (radiosondes) on a primary basis.

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

5.157 The use of the band 23 350-24 000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.

5.160 *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, Dem. Rep. Of the Congo, Rwanda and Swaziland, the band 41 - 44 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-2000)

5.162A *Additional allocation:* in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, the Russian Federation, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, Slovakia, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland the band 46-68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**. (WRC-07)

5.163 *Additional allocation:* in Armenia, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Turkmenistan and Ukraine, the bands 47-48.5 MHz and 56.5-58 MHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-07)

5.164 *Additional allocation:* in Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Lebanon, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the band 47-68 MHz, in South Africa the band 47-50 MHz, in the Czech Rep. the band 66-68 MHz, and in Latvia and Lithuania the band 48.5-56.5 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band. (WRC-07)

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

5.169 *Alternative allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe, the band 50-54 MHz is allocated to the amateur service on a primary basis.

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

5.174 SUP (WRC-07)

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

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

5.179 *Additional allocation:* in Armenia, Azerbaijan, Belarus, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Mongolia, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the bands 74.6-74.8 MHz and 75.2-75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only. (WRC-07)

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

Every effort should be made to improve further the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.7 MHz and 75.2 MHz.

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

5.184 (SUP-WRC-07)

5.186 (SUP-WRC-97)

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

5.194 *Additional allocation:* in Azerbaijan, Kyrgyzstan, Somalia and Turkmenistan, the band 104-108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-07)

5.197 *Additional allocation:* in Pakistan and the Syrian Arab Republic, the band 108-111.975 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedures invoked under No. 9.21. (WRC-07)

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)

5.198 SUP (WRC-07)

5.199 SUP (WRC-07)

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

5.201 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Latvia, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Tajikistan, Turkmenistan and Ukraine, the band 132-136 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-97)

5.202 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Latvia, Moldova, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Tajikistan, Turkmenistan and Ukraine, the band 136-137 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical

mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-2000)

5.203 SUP (WRC-07)

5.203A SUP (WRC-07)

5.203B SUP (WRC-07)

5.204 *Different category of service*: in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Serbia, Singapore, Thailand and Yemen, the band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. 5.33). (WRC-07)

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

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

5.208 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)

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

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

5.211 *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Liechtenstein, Luxembourg, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and

Turkey, the band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-07)

5.212 *Alternative allocation:* in Angola, Botswana, Burundi, Cameroon, the Central African Rep., Congo (Rep. of the), Gabon, Gambia, Ghana, Guinea, Iraq, Libyan Arab Jamahiriya, Jordan, Lesotho, Liberia, Malawi, Mozambique, Namibia, Oman, Uganda, Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Swaziland, Chad, Togo, Zambia and Zimbabwe, the band 138-144 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-07)

5.214 *Additional allocation:* in Eritrea, Ethiopia, Kenya, The Former Yugoslav Republic of Macedonia, Malta, Montenegro, Serbia, Somalia, Sudan and Tanzania, the band 138-144 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

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

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

5.220 The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. The mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9 – 150.5 MHz and 399.9 – 400.05 MHz. (WRC-97)

5.221 Stations of the mobile-satellite service in the band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, the Libyan Arab Jamahiriya, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia, and Zimbabwe. (WRC-07)

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

S.223 Recognising that the use of the band 149.9-150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application of No. 4.4.

5.224 (SUP-WRC-97)

5.224A The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service (Earth-to-space) is limited to the land mobile-satellite service (Earth-to-space) until 1 January 2015. (WRC-97)

5.224B The allocation of the bands 149.9-150.05 MHz and 399.9-400.05 MHz to the radionavigation-satellite service shall be effective until 1 January 2015. (WRC-97)

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

5.229 *Alternative allocation:* in Morocco, the band 162-174 MHz is allocated to the broadcasting service on a primary basis. The use of this band shall be subject to agreement with administrations having services, operating or planned, in accordance with the Table which are likely to be affected. Stations in existence on 1 January 1981, with their technical characteristics as of that date, are not affected by such agreement.

5.235 *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 rotection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.

5.237 *Additional allocation:* in Congo (Rep. of the), Eritrea, Ethiopia, Gambia, Guinea, the Libyan Arab Jamahiriya, Malawi, Mali, Sierra Leone, Somalia and Chad, the band 174-223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-07)

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

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

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

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

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

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

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

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

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

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

5.259 *Additional allocation:* in Egypt, Israel and the Syrian Arab Republic, the band 328.6-335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **9.21**. (WRC-07)

5.260 Recognizing that the use of the band 399.9-400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. 4.4.

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

5.262 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Botswana, Colombia, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Romania, Singapore, Somalia, Tajikistan, Turkmenistan and Ukraine, the band 400.05-401 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

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

5.264 The band 400.15-401 MHz is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service. in Annex 1 of Appendix 5 shall apply until such time as a competent world radiocommunication conference revises it.

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

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

5.268 Use of the band 410-420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed –153 dB(W/m 2) for $0° \leq \delta \leq 5°$, $-153 + 0.077 (\delta - 5)$ dB(W/m 2) for $5° \leq \delta \leq 70°$ and –148 dB(W/m 2) for $70° \leq \delta \leq 90$ o , where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. No. S4.10 does not apply to extra-vehicular activities. In this frequency band the space research (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. (WRC-97)

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

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

5.273 *Different category of service:* in the Libyan Arab Jamahiriya, the allocation of the bands 430-432 MHz and 438-440 M Hz to the radiolocation service is on a secondary basis (see No. 5.32). (WRC-03)

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

5.275 *Additional allocation:* in Croatia, Estonia, Finland, Libyan Arab Jamahiriya, The Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Slovenia, the bands 430-432 MHz and 438-440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.276 *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Burundi, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Libyan, Arab Jamahiriya, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Malta, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Switzerland, Tanzania, Thailand, Togo, Turkey and Yemen, the band 430-440 MHz is also allocated to the fixed service on a primary basis and the bands 430-435 MHz and 438-440 MHz are also allocated to the mobile, except aeronautical mobile, service on a primary basis. (WRC-07)

5.277 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430-440 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.279A The use of this band by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R SA.1260-1. Additionally, the Earth exploration-satellite service (active) in the band 432-438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China. The provision of this

footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. 5.29 and 5.30. (WRC-03)

5.280 In Germany, Austria, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Montenegro, Portugal, Serbia, Slovenia and Switzerland, the band 433.05-434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. **15.13**. (WRC-07)

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

5.282 In the bands 435-438 MHz, 1 260-1 270 MHz, 2 400-2 450 MHz, 3 400-3 410 MHz (in Regions 2 and 3 only) and 5 650-5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. 5.43). Administrations authorising 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.

