NATIONAL FREQUENCY ALLOCATION TABLE

NATIONAL FREQUENCY MANAGEMENT COUNCIL

OF THE FEDERAL REPUBLIC OF NIGERIA

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SECTION 1: BASIC INFORMATION

1.1: Introduction

The International Telecommunication Union (ITU) convenes World Radiocommunication Conferences (WRCs) towards allocating spectrum frequencies to radiocommunication services. An Allocation is an entry in a table of frequency allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radio communication services or the radio astronomy service under specified conditions.

For the purpose of frequency allocation,the world is divided into three regions. Nigeria falls within Region 1.

Article 5 of the Radio Regulations deals with these frequency allocations which have been made from 8.3KHz to 300GHz. It is mandatory for all administrations to adhere to these allocations.

The National Frequency Table of Allocations is a compendium of frequency allocations to services applicable to Nigeria as well as a depiction of frequency usage in Nigeria. The present update of the table has been developed based on the National Frequency Spectrum Audit carried out in 2014 as well as the outcomes of the World Radio Conference of 2015. The National Frequency Table of Allocations is also periodically reviewed in conformity with the international regulations governing radio spectrum and the international/regional agreements acceded to by the Federal Republic of Nigeria in the capacity of the National Frequency Management Council. After each World Radiocommunication Conference, reviews to the table are made to reflect additions and modifications resulting from these conferences.

This table conveys the nation's compendium prior to the World Radiocommunication Conference of 2019.
The objective of developing and sustaining a National Table of Frequency Allocation is to promote spectrum discipline, increase efficiency and optimal spectrum usage and to present the current and future use of the radio spectrum in Nigeria.

1.2: Radiocommunication Services

Services are allocated either on a primary or secondary basis.
If a frequency band is allocated to more than one service, distinctions are made between such services to reflect their status as either primary or secondary allocations. Primary services are printed in UPPERCASE letters while secondary services are in lowercase letters with the first letter capitalized.

With respect to technical specfications of the Radio Regulations developed for band sharing between services, stations providing secondary services are restricted from the following:

1. Causing harmful interference to stations of primary service to which frequencies are already assigned or to which frequencies could be subsequently assigned.

2. Claiming protection from harmful interference from stations of a primary service to which frequencies are already assigned or could be subsequently assigned.

However, stations providing secondary services are not restricted from claiming protection from harmful interference from station of the same or other secondary service(s) to which frequencies could be subsequently assigned.

1.3: Table Composition

The table is presented in six segments with each segment having five columns. The allocated spectrum bands are classified into six ranges where each segment represents a range of frequencies.

Segment 1: Below 30MHz
Segment 2: 30-300MHz
Segment 3: 300MHz to 3GHz
Segment 4: 3-10GHz
Segment 5: 10-30GHz
Segment 6: 30-300GHz

In each segment of this table, five columns are used to portray the following:

1. Frequency bands
2. ITU Region 1 allocations
3. Nigerian allocations
4. Nigerian utilization
5. Remarks

The frequency bands constituting the allocated portion of the spectrum are outlined in the frequency band column. The column for ITU Region 1 allocations specifies the services tied to the various frequency bands for Region 1. For each band, the column for services permitted in Nigeria outlines the services for which allocations could be made by the administrator while the column for Nigerian utilization details the services actually deployed within each band. Finally, further information on band sharing/coordination, usage and (or) technical specifications are portrayed in the column termed remarks.

1.4: Footnotes

Footnotes provide further information on allocation as well as specifications perculiar to certain bands. These footnotes further illustrate how certain bands are to be utilized. In this document, footnotes applicable to Nigeria have been compiled and presented for reference.

This document contains all the international and country footnotes applicable to spectrum management and administration in Nigeria. Applicable footnotes are essentially those mentioned in the column for Nigerian Allocations.

SECTION 2: TABLE OF FREQUENCY ALLOCATIONS

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
Below 8.3	Not allocated 5.53 5.54	Not allocated 5.53 5.54		
8.3- 9	MET. AIDS 5.54A 5.54B 5.54C	MET. AIDS 5.54A	MET. AIDS	Sensing (lightening and thunderstorm detectors)
9 – 11.3	MET. AIDS 5.54A RADIONAVIGATION	MET. AIDS 5.54A	MET. AIDS	Sensing (lightening and thunderstorm detectors)
11.3- 14	RADIONAVIGATION	RADIONAVIGATION		
14 – 19.95	FIXED MARITIME MOBILE 5.57 5.55 5.56	FIXED MARITIME MOBILE 5.57 5.56		
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		
70 – 72	RADIONAVIGATION 5.60	RADIONAVIGATION 5.60		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
72 – 84	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56		
84 – 86	RADIONAVIGATION 5.60	RADIONAVIGATION 5.60		
86 – 90	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56		
90 – 110	RADIONAVIGATION 5.62 Fixed 5.64	RADIONAVIGATION 5.62 Fixed 5.64		LORAN C (phased out nationwide)
110 – 112	FIXED MARITIME MOBILE RADIONAVIGATION 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.64		
112 – 115	RADIONAVIGATION 5.60	RADIONAVIGATION 5.60		
115 – 117.6	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.66	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
117.6 – 126	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		
126 – 129	RADIONAVIGATION 5.60	RADIONAVIGATION 5.60		
129 – 130	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		
130- 135.7	FIXED MARITIME MOBILE 5.64 5.67	FIXED MARITIME MOBILE 5.64		
135.7- 137.8	FIXED MARITIME Amateur 5.67A 5.64 5.67 5.67B	FIXED MARITIME Amateur 5.67A 5.64		
137.8 – 148.5	FIXED MARITIME MOBILE 5.64 5.67	FIXED MARITIME MOBILE 5.64		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
148.5 – 255	BROADCASTING 5.68 5.69 5.70	BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70	AERONAUTICAL RADIONAVIGATION	NDB/locator
255 – 283.5	BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70 5.71	BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70	AERONAUTICAL RADIONAVIGATION	NDB/locator
283.5 – 315	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.72 5.74	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (other than radiobeacons) 5.73 5.74	AERONAUTICAL RADIONAVIGATION	NDB/locator
315 – 325	AERONAUTICAL RADIONAVIGATION Maritime Radionavigation (radiobeacons) 5.73 5.72 5.75	AERONAUTICAL RADIONAVIGATION Maritime Radionavigation (radiobeacons) 5.73	AERONAUTICAL RADIONAVIGATION	NDB/locator
325 – 405	AERONAUTICAL RADIONAVIGATION 5.72	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	NDB/locator
405 – 415	RADIONAVIGATION 5.72 5.76	RADIONAVIGATION 5.76		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
415 – 435	MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	MARITIME MOBILE	Maritme safety information on NAVTEX
435 – 472	MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.82	MARITIME MOBILE 5.79 Aeronautical radionavigation 5.82	MARITIME MOBILE	Maritme safety information on NAVTEX;
472 - 479	MARITIME MOBILE 5.79 Amateur 5.80A Aeronautical radionavigation 5.77 5.80 5.80B 5.82	MARITIME MOBILE 5.79 Amateur 5.80A Aeronautical radionavigation 5.82	MARITIME MOBILE	Maritme safety information on NAVTEX
479 - 495	MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.82	MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.82	MARITIME MOBILE	Maritime safety information on NAVTEX
495- 505	MARITIME MOBILE	MARITIME MOBILE	MARITIME MOBILE	Exclusive to maritme safety information on NAVTEX
505 – 526.5	MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	MARITIME MOBILE	Maritme safety information on NAVTEX

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
526.5 – 1606.5	BROADCASTING 5.87 5.87A	BROADCASTING	BROADCASTING	Exclusive to AM radio broadcasting
1606.5 – 1625	FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	MARITIME MOBILE	Distress communication on MF (Range:250 nautical miles from coast)
1625 – 1635	RADIOLOCATION 5.93	RADIOLOCATION FIXED LAND MOBILE 5.93		
1635 – 1800	FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92 5.96	FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	MARITIME MOBILE	Distress communication on MF (250 nautical miles from coast)
1800 - 1810	RADIOLOCATION 5.93	RADIOLOCATION FIXED LAND MOBILE 5.93		
1810 – 1850	AMATEUR 5.98 5.99 5.100	AMATEUR 5.100	AMATUER	
1850 – 2000	FIXED MOBILE except aeronautical mobile 5. 92 5.96 5.103	FIXED MOBILE except aeronautical mobile 5. 92 5.103		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
2000 – 2025	FIXED MOBILE except aeronautical mobile(R) 5.92 5.103	FIXED MOBILE except aeronautical mobile(R) 5.92 5.103		
2025 – 2045	FIXED MOBILE except aeronautical mobile(R) Met. aids 5.104 5.92 5.103	FIXED MOBILE except aeronautical mobile(R) Met. aids 5.104 5.92 5.103		
2045 – 2160	FIXED MARITIME MOBILE LAND MOBILE 5.92	FIXED MARITIME MOBILE LAND MOBILE 5.92	MARITIME MOBILE	Distress communication on MF (250 nautical miles from coast)
2160 – 2170	RADIOLOCATION 5.107 5.93	RADIOLOCATION FIXED LAND MOBILE 5.93		
2170 – 2173.5	MARITIME MOBILE	MARITIME MOBILE	MARITIME MOBILE	Distress communication on MF (within 250 nautical miles from coast)
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)	2182: DSC for distress alert

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
2190.5 – 2194	MARITIME MOBILE	MARITIME MOBILE	MARITIME MOBILE	Distress communication on MF (within 250 nautical miles from coast)
2194 – 2300	FIXED MOBILE except aeronautical mobile(R) 5.92 5.103 5.112	FIXED MOBILE except aeronautical mobile(R) 5.92 5.103		
2300 – 2498	FIXED MOBILE except aeronautical mobile(R) BROADCASTING 5.113 5.103	FIXED MOBILE except aeronautical mobile(R) BROADCASTING 5.113 5.103	BROADCASTING	AM radio 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	
2502 – 2625	FIXED MOBILE except aeronautical mobile(R) 5.92 5.103 5.114	FIXED MOBILE except aeronautical mobile(R) 5.92 5.103		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
2625 – 2650	MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	MARITIME MOBILE	Distress communication on MF (250 nautical miles from coast)
2650 – 2850	FIXED MOBILE except aeronautical mobile(R) 5.92 5.103	FIXED MOBILE except aeronautical mobile(R) 5.92 5.103		
2850 – 3025	AERONAUTICAL MOBILE(R) 5.111 5.115	AERONAUTICAL MOBILE(R) 5.111 5.115	AERONAUTICAL MOBILE(R)	HF voice and data communication (air-ground and air-air) 3023: emergency frequency for search and rescue; Flight information service frequencies inclusive

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
3025 – 3155	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE(OR)	HF voice and data communication (air-ground and air-air)
3155 – 3200	FIXED MOBILE except aeronautical mobile (R) 5.116 5.117	FIXED MOBILE except aeronautical mobile (R) 5.116		3155-3195 is recommended for low power wireless hearing aids
3200 – 3230 kHz	FIXED MOBILE except aeronautical mobile(R) BROADCASTING 5.113 5.116	FIXED MOBILE except aeronautical mobile(R) BROADCASTING 5.113 5.116	BROADCASTING	AM radio broadcasting; 3155-3195 is recommended for low power wireless hearing aids
3230 – 3400	FIXED MOBILE except aeronautical BROADCASTING 5.113 5.116 5.118	FIXED MOBILE except aeronautical BROADCASTING 5.113 5.116	BROADCASTING	AM radio broadcasting; 3155-3195 is recommended for low power wireless hearing aids

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
3400 – 3500	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)	HF voice and data communication (air-ground and air-air); Flight information service frequencies inclusive
3500 – 3800	AMATEUR FIXED MOBILE except aeronautical mobile 5.92	AMATEUR FIXED MOBILE except aeronautical mobile 5.92		
3800 – 3900	FIXED AERONAUTICAL MOBILE(OR) LAND MOBILE	FIXED AERONAUTICAL MOBILE(OR) LAND MOBILE		
3900 – 3950	AERONAUTICAL MOBILE(OR) 5.123	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE(OR)	HF voice and data communication (air-ground and air-air)
3950 – 4000	FIXED BROADCASTING	FIXED BROADCASTING	BROADCASTING	AM radio broadcasting
4000 – 4063	FIXED MARITIME MOBILE 5.127	FIXED MARITIME MOBILE 5.127	MARITIME MOBILE	GMDSS (worldwide long range distress communication)

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
4063 – 4438	MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128	MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132	MARITIME MOBILE	GMDSS (worldwide long range distress communication)
4438 – 4488	FIXED MOBILE except aeronautical mobile(R) Radiolocation 5.132A 5.132B	FIXED MOBILE except aeronautical mobile(R) Radiolocation 5.132A	FIXED MOBILE except aeronautical mobile(R)	2 way fixed/mobile radio
4488 – 4650	FIXED MOBILE except aeronautical mobile(R)	FIXED MOBILE except aeronautical mobile(R)	FIXED MOBILE except aeronautical mobile(R)	2 way fixed/mobile radio
4650- 4700	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE (R)	HF voice and data communication (air-ground and air-air)
4700 – 4750	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE (OR)	HF voice and data communication (air-ground and air-air)

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
4750 – 4850	FIXED AERONAUTICAL MOBILE(OR) LAND MOBILE BROADCASTING 5.113	FIXED AERONAUTICAL MOBILE(OR) LAND MOBILE BROADCASTING 5.113	BROADCASTING	AM radio broadcasting
4850 – 4995	FIXED LAND MOBILE BROADCASTING 5.113	FIXED LAND MOBILE BROADCASTING 5.113	FIXED LAND MOBILE	
4995 – 5003	STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (5000 KHZ)	
5003 – 5005	STANDARD FREQUENCY AND TIME SIGNAL Space research	STANDARD FREQUENCY AND TIME SIGNAL Space research	STANDARD FREQUENCY AND TIME SIGNAL	
5005 – 5060	FIXED BROADCASTING 5.113	FIXED BROADCASTING 5.113	FIXED	
5060 – 5250	FIXED MOBILE except aeronautical mobile 5.133	FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical mobile	2 way fixed/mobile radio