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

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

5.286B The use of the band 454-455 MHz in the countries listed in No. 5.286D, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No.5.286E, by stations in the mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)

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

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

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

5.287 In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (WRC-07)

5.288 In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174. (WRC-03).

5.289 Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460-470 MHz and 1 690-1 710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.

5.290 *Different category of service:* in Afghanistan, Azerbaijan, Belarus, China, the Russian Federation, Japan, Mongolia, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 460-470 MHz to the meteorological-satellite service (space-to-Earth) is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-07)

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

5.294 *Additional allocation:* in Saudi Arabia, Burundi, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, the Libyan Arab Jamahiriya, Kenya, Malawi, the Syrian Arab Republic, Sudan, Chad and Yemen, the band 470-582 MHz is also allocated to the fixed service on a secondary basis. (WRC-07)

5.296 *Additional allocation:* in Germany, Saudi Arabia, Austria, Belgium, Côte d'Ivoire, Denmark, Egypt, Spain, Finland, France, Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Lithuania, Malta, Morocco, Monaco, Norway, Oman, the Netherlands, Portugal, the Syrian Arab Republic, the United Kingdom, Sweden, Switzerland, Swaziland and Tunisia, the band 470-790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in

accordance with the Table in countries other than those listed in this footnote. (WRC-07)

5.300 *Additional allocation:* in Saudi Arabia, Egypt, Israel, the Libyan Arab Jamahiriya, Jordan, Oman, the Syrian Arab Republic and Sudan, the band 582-790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-07)

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

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

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

5.311 SUP (WRC-07)

5.311A For the frequency band 620-790 MHz, see also Resolution [COM4/1] (WRC-07).

5.312 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Tajikistan, Turkmenistan and Ukraine, the band 645-862 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-03)

5.314 *Additional allocation*: in Austria, Italy, Moldova, Uzbekistan, Kyrgyzstan, the United Kingdom and Swaziland, the band 790-862 MHz is also allocated to the land mobile service on a secondary basis. (WRC-07)

5.315 *Alternative allocation:* in Greece, Italy and Tunisia, the band 790-838 MHz is allocated to the broadcasting service on a primary basis. (WRC-2000)

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

accordance with the Table in countries other than those mentioned in connection with the band. This allocation is effective until 16 June 2015. (WRC-07)

5.316A Additional allocation: in Angola, Bahrain, Benin, Botswana, Congo (Rep. of the), French Overseas Departments and Communities in Region 1, Gambia, Ghana, Guinea, Kuwait, Lesotho, Lebanon, Malawi, Morocco, Mauritania, Mozambique, Namibia, Niger, Oman, Uganda, Poland, Qatar, Rwanda, Senegal, Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Yemen, Zambia and Zimbabwe, the band 790-862 MHz, in Spain, France, Gabon and Malta, the band 790-830 MHz, in Lithuania, the band 830-862 MHz and in Georgia, the band 806-862 MHz are also allocated to the mobile, except aeronautical mobile service on a primary basis subject to the agreement by the administrations concerned obtained under No. **9.21** and under the GE-06 Agreement, as appropriate, including those administrations mentioned in No. **5.312** where appropriate. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause unacceptable interference to, nor claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band. Frequency assignment to the mobile service under this allocation in Lithuania and Poland shall not be used without the agreement of the Russian Federation and Belarus. This allocation is effective until 16 June 2015. (WRC-07)

5.317A Those parts of the band 698-960 MHz in Region 2 and the band 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) See Resolution **224 (Rev.WRC-07)** and Resolution **[COM4/13] (WRC-07)**. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-07)

5.XXX In Region 1, the allocation to the mobile, except aeronautical mobile, service on a primary basis in the frequency band 790-862 MHz shall come into effect from 17 June 2015 and shall be subject to agreement obtained under No. **9.21** with respect to the aeronautical radionavigation service in countries mentioned in No. **5.312**. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolution **224 (Rev.WRC-07)** and Resolution **[COM4/13] (Rev.WRC-07)** shall apply.

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

5.321 SUP (WRC-07)

5.322 In Region 1, in the band 862-960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. 5.10 to 5.13) excluding Algeria, Egypt, Spain, the Libyan Arab Jamahiriya, Morocco, Namibia, Nigeria, South

Africa, Tanzania, Zimbabwe and Zambia subject to agreement obtained under No. 9.21. (WRC-2000)

5.323 *Additional allocation*: in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Hungary, Kazakhstan, Moldova, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the band 862-960 MHz is also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **9.21** with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-07)

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

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

5.328B The use of the bands 1 164-1 300 MHz, 1 559-1 610 MHz and 5 010-5 030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the 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 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)

5.330 *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Mozambique, Nepal, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1 215-1 300 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-03)

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, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, 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-07)

5.332 In the band 1 215-1 300 MHz, active spaceborne sensors in the earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis. (WRC-2000)

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

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 interference to, nor constrain the operation and development of, the aeronautical-radionavigation service. (WRC-2000)

5.338 In Mongolia, Kyrgyzstan, Slovakia, the Czech Rep. and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1 350-1 400 MHz. (WRC-07)

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[2],
52.6-54.25 GHz,
86-92 GHz,
100-102 GHz
109.5-111.8 GHz,
114.25-116 GHz,
148.5-151.5 GHz,
164-167 GHz,
182-185 GHz
190-191.8 GHz
200-209 GHz,
226-231.5 GHz,
250-252 GHz. (WRC-03)

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

5.342 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Uzbekistan, Kyrgyztan and Ukraine, the band 1 429-1 535 MHz is also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the band 1 452-1 492 MHz is subject to agreement between the administrations concerned. (WRC-2000)

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).

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

5.347 SUP (WRC-07)

5.347A In the bands:

137 - 138 MHz,
387 - 390 MHz,
400.15 - 401 MHz,
1 452 - 1 492 MHz,
1 525 - 1 559 MHz,
1 559 -1 610 MHz,
1 613.8 -1 626.5 MHz,
2 655 - 2 670 MHz,
2 670 - 2 690 MHz,
21.4 - 22 GHz,

Resolution **739 (Rev.WRC-07)** applies. (WRC-07)

5.348 The use of the band 1 518-1 525 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. 5.43A does not apply. (WRC-03)

5.348A In the band 1 518-1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. 9.11A for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be –150 dB(W/m2) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix 5. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. 5.43A does not apply. (WRC-03)

5.348B In the band 1 518-1 525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. 5.343 and 5.344) and in the countries listed in No. 5.342. No. 5.43A does not apply. (WRC-03)

5.348C SUP (WRC-07)

5.349 *Different category of service:* in Saudi Arabia, Azerbaijan, Bahrain, Cameroon, Egypt, France, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the band 1 525-1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-07)

5.350 *Additional allocation:* in Azerbaijan, Kyrgyzstan and Turkmenistan, the band 1 525-1 530 MHz is also allocated to the aeronautical mobile service on a primary basis. (WRC-2000)

5.351 The bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 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, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz, 1 668-1 675 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz, 2 483.5-2 500 MHz, 2 500-2 520 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)

5.352A In the band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in France and French overseas territories in Region 3, Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Malta, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Tanzania, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-97)

5.353A In applying the procedures of No. 9.11A 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.

5.355 Additional allocation: in Bahrain, Bangladesh, Congo (Rep. of the), Egypt, Eritrea, Ethiopia, Iraq, Israel, Kuwait, Lebanon, Malta, Qatar, Syrian Arab Republic, Somalia, Sudan, Chad, Togo, and Yemen, the bands 1 540-1 559 MHz, 1 1610-1 645.5 and 1

646.5-1 660 MHz are also allocated to the fixed service on a secondary basis. (WRC-03)

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

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

5.357A In applying the procedures of Section II of Article 9 to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article 44. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44 shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution 222(WRC-2000) shall apply). (WRC-2000)

5.358 (SUP - WRC-97)

5.359 *Additional allocation:* in Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Bulgaria, Cameroon, Spain, the Russian Federation, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, the Libyan Arab Jamahiriya, Jordan, Kazakhstan, Kuwait, Lebanon, Lithuania, Mauritania, Moldova, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Swaziland, Tajikistan, Tanzania, Tunisia, Turkmenistan and Ukraine, the bands 1 550-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these bands. (WRC-07)

5.362 (SUP - WRC-97)

5.362B *Additional allocation:* The band 1 559-1 610 MHz is also allocated to the fixed service on a primary basis until 1 January 2010 in Algeria, Saudi Arabia, Cameroon, Libyan Arab Jamahiriya, Jordan, Mali, Mauritania, Syrian Arab Republic and Tunisia. After this date, the fixed service may continue to operate on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. The band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis in Algeria, Germany, Armenia, Azerbaijan, Belarus, Benin, Bulgaria, Spain, Russian Federation, France, Gabon, Georgia, Guinea, Guinea-Bissau, Kazakhstan, Lithuania, Moldova, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Kyrgyzstan, Dem. People's Rep. of Korea, Romania, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan and Ukraine until 1 January 2015, at which time this allocation shall no longer be valid.

Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and the aeronautical radionavigation service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-07)

5.362C *Additional allocation:* in Congo (Rep. of the), Egypt, Eritrea, Iraq, Israel, Jordan, Malta, Qatar, the Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-07)

5.363 SUP (WRC-07)

5.364 The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. 9.11A. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of –15dB(W/4 kHz) in the part of the band used by the systems operating in accordance with the provisions of No. 5.366 (to which No. 4.10 applies), unless otherwise agreed by the affected administrations, In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed –3dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 5.366 and stations in the fixed service operating in accordance with the provisions of No. 5.359. Administrations responsible for coordination of mobile-satellite networks shall make all practical efforts to ensure protection of stations operating in accordance with the provisions of No. 5.366.

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

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

5.367 Additional allocation: The bands 1 610-1 626.5 MHz and 5 000-5 150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No**.** 9.21.

5.368 With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. 4.10 do not apply in the band 1 610-1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.

5.369 *Different category of service:* in Angola, Australia, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, the Libyan Arab Jamahiriya, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, the Dem. Rep.of the Congo, Sudan, Swaziland, Togo and Zambia, the allocation of the band 1 610-1 626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is

on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision. (WRC-03)

5.371 *Additional allocation:* in Region 1, the bands 1 610-1 626.5 MHz (Earth-to-space) and 2 483.5-2 500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. 9.21.

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

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

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

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

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

5.379 *Additional allocation:* in Bangladesh, India, Indonesia, Nigeria and Pakistan, the band
1 660.5 - 1 668.4 MHz is also allocated to the meteorological aids service on a secondary basis.

5.379A Administrations are urged to give all practicable protection in the band 1 660.5-1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4- 1 668.4 MHz as soon as practicable.