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
5250 – 5275	FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A	FIXED MOBILE except aeronautical mobile 5.132A	FIXED MOBILE except aeronautical mobile	2 way fixed/mobile radio
5275 – 5450	FIXED MOBILE except aeronautical mobile Amateur 5.133B	FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical mobile	2 way fixed/mobile radio
5450- 5480	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	FIXED LAND MOBILE	
5480 – 5680	AERONAUTICAL MOBILE(R) 5.111 5.115	AERONAUTICAL MOBILE(R) 5.111 5.115	AERONAUTICAL MOBILE (R)	HF voice and data communication (air-ground and air-air); 5680: emergency frequency for search and rescue; Flight information service frequencies inclusive
5680 – 5730	AERONAUTICAL MOBILE(OR) 5.111 5.115	AERONAUTICAL MOBILE(OR) 5.111 5.115	AERONAUTICAL MOBILE (OR)	HF voice and data communication (air-ground and air-air)

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
5730 – 5900	FIXED LAND MOBILE	FIXED LAND MOBILE	FIXED LAND MOBILE	2 way radio (land mobile radio)
5900 – 5950	BROADCASTING 5.134 5.136	BROADCASTING 5.134 LAND MOBILE 5.136	LAND MOBILE	2 way radio (land mobile radio)
5950 – 6200	BROADCASTING	BROADCASTING	BROADCASTING	AM radio 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	GMDSS (worldwide long range distress communication)
6525 – 6685	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE (R)	HF voice and data communication (air-ground and air-air) Flight information service frequencies inclusive
6685 – 6765	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE(OR)	HF voice and data communication (air-ground and air-air)
6765 – 7000	FIXED MOBILE except aeronautical mobile (R) 5.138 5.138A 5.139	FIXED MOBILE except aeronautical mobile (R) 5.138	FIXED MOBILE except aeronautical mobile (R)	2 way fixed/mobile radio 6765- 6795: designated to ISM
7000 – 7100	AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A	AMATEUR AMATEUR-SATELLITE	AMATEUR	

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
7100 – 7200	AMATEUR 5.141A 5.141B	AMATEUR	AMATEUR	
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 FIXED LAND MOBILE	7255: SW radio broadcasting 7350- 7450: land mobile
7400 – 7450	BROADCASTING 5.143B 5.143C	BROADCASTING FIXED LAND MOBILE 5.143B	FIXED LAND MOBILE	7350- 7450: land mobile
7450 – 8100	FIXED MOBILE except aeronautical mobile (R) 5.144	FIXED MOBILE except aeronautical mobile (R)	FIXED MOBILE except aeronautical mobile (R)	2 way fixed/mobile radio
8100 – 8195	FIXED MARITIME MOBILE	FIXED MARITIME MOBILE	FIXED	
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	GMDSS (worldwide long range distress communication)

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
8815 – 8965	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE (R)	HF voice and data communication (air-ground and air-air); Flight information service frequencies inclusive
8965 – 9040	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE (OR)	HF voice and data communication (air-ground and air-air)
9040 – 9305	FIXED	FIXED	FIXED	
9305 - 9355	FIXED Radiolocation 5.145A 5.145B	FIXED Radiolocation 5.145A	FIXED	
9355-9400	FIXED	FIXED	FIXED	
9400 – 9500	BROADCASTING 5.134 5.146	BROADCASTING 5.134 FIXED 5.146		
9500 – 9900	BROADCASTING 5.147	BROADCASTING 5.147	BROADCASTING	SW radio broadcasting
9900 – 9995	FIXED	FIXED	FIXED	

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
9995 – 10 003	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111	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	
10 005 – 10 100	AERONAUTICAL MOBILE(R) 5.111	AERONAUTICAL MOBILE(R) 5.111	AERONAUTICAL MOBILE(R)	HF voice and data communication (air-ground and air-air)
10 100 – 10 150	FIXED Amateur	FIXED Amateur	FIXED	
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)	HF voice and data communication (air-ground and air-air)
11 275 – 11 400	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE (R)	HF voice and data communication (air-ground and air-air)

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
11 400 – 11 600	FIXED	FIXED		
11 600 – 11 650	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146		
11 650 - 12 050	BROADCASTING 5.147	BROADCASTING 5.147	BROADCASTING	SW radio broadcasting
12 050 – 12 100	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146		
12 100 – 12 230	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	GMDSS (worldwide long range distress communication)
13 200 – 13 260	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE(OR)	AERONAUTICAL MOBILE(OR)	HF voice and data communication (air-ground and air-air)
13 260 – 13 360	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)	HF voice and data communication (air-ground and air-air); Flight information service frequencies inclusive
13 360 – 13 410	FIXED RADIO ASTRONOMY 5.149	FIXED RADIO ASTRONOMY 5.149		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
13 410 – 13 450	FIXED MOBILE except aeronautical mobile (R)	FIXED MOBILE except aeronautical mobile(R)		
13 450 - 13 550	FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A 5.149A	FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A 5.149A		
13 550 – 13 570	FIXED MOBILE except aeronautical mobile (R) 5.150	FIXED MOBILE except aeronautical mobile (R) 5.150		13553- 13567: designated for ISM applications. There would be no protection for other services.
13 570- 13 600	BROADCASTING 5.134 5.151	FIXED MOBILE except aeronautical mobile BROADCASTING 5.134 5.151		
13 600- 13 800	BROADCASTING	BROADCASTING		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
13 800 – 13 870	BROADCASTING 5.134 5.151	FIXED MOBILE except aeronautical mobile BROADCASTING 5.134 5.151		
13 870 – 14 000	FIXED MOBILE except aeronautical mobile (R)	FIXED MOBILE except aeronautical mobile (R)		
14 000 – 14 250	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE		
14 250 – 14 350	AMATEUR 5.152	AMATEUR	AMATEUR	
14 350 – 14 990	FIXED MOBILE except aeronautical mobile (R)	FIXED MOBILE except aeronautical mobile (R)	FIXED MOBILE except aeronautical mobile (R)	2 way fixed/mobile radio
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)	

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
15 005 - 15 010	STANDARD FREQUENCY AND TIME SIGNAL Space research	STANDARD FREQUENCY AND TIME SIGNAL Space research	STANDARD FREQUENCY AND TIME SIGNAL	
15 010 – 15 100	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		
15 100 – 15 600	BROADCASTING	BROADCASTING	BROADCASTING	SW broadcasting
15 600 – 15 800	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146		
15 800 – 16 100	FIXED 5.153	FIXED		
16 100 – 16 200	FIXED Radiolocation 5.145A 5.145B	FIXED Radiolocation 5.145A		
16 200 – 16 360	FIXED	FIXED		
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	GMDSS (worldwide long range distress communication)
17 410 – 17 480	FIXED	FIXED		
17 480 – 17 550	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146		
17 550 – 17 900	BROADCASTING	BROADCASTING		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
17 900 – 17 970	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	HF voice and data communication (air-ground and air-air); Flight information service frequencies inclusive
17 970 – 18 030	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		
18 030 – 18 052	FIXED	FIXED		
18 052 – 18 068	FIXED Space research	FIXED Space research		
18 068 – 18 168	AMATEUR AMATEUR-SATELLITE 5.154	AMATEUR AMATEUR-SATELLITE		
18 168 – 18 780	FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical mobile		
18 780 – 18 900	MARITIME MOBILE	MARITIME MOBILE	MARITIME MOBILE	GMDSS (worldwide long range distress communication)
18 900 – 19 020	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146		
19 020 – 19 680	FIXED	FIXED		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
19 680 – 19 800	MARITIME MOBILE 5.132	MARITIME MOBILE 5.132	MARITIME MOBILE	GMDSS (worldwide long range distress communication)
19 800 – 19 990	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		
21 000 – 21 450	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE	AMATEUR	
21 450 – 21 850	BROADCASTING	BROADCASTING		
21 850 – 21 870	FIXED 5.155A 5.155	FIXED		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
21 870 – 21 924	FIXED 5.155B	FIXED 5.155B	FIXED	Fixed services related to aircraft flight safety
21 924 - 22 000	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)		
22 000 – 22 855	MARITIME MOBILE 5.132 5.156	MARITIME MOBILE MET. AIDS 5.156	MARITIME MOBILE	GMDSS (worldwide long range distress communication)
22 855 – 23 000	FIXED 5.156	FIXED MET. AIDS 5.156		
23 000 – 23 200	FIXED Mobile except aeronautical mobile(R) 5.156	FIXED Mobile except aeronautical mobile(R) MET. AIDS 5.156		
23 200 – 23 350	FIXED 5.156A AERONAUTICAL MOBILE (OR)	FIXED 5.156A AERONAUTICAL MOBILE (OR)	FIXED	Fixed services related to aircraft flight safety
23 350 – 24 000	FIXED MOBILE except aeronautical mobile 5.157	FIXED MOBILE except aeronautical mobile 5.157	FIXED MOBILE except aeronautical mobile	2 way fixed/mobile radio
24 000 – 24 450	FIXED LAND MOBILE	FIXED LAND MOBILE	FIXED LAND MOBILE	2 way fixed/mobile radio

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
24 450 – 24 600	FIXED LAND MOBILE Radiolocation 5.132A 5.158	FIXED LAND MOBILE Radiolocation 5.132A	FIXED LAND MOBILE	2 way fixed/mobile radio
24 600 – 24 890	FIXED LAND MOBILE	FIXED LAND MOBILE	FIXED LAND MOBILE	2 way fixed/mobile radio
24 890 – 24 990	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE	AMATEUR	
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		
25 070 – 25 210	MARITIME MOBILE	MARITIME MOBILE		
25 210 – 25 550	FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical mobile		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
25 550 – 25 670	RADIO ASTRONOMY 5.149	RADIO ASTRONOMY 5.149		
25 670 – 26 100	BROADCASTING	BROADCASTING		
26 100 – 26 175	MARITIME MOBILE 5.132	MARITIME MOBILE 5.132	MARITIME MOBILE	Contain international frequencies for maritime safety information system
26 175 – 26 200	FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical mobile		
26 200 – 26 350	FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A	FIXED MOBILE except aeronautical mobile Radiolocation 5.132A		
26 350 – 27 500	FIXED MOBILE except aeronautical mobile 5.150	FIXED MOBILE except aeronautical mobile 5.150		26957- 27283: designated to ISM. There is no protection of other services from ISM.
27 500 – 28 000	MET. AIDS FIXED MOBILE	MET. AIDS FIXED MOBILE		
28 000 – 29 700	AMATEUR AMATEUR SATELLITE	AMATEUR AMATEUR SATELLITE		

SEGMENT 1: BELOW 30 MHZ				
FREQUENCY BANDS (KHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
29 700 – 30 005	FIXED MOBILE	FIXED MOBILE		

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
30.005 - 30.010	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH		
30.01 - 37.50	FIXED MOBILE	FIXED MOBILE		
37.50 - 38.25	FIXED MOBILE Radio astronomy 5.149	FIXED MOBILE Radio astronomy 5.149		
38. 25 - 39	FIXED MOBILE	FIXED MOBILE		
39 – 39.5	FIXED MOBILE Radiolocation 5.132A 5.159	FIXED MOBILE Radiolocation 5.132A		
39.5 - 39.986	FIXED MOBILE	FIXED MOBILE		
39.986 - 40.020	FIXED MOBILE Space Research	FIXED MOBILE Space research		

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
40.02 - 40.98	FIXED MOBILE 5.150	FIXED MOBILE 5.150		40.660-40.700: designated for ISM. There shall be no protection of other services.
40.980 - 41.015	FIXED MOBILE Space research 5.160 5.161	FIXED MOBILE		
41.015 - 42	FIXED MOBILE 5.160 5.161 5.161A	FIXED MOBILE		
42 – 42.5	FIXED MOBILE Radiolocation 5.132A 5.160 5.161B	FIXED MOBILE Radiolocation 5.132A		
42.5 - 44	FIXED MOBILE 5.160 5.161 5.161A	FIXED MOBILE		
44.0 – 47.0	FIXED MOBILE 5.162 5.162A	FIXED MOBILE		

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
47 – 68	BROADCASTING 5.162A 5.163 5.164 5.165 5.169 5.171	BROADCASTING LAND MOBILE 5.164	LAND MOBILE	Cordless systems
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 MOBILE except aeronautical	Cordless systems
74.8 - 75.2	AERONAUTICAL RADIONAVIGATION 5.180 5.181	AERONAUTICAL RADIONAVIGATION 5.180		Marker beacons (phased out nationwide)
75.2 – 87.5	FIXED MOBILE except aeronautical mobile 5.175 5.179 5.187	FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical	Cordless systems
87.5 - 100.0	BROADCASTING 5.190	BROADCASTING	BROADCASTING	FM radio broadcasting
100 - 108	BROADCASTING 5.192 5.194	BROADCASTING	BROADCASTING	FM radio broadcasting
108.000 - 117.975	AERONAUTICAL RADIONAVIGATION 5.197	AERONAUTICAL RADIONAVIGATION 5.197 5.197A	AERONAUTICAL RADIONAVIGATION	VOR/ILS localizer

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
117.975 – 137.000	AERONAUTICAL MOBILE (R) 5.111 5.198 5.199 5.200 5.201 5.202	AERONAUTICAL MOBILE (R) 5.111 5.200	AERONAUTICAL MOBILE (R)	VHF voice/data communication (air-ground and air-air) EPIRB on 121.5MHz
137.000 - 137.025	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) MOBILE-SATELLITE (s-E) 5.208A 5.208B 5.209 SPACE RESEARCH (s-E) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) MOBILE-SATELLITE (s-E) 5.208A 5.208B 5.209 SPACE RESEARCH (s-E) Fixed Mobile except aeronautical mobile (R) 5.208		Low earth orbiting satellites only

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
137.025 - 137.175	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) SPACE RESEARCH (s-E) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (s-E) 5.208A 5.208B 5.209 5.204 5.205 5.206 5.207 5.208	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) SPACE RESEARCH (s-E) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (s-E) 5.208A 5.208B 5.209 5.208		Low earth orbiting satellites only
137.175 - 137.825	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) MOBILE-SATELLITE (s-E) 5.208A 5.802B 5.209 SPACE RESEARCH (s-E) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) MOBILE-SATELLITE (s-E) 5.208A 5.802B 5.209 SPACE RESEARCH (s-E) Fixed Mobile except aeronautical mobile (R) 5.208		Low earth orbiting satellites only

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
137.825 - 138.000	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) SPACE RESEARCH (s-E) Fixed Mobile-satellite (s-E) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) SPACE RESEARCH (s-E) Fixed Mobile-satellite (s-E) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.208		Low earth orbiting satellites only
138.0 - 143.6	AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	AERONAUTICAL MOBILE (OR)		
143.60 - 143.65	AERONAUTICAL MOBILE (OR) SPACE RESEARCH (s-E) 5.211 5.212 5.214	AERONAUTICAL MOBILE (OR) SPACE RESEARCH (s-E)		
143.65 - 144.0	AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	AERONAUTICAL MOBILE (OR)		