5.379B The use of the band 1 668-1 675 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. In the band 1 668-1 668.4 MHz, Resolution **[COM5/1] (WRC-07)** shall apply. (WRC-07)

5.379C In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall nit exceed – 181 dB(W/m²) in 10 MHz and -194 dB(W/m²) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2 % of integration periods of 2 000 s. (WRC-03)

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

5.379E In the band 1 668.4-1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to stations in the meteorological aids service in China, Iran (Islamic Republic of), Japan and Uzbekistan. In the band 1 668.4- 1 675 MHz, administrations are urged not to implement new systems in the meteorological aids service and are encouraged to migrate existing meteorological aids service operations to other bands as soon as practicable. (WRC-03)

5.380 SUP (WRC-07)

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

5.382 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Serbia, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine and Yemen, the allocation of the band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**), and in the Dem. People's Rep. of Korea, the allocation of the band 1 690-1 700 MHz to the fixed service is on a primary basis (see No. **5.33**) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-07)

5.384A The bands, or portions of the bands, 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-07)**. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-07).

5.385 *Additional allocation:* the bands 1 718.8-1 722.2 is also allocated to the radio astronomy service on a secondary basis for spectral line observations.

5.387 *Additional allocation:* in Belarus, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, Romania, Tajikistan and Turkmenistan, the band 1 770-1 790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-07)

5.388 The bands 1 885-2 025 MHz and 2 110-2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of these bands by other services to which these bands are allocated. The bands should be made available for IMT-2000 in accordance with Resolution 212 (Rev. WRC-97). (See also Resolution 223 (WRC-2000).)

5.388A In regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-1 170 MHz and in Region 2, the bands 1 885-1 980 and 2 110-2 160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT-2000), in accordance with Resolution 221 (WRC-2000). The use by IMT-2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-03)

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Mali, Morocco, Mauretania, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT-2000 mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT-2000 base station in neighbouring countries, in the bands referred to in No. 5.388A, shall not exceed a co-channel power flux-density of -127 dB(W(m²·MHz)) at the Earth's surface outside a country's border unless explicit agreement of the affected administration is provided at the time of the notification of HAPS. (WRC-03)

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

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

5.389F In Algeria, Benin, Cape Verde, Egypt, Mali, Syria and Tunisia, the use of the bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services.

5.391 In making assignments to the mobile service in the bands 2 025-2 110 MHz and 2 200-2 290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154, and shall take that Recommendation into account for the introduction of any other type of mobile system. (WRC-97)

5.392 Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2 025-2 110 MHz and 2 200 – 2 290, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

5.392A SUP (WRC-07)

5.395 In France and Turkey, the use of the band 2 310-2 360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service. (WRC-03)

5.397 *Different category of service:* in France, the band 2 450-2 500 MHz is allocated on a primary basis to the radiolocation service (see No. 5.33). Such use is subject to agreement with administrations having services operating or planned to operate in accordance

5.398 In respect of the radiodetermination-satellite service in the band 2 483.5-2 500 MHz, the provisions of No. 4.10 do not apply.

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

5.400 *Different category of service:* in Angola, Australia, Bangladesh, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic republic of), the Libyan Arab Jamahiriya, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, Dem. Rep. of the Congo, the Syrian Arab Republic, Sudan, Swaziland, Togo and Zambia, the allocation of the band 2 483.5-2 500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. 5.33), subject to agreement obtained under No.9.21 from countries not listed in this provision. (WRC-03)

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 2483.5 – 2500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4990 – 5000 MHz band allocated to the radio astronomy service worldwide.

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

5.405 *Additional allocation:* in France, the band 2 500-2 550 MHz is also allocated to the radiolocation service on a primary basis. Such use is subject to agreement with the administrations having services operating or planned to operate in accordance with the Table which may be affected.

5.407 In the band 2 500-2 520 MHz, the power flux-density at the surface of the Earth from space stations operating in the mobile-satellite (space-to-Earth) service shall not exceed -152 dB(W/m2/4 kHz) in Argentina, unless otherwise agreed by the administration concerned.

5.409 SUP (WRC-07)

5.410 The band 2 500-2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. **9.21**. Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in this band. When planning new tropospheric scatter radio-relay links in this band, all possible measures shall be taken to avoid directing the antennas of these links towards the geostationary-satellite orbit. (WRC-07)

5.411 SUP (WRC-07)

5.412 *Alternative allocation:* in Azerbaijan, Kyrgyzstan and Turkmenistan, the band 2 500-2 690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

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

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

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

5.417C Use of the band 2 605-2 630 by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No.5.417A, for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No.9.12. (WRC-03)

5.417D Use of the band 2 605-2 630 by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No.9.13 with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.417A, and No.22.2 does not apply. (WRC-03)

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

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

5.419 When introducing systems of the mobile-satellite service in the band 2 670-2 690 MHz, administrations shall take all necessary steps to protect the satellite systems

operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with No. **9.11A**. (WRC-07)

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

5.420 A SUP (WRC-07)

5.422 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Mauritania, Moldova, Mongolia, Montenegro, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2 690-2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-07)

5.423 In the band 2 700-2 900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.

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

5.425 In the band 2 900-3 100 MHz, the use of the shipborne interrogator-transponder system (SIT) shall be confined to the sub-band 2 930-2 950 MHz.

5.426 The use of the band 2 900-3100 MHz by the aeronautical radionavigation service is limited to ground-based radars.

5.427 In the bands 2 900-3 100 MHz and 9 300-9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. 4.9.

5.428 *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.429 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea and Yemen, the band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. The

countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-07)

5.430 *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3 300-3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.431 *Additional allocation:* in Germany, Israel and the United Kingdom, the band 3 400-3 475 MHz is also allocated to the amateur service on a secondary basis. (WRC-03)

5.437 Additional allocation: in Germany and Norway, the band 4 200-4 210 MHz is also allocated to the fixed service on a secondary basis. (WRC-97)

5.438 Use of the band 4 200-4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).

5.439 Additional allocation: in China, the Islamic Republic of Iran and Libya, the band 4 200-4 400 MHz is also allocated to the fixed service on a secondary basis. (WRC-97)

5.440 The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of ±2 MHz of these frequencies, subject to agreement obtained under No. 9.21.

5.441 The use of the bands 4500-4800 MHz (space-to-Earth), 6725-7025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix S30B. 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 system in the fixed-satellite service shall be in accordance with the provisions of Appendix S30B. 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 networks in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No.5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

5.442 In the bands 4 825-4 835 MHz and 4 950-4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia,

the band 4 825-4 835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution **[COM4/2] (WRC-07)** and shall not cause harmful interference to the fixed service. (WRC-07)

S4.443 Different category of service: in Argentina, Australia and Canada, the allocation of the bands 4 825-4 835 MHz and 4 950-4 990 MHz to the radio astronomy service is on a primary basis (see No. 5.33).

5.443B In order not to cause harmful interference to the microwave landing system operating above 5030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5030-5150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5010-5030 MHz shall not exceed -124.5 dB(W/m^2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4990-5 000 MHz, radionavigation-satellite service systems operating in the band 5 010-5 030 MHz shall comply with the limits in the band 4 990-5 000 MHz defined in Resolution 741 (WRC-03). (WRC-03)

5.444 The band 5 030-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the band 5 030-5 091 MHz, the requirements of this system shall take precedence over other uses of this band. For the use of the band 5 091-5 150 MHz, No. **5.444A** and Resolution **114 (Rev.WRC-03)** apply. (WRC-07)

5.444A *Additional allocation:* the band 5 091-5 150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of non-geostationary mobile-satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**.
In the band 5 091-5 150 MHz, the following conditions also apply:

- prior to 1 January 2018, the use of the band 5 091-5 150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution **114 (Rev.WRC-03)**;

- after 1 January 2012, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;

- after 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service. (WRC-07)

5.446 Additional allocation: in the countries listed in Nos. 5.369 and 5.400, the band 5 150-5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. 9.21. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. 5.369 and 5.400, the band is also allocated to the radiodetermination-satellite service (space-to-Earth on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1610 – 1626.5 MHz and/or 2483.5 – 2500 MHz. The total power flux density at the Earth's surface shall in no case exceed –159dBW/m^2 in any 4 kHz bands for the angels of arrival.

5.446A The use of the bands 5 150-5 350 MHz and 5 470-5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution **229 (WRC-03)**. (WRC-07)

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)

5.447 *Additional allocation:* in Côte d'Ivoire, Israel, Lebanon, Pakistan, the Syrian Arab Republic and Tunisia, the band 5 150-5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. **9.21**. In this case, the provisions of Resolution **229 (WRC-03)** do not apply. (WRC-07)

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

5.447B Additional allocation: the band 5 150-5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. 9.11A. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed -164 dB(W/m²) in any 4 kHz band for all angles of arrival.

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

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

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

space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations. (WRC-07)

5.447F In the band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638 and ITU-R SA.1632. (WRC-03)

5.448 *Additional allocation:* in Azerbaijan, Libyan Arab Jamahiriya, Mongolia, Kyrgyztan, Slovakia, Romania and Turkmenistan, the band 5 250-5 350 MHz is also allocated to the radionavigation service on a primary basis. (WRC-03)

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

5.448B The earth exploration-satellite service (active) operating in the 5 350-570 MHz sand space research service (active) operating in the band 5 460-5 570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5 350-5 460 MHz, the radionavigation service in the band 5 460-5 470 MHz and the maritime radionavigation service in the band 5 470-5 570 MHz. (WRC-03)

5.448C The space research service (active) operating in the band 5 350-5 460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated. (WRC-03)

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

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

5.450 *Additional allocation:* in Austria, Azerbaijan, Iran (Islamic Republic of), Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 5 470-5 650 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-03)

5.450A in the band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638. (WRC-03)

5.450B In the frequency band 5 470-5 650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5 600-5 650

MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service. (WRC-03)

5.451 Additional allocation: in the United Kingdom, the band 5 470-5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. S21.2, S21.3, S21.4 and S21.5 shall apply in the band 5 725 - 5 850 MHz.

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

5.453 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kenya, Kuwait, Lebanon, Madagascar, Malaysia, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Democratic People's Republic of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution 229 (WRC-03) do not apply. (WRC-03)

5.454 *Different category of service:* in Azerbaijan, the Russian Federation, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 5 670-5 725 MHz to the space research service is on a primary basis (see No. **5.33**). (WRC-07)

5.455 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 5 670-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.456 *Additional allocation:* in Cameroon, the band 5 755-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-03)

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

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

5.458 In the band 6 425-7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075-7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425-7 025 MHz and 7 075-7 250 MHz.

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

5.458B The space-to-Earth allocation to the fixed-satellite service in the band 6 700-7 075 MHz is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service and is subject to co-ordination under No. 9.11A. The use of the band 6 700 - 7 075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to No. S22.2.

5.458C Administrations making submissions in the band 7 025-7 075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.

5.459 Additional allocation: in Russian Federation, the frequency bands 7 100-7 155 MHz and 7 190-7 235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. 9.21. (WRC-97)

5.460 The use of the band 7 145-7 190 MHz by the space research (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7 190-7 235 MHz. Geostationary satellites in the space research service operating in the band 7 190-7 235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. 5.43A does not apply. (WRC-03)

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

5.461A The use of the frequency 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 primary basis until the end of their lifetime. (WRC-97)

5.461B The use of the band 7 750-7 850 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems. (WRC-97)

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

-174dB(W/m²) in a 4 kHz band	for $0° \leq \theta < 5°$

-174+0.5 (θ - 5) dB (W/m²) in a 4 kHz band for $5° \leq \theta < 25°$

-164 dB(W/m²) in a 4 kHz band for $25° \leq \theta \leq 90°$

These values are subject to study under Resolution 124 (WRC-97).