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
144.0 -146.0	AMATEUR AMATEUR-SATELLITE 5.216	AMATEUR AMATEUR-SATELLITE		
146.0 – 148.0	FIXED MOBILE except aeronautical mobile (R)	FIXED MOBILE except aeronautical mobile (R)	FIXED MOBILE except aeronautical mobile (R)	Two- way radio (PMR)
148.0 – 149.9	FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (E-s) 5.209 5.218 5.219 5.221	FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (E-s) 5.209 5.218 5.219	FIXED MOBILE except aeronautical mobile (R)	Two- way radio (PMR)
149.90 - 150.05	MOBILE-SATELLITE (E-s) 5.209 5.220	MOBILE-SATELLITE (E-s) 5.209 5.220		
150.05 - 153.00	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	FIXED MOBILE except aeronautical mobile	Two- way radio (PMR)

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
153.0 – 154.0	FIXED MOBILE except aeronautical mobile (R) Met. aids	FIXED MOBILE except aeronautical mobile (R) Met. aids	MOBILE except aeronautical mobile (R)	Two- way radio (PMR)
154.0 – 156.4875	FIXED MOBILE except aeronautical mobile (R) 5.225A 5.226	FIXED MOBILE except aeronautical mobile (R) 5.225A 5.226	MOBILE except aeronautical mobile (R)	Two- way radio (PMR)
156.4875-156.5625	MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227	MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227	MARITIME MOBILE (distress and calling via DSC)	Short range voice comm. (ship-ship, ship-shore, shore-ship)
156.5625-156.7625	FIXED MOBILE except aeronautical mobile (R) 5.226	FIXED MOBILE except aeronautical mobile (R) 5.226	MOBILE except aeronautical mobile (R)	Two- way radio (PMR)
156. 7625 – 156. 7875	MARITIME MOBILE Mobile- satellite (E-s) 5.111 5.226 5.228	MARITIME MOBILE Mobile- satellite (E-s) 5.111 5.226 5.228	MARITIME MOBILE	Short range voice comm. (ship-ship, ship-shore, shore-ship)
156. 7875 – 156.8125	MARITIME MOBILE (distress and calling) 5.111 5.226	MARITIME MOBILE (distress and calling) 5.111 5.226	MARITIME MOBILE	Short range voice comm. (ship-ship, ship-shore, shore-ship)

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
156. 8125 – 156. 8375	MARITIME MOBILE Mobile- satellite (E- s) 5.111 5.226 5.228	MARITIME MOBILE Mobile- satellite (E- s) 5.111 5.226 5.228	MARITIME MOBILE	Short range voice comm. (ship-ship, ship-shore, shore-ship)
156. 8375 – 161. 9625	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (E-s) 5.226 5.228AA	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (E-s) 5.226 5.228AA	FIXED MOBILE except aeronautical mobile	Two- way radio (PMR) 159.15MHz: NMA Marine VHF Radio telephone
161. 9625 – 161. 9875	FIXED MOBILE except aeronautical mobile 5.228B Mobile- satellite (E- s) 5.226 5.228A 5.228F	FIXED MOBILE except aeronautical mobile 5.228B Mobile- satellite (E-s) 5.226 5.228A 5.228F	FIXED MOBILE except aeronautical mobile	Two- way radio (PMR)
161. 9875 – 162.0125	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (E-s) 5.226 5.228AA BROADCASTING 5.229	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (E-s) 5.226 5.228AA	FIXED MOBILE except aeronautical mobile	Two- way radio (PMR) 159.15MHz: NMA Marine VHF Radio telephone

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
162. 0125 – 162. 0375	FIXED MOBILE except aeronautical mobile Mobile- satellite (E-s) 5.228F 5.226 5.228A 5.228B 5.229	FIXED MOBILE except aeronautical mobile Mobile- satellite (E-s) 5.228F 5.226 5.228A 5.228B	FIXED MOBILE except aeronautical mobile	Two- way radio (PMR)
162.0375 – 174.0	FIXED MOBILE except aeronautical mobile 5.226 5.229	FIXED MOBILE except aeronautical mobile 5.226	FIXED MOBILE except aeronautical mobile	Two- way radio (PMR)
174 – 223	BROADCASTING 5.235 5.237 5.243	BROADCASTING	BROADCASTING	TV broadcasting on VHF
223 – 230	BROADCASTING Fixed Mobile 5.243 5.246 5.247	BROADCASTING Fixed Mobile	BROADCASTING	TV broadcasting on VHF
230 – 235	FIXED MOBILE 5.247 5.251 5.252	FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.251		

SEGMENT 2: 30 - 300 MHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
235 – 267	FIXED MOBILE 5.111 5.199 5.252 5.254 5.256 5.256A	FIXED MOBILE 5.111 5.254 5.256	FIXED	EPIRB on 243
267 - 272	FIXED MOBILE Space operation (s-E) 5.254 5.257	FIXED MOBILE 5.254 5.257		
272 – 273	SPACE OPERATION (s-E) FIXED MOBILE 5.254	FIXED MOBILE 5.254		
273 – 312	FIXED MOBILE 5.254	FIXED MOBILE 5.254		

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
312 - 315	FIXED MOBILE Mobile-satellite (E-s) 5.254 5.255	FIXED MOBILE Mobile-satellite (E-s) 5.254 5.255		
315 – 322	FIXED MOBILE 5.254	FIXED MOBILE 5.254		
322.0 – 328.6	FIXED MOBILE RADIO ASTRONOMY 5.149	FIXED MOBILE RADIO ASTRONOMY 5.149	FIXED MOBILE	Two- way radio (PMR)
328.6 - 335.4	AERONAUTICAL RADIONAVIGATION 5.258 5.259	AERONAUTICAL RADIONAVIGATION 5.258	AERONAUTICAL RADIONAVIGATION	Exclusive to ILS glide path nationwide
4 - 387.0	FIXED MOBILE 5.254	FIXED MOBILE 5.254	FIXED MOBILE	STL Two- way radio (PMR)

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
387 – 390	FIXED MOBILE Mobile-satellite (s-E) 5.208A 5.208B 5.254 5.255	FIXED MOBILE Mobile-satellite (s-E) 5.208A 5.208B 5.254 5.255	FIXED MOBILE	Two- way radio (PMR)
390.0 – 399.5	FIXED MOBILE 5.254	FIXED MOBILE 5.254	FIXED MOBILE	Two- way radio (PMR)
399.90 - 400.05	MOBILE- SATELLITE(E-s) 5.209 5.220	MOBILE- SATELLITE(E-s) 5.209 5.220		
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	MET.AIDS MET-SATELLITE (s-E) MOBILE-SATELLITE (s-E) 5.208A 5.209 SPACE RESEARCH (s-E) 5.263 Space operation (s-E) 5.262 5.264	MET.AIDS MET-SATELLITE (s-E) MOBILE-SATELLITE (s-E) 5.208A 5.209 SPACE RESEARCH (s-E) 5.263 Space operation (s-E) 5.264	MET. AIDS	Weather forecasting (radiosondes)

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
401 – 402	MET. AIDS SPACE OPERATION (s-E) EARTH EXPLORATION-SATELLITE (E-s) MET-SATELLITE (E-s) Fixed Mobile except aeronautical mobile	MET. AIDS SPACE OPERATION (s-E) EARTH EXPLORATION-SATELLITE (E-s) MET- SATELLITE (E-s) Fixed Mobile except aeronautical mobile	MET. AIDS	Weather forecasting (radiosondes)
402 - 403	MET. AIDS EARTH EXPLORATION-SATELLITE (E-s) METEOROLOGICAL SATELLITE (E-s) Fixed Mobile except aeronautical mobile	MET. AIDS METEOROLOGICAL SATELLITE (E-s) Fixed Mobile except aeronautical mobile	MET. AIDS	Weather forecasting (Radiosondes)
403 - 406	MET. AIDS Fixed Mobile except aeronautical mobile 5.265	MET. AIDS Fixed Mobile except aeronautical mobile 5.265	MET. AIDS	Weather forecasting (Radiosondes)

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
406.0 - 406.1	MOBILE-SATELLITE (E-s) 5.265 5.266 5.267	MOBILE-SATELLITE (E-s) 5.265 5.266 5.267	MOBILE-SATELLITE	Exclusive to EPIRBS implementation
406.1 - 410.0	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.265	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.265	FIXED MOBILE except aeronautical mobile	Two- way radio (PMR)
410 – 420	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (s-s) 5.268	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (s-s) 5.268	FIXED MOBILE except aeronautical mobile	Two- way radio (PMR)
420 - 430	FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271	FIXED MOBILE except aeronautical mobile Radiolocation	FIXED MOBILE except aeronautical mobile	Two- way radio (PMR)
430.00 – 432.00	AMATEUR RADIOLOCATION 5.271 5.272 5.273 5.274 5.275 5.276 5.277	AMATEUR RADIOLOCATION FIXED MOBILE except aeronautical mobile 5.276	FIXED MOBILE except aeronautical mobile	STL; Two- way radio (PMR)

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
432.00 – 438.00	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 FIXED MOBILE except aeronautical mobile Earth exploration-satellite (active) 5.279A 5.138 5.276	FIXED MOBILE except aeronautical mobile	STL; Two- way radio (PMR)
438.00 – 440.00	AMATEUR RADIOLOCATION 5.271 5.273 5.274 5.275 5.276 5.277 5.283	AMATEUR RADIOLOCATION FIXED MOBILE except aeronautical mobile 5.276	FIXED MOBILE except aeronautical mobile	STL; Two- way radio (PMR)
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 MOBILE except aeronautical mobile	STL; Two- way radio (PMR)

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
450 - 455	FIXED MOBILE 5.209 5.271 5.286 5.286A 5.286AA 5.286B 5.286C 5.286D 5.286E	FIXED MOBILE 5.209 5.286 5.286A MOBILE- SATELLITE (E-s) 5.286E	FIXED MOBILE	
455 - 456	FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E	FIXED MOBILE 5.209 5.286A MOBILE-SATELLITE (E-s) 5.286E	FIXED MOBILE	
456 – 459	FIXED MOBILE 5.271 5.286AA 5.287 5.288	FIXED MOBILE 5.286AA MARITIME MOBILE(on-board communication stations) 5.287	FIXED MOBILE	Microwave links; Maritime applications on 457; 456.200-456.375: designated for other port operations except ship movements
459 – 460	FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	FIXED MOBILE 5.286AA 5.209 5.286A MOBILE-SATELLITE (E-s) 5.286E	FIXED MOBILE	

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
460 – 470	FIXED MOBILE MARITIME MOBILE (on-board communication stations) 5.287 5.288 Meteorological-satellite (space-to-Earth) 5.289 5.290	FIXED MOBILE MARITIME MOBILE(on-board communication stations) 5.287 Meteorological-satellite (s-E) 5.289	FIXED MOBILE	
470 – 790	BROADCASTING 5.149 5.291A 5.294 5.296 5.300 5.304 5.306 5.311A 5.312 5.312A 5.317A	MOBILE except aeronautical mobile 5.317A BROADCASTING 5.149 5.296 5.311A RADIO ASTRONOMY 5.304	BROADCASTING	Analog TV: 470-854; DTT: 474-698 (GE6 agreement & DVB-T channel arrangement apply)
790 – 862	FIXED MOBILE except aeronautical mobile 5.316B 5.317A BROADCASTING 5.312 5.314 5.315 5.316 5.316A 5.319	FIXED MOBILE except aeronautical mobile 5.316B 5.317A BROADCASTING 5.316A	FIXED MOBILE BROADCASTING	STL; 811-821/852-862: TDD-CDMA; 824-849: FDD- CDMA reverse link; TV broadcasting

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
862 – 890	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.319 5.323	FIXED MOBILE except Aeronautical mobile 5.317A 5.322	MOBILE	869-890: FDD-CDMA forward link
890 – 942	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation	FIXED MOBILE except Aeronautical mobile 5.317A 5.322 Radiolocation	FIXED MOBILE	Fixed applications (STL, SADIS) 890-915: GSM reverse link; 935-960: GSM forward link
942 – 960	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation 5.323	FIXED MOBILE except aeronautical mobile 5.317A 5.322 Radiolocation	MOBILE	935- 960: GSM forward link

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
960 – 1164	AERONAUTICAL MOBILE (R) 5.327A 5.328AA AERONAUTICAL RADIONAVIGATION 5.328	AERONAUTICAL MOBILE (R) 5.327A 5.328AA AERONAUTICAL RADIONAVIGATION 5.328	AERONAUTICAL RADIONAVIGATION	Airborne Electronic Aids. 960-1215: designated for DME & GNSS. 1030-1090: designated for SSR/ACAS. (downlink: 1030; uplink: 1090)
1164 – 1215	AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (s-E)(s-s) 5.328B 5.328A	AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (s-E)(s-s) 5.328B 5.328A	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE	ARNS (DME); 1164- 1190: RNSS downlink
1215 - 1240	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION RADIONAVIGATION - SATELLITE (s-E) (s-s) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION RADIONAVIGATION - SATELLITE (s-E) (s-s) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.331 5.332		

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
1240 - 1300	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION - SATELLITE(s-E) (s-s) 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(s-E) (s-s) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.331 5.332 5.335A		
1300 - 1350	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION SATELLITE (E-s) 5.149 5.337A	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION SATELLITE (E-s) 5.149 5.337A		
1350 - 1400	FIXED MOBILE RADIOLOCATION 5.149 5.338 5.338A 5.339	FIXED MOBILE RADIOLOCATION 5.149 5.338A 5.339		

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**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		
1427 - 1429	SPACE OPERATION (E-s) FIXED MOBILE except aeronautical mobile 5.338A 5.341 5.341A 5.341B 5.341C	SPACE OPERATION (E-s) FIXED MOBILE except aeronautical mobile 5.338A 5.341 5.341A	SPACE OPERATION(E-s) FIXED MOBILE except aeronautical mobile (microwave links)	Non-speech low-bitrate data transmission Broadcasting, broadcast Satellite
1429 - 1452	FIXED MOBILE except aeronautical mobile 5.338A 5.341 5.341A 5.342	FIXED MOBILE except aeronautical mobile 5.338A 5.341 5.341A	FIXED MOBILE except aeronautical mobile (microwave links)	Non-speech low-bitrate data transmission Broadcasting, broadcast Satellite