5.463 Aircraft stations are not permitted to transmit in the band 8 025-8 400 MHz. (WRC-97)

5.465 In the space research service, the use of the band 8 400-8 450 MHz is limited to deep space.

5.466 *Different category of service:* in Israel, Singapore and Sri Lanka, the allocation of the band 8 400-8 500 MHz to the space research service is on a secondary basis (see No. 5.32). (WRC-03)

5.468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of) , Iraq, the Libyan Arab Jamahiriya, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, Qatar, Syrian Arab Republic, the Democratic People's Republic of Korea, Senegal, Singapore, Somalia, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-03)

5.469 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Czech Republic, Romania, Tajikistan, Turkmenistan and Ukraine, the band 8 500-8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis. (WRC-03)

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), the Libyan Arab Jamahiriya, the Netherlands, Qatar and Sudan, the bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only. (WRC-07)

5.472 In the bands 8 850-9 000 MHz and 9 200-9 225 MHz, the maritime radionavigation service is limited to shore-based radars.

5.473 *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania,

Tajikistan, Turkmenistan and Ukraine, the bands 8 850-9 000 MHz and 9 200-9 300 MHz are also allocated to the radionavigation service on a primary basis. (WRC-07)

5.474 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 **S31**).

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 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)

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

5.476 SUP (WRC-07)

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

5.477 *Different category of service:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Trinidad and Tobago, and Yemen, the allocation of the band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. **5.33**). (WRC-07)

5.478 *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 9 800-10 000 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.479 The band 9 975-10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.

5.481 *Additional allocation:* in Germany, Angola, Brazil, China, Costa Rica, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania, Tanzania, Thailand and Uruguay, the band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-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, Libyan Arab Jamahiriya, Kazakhstan, Kuwait, Lebanon, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except aeronautical mobile, service is not applicable. (WRC-07)

5.483 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Costa Rica, Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Turkmenistan and Yemen, the band 10.68- 10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-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 Regu1ations, irrespective of the dates of receipt by the Bureau of the comp1ete 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 app1y. Non-geostationary-satellite systems in the fixed- satellite service in the above bands shall be operated in such a way that any unacceptab1e interference that may occur during their operation shall be rapidly eliminated.

5.487 In the band 11.7-12.5GHz in Region 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to, or claim protection from,

broadcasting-satellite stations operating in accordance with the Regions 1 and 3 Plan in Appendix 30. (WRC-03)

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

5. 492 Assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan in Regions 1 and 3 List in Appendix S30 may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broadcasting-satellite service transmissions operating in conformity with the Plan or List, as appropriate.

5.494 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Republic, Congo (Rep. of the), Côte d'Ivoire, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, the Libyan Arab Jamahitiya, Jordan, Kuwait, Lebanon, Madagascar, Mali, Morocco, Mongolia, Nigeria, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan, Chad, Togo and Yemen, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-03)

5.495 *Additional allocation:* in Bosnia and Herzegovina, France, Greece, Liechtenstein, Monaco, Montenegro, Uganda, Romania, Serbia, Switzerland, Tanzania and Tunisia, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-07)

5.496 Additional allocation: in Austria, Azerbaijan, Kyrgyzstan, Turkmenistan and Ukraine, the band 12.5-12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those listed in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries listed in this footnote. The power flux-density limit at the Earth's surface given in Article S21, Table S21-4, for the fixed-satellite service shall apply on the territory of the countries listed in this footnote. (WRC-97)

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

5.498A The earth exploration-satellite (active) and space research (active) services operating in the 13.25-13.4 GHz band shall not cause harmful interference to, nor constrain the use and development of, the aeronautical radionavigation service. (WRC-97)

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

5.500 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Malta, Morocco, Mauritania, Nigeria, Pakistan, Qatar, the Syrian Arab Republic, Singapore, Sudan, Chad and Tunisia, the band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-03)

5.501 *Additional allocation:* in Azerbaijan, Hungary, Japan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 13.4-14 GHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.501A The allocation of the band 13.4-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)

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

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

- - 115 dB(W/(m² · 10 MHz)) for more than 1 % of the time produced at 36 m above sea level at the low water mark, as officially recognized by the Coastal State;

- - 115 dB(W/(m² · 10 MHz)) for more than 1 % of the time produced at 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.

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

5.503 In the band 13.75-14GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band:

- in the band from 13.77 to 13.78GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed:
  - i) 4.7 D + 28 dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 ;
  - ii) 49.2 + 20 log(D/4.5) dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m;
  - iii) 66.2 dB(W/40 kHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m;
  - iv) 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater;

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

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

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

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC-03)

5.504C In the band 14-14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Lesotho, Nigeria, Oman, the Syrian Arab Republic and Tunisia, any aircraft earth station operating aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration (s). The provisions of

this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29. (WRC-03)

5.505 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lesotho, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Viet Nam and Yemen, the band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-07)

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

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

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

5.508 *Additional allocation:* in Germany, Bosnia and Herzegovina, France, Italy, Libyan Arab Jamahiriya, The Former Yugoslav Rep. of Macedonia and the United Kingdom, the band 14.25-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.508A In the band 14.25-14.3 GHz, the power flux-density density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration (s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29. (WRC-03)

5.509 SUP (WRC-07)

5.509A In the band 14.3-14.5 GHz, the power flux-density density produced on the territory of the countries of Saudi Arabia, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite

service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration (s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29. (WRC-03)

5.510 The use of the band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe.

5.511 *Additional allocation:* in Saudi Arabia, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Kuwait, Lebanon, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-07)

5.511A The band 15.43-15.63 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. Use of the band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. 9.11A. The use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links of non-geostationary systems in the mobile-satellite service for which advance publication information has been received by the Bureau prior to 2 June 2000. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station from harmful interference shall be in accordance with Recommendation ITU-R S.1341. In order to protect the radio astronomy service in the band 15.35-15.4 GHz, the aggregate power flux- density radiated in the 15.35-15.4 GHz band by all the space stations within any feeder-link of a non-geostationary system in the mobile-satellite service (space-to-Earth) operating in the 15.43-15.63 GHz band shall not exceed the level of -156 dB(W /m^2) in a 50 MHz bandwidth, into any radio astronomy observatory site for more than 2% of the time.