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
1452 - 1492	FIXED MOBILE except aeronautical mobile 5.346 BROADCASTING BROADCASTING - SATELLITE 5.208B 5.341 5.341A 5.345 AERONAUTICAL MOBILE 5.342	FIXED MOBILE except aeronautical mobile 5.346 BROADCASTING BROADCASTING – SATELLITE 5.208B 5.341 5.341A 5.345	BROADCAST SATELLITE	1467- 1492: digital audio broadcasting
1492 - 1518	FIXED MOBILE except aeronautical mobile 5.341 5.341A 5.342	FIXED MOBILE except aeronautical mobile 5.341 5.341A	FIXED MOBILE except aeronautical mobile (microwave links)	Non-speech low-bitrate data transmission Broadcasting, broadcast Satellite
1518 – 1525	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (s-E) 5.348 5.348A 5.348B 5.351A 5.341 5.342	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (s-E) 5.348 5.348A 5.348B 5.351A 5.341	MOBILE-SATELLITE	Mobile satellite (Inmarsat) downlink frequencies. Band for BGAN implementation

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
1525 - 1530	SPACE OPERATION (s-E) FIXED MOBILE-SATELLITE (s-E) 5.208B 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 (s-E) FIXED MOBILE-SATELLITE (s-E) 5.208B 5.351A Earth exploration-satellite Mobile except aeronautical mobile 5.341 5.351 5.352A 5.354	MOBILE-SATELLITE	Mobile satellite (Inmarsat) downlink frequencies. Band for BGAN implementation
1530 - 1535	SPACE OPERATION (s-E) MOBILE-SATELLITE (s-E) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.342 5.351 5.354	SPACE OPERATION (s-E) MOBILE-SATELLITE (s-E) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.351 5.354	MOBILE-SATELLITE	Mobile satellite (Inmarsat) downlink frequencies. Band for BGAN implementation

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
1535 - 1559	MOBILE-SATELLITE (s-E) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A	MOBILE-SATELLITE (s-E) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.357A	MOBILE-SATELLITE	Mobile satellite (Inmarsat) downlink frequencies. 1544- 1545 dedicated worldwide to distress and safety communication via GMDSS.
1559 - 1610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (s-E)(s-s) 5.208B 5.328B 5.329A 5.341	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (s-E))(s-s) 5.208B 5.328B 5.329A 5.341	RADIONAVIGATION-SATELLITE (s-E)	RNSS downlink frequencies
1610.0 - 1610.6	MOBILE SATELLITE(E-s) 5.351A AERONAUTICAL RADIONAVIGATION 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372 5.446	MOBILE SATELLITE(E-s) 5.351A AERONAUTICAL RADIONAVIGATION 5.341 5.364 5.366 5.367 5.368 5.371 5.372 5.446		

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
1610.6 - 1613.8	MOBILE SATELLITE (E-s) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372 5.446	MOBILE SATELLITE (E-s) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION 5.149 5.341 5.364 5.366 5.367 5.368 5.371 5.372 5.446		
1613.8 - 1626.5	MOBILE-SATELLITE (E-s) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (s-E) 5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372 5.446	MOBILE-SATELLITE (E-s) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (s-E) 5.208B 5.341 5.364 5.365 5.366 5.367 5.368 5.371 5.372 5.446		
1626.5 – 1660.0	MOBILE-SATELLITE (E-s) 5.351A 5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376	MOBILE-SATELLITE (E-s) 5.351A 5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376	MOBILE-SATELLITE	Mobile satellite uplink (Inmarsat) operations. BGAN implemented in this band.

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
1660.0 - 1660.5	MOBILE-SATELLITE (E-s) RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.362A 5.376A	MOBILE-SATELLITE (E-s) RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.376A	MOBILE- SATELLITE	Mobile satellite uplink (Inmarsat) operations. BGAN implemented in this band.
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 Met. aids 5.379 5.379A		Radio astromy is given priority in this band.
1668 – 1668.4	MOBILE-SATELLITE (E-s) 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A	MOBILE-SATELLITE (E-s) 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 Met. aids 5.379 5.379A		

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
1668.4 - 1670	MET.AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (E-s) 5.351A 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E	MET.AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (E-s) 5.351A 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E	MET.AIDS	Weather forecasting (radiosondes)
1670 - 1675	MET. AIDS FIXED MET- SATELLITE (s-E) MOBILE except aeronautical mobile MOBILE- SATELLITE (E-s) 5.351A 5.379B 5.341 5.379D 5.379E 5.380A	MET. AIDS FIXED MET-SATELLITE (s-E) MOBILE except aeronautical mobile MOBILE- SATELLITE 5.351A 5.379B 5.341 5.379D 5.379E 5.380A	MET.AIDS	Weather forecasting (radiosondes)
1675 – 1690	MET. AIDS FIXED MET-SATELLITE (s-E) MOBILE except aeronautical mobile 5.341	MET. AIDS FIXED MET-SATELLITE (s-E) MOBILE except aeronautical mobile 5.341	MET. AIDS	Weather forecasting (radiosondes)

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
1690 – 1700	MET. AIDS MET-SATELLITE (s-E) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382	MET. AIDS MET-SATELLITE (s-E) Fixed Mobile except aeronautical mobile 5.289 5.341	MET. AIDS	Weather forecasting (radiosondes)
1700 - 1710	FIXED MET-SATELLITE (s-E) MOBILE except aeronautical mobile 5.289 5.341	FIXED MET-SATELLITE (s-E) MOBILE except aeronautical mobile 5.289 5.341		
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 MOBILE	1710-1785: FDD- GSM reverse link; 1805-1880: FDD- GSM forward link; 1790-1800: TDD-WLL; 1883-1910: FDD- CDMA reverse link; 1920- 1960: 3G FDD-UMTS reverse link
1930 - 1970	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A 5.388B 5.388	MOBILE	1920- 1960: 3G FDD-UMTS reverse link; 1963-1990: FDD-CDMA reverse link

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
1970 - 1980	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A 5.388B 5.388	MOBILE	1963-1990: FDD- CDMA forward link
1980 - 2010	FIXED MOBILE MOBILE-SATELLITE (E-s) 5.351A 5.388 5.389A 5.389B 5.389F	FIXED MOBILE MOBILE-SATELLITE (E-s) 5.351A 5.388 5.389A	MOBILE	1963-1990: FDD-CDMA forward link
2010 - 2025	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A 5.388B 5.388		
2025 - 2110	SPACE OPERATION (E-s) (s-s) EARTH EXPLORATION-SATELLITE (E-s) (s-s) FIXED MOBILE 5.391 SPACE RESEARCH (E-s) (s-s) 5.392	SPACE OPERATION (E-s) (s-s) EARTH EXPLORATION-SATELLITE (E-s) (s-s) FIXED MOBILE 5.391 SPACE RESEARCH (E-s) (s-s) 5.392	FIXED EARTH EXPLORATION-SATELLITE (E-s)	2028-2110: 3G, 4G 2059-2063: EESS uplink frequencies

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
2110 - 2120	FIXED MOBILE 5.388A 5.388B SPACE RESEARCH (deep space)(E-s) 5.388	FIXED MOBILE 5.388A 5.388B SPACE RESEARCH (deep space)(E-s) 5.388	MOBILE	2110-2150: 3G FDD-UMTS forward link
2120 - 2160	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A 5.388B 5.388	FIXED	2150-2180: 3G network
2160 - 2170	FIXED MOBILE 5.388A 5.388B 5.388 5.392A	FIXED MOBILE 5.388A 5.388B 5.388	FIXED	2150-2180: 3G network
2170 - 2200	FIXED MOBILE 5.388 MOBILE-SATELLITE (s-E) 5.351A 5.388 5.389A 5.389F	FIXED MOBILE 5.388 MOBILE-SATELLITE (s-E) 5.351A 5.388 5.389A	FIXED	2150-2180: 3G network
2200 - 2290	SPACE OPERATION (s-E) (s-s) EARTH EXPLORATION-SATELLITE (s-E) (s-s) FIXED MOBILE 5.391 SPACE RESEARCH (s-E) (s-s) 5.392	SPACE OPERATION (s-E) (s-s) EARTH EXPLORATION-SATELLITE (s-E) (s-s) FIXED MOBILE 5.391 SPACE RESEARCH (s-E) (s-s) 5.392	FIXED MOBILE EARTH EXPLORATION-SATELLITE	2204-2285: WIMAX, LTE 2226-2333: EESS downlink frequencies

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
2290 - 2300	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space)(s-E)	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space)(s-E)		
2300 - 2450	FIXED MOBILE Amateur Radiolocation 5.150 5.282 5.384A 5.395	FIXED MOBILE Amateur Radiolocation 5.150 5.384A 5.395	FIXED MOBILE	2300-2400: 4G LTE 2400-2500 is designated to ISM
2450 - 2483.5	FIXED MOBILE Radiolocation 5.150 5.397	FIXED MOBILE Radiolocation 5.150	FIXED ISM	2400-2500 is designated to ISM and is also free.

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
2483.5 - 2500	FIXED MOBILE MOBILE-SATELLITE (s-E) 5.351A RADIODETERMINATION - SATELLITE (s- E) 5.398 5.446 Radiolocation 5.150 5.399 5.401 5.402	FIXED MOBILE MOBILE-SATELLITE (s-E) 5.351A RADIODETERMINATION-SATELLITE (s- E) 5.446 Radiolocation 5.150 5.371 5.398 5.402	FIXED ISM	2400-2500 is designated to ISM and is also free.
2500 - 2520	FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.405 5.412	FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.405		
2520 - 2655	FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.412 BROADCASTING-SATELLITE 5.339 5.413 5.416 5.418B 5.418C	FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.339 5.413 5.416 5.418B 5.418C	FIXED	MMDS would be discontinued in this band by 17 June 2015

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
2655 - 2670	FIXED 5.410 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412	FIXED 5.410 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149	FIXED	MMDS would be discontinued in this band by 17 June 2015
2670 - 2690	FIXED 5.410 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (E-s) 5.351A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412	FIXED 5.410 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (E-s) 5.351A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412		

SEGMENT 3: 300 MHz – 3 000 MHz				
FREQUENCY BANDS (MHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
2690 - 2700	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) FIXED MOBILE except aeronautical mobile 5.340 5.422		
2700 - 2900	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423	RADIOLOCATION	Primary survelliance radars (PSR), Doppler radars
2900 - 3100	RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427	RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427	RADIONAVIGATION	Airborne bird avoidance radar system (ABARS); band limited to aviation ground-based radars only

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
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	Marine radar on S-band
3300 – 3400	RADIOLOCATION 5.149 5.429 5.429A 5.429B 5.430	RADIOLOCATION MOBILE except aeronautical mobile 5.149 5.429A 5.429B		
3400 – 3600	FIXED FIXED-SATELLITE (s-E) Mobile except aeronautical mobile 5.430A Radiolocation Amateur 5.431	FIXED FIXED-SATELLITE (s-E) Mobile except aeronautical mobile 5.430A Radiolocation	Fixed Mobile(s-E) FIXED-SATELLITE	3400-3518: 4G LTE; 3402.5-3517.5: TDD 3540-3660: fixed satellite downlink frequencies; 3500: Fixed wireless access
3600 – 4200	FIXED FIXED-SATELLITE (s-E) Mobile	FIXED FIXED-SATELLITE (s-E) Mobile	FIXED-SATELLITE	Fixed satellite downlink frequencies

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
4200 – 4400	AERONAUTICAL MOBILE (R) 5.436 AERONAUTICAL RADIONAVIGATION 5.437 5.438 5.439 5.440	AERONAUTICAL MOBILE (R) 5.436 AERONAUTICAL RADIONAVIGATION 5.437 5.438 5.440	AERONAUTICAL RADIONAVIGATION	Dedicated worldwide to aircraft radio altimeter transponder
4400 – 4500	FIXED MOBILE	FIXED MOBILE		
4500 – 4800	FIXED FIXED-SATELLITE (s-E) 5.441 MOBILE 5.440A	FIXED FIXED-SATELLITE (s-E) 5.441 MOBILE		
4800 – 4990	FIXED MOBILE 5.441A 5.441B 5.442 Radio astronomy 5.149 5.339 5.443	FIXED MOBILE 5.442 Radio astronomy 5.149 5.339		
4990 – 5000	FIXED MOBILE except aeronautical mobile 5.442 RADIO ASTRONOMY Space research (passive) 5.149	FIXED MOBILE except aeronautical mobile 5.442 RADIO ASTRONOMY Space research (passive) 5.149	FIXED	Wireless bridge applications

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
5000 – 5010	AERONAUTICAL MOBILE- SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION –SATELLITE (E-s)	AERONAUTICAL MOBILE- SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION –SATELLITE (E-s)		
5010 - 5030	AERONAUTICAL MOBILE- SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION –SATELLITE (s-E) (s-s) 5.328B 5.443B	AERONAUTICAL MOBILE- SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION –SATELLITE (s-E) (s-s) 5.328B 5.443B		
5030 - 5091	AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE- SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444	AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE- SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444		
5091 - 5150	FIXED-SATELLITE(E-s) 5.444A AERONAUTICAL MOBILE 5.444B AERONAUTICAL MOBILE- SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION 5.444	FIXED-SATELLITE (E-s) 5.444A AERONAUTICAL MOBILE 5.444B AERONAUTICAL MOBILE- SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION 5.444	AERONAUTICAL MOBILE AERONAUTICAL MOBILE-SATELLITE(R) AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE SERVICE(E-s)	

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
5150 – 5250	FIXED-SATELLITE (E-s) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B AERONAUTICAL RADIONAVIGATION 5.446 5.446C 5.447 5.447B 5.447C	FIXED-SATELLITE (E-s) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B AERONAUTICAL RADIONAVIGATION 5.447B 5.447C		5150-5350: Wireless Access systems
5250 – 5255	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH 5.447D 5.447E 5.448 5.448A	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH 5.447D 5.448A	FIXED	Wireless bridge applications
5255 – 5350	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH (active) 5.447E 5.448 5.448A	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH (active) 5.448A		

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
5350 – 5460	EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C	EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C		
5460 – 5470	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION 5.448D RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448B	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION 5.448D RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448B		
5470 – 5570	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION SPACE RESEARCH (active) 5.448B 5.450 5.451	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION SPACE RESEARCH (active) 5.448B		

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
5570 - 5650	MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION 5.450 5.451 5.452	MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION 5.452		
5650 – 5725	MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455	MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION Amateur Space research (deep space) FIXED MOBILE 5.453	FIXED MOBILE	5650- 5710: LTE
5725 – 5830	FIXED-SATELLITE (E-s) RADIOLOCATION Amateur 5.150 5.451 5.453 5.455 5.456	FIXED-SATELLITE (E-s) RADIOLOCATION Amateur 5.150 FIXED MOBILE 5.453	FIXED ISM	5725- 5875 is designated to ISM and is also free. Other services in this band are not protected from ISM.