5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340. The minimum co-ordination distance required to protect the aeronautical radionavigation stations (No. S4.10 applies) from harmful interference from feeder link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder link earth station shall be in accordance with Recommendation ITU-R S.1340. (WRC-97)

5.511D Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4-15.43 GHz and 15.63-15.7 GHz in the space-to-Earth direction and 15.63-15.65 GHz in the Earth-to-space direction. In the bands 15.4-15.43 GHz and 15.65-15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of –146 dB(W/m^2 /MHz) for any angle of arrival. In the band 15.63-15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed –146 dB(W/m^2 /MHz) for any angle of arrival, it shall coordinate under No. 9.11A with the affected administrations. Stations in the fixed-satellite service operating in the band 15.63-15.65 GHz in the Earth-to-space direction

shall not cause harmful interference to stations in the aeronautical radionavigation service (No. S4.10 applies). (WRC-97)

5.512 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Costa Rica, Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Montenegro, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Syrian Arab Republic, Serbia, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Togo and Yemen, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

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

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

5.514 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, the Libyan Arab Jamahiriya, Japan, Jordan, Kuwait, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan and Sudan, the band 17.3-17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **21.3** and **21.5** shall apply. (WRC-07)

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 17.3-17.8GHz 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 S11. 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 geostationary-satellite networks, and No.5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

5.516A 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 allocations in the fixed-satellite service:

17.3-17.7 GHz (space-to-Earth) in Region1,
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 Region1,
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 18.0-18.3 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.

5.521 *Alternative allocation:* in Germany, Denmark, the United Arab Emirates and Greece, the band 18.1-18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. 5.33). The provisions of No. 5.519 also apply. (WRC-03)

5.522A 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. S21.5A and S21.16.2 respectively.

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

5.522C In the band 18.6-18.8 GHz, in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, the Libyan Arab Jamahiriya, Jordan, Lebanon. Morocco, Oman, Qatar, the Syrian Arab Republic, Tunisia and Yemen, fixed-service systems in operation at the date of entry into force of the Final Acts of WRC-2000 are not subject to the limits of No. 21.5A. (WRC-2000)

5.523A The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. 9.11A and No. S22.2 does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. 9.11A with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **S4** notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

5.523B The use of the band 19.3-19.6 GHz (Earth-to-space) by the fixed-satellite service is limited to feeder links for non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. 9.11A, and No. S22.2 does not apply.

5.523C No. S22.2 of the Radio Regulations shall continue to apply in the bands 19.3-19.6 GHz and 29.1-29.4 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **S4** co-ordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

5.523D The use of the band 19.3-19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of No. 9.11A, but not subject to the provisions of No. S22.2. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. 5.523C and 5.523E, is not subject to the provisions of No. 9.11A and shall continue to be subject to Articles 9 (except No. 9.11A) and S11 procedures, and to the provisions of No. S22.2. (WRC-97)

5.523E No. S22.2 of the Radio Regulations shall continue to apply in the bands 19.6-19.7 GHz and 29.4-29.5 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix S4 coordination information, or notification information, is considered as having been received by the Bureau prior to 21 November 1997. (WRC-97)

5.524 *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan,

Tanzania, Chad, Togo and Tunisia, the band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the band 19.7-21.2 GHz and of space stations in the mobile-satellite service in the band 19.7-20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter band. (WRC-07)

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 extend practicable, be located in the higher parts of the bands 19.7-20.2 GHz and 29.5-30 GHz. (WRC-97)

5.526 In the bands 19.7-20.2 GHz and 29.5-30 GHz in Region 2, and in the bands 20.1-20.2 GHz and 29.9-30 GHz in Regions 1 and 3, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point-to-point and point-to-multipoint communications.

5.527 In the bands 19.7-20.2 GHz and 29.5-30 GHz, the provisions of No.S4.10 do not apply with respect to the mobile-satellite service.

5.528 The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7-20.1GHz in Region 2 and in the band 20.1-20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. 5.524.

5.530 In Regions 1 and 3, the use of the band 21.4-22 GHz by the broadcasting-satellite service is subject to the provisions of Resolution **525 (Rev.WRC-07)**. (WRC-07)

5.531 *Additional allocation:* in Japan, the band 21.4-22 GHz is also allocated to the broadcasting service on a primary basis.

5.532 The use of the band 22.21-22.5 GHz by the Earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services.

5.533 The inter-satellite service shall not claim protection from harmful interference from airport surface detection equipment stations of the radionavigation service.

5.535 In the band 24.75-25.25 GHz, feeder links to stations of the broadcasting-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.

5.535A The use of the band 29.1-29.5 GHz (Earth-to-space) by the fixed-satellite service is limited to geostationary-satellite systems and feeder links to non-geostationary satellite systems in the mobile-satellite service. Such use is subject to the

application of the provisions of No. 9.11A, but not subject to the provisions of No. S22.2, except as indicated in No. 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. S22.2. (WRC-97)

5.536 Use of the 25.25-27.5 GHz band by the inter-satellite service is limited to space research and Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space.

5.536A Administrations operating earth stations in the Earth exploration-satellite 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 operating in the Earth exploration-satellite service or in the space research service should be operated taking into account Recommendation ITU-R SA.1278 and ITU-R SA.1625, respectively, (WRC-03)

5.536B In Germany, Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Hungary, India, Iran
(Islamic Republic of), Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Lebanon, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Sweden, Switzerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-07)

5.536C In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobiles services. (WRC-03)

5.537A In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.9-28.2 GHz may also be used by high altitude platform stations (HAPS) within the territory of these countries. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution **145 (Rev.WRC-07)**. (WRC-07)

5.538 *Additional allocation:* the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the

beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. (WRC-07)

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

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

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

5.541A Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the band 29.1-29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix 4 coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix 4 information for coordination before this date are encouraged to utilize these techniques to the extent practicable. (WRC-2000)

5.542 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply. (WRC-07)

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

5.543A In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 31-31.3 GHz may also be used by systems using high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the band 31-31.3 GHz by systems using HAPS is limited to the territory of the countries listed above and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems, systems in the mobile service and systems operated under No. **5.545**. Furthermore, the development of these services shall not be constrained by HAPS. Systems using HAPS

in the band 31-31.3 GHz shall not cause harmful interference to the radio astronomy service having a primary allocation in the band 31.3-31.8 GHz, taking into account the protection criterion as given in Recommendation ITU-R RA.769. In order to ensure the protection of satellite passive services, the level of unwanted power density into a HAPS ground station antenna in the band 31.3-31.8 GHz shall be limited to −106 dB(W/MHz) under clear-sky conditions, and may be increased up to −100 dB(W/MHz) under rainy conditions to mitigate fading due to rain, provided the effective impact on the passive satellite does not exceed the impact under clear-sky conditions. See Resolution **145 (Rev.WRC-07)**. (WRC-07)

5.544 In the band 31-31.3 GHz the power flux-density limits specified in Article **21**, Table 21-4 shall apply to the space research service.

5.545 *Different category of service:* in Armenia, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 31-31.3 GHz to the space research service is on a primary basis (see No. **5.33**). (WRC-07)

5.546 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**). (WRC-07)

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

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

5.547B Alternative allocation: in the United States, the band 31.8-32 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-97)

5.547C *Alternative allocation*: in the United States, the band 32-32.3 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-03)

5.547D Alternative allocation: in the United States, the band 32.3-33 GHz is allocated to the inter-satellite and radionavigation services on a primary basis. (WRC-97)

5.547E Alternative allocation: in the United States, the band 33-33.4 GHz is allocated to the radionavigation service on a primary basis. (WRC-97)

5.548 In designing systems for the inter-satellite and radionavigation services in the band 32.3-33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation 707). (WRC-03)

5.549 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Jordan, Kuwait, Lebanon, Malaysia, Mali, Malta, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-03)

5.549A In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed -73.3 dB(W/m²) in this band. (WRC-03)

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

5.551H The equivalent power flux-density (epfd) produced in the band 42.5-43.5 GHz by allspace stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service (space-to-Earth) operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time:
−230 dB(W/m2) in 1 GHz and –246 dB(W/m2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and
−209 dB(W/m2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.
These epfd values shall be evaluated using the methodology given in Recommendation ITU-R S.1586-1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU-R RA.1631 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θ*min* of the 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-07)

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

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

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

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

- was in operation prior to 5 July 2003 and has been notified to the Bureau befor 4 January 2004; or

- was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply.

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

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

5.552A The allocation to the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz is subject to the provisions of Resolution **122 (Rev.WRC-07)**. (WRC-07)

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

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

5.554A The use of the bands 47.5-47.9 GHz, 48.2-48.54 GHz and 49.44-50.2 GHz by the fixed-
satellite service (space-to-Earth) is limited to geostationary satellites. (WRC-03)

5.555 Additional allocation: the band 48.94-49.04 is also allocated to the radio astronomy service on a primary basis. (WRC-2000)

5.555B The power flux-density in the band 48.94-49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2- 48.54 GHz and 49.44-50.2 GHz shall not exceed –151.8 dB(W/m^2) in any 500 kHz band at the site of any radio astronomy station. (WRC-03)

5.556 In the bands 51.4-54.25 GHz, 58.2-59 GHz and 64-65 GHz, radio astronomy observations may be carried out under national arrangements. (WRC-2000)

5.556A Use of the bands 54.25-56·9 GHz, 57.0-58.2 GHz and 59.0-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary satellite orbit. The single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/(m^2·100 MHz)) for all angles of arrival. (WRC-97)

5.556B Additional allocation: in Japan, the band 54.25-55.78 GHz is also allocated to the mobile service on a primary basis for low-density use. (WRC-97)

5.557 Additional allocation: in Japan, the band 55.78-58.2 GHz is also allocated to the radiolocation service on a primary basis. (WRC-97)

5.557A In the band 55.78-56.26 GHZ, in order to protect stations in the Earth exploration-satellite service (passive), the maximum power density delivered by a transmitter to the antenna of a fixed service stations is limited to –26 dB(W/MHz). (WRC-2000)

5.558 In the bands 55.78-58.2 GHz, 59-64GHz, 66-71, GHz, 122.25-123 GHz, 130-134 GHz and 167-174.8 GHz and 191.8-200 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No.5.43) . (WRC-2000)

5.558A Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-

geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m^2·100 MHz)) for all angles of arrival. (WRC-97)

5.559 In the band 59-64GHz, airborne radars in the radiolocation service may be operated subject to not causing 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 stations 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)

5.562 The use of the band 94-94.1 GHz by the Earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars. (WRC-97)

5.562A In the bands 94-94.1 GHz and 130-134 GHz, transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible. (WRC-2000).

5.562B In the 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 geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service-for all conditions and for all methods of modulation, at all altitudes from 0 km to 1000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed -148 dB(W /(m^2·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) 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 January 1 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 – 144 dB(W/(m² · 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.

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

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

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

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