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
5830 – 5850	FIXED-SATELLITE (E-s) RADIOLOCATION Amateur Amateur-satellite (s-E) 5.150 5.451 5.453 5.455 5.456	FIXED-SATELLITE (E-s) RADIOLOCATION Amateur Amateur-satellite (s-E) 5.150 FIXED MOBILE 5.453	FIXED ISM	5725-5875 is designated to ISM and is also free. Other services in this band are not protected from ISM.
5850 – 5925	FIXED FIXED-SATELLITE (E-s) MOBILE 5.150	FIXED FIXED-SATELLITE (E-s) MOBILE 5.150	FIXED ISM	5725-5875 is designated to ISM and is also free. Other services in this band are not protected from ISM.
5925 – 6700	FIXED 5.457 FIXED-SATELLITE (E-s) 5.457A 5.457B MOBILE 5.149 5.440 5.458	FIXED FIXED-SATELLITE (E-s) 5.457A MOBILE 5.149 5.440 5.458	FIXED FIXED-SATELLITE	5925- 6425: long haul point-to-point link; 6200- 6900: fixed satellite uplink frequencies
6700 – 7075	FIXED FIXED-SATELLITE (E-s) (s-E) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C	FIXED FIXED-SATELLITE (E-s) (s-E) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C	FIXED-SATELLITE	6200- 6900: fixed satellite uplink frequencies

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
7075 – 7145	FIXED MOBILE 5.458 5.459	FIXED MOBILE 5.458	FIXED	7110- 7750: long haul point- to-point link and STL
7145 - 7235	FIXED MOBILE SPACE RESEARCH (E-s) 5.458 5.459 5.460 EARTH EXPLORATION- SATELLITE(E-s) 5.460A 5.460B	FIXED MOBILE SPACE RESEARCH (E-s) 5.458 5.460 EARTH EXPLORATION- SATELLITE(E-s) 5.460A 5.460B	FIXED	7110- 7750: long haul point- to-point link and STL
7235 - 7250	EARTH EXPLORATION- SATELLITE(E-s) 5.460A FIXED MOBILE 5.458	EARTH EXPLORATION- SATELLITE(E-s) 5.460A FIXED MOBILE 5.458	FIXED	7110- 7750: long haul point- to-point link and STL
7250 – 7300	FIXED FIXED-SATELLITE (s-E) MOBILE 5.461	FIXED FIXED-SATELLITE (s-E) MOBILE 5.461	FIXED	7110- 7750: long haul point- to-point link and STL

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
7300 – 7450	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical Mobile 5.461 MARITIME MOBILE-SATELLITE(s-E) 5.461AA 5.461 AB	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile 5.461 MARITIME MOBILE-SATELLITE(s-E) 5.461AA 5.461AB	FIXED	7110- 7750: long haul point- to-point link and STL
7450 – 7550	FIXED FIXED-SATELLITE (s-E) METEOROLOGICAL-SATELLITE (s-E) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE(s-E) 5.461A 5.461AA 5.461AB	FIXED FIXED-SATELLITE (s-E) METEOROLOGICAL-SATELLITE (s-E) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE(s-E) 5.461A 5.461AA 5.461 AB	FIXED	7110-7750: long haul point- to-point link and STL
7550 – 7750	FIXED FIXED-SATELLITE (s-E) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE(s-E) 5.461AA 5.461 AB	FIXED FIXED-SATELLITE (s-E) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE(s-E) 5.461AA 5.461 AB	FIXED	7110- 7750: long haul point- to-point link and STL
7750 – 7900	FIXED MET -SATELLITE (s-E) 5.461B MOBILE except aeronautical mobile	FIXED MET -SATELLITE (s-E) 5.461B MOBILE except aeronautical mobile	FIXED	7747- 8500: long haul point- to-point link

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
7900 – 8025	FIXED FIXED-SATELLITE (E-s) MOBILE 5.461	FIXED FIXED-SATELLITE (E-s) MOBILE 5.461	FIXED	7747- 8500: long haul point- to-point link
8025 – 8175	EARTH EXPLORATION-SATELLITE (s-E) FIXED FIXED-SATELLITE (E-s) MOBILE 5.463 5.462A	EARTH EXPLORATION-SATELLITE (s-E) FIXED FIXED-SATELLITE (E-s) MOBILE 5.463 5.462A	FIXED	7747- 8500: long haul point- to-point link
8175 – 8215	EARTH EXPLORATION-SATELLITE (s-E) FIXED FIXED-SATELLITE (E-s) METEOROLOGICAL-SATELLITE (E-s) MOBILE 5.463 5.462A	EARTH EXPLORATION-SATELLITE (s-E) FIXED FIXED-SATELLITE (E-s) METEOROLOGICAL-SATELLITE (E-s) MOBILE 5.463 5.462A	FIXED EARTH EXPLORATION-SATELLITE (s-E)	7747- 8500: long haul point- to-point link 8200: earth exploration satellite downlink (high data rate)
8215 – 8400	EARTH EXPLORATION-SATELLITE (s-E) FIXED FIXED-SATELLITE (E-s) MOBILE 5.463 5.462A	EARTH EXPLORATION-SATELLITE (s-E) FIXED FIXED-SATELLITE (E-s) MOBILE 5.463 5.462A	FIXED	7747- 8500: long haul point- to-point link

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
8400 – 8500	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (s-E) 5.465 5.466	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (s-E) 5.465	FIXED	7747- 8500: long haul point- to-point link
8500 – 8550	RADIOLOCATION 5.468 5.469	RADIOLOCATION FIXED MOBILE 5.468		
8550 – 8650	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH FIXED MOBILE 5.468 5.469A		
8650 – 8750	RADIOLOCATION 5.468 5.469	RADIOLOCATION FIXED MOBILE 5.468		
8750 – 8850	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470		

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
8850 – 9000	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473	RADIOLOCATION MARITIME RADIONAVIGATION 5.472		
9000 – 9200	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 5.471 5.473A	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 5.473A		
9200 – 9300	EARTH EXPLORATION-SATELLITE(active) 5.474A 5.474B 5.474C 5.474D RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474	EARTH EXPLORATION-SATELLITE(active) 5.474B 5.474C 5.474D RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.474 5.474 D	RADIOLOCATION MARITIME RADIONAVIGATION Marine radar	Marine radar
9300 – 9500	EARTH EXPLORATION –SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.427 5.474 5.475 5.475A 5.475B 5.476A	EARTH EXPLORATION –SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.427 5.474 5.475 5.475A 5.475B 5.476A	RADIOLOCATION	Marine radar

SEGMENT 4: 3000 MHz – 10GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
9 500 – 9 800	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A		
9 800 – 9 900	RADIOLOCATION Earth exploration-satellite (active) Fixed Space research (active) 5.477 5.478 5.478A 5.478B	FIXED 5.477		
9900- 10 000	RADIOLOCATION Fixed 5.474A 5.474B 5.474C 5.474D 5.477 5.478 5.479	EARTH EXPLORATION-SATELLITE(active) FIXED 5.474B 5.474C 5.477 5.479	FIXED	

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
10 - 10.45	EARTH EXPLORATION-SATELLITE(active) 5.474A 5.474B 5.474C 5.474D RADIOLOCATION Amateur 5.479	EARTH EXPLORATION-SATELLITE(active) 5.474A 5.474B 5.474C 5.474D RADIOLOCATION Amateur 5.479	FIXED	10.168-10.630: WLL
10.45 - 10.50	RADIOLOCATION Amateur Amateur-Satellite FIXED MOBILE 5.481	RADIOLOCATION Amateur Amateur-satellite FIXED MOBILE 5.481	MOBILE	10.168-10.630: WLL
10.50 - 10.55	FIXED MOBILE Radiolocation	FIXED MOBILE Radiolocation	FIXED	10.168-10.630: WLL-FDD
10.55 - 10.60	FIXED MOBILE except aeronautical mobile Radiolocation	FIXED MOBILE except aeronautical mobile Radiolocation	FIXED	10.168-10.630: WLL-FDD

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
10.60 - 10.68	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A	FIXED	10.168-10.630: WLL-FDD
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		
10.70 - 11.70	FIXED FIXED-SATELLITE (s-E) 5.441 5.484A 5.484B 5.484 (E-s) MOBILE except aeronautical mobile	FIXED FIXED-SATELLITE (s-E) 5.441 5.484A 5.484B 5.484 (E-s) MOBILE except aeronautical mobile	FIXED	10.7- 11.7: point-to-point links
11.70 - 12.50	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.487 5.487A 5.492	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.487 5.492	BROADCASTING-SATELLITE	Digital satellite broadcasting

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
12.50 - 12.75	FIXED-SATELLITE (s-E) 5.484A 5.484B (E-s) 5.494 5.495 5.496	FIXED MOBILE except aeronautical mobile FIXED-SATELLITE (s-E) 5.484A (E-s) 5.494	FIXED-SATELLITE	Fixed satellite downlink frequencies
12.75 - 13.25	FIXED FIXED-SATELLITE (E-s) 5.441 MOBILE Space research (deep space)(s-E)	FIXED FIXED-SATELLITE (E-s) 5.441 MOBILE Space research (deep space)(s-E)	FIXED	12.75- 13.25: point-to-point link
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		

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
13.40 - 13.75	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION 5.501 FIXED 5.499 FIXED MOBILE 5.500 FIXED-SATELLITE(space-to-Earth) 5.499A 5.499B 5.499E SPACE RESEARCH 5.499C 5.499D 5.501A 5.501B Standard frequency and time signal-satellite (E-s)	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION FIXED SATELLITE(space-to-Earth) 5.499A 5.499B 5.499E FIXED MOBILE 5.500 RADIOLOCATION SPACE RESEARCH 5.499C 5.499D 5.501A 5.501B Standard frequency and time signal-satellite (E-s)	RADIOLOCATION	
13.75 - 14	FIXED-SATELLITE (E-s) 5.484A RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (E-s) Space research 5.499 5.500 5.501 5.502 5.503	FIXED-SATELLITE (E-s) 5.484A RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (E-s) Space research 5.502 5.503 FIXED MOBILE 5.500		

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
14 - 14.25	FIXED-SATELLITE (E-s) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile- satellite (E-s) 5.504B 5.504C 5.506A Space research 5.504A 5.505	FIXED-SATELLITE (E-s) 5.457A 5.484A 5.506 RADIONAVIGATION 5.504 Mobile- satellite (E-s) 5.504B 5.504C 5.506A Space reaserch 5.504A	FIXED-SATELLITE	Fixed satellite uplink frequencies
14.25 - 14.30	FIXED-SATELLITE (E-s) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (E-s) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508	FIXED-SATELLITE (E-s) 5.457A 5.484A 5.506 RADIONAVOGATION 5.504 Mobile- satellite (E-s) 5.504B 5.506A 5.508A Space research 5.504A		
14.30 - 14.40	FIXED FIXED-SATELLITE (E-s) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (E-s) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	FIXED FIXED-SATELLITE (E-s) 5.457A 5.484A 5.484B 5.506 MOBILE except aeronautical mobile Mobile-satellite (E-s) 5.506A 5.509A		

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
14.40 - 14.47	FIXED FIXED-SATELLITE (E-s) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (E-s) 5.504B 5.506A 5.509A Space research (s-E) 5.504A 5.505 5.508	FIXED FIXED-SATELLITE (E-s) 5.457A 5.484A 5.484B 5.506 MOBILE except aeronautical mobile Mobile-satellite (E-s) 5.506A 5.509A Space research (s-E) 5.504A	FIXED	14.40- 15.35: point-to-point link
14.47 - 14.50	FIXED FIXED-SATELLITE (E-s) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (E-s) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A	FIXED FIXED-SATELLITE (E-s) 5.457A 5.484A 5.506 MOBILE except aeronautical mobile Mobile-satellite (E-s) 5.506A 5.509A Radio astronomy 5.149 5.504A	FIXED	14.40- 15.35: point-to-point link
14.50 - 14.80	FIXED FIXED-SATELLITE (E-s) 5.510 MOBILE Space research 5.509G	FIXED FIXED-SATELLITE (E-s) 5.510 MOBILE Space research 5.509G	FIXED	14.40- 15.35: point-to-point link

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
14.80 - 15.35	FIXED MOBILE Space research 5.339	FIXED MOBILE Space research 5.339	FIXED	14.40- 15.35: point-to-point link
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	RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION	RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION		
15.43 – 15.63	FIXED-SATELLITE (E-s) 5.511A RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511C	FIXED-SATELLITE (E-s) 5.511A RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511C		
15.63 – 15.7	RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D	RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D		
15.70 - 16.60	RADIOLOCATION 5.512 5.513	RADIOLOCATION		

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
16.60 - 17.10	RADIOLOCATION FIXED MOBILE Space research (deep space)(E-s) 5.512 5.513	RADIOLOCATION FIXED MOBILE Space research (deep space)(E-s)		
17.10 - 17.20	RADIOLOCATION FIXED MOBILE 5.512 5.513	RADIOLOCATION		
17.20 - 17.30	EARTH EXPLORATION- SATELLITE (active) FIXED MOBILE RADIOLOCATION 5.513A SPACE RESEARCH (active) 5.512 5.513	EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION 5.513A SPACE RESEARCH (active) FIXED MOBILE		
17.30 - 17.70	FIXED-SATELLITE (E-s) 5.516 (s-E) 5.516A 5.516B Radiolocation Fixed Mobile 5.514	FIXED-SATELLITE (E-s) 5.516 (s-E) 5.516A 5.516B Radiolocation Fixed Mobile 5.514		17.3-18.1: fixed satellite limited to broadcast satellite feeder link

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
17.70 - 18.10	FIXED FIXED-SATELLITE (s-E) 5.484A (E-s) 5.516 MOBILE	FIXED FIXED-SATELLITE (s-E) 5.484A (E-s) 5.516 MOBILE		17.3-18.1: fixed satellite limited to broadcast satellite feeder link
18.10 - 18.40	FIXED FIXED-SATELLITE (s-E) 5.484A 5.516B (E-s) 5.520 MOBILE 5.519 5.521	FIXED FIXED-SATELLITE (s-E) 5.484A 5.516B (E-s) 5.520 MOBILE 5.519	FIXED	18.3- 19.7: point-to-point link; band to be replanned in 2015.
18.40 - 18.60	FIXED FIXED-SATELLITE (s-E) 5.484A 5.516B MOBILE	FIXED FIXED-SATELLITE (s-E) 5.484A 5.516B MOBILE	FIXED	18.3- 19.7: point-to-point link; band to be replanned in 2015.
18.60 - 18.80	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (s-E) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (s-E) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	FIXED	18.3- 19.7: point-to-point link; band to be replanned in 2015.

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
18.80 - 19.30	FIXED FIXED-SATELLITE (s-E) 5.516B 5.523A MOBILE	FIXED FIXED-SATELLITE (s-E) 5.516B 5.523A MOBILE	FIXED FIXED-SATELLITE (s-E)	18.3- 19.7: point-to-point link; 19-20.2: fixed satellite downlink frequencies
19.30 – 19.70	FIXED FIXED-SATELLITE (s-E)(E-s) 5.523B 5.523C 5.523D 5.523E MOBILE	FIXED FIXED-SATELLITE (s-E)(E-s) 5.523B 5.523C 5.523D 5.523E MOBILE	FIXED FIXED-SATELLITE (s-E)	18.3- 19.7: point-to-point link; 19-20.2: fixed satellite downlink frequencies
19.70 - 20.10	FIXED-SATELLITE (s-E) Mobile-satellite (s-E) 5.484A 5.484B 5.516B 5.524 5.527A	FIXED-SATELLITE (s-E) Mobile-satellite (s-E) 5.484A 5.484B 5.516B 5.524 5.527A	FIXED-SATELLITE(s-E)	19-20.2: fixed satellite downlink frequencies
20.10 - 20.20	FIXED-SATELLITE (s-E) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (s-E) 5.524 5.525 5.526 5.527 5.528	FIXED-SATELLITE (s-E) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (s-E) 5.524 5.525 5.526 5.527 5.528	FIXED-SATELLITE	19-20.2: fixed satellite downlink frequencies

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
20.20 - 21.20	FIXED-SATELLITE (s-E) MOBILE-SATELLITE (s-E) Standard frequency and time signal-satellite (s-E) FIXED MOBILE 5.524	FIXED MOBILE FIXED-SATELLITE (s-E) MOBILE-SATELLITE (s-E) Standard frequency and time signal-satellite (s-E) FIXED MOBILE 5.524		
21.20 - 21.40	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	FIXED	21.2- 23.6: point-to-point link
21.40 - 22	FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530D	FIXED MOBILE 5.530A BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530D	FIXED	21.2- 23.6: point-to-point link
22 - 22.21	FIXED MOBILE except aeronautical mobile 5.149	FIXED MOBILE except aeronautical mobile 5.149	FIXED	21.2- 23.6: point-to-point link

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**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	21.2- 23.6: point-to-point link
22.50 - 22.55	FIXED MOBILE	FIXED MOBILE	FIXED	21.2- 23.6: point-to-point link
22.55 – 23.15	FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH (E- s) 5.532A 5.149	FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH (E- S) 5.532A 5.149	FIXED	21.2- 23.6: point-to-point link
23.15 – 23.55	FIXED INTER – SATELLITE 5.338A MOBILE	FIXED INTER – SATELLITE 5.338A MOBILE	FIXED	21.2- 23.6: point-to-point link
23.55 - 23.60	FIXED MOBILE	FIXED MOBILE	FIXED	21.2- 23.6: point-to-point link
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		

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
24 - 24.05	AMATEUR AMATEUR-SATELLITE 5.150	AMATEUR AMATEUR-SATELLITE ISM 5.150		24-24.25: designated for ISM; no protection for other services on this band
24.05 - 24.25	RADIOLOCATION Amateur Earth exploration-satellite (active) 5.150	RADIOLOCATION Amateur Earth exploration-satellite (active) ISM 5.150		24-24.25: designated for ISM; no protection for other services on this band.
24.25 - 24.45	FIXED	FIXED		
24.45 - 24.65	FIXED INTER-SATELLITE	FIXED INTER-SATELLITE	FIXED	24.5- 26.5: WLL-FDD
24.65 - 24.75	FIXED FIXED-SATELLITE (E- s) 5.532B INTER -SATELLITE	FIXED FIXED-SATELLITE (E- s) 5.532B INTER-SATELLITE	FIXED	24.5- 26.5: WLL-FDD
24.75 - 25.25	FIXED FIXED-SATELLITE (E- s) 5.532B	FIXED FIXED-SATELLITE (E- s) 5.532B	FIXED	24.5- 26.5: WLL-FDD
25.25 – 25.50	FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (E-s)	FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (E-s)	FIXED	24.5- 26.5: WLL-FDD

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
25.50 - 27	EARTH EXPLORATION-SATELLITE (s-E) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (s-E) 5.536C Standard frequency and time signal-satellite (E-s) 5.536A	EARTH EXPLORATION-SATELLITE (s-E) FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (s-E) 5.536C Standard frequency and time signal-satellite (E-s) 5.536A	FIXED	24.5- 26.5: WLL- FDD
27 - 27.50	FIXED INTER-SATELLITE 5.536 MOBILE	FIXED INTER-SATELLITE 5.536 MOBILE		
27.50 - 28.50	FIXED 5.537A FIXED-SATELLITE (E-s) 5.484A 5.516B 5.539 MOBILE 5.538 5.540	FIXED FIXED-SATELLITE (E-s) 5.484A 5.516B 5.539 MOBILE 5.538 5.540		
28.50 - 29.10	FIXED FIXED-SATELLITE (E-s) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (E-s) 5.541 5.540	FIXED FIXED-SATELLITE (E-s) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (E-s) 5.541 5.540	FIXED-SATELLITE (E-s)	28.8-30: fixed satellite uplink frequencies

SEGMENT 5: 10GHz – 30GHz				
FREQUENCY BANDS (MHZ)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
29.1 – 29.50	FIXED FIXED-SATELLITE (E-s) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (E-s) 5.541 5.540	FIXED FIXED-SATELLITE (E-s) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (E-s) 5.541 5.540	FIXED-SATELLITE	28.8- 30: fixed satellite uplink frequencies
29.50 - 29.90	FIXED-SATELLITE (E-s) 5.527A 5.484A 5.484B 5.516B 5.539 5.540 Earth exploration-satellite (E-s) 5.541 Mobile-satellite (E-s) Fixed Mobile 5.542	FIXED-SATELLITE (E-s) 5.527A 5.484A 5.516B 5.539 5.540 Earth exploration-satellite (E-s) 5.541 Mobile-satellite (E-s)	FIXED-SATELLITE(s-E)	28.8-30: fixed satellite uplink frequencies
29.90 – 30.00	FIXED-SATELLITE (E-s) 5.527A 5.484A 5.484B 5.516B 5.539 MOBILE-SATELLITE (E-s) Earth exploration-satellite (E-s) 5.525 5.526 5.527 5.538 5.540 5.541 5.542 5.543	FIXED-SATELLITE (E-s) 5.527A 5.484A 5.484B 5.516B 5.539 MOBILE-SATELLITE (E-s) Earth exploration-satellite (E-s) 5.525 5.526 5.527 5.538 5.540 5.541 5.543	FIXED-SATELLITE (s-E)	28.8-30: fixed satellite uplink frequencies

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
30 - 31	FIXED-SATELLITE (E-s) 5.338A MOBILE-SATELLITE (E-s) Standard frequency and time signal-satellite (s-E) 5.542	FIXED-SATELLITE (E-s) 5.338A MOBILE-SATELLITE (E-s) Standard frequency and time signal-satellite (s-E)		
31 - 31.30	FIXED 5.338A 5.543A MOBILE Standard frequency and time signal-satellite (s-E) Space research 5.544 5.545 5.149	FIXED 5.338A MOBILE Standard frequency and time signal-satellite (s-E) Space research 5.149		
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		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
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)(s-E) 5.547 5.547B 5.548	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space)(s-E) 5.547 5.548		
32 - 32.30	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space)(s-E) 5.547 5.547C 5.548	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space)(s-E) 5.547 5.548		
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		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
33 - 33.40	FIXED 5.547A RADIONAVIGATION 5.547 5.547E	FIXED 5.547A RADIONAVIGATION 5.547		
33.40 - 34.20	RADIOLOCATION 5.549	FIXED MOBILE RADIOLOCATION 5.549		
34.20 - 34.70	RADIOLOCATION SPACE RESEARCH (deep space)(E-s) 5.549	FIXED MOBILE RADIOLOCATION SPACE RESEARCH (deep space)(E-s) 5.549		
34.70 - 35.20	RADIOLOCATION Space research 5.550 5.549	FIXED MOBILE RADIOLOCATION Space research 5.549		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
35.20 – 35.5	MET. AIDS RADIOLOCATION 5.549	FIXED MOBILE METEOROLOGICAL AIDS RADIOLOCATION 5.549		
35.5 – 36	MET. AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A	FIXED MOBILE MET. AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A		
36 - 37	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
37 - 37.50	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (s-E) 5.547	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (s-E) 5.547	FIXED	37.058- 38.654: point-to-point
37.50 - 38	FIXED FIXED-SATELLITE (s-E) MOBILE except aeronautical mobile SPACE RESEARCH (s-E) Earth exploration-satellite (s-E) 5.547	FIXED FIXED-SATELLITE (s-E) MOBILE except aeronautical mobile SPACE RESEARCH (s-E) Earth exploration-satellite (s-E) 5.547	FIXED	37.058- 38.654: point-to-point
38 - 39.50	FIXED FIXED-SATELLITE (s-E) MOBILE Earth exploration-satellite (s-E) 5.547	FIXED FIXED-SATELLITE (s-E) MOBILE Earth exploration-satellite (s-E) 5.547	FIXED	37.058- 38.654: point-to-point

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
39.50 - 40	FIXED FIXED-SATELLITE (s-E) 5.516B MOBILE MOBILE-SATELLITE (s-E) Earth exploration-satellite (s-E) 5.547	FIXED FIXED-SATELLITE (s-E) 5.516B MOBILE MOBILE-SATELLITE (s-E) Earth exploration-satellite (s-E) 5.547		
40 - 40.50	EARTH EXPLORATION-SATELLITE (E-s) FIXED FIXED-SATELLITE (s-E) 5.516B MOBILE MOBILE-SATELLITE (s-E) SPACE RESEARCH (E-s) Earth exploration-satellite (s-E)	EARTH EXPLORATION-SATELLITE (E-s) FIXED FIXED-SATELLITE (s-E) 5.516B MOBILE MOBILE-SATELLITE (s-E) SPACE RESEARCH (E-s) Earth exploration-satellite (s-E)		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
40.5 - 41	FIXED FIXED-SATELLITE (s-E) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	FIXED FIXED-SATELLITE (s-E) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547		
41 – 42.5	FIXED FIXED-SATELLITE (s-E) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551H 5.551I	FIXED FIXED-SATELLITE (s-E) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551H 5.551I	FIXED	41- 43.5: point-to-point link
42.50 - 43.50	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE except Aeronautical Mobile RADIO ASTRONOMY 5.149 5.547	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE except Aeronautical Mobile RADIO ASTRONOMY 5.149 5.547	FIXED	41- 43.5: point-to-point link

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
43.50 – 47.00	MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554		
47 - 47.20	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE		
47.20 – 47.50	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE 5.552A	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE 5.552A		
47.50 – 47.90	FIXED FIXED-SATELLITE (E-s) 5.552 (s-E) 5.516B 5.554A MOBILE	FIXED FIXED-SATELLITE (E-s) 5.552 (s-E) 5.516B 5.554A MOBILE		
47.90 – 48.20	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE 5.552A	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE 5.552A		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
48.20 – 48.54	FIXED FIXED-SATELLITE (E-s) 5.552 (s-E) 5.516B 5.554A 5.555B MOBILE	FIXED FIXED-SATELLITE (E-s) 5.552 (s-E) 5.516B 5.554A 5.555B MOBILE		
48.54 – 49.44	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE 5.149 5.340 5.555	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE 5.149 5.340 5.555		
49.44 – 50.20	FIXED FIXED-SATELLITE (E-s) 5.338A 5.552 (s-E) 5.516B 5.554A 5.555B MOBILE	FIXED FIXED-SATELLITE (E-s) 5.338A 5.552 (s-E) 5.516B 5.554A 5.555B MOBILE		
50.20 - 50.40	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
50.40 - 51.40	FIXED FIXED-SATELLITE (E-s) 5.338A MOBILE Mobile-satellite (E-s)	FIXED FIXED-SATELLITE (E-s) 5.338A MOBILE Mobile-satellite (E-s)		
51.40 - 52.6	FIXED MOBILE 5.547 5.556	FIXED MOBILE 5.547 5.556		
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		
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)		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
55.78 - 56.9	EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547		
56.9 - 57.0	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
57 – 58.2	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547		
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		
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)		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**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		61-61.5: designated for ISM
64 - 65	FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556	FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556		
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		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**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 (s-E) MOBILE MOBILE-SATELLITE (s-E)	FIXED FIXED-SATELLITE (s-E) MOBILE MOBILE-SATELLITE (s-E)	FIXED	71-74: point-to-point link
74 - 76	FIXED FIXED-SATELLITE (s-E) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (s-E) 5.561	FIXED FIXED-SATELLITE (s-E) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (s-E) 5.561		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
76 – 77.5	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (s-E) 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (s-E) 5.149		
77.5 - 78	AMATEUR AMATEUR-SATELLITE RADIOLOCATION 5.559B Radio astronomy Space research (s-E) 5.149	AMATEUR AMATEUR-SATELLITE RADIOLOCATION 5.559B Radio astronomy Space research (s-E) 5.149	AMATEUR AMATEUR-SATELLITE Radio astronomy Space research(s-E)	
78 - 79	RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (s-E) 5.149 5.560	RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (s-E) 5.149 5.560		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
79 - 81	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (s-E) 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (s-E) 5.149		
81 - 84	FIXED 5.338A FIXED-SATELLITE (E-s) MOBILE MOBILE-SATELLITE (E-s) RADIO ASTRONOMY Space research (s-E) 5.149 5.561A	FIXED 5.338A FIXED-SATELLITE (E-s) MOBILE MOBILE-SATELLITE (E-s) RADIO ASTRONOMY Space research (s-E) 5.149 5.561A	FIXED	81-84: point-to-point link
84 - 86	FIXED 5.338A FIXED-SATELLITE (E-s) 5.561B MOBILE RADIO ASTRONOMY 5.149	FIXED 5.338A FIXED-SATELLITE (E-s) 5.561B MOBILE RADIO ASTRONOMY 5.149		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**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 5.338A MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	FIXED 5.338A MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149		
94.0 – 94.1	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A		
94.1 – 95.0	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
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		
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 5.341		
102 - 105	FIXED MOBILE RADIO ASTRONOMY 5.149 5.341	FIXED MOBILE RADIO ASTRONOMY 5.149 5.341		
105 – 109.5	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
109.5 – 111.8	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		
111.8 – 114.25	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341		
114.25 - 116	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		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
116 – 119.98	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341		
119.98 – 122.25	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341		122-123: designated for ISM
122.25 - 123	FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138		122-123: designated for ISM

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
123 - 130	FIXED-SATELLITE (s-E) MOBILE-SATELLITE (s-E) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.149 5.554	FIXED-SATELLITE (s-E) MOBILE-SATELLITE (s-E) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.149 5.554		
130 - 134	EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A	EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A		
134 - 136	AMATEUR AMATEUR-SATELLITE Radio astronomy	AMATEUR AMATEUR-SATELLITE Radio astronomy		
136 - 141	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
141 – 148.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149		
148.5 – 151.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340		
151.5 – 155.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149		
155.5 – 158.5	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562F 5.562G	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562F 5.562G		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
158.5 - 164	FIXED FIXED -SATELLITE (s-E) MOBILE MOBILE-SATELLITE (s-E)	FIXED FIXED -SATELLITE (s-E) MOBILE MOBILE-SATELLITE (s-E)		
164 - 167	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340		
167 – 174.5	FIXED FIXED -SATELLITE (s-E) INTER-SATELLITE MOBILE 5.558 5.149	FIXED FIXED -SATELLITE (s-E) INTER-SATELLITE MOBILE 5.558 5.149		
174.5 – 174.8	FIXED INTER-SATELLITE MOBILE 5.558	FIXED INTER-SATELLITE MOBILE 5.558		
174.8 - 182	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
182 - 185	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340		
185 - 190	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)		
190 – 191.8	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
191.8 - 200	FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554	FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554		
200 - 209	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A		
209 - 217	FIXED FIXED -SATELLITE (E-s) MOBILE RADIO ASTRONOMY 5.149 5.341	FIXED FIXED -SATELLITE (E-s) MOBILE RADIO ASTRONOMY 5.149 5.341		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
217 - 226	FIXED FIXED -SATELLITE (E-s) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	FIXED FIXED -SATELLITE (E-s) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341		
226 – 231.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340		
231.5 -232	FIXED MOBILE Radiolocation	FIXED MOBILE Radiolocation		
232 - 235	FIXED FIXED -SATELLITE (s-E) MOBILE Radiolocation	FIXED FIXED -SATELLITE (s-E) MOBILE Radiolocation		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
235 - 238	EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (s-E) SPACE RESEARCH (passive) 5.563A 5.563B	EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (s-E) SPACE RESEARCH (passive) 5.563A 5.563B		
238 - 240	FIXED FIXED -SATELLITE (s-E) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE	FIXED FIXED -SATELLITE (s-E) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		
240 - 241	FIXED MOBILE RADIOLOCATION	FIXED MOBILE RADIOLOCATION		
241 - 248	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149		244 – 246: designated for ISM .

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
248 - 250	AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149	AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149		
250 - 252	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A		
252 - 265	FIXED MOBILE MOBILE-SATELLITE (E-s) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	FIXED MOBILE MOBILE-SATELLITE (E-s) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554		
265 - 275	FIXED FIXED -SATELLITE (E-s) MOBILE RADIO ASTRONOMY 5.149 5.563A	FIXED FIXED -SATELLITE (E-s) MOBILE RADIO ASTRONOMY 5.149 5.563A		

SEGMENT 6: 30 GHz – 300 GHz				
FREQUENCY BANDS (GHz)	**ITU REGION 1 ALLOCATIONS**	**NIGERIAN ALLOCATIONS**	**NIGERIAN UTILIZATION**	**REMARKS**
275 - 1000	NOT ALLOCATED 5.565	NOT ALLOCATED 5.565		

SECTION 3: FOOTNOTES APPLICABLE TO NIGERIA

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

5.54 Administrations conducting scientific research using frequencies below 8.3 KHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference. (WRC-12)

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

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

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

5.60 In the bands 70-90 KHz (70-86 KHz in Region 1) and 110-130 KHz (112-130 KHz in Region 1), pulsed radio navigation 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 radio navigation service in the band 90-110 KHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.

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

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

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, South Africa, Swaziland, Tanzania, Chad, Zambia and Zimbabwe, the band 200-283.5KHz is allocated to the aeronautical radio navigation service on a primary basis. (WRC-12)

5.73 The band 285-325KHz (283.5-325KHz in Region1) in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radio beacon stations operating in the radio navigation service. (WRC-97)

5.74 Additional Allocation: in Region 1, the frequency band 285.3-285.7KHz is also allocated to the maritime radio navigation service (other than radio beacons) on a primary basis.

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

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)

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

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

5.92 Some countries of Region 1 use radio determination 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 Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, 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-15)

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

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

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

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

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

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

5.111 The carrier frequencies 2 182 KHz, 3 023 KHz, 5 680 KHz, 8 364 KHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radio communication 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)

5.113 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**.

5.115 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 3 400 KHz to suit local needs

5.125 Additional allocation: in Greenland, the band 3 950-4 000 KHz is also allocated to the broadcasting service on a primary basis. The power of the broadcasting stations operating in this band shall not exceed that necessary for a national service and shall in no case exceed 5KW.

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**).

5.130 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**).

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

5.133B Stations in the amateur service using the frequency band 5351.5-5366.5KHz shall not exceed a maximum radiated power of 15W(e.i.r.p.). However, in Region 2 in Mexico,stations in the amateur service using the frequency band 5351.5-5366.5KHz shall not exceed a maximum radiated power of 20 W(e.i.r.p.). In the following regions 2 countries: Antigue and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, CostaRica, Cuba, Dominican Republic, Dominica, El Salvador, Ecuador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Peru, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines,Suriname,Trinidad and Tobago, Uruguay, Venezuala as well as the overseas territories of the Netherlands in

Region2,stations in the amateur service using the frequency band 5351.5-5366.5KHz shall not exceed a maximum radiated power of 25W(e.i.r.p). (WRC-15)

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

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

5.137 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 conditions.

5.138 The following bands: 6 765-6 795 KHz (centre frequency 6 780 KHz), 433.05-434.79 MHz (centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **5.280**, 61-61.5 GHz (centre frequency 61.25 GHz), 122-123 GHz (centre frequency 122.5 GHz), and 244-246 GHz (centre frequency 245 GHz) are designated for industrial, scientific and medical (ISM) applications. The use of these frequency bands for ISM applications shall be subject to special authorization by the administration concerned, in agreement with other administrations whose radio-communication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.

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

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

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

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

5.147 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 station using a total radiated power not exceeding 24 dBW.

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

13 360-13 410 KHz,	4 950-4 990 MHz,	102-109.5 GHz,
25 550-25 670 KHz,	4 990-5 000MHz,	111.8-114.25 GHz,
37.5-38.25 MHz,	6 650-6 675.2 MHz,	128.33-128.59 GHz,
73-74.6 MHz in Region 1 and 3,	10.6-10.68 GHz,	129.23-129.49 GHz,
150.05-153 MHz in Region 1,	14.47-14.5 GHz,	130-134 GHz,
322-328.6 MHz,	22.01-22.21 GHz,	136-148.5 GHz,
406.1-410 MHz,	22.21-22.5 GHz,	151.5-158.5 GHz,
608-614 MHz in Regions 1 and 3,	22.81-22.86 GHz,	168.59-168.93 GHz,
1 330-1 400 MHz,	23.07-23.12 GHz,	171.11-171.45 GHz,
1610.6-1 613.8 MHz,	31.2-31.3 GHz,	172.31-172.65 GHz,
1 660-1 670 MHz,	31.5-31.8 GHz in Regions 1 and 3,	172.52-173.85 GHz,
1 718.8-1 722.2 MHz,	36.43-36.5 GHz,	195.75-196.15 GHz,
2 655-2 690 MHz,	42.5-43.5 GHz,	209-226 GHz,
3 260-3 267 MHz,	48.94-49.04 GHz,	241-250 GHz,
3 332-3 339 MHz,	76-86 GHz,	252-275 GHz,
3 345.8-3 352.5 MHz,	92.94 GHz,	
4 825-4 835 MHz,	94.1-100 GHz,	

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

5.151 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)

5.155B 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 200KHz is also allocated to the meteorological aids service (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.

5.164 Additional allocation: in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Slovakia, Czech Rep.,Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the frequency band 47-68 MHz, in South Africa the band 47-50 MHz, and in Latvia 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 frequency band. (WRC-15)

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

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

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

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

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

5.208B In the frequency bands: 137-138MHz, 387-390MHz,400.15-401MHz, 1452-1492MHz,1525-1610MHz,1613.8-1626.5MHz,2655-2690MHz,21.4-22GHz,Resolution **(WRC-15)** applies. (WRC-15)

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)

5.218 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 148-149.9MHz 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 149.9-150.05MHz and 399.9-400.05MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-15)

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

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

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

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

5.226 The frequency 156.525 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service using digital selective calling (DSC). The conditions for the use of this frequency and the band 156.4875-156.5625 MHz are contained in Articles **31** and **52**, and in Appendix **18**. The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency and the band 156.7625-156.8375 MHz are contained in Article **31** and Appendix **18**.
In the bands 156-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **31** and **52**, and Appendix **18**).

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 radio-communication service. (WRC-07)

5.228 The use of the frequency bands 156.7625-156.7875 MHz and 156.8125-156.8375 MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system (AIS) emissions of long range AIS

broadcast messages (Message 27, see the most recent version of Recommendation ITU-R M.1371). With the exception of AIS emissions, emissions in these frequency bands by systems operating in the maritime mobile service for communications shall not exceed 1

5.228A The frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz may be used by aircraft stations for the purpose of search and rescue operations and other safety-related communications. (WRC-12)

5.228B The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the fixed and land mobile services shall not cause harmful interference to, or claim protection from, the maritime mobile service. (WRC-12)

5.228C The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the maritime mobile service and the mobile-satellite (Earth-to-space) service is limited to the automatic identification system (AIS). The use of these frequency bands by the aeronautical mobile (OR) service is limited to AIS emissions from search and rescue aircraft operations. The AIS operations in these frequency bands shall not constrain the development and use of the fixed and mobile services operating in the adjacent frequency bands. (WRC-12)

5.228D The frequency bands 161.9625-161.9875 MHz (AIS 1) and 162.0125-162.0375 MHz (AIS 2) may continue to be used by the fixed and mobile services on a primary basis until 1 January 2025, at which time this allocation shall no longer be valid. Administrations are encouraged to make all practicable efforts to discontinue the use of these bands by the fixed and mobile services prior to the transition date. During this transition period, the maritime mobile service in these frequency bands has priority over the fixed, land mobile and aeronautical mobile services. (WRC-12)

5.228E The use of the automatic identification system in the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the aeronautical mobile (OR) service is limited to aircraft stations for the purpose of search and rescue operations and other safety-related communications. (WRC-12)

5.228F The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the mobile satellite service (Earth-to-space) is limited to the reception of automatic identification system emissions from stations operating in the maritime mobile service. (WRC-12)

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

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

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

5.257 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 radio-navigation service is limited to Instrument Landing Systems (glide path).

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

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

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

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

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

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

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

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

5.279A The use of the frequency band 432-438MHz by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R RS.1260-1. Additionally, the Earth exploration-satellite service (active) in the band 432-438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. **5.29** and **5.30**. (WRC-15)

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

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

5.286AA The frequency band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution **224 (Rev.WRC-15)**. 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. (WRC-15)

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

5.287 Use of the frequency bands 457.5125-457.5875MHz and 467.5125-467.5875MHz by the maritime mobile service is limited to on-board communication stations.The characteristics of the equipment and the chanelling arrangement shall be in accordance with Recommendation ITU-R M.1174-3. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned. (WRC-15)

5.288 In the territorial waters of the United States and the Phillippines, the preferred frequencies for use by the on-board communication stations shall be 457.525MHz,457.550MHz,457.575MHz and 457.600MHz paired,respectively with 467.750MHz,467.775MHz,467.800MHz and 467.828MHz. The characteristics of the equipment shall conform to those specifications in Recommendation ITU-R M,1174-3. (WRC-15)

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.

5.296 Additional allocations: In Albania, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican, Congo(Rep. of the), Côted'Ivoire, Croatia, Denmark, Djibouti, Egypt, UnitedArabEmirates, Spain, Estonia, Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, The former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein,Lithunia,Luxembourg,Malawi,Mali, Malta, Morocco, Mauritius,Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, the Netherland, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech Republic, United Kingdom, Rwanda, San Marino,

Serbia, Sudan, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe,the frequency,470-694MHz is also allocated on a secondary basis to the land mobile service. Intended for for applications ancillary to the broadcasting and programme-taking. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations in accordance with the Table in the countries other than those listed in this footnote. (WRC-15)

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 608-614MHz is also allocated to the radio astronomy service on a secondary basis.

5.311A For the frequency band 620-790 MHz, see also Resolution **549 (WRC-07)**. (WRC-07)

5.312A In Region 1, the use of the band 694-790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution **760 (WRC-15)**. See also Resolution **224 (Rev.WRC-15)**. (WRC-15)

5.316A Additional allocation: in Spain, France, Gabon and Malta, the band 790-830 MHz, in Albania, Angola, Bahrain, Benin, Botswana, Burundi, Congo (Rep. of the), Egypt, United Arab Emirates, Estonia, Gambia, Ghana, Guinea, Guinea-Bissau, Hungary, Iraq, Kuwait, Lesotho, Latvia, Lebanon, Lithuania, Luxembourg, Malawi, Morocco, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Poland, Qatar, Slovakia, Czech Rep., Romania,Rwanda, Senegal, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Yemen, Zambia, Zimbabwe and French overseas departments and communities of Region 1, the band 790-862 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 GE06 Agreement, as appropriate, including those administrations mentioned in No. **5.312**, where appropriate. See Resolutions **224 (Rev.WRC-12)** and **749 (Rev.WRC-12)**. This allocation is effective until 16 June 2015. (WRC-12)

5.316B 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 radio-navigation service in countries mentioned in No. **5.312**. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions **224 (Rev.WRC-12)** and **749 (Rev.WRC-12)** shall apply, as appropriate. (WRC-12)

5.317A Those parts of the frequency band 698-960 MHz in Region 2 and the band 694-790 MHz in Regions 1 and 790-960 MHz in Region 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions **224 (Rev.WRC-15), 760 (Rev.WRC-15)** and **749 (Rev.WRC-15)** where applicable. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)

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

5.327A The use of the frequency band 960-1 164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **417 (Rev.WRC-12)**. (WRC-12)

5.328 The use of the band 960-1 215 MHz by the aeronautical radio-navigation 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 radio-navigation-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 radio-navigation service in the band 960-1 215 MHz. No. **5.43A** does not apply. The provisions of No. **21.18** shall apply. (WRC-07)

5.328AA The frequency band 1087.7-1092.3 MHz is also allocated to the aeronautical mobile satellite(R) service(Earth to space) on a primary basis,limited to the space station reception of Automatic Dependent Surveillance-Broadcast(ADS-B) emissions from aircrafts transmitters that operate in accordance with recognized international aeronautical standards. Stations operating in the aerobautical mobile-satellite(R) service shall not claim protection from stations operating in the aeronautical radionavigation service. Resolution**425(WRC-15)** shall apply.

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 radio-navigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radio communication 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 radio-navigation-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 radio-navigation-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 radio-navigation-satellite service (space-to-space). (WRC-07)

5.329 Use of the radio-navigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radio-navigation service authorized under No. **5.331**. Furthermore, the use of the radio-navigation-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 radio-navigation-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 radio-navigation-satellite service (space-to-Earth) systems or on other services operating in accordance with the Table of Frequency Allocations. (WRC-07)

5.331 Additional allocation: in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United

Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1 215-1 300MHz is also allocated to the radio-navigation service on a primary basis. In Canada and the United States, the band 1 240-1 300 MHz is also allocated to the radio-navigation service, and use of the radio-navigation service shall be limited to the aeronautical radio-navigation service. (WRC-12)

5.332 In the band 1 215-1 260 MHz, active space borne 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 radio-navigation-satellite service and other services allocated on a primary basis. (WRC-2000)

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

5.337 The use of the bands 1 300-1 350 MHz, 2 700-2 900 MHz and 9 000-9 200 MHz by the aeronautical radio-navigation 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 radio-navigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to, nor constrain the operation and development of, the aeronautical-radio-navigation service. (WRC-2000)

5.338A In the bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution **750 (Rev.WRC-12)** applies. (WRC-12)

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

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

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

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

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

5.341C The frequency bands 1 4271-1 452 MHz and 1 492-1 518 MHz are identified are identified for use by administrations in Region 3 wishing to Implement International Mobile Telecommunication (IMT) in accordance with Resolution **223 (Rev. WRC-15).** The use of these frequency bands by the above administrations for the implementation of IMT in the frequency bands 1 429- 1 452 MHz and 1 492-1 518 MHz is subject to agreement obtained under No. **9.21** from countries using stations of the aeronautical mobile service. This identification does not preclude the use of these frequency bands by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.348 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/m^2) 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)

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

5.352A In the frequency band 1525-1530MHz,stations in the mobile-satellite service,except stations in the maritime mobile-satellite service,shall not cause harmful interference to or claim protection from,stations of the fixed service in Algeria,Saudi-Arabia,Egypt,France and French oveerseas communities of Region3,Guinea,India,Israel,Italy,Jordan,Kuwait,Mali,Morocco,Mauritania,Nigeria, Pakistan,Qatar,Syrian Arab Republic,Vietnam and Yemen prior to 1st April,1998. (WRC-15)

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**.

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

5.357A In applying the procedures of Section II of Article **9** to the mobile-satellite service in the frequency bands 1 545-1 555MHz and 1 646.5-1 656.5MHz, priority

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

5.362A In the United States, in the bands 1 555-1 559 MHz and 1 656.5-1 660.5 MHz, the aeronautical mobile-satellite (R) service shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (WRC-97)

5.362B Additional allocation: The band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis in Algeria, Saudi Arabia, Armenia, Azerbaijan, Belarus, Benin, Cameroon, Russian Federation, Gabon, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Libya, Lithuania, Mali, Mauritania, Nigeria, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Romania, Senegal, Tajikistan, Tanzania, Tunisia, 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 radio-navigation-satellite service and the aeronautical radio-navigation service and not authorize new frequency assignments to fixed-service systems in this band.
(WRC-12)

5.364 The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radio-determination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of −15 dB (W/4 KHz) in
the part of the band used by systems operating in accordance with the provisions of No. **5.366** (to which No. **4.10** applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating,

the mean e.i.r.p. density of a mobile earth station shall not exceed –3 dB (W/4 KHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radio-navigation service, stations operating in accordance with the provisions of No. **5.366** and stations in the fixed service operating in accordance with the provisions of No. **5.359**. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **5.366**.

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

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

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

5.368 With respect to the radio-determination-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 radio-navigation-satellite service.

5.371 Additional allocation: in Region 1, the band 1 610-1 626.5 MHz (Earth-to-space) is also allocated to the radio-determination-satellite service on a secondary basis, subject to agreement obtained under No. **9.21**. (WRC-12)

5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6-1 613.8 MHz by stations of the radio-determination-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 **904 (WRC-07)** shall apply. (WRC-07)

5.379C In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power flux density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed –181 dB (W/m^2) in 10 MHz and −194 dB(W/m^2) 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 000s. (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)

5.384A The frequency 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-15)***. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)

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

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

5.388 The bands 1 885-2 025 MHz and 2 110-2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications (IMT). Such use does not preclude the use of these bands by other services to which they are allocated. The bands should be made available for IMT in accordance with Resolution **212 (Rev.WRC-07)** (See also Resolution **223 (Rev.WRC-07)***). (WRC-12)

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

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Jordan,

Kenya, Kuwait, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT base station in neighbouring countries, in the bands referred to in No. **5.388A**, shall not exceed a co-channel power flux-density of −127 dB(W/(m^2 · MHz)) at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS. (WRC-12)

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)

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

5.389E The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz by the mobile-satellite service in Region 2 shall not cause harmful interference to or constrain the development of the fixed and mobile services in Regions 1 and 3.

5.391 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 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites

5.396 Space stations of the broadcasting-satellite service in the band 2 310-2 360 MHz operating in accordance with No. **5.393** that may affect the services to which this band is allocated in other countries shall be coordinated and notified in

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

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

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

5.403 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)

5.407 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/(m^2 · 4 KHz)) in Argentina, unless otherwise agreed by the administrations concerned.

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

5.412 Alternative allocation: in Kyrgyzstan and Turkmenistan,the band 2500-2690MHz is allocated to the fixed and mobile,except aeronautical mobile,services on a primary basis. (WRC-12)

5.413 In the design of systems in the broadcasting-satellite service in the bands between 2500MHz and 2690 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 MHz 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 MHz 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)

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

5.423 In the band 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 radio-navigation service.

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

5.426 The use of the band 2 900-3 100 MHz by the aeronautical radio-navigation 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 radio-navigation service, having regard, however, to No. **4.9**.

5.429 Additional allocation: InSaudiArabia, Bahrain, Bangladesh, Benin, Brunei, Darussalam, Cambodia, Cameroun, China, Congo(Rep.ofthe), Korea(Rep.of)

Côted'Ivoire, Egypt, The United ArabEmirates, India, Indonesia, Iran(IslamicRepublic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, The Dem.Rep. of the Congo, The Dem. People's Rep.of Korea, Sudan and Yemen,the frequency band 3300-3400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services for the radiolocation service. (WRC-15)

5.429A Additional allocation: In Angola, Benin, Botswana, Burkina Faso, Burundi, Ghana, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3 300-3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-15)

5.429B In the following countries of Region 1 of 30° parallel North: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Congo, (Rep. of the), Cote d'ivore, Egypt, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of Congo, Rwanda, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution **223 (Rev. WRC-15).** The use of the frequency band 3 300-3 400 MHz by IMT stations in mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighboring countries to protect operations within the radiological service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.430 Additional allocation:In Azerbaijan, Kyrgyzstan and Turkmenistan, the frequency band 3300-3400MHz is also allocated to the radionavigation service on a primary basis. (WRC-15)

5.430A The allocation of the frequency band 3 400-3 600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No.**9.21**. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The provisions of No. **9.17** and **9.18** shall also apply in the coordination phase. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux density (pfd) produced at 3m above ground does not exceed -154.5 dB (W/(m² ·4KHz)) for more than 20% of time at the border of the territory of any other administration. This limit maybe exceeded on the territory of any country whose administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) and with the assistance of the Bureau if so requested. In case of disagreement, calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-15)

5.431 Additional allocation: in Germany and Israel, the frequency band 3 400-3 475 MHz is also allocated to the amateur service on a secondary basis. (WRC-15)

5.436 Use of the frequency band 4200-4400MHz by stations in the aeronautical mobile(R) service is reserved exclusively for wireless avionics intra-communication systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **424(WRC 15).** (WRC-15)

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

5.438 Use of the 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 Iran(Islamic Republic of), the band 4200-4400MHz is also allocated to the fixed service on a secondary basis. (WRC-12)

5.440 The standard frequency and time signal-satellite service may be authorized to use the frequency 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 ±2MHz of these frequencies, subject to agreement obtained under No. **9.21**.

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

5.441A In Uruguay,the frequency band 4800-4900MHz,or portions thereof, is identified for the implementation of International Mobile Telecommunication(IMT). This identification does not preclude the use of this frequency band by application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained with neighbouring countries and IMT is subject to agreement obtained with neighbouring countries ,and IMT stations shall not claim protection from stations of other applications of

the mobile service. Such use shall be in accoradnace with Resolution **223(Rev.WRC-15).** (WRC-15)

5.441B In Cambodia,Lao P.D.R and Vietnam,the frequency band 4800-4990MHz or portions thereof, is identified for use by administrations wishing to implement International Mobile Telecomminucations(IMT). This identification does not preclude the use of the frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to the agreement obtained under **No**. 9.21 with concerned administrations, and IMT stations shall not claim proection from stations of other applications of the mobile service.In addition,before an administration brings into use an IMT station in the mobile service,it shall ensure that the power flux-density produced by the station does not exceed -155dB(W/(m^2.1MHz)) produced up to 19km above sea level at 20km from the coast,defined as the low-water mark,as officially recognised by the coastal state. This criterion is subject to review at WRC-19. See Resolution **223(Rev. WRC-15).** This administration shall be effective after WRC-19. (WRC-15)

5.442 In the frequency bands 4825-4835 MHz and 4950-4990MHz,the allocation to the mobile service is restricted to the mobile,except aeronautical mobile service. In Region 2(except Brazil, Cuba, Guatemala, Mexico, Paraguay,Uruguay and Venezuela), and in Australia,the frequency band 4825-4835 MHz is also allocated to the aeronautical mobile service,limited to aeronautical mobile telemetery for flight testing by aircraft stations. Such use shall be in accordance with Resolution **416(WRC-07)** and shall not cause harmful interference to the fixed service.
(WRC-15)

5.443 Different category of service: In Argentina, Australia and Canada,the allocations of the bands 4825-4853MHz to the radio astronomy service on a primary basis(see No. **5.33**).

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

5.443B In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5 030-5 150 MHz by all the space stations within any radio-navigation-satellite service system (space-to-Earth) operating in the band 5 010-5 030 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 4 990-5 000 MHz, radio-navigation-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 (Rev.WRC-15)**. (WRC-15)

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

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

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

5.444A The use of the allocation to the fixed-satellie service (Earth-to-space) in the frequency band 5 091-5 150 MHz is limited to the feeder links of non-geostationary satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**. The use of the band 5 091-5 150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be subject to applications **114(Rev.WRC-15)**. Moreover,to ensure that the aeronautical radionavigation service is protected from harmful intereference,coordination is required for feeder-link earth stations of the non-

geostationary satellite service operating ground stations in the aeronautical radionavigation service. (WRC-15)

5.444B The use of the frequency band 5 091-5 150 MHz by the aeronautical mobile service is limited to:
– systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (Rev.WRC-15)**;
– aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (Rev.WRC-15)**. (WRC-15)

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

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 (Rev.WRC-12)**. (WRC-12)

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

5.446C Additional allocation: in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan and Tunisia) and in Brazil, the band 5 150-5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. **1.83**), in accordance with Resolution **418 (Rev.WRC-12)**. These stations shall

not claim protection from other stations operating in accordance with Article **5**. No. **5.43A** does not apply. (WRC-12)
5.447 Additional allocation: in Côte d'Ivoire, Egypt, Israel, Lebanon, 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 (Rev.WRC-12)** do not apply.
(WRC-12)

5.447A The allocation to the fixed-satellite service (Earth-to-space) in the band 5 150-5 250 MHz is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**

5.447B Additional allocation: the band 5 150-5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. **9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed –164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

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

5.447D The allocation of the band 5 250-5 255 MHz to the space research service on a primary basis is limited to active space borne 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 Vietnam. 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 radio-determination, 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 radio-determination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radio-determination 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 Recommendations ITU-R M.1638 and ITU-R RS.1632. (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 band 5 350-5 570 MHz and space research service (active) operating in the band 5 460-5 570 MHz shall not cause harmful interference to the aeronautical radio-navigation service in the band 5 350-5 460 MHz, the radio-navigation service in the band 5 460-5 470 MHz and the maritime radio-navigation 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 radio-navigation 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 radio-navigation service is limited to airborne radars and associated airborne beacons.

5.450A In the band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radio-determination services. Radio-determination 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 radio-navigation service.
(WRC-03)

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

5.453 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab
Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, 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 (Rev.WRC-12)** do not apply. (WRC-12)

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

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

the frequency band 5 925-6 425 MHz,earth stations located on board vessels and communicating with space stations of the fixed-satellite service may employ transmit antenna of minimum diameter 1.2m and operte without prior agreement of any administration if located atleast,330Km away from the low-water mark as officially recognized by the coastal state. All other provisions of Resolution **902(WRC-03)** shall apply. (WRC-15)

5.475B In the frequency bands 5 925-6 425 MHz and 14-14.5 GHz,earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902(WRC-03)** in Algeria,Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt,United Arab Enirates,Jordan,Kuwait, Libya,Morocco,Mauritania,Oman,Qatar,the Syrian Arab Republic Sudan,Tunisia and Yemen,in the maritime mobile-satellite service on a secondary basis. Such use shall be in accordance with Resolution **902(WRC-03). (**WRC-15)

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

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

5.458B 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 coordination 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. **22.2**.

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 the Russian Federation,the frequency bands 7100-7155MHz and 7100-7235MHz are also allocated to the space operation service(Earth-to-space) on a primary basis,subject to agreement under No.**9.21.** In the frequency band 7 190-7 235MHz,with respect to the Earth exploration-satellite service(Earth-to-space),No. **9.21** does not apply. (WRC-15)

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

5.460A The use of the frequency band 7 190-7 250MHz(Earth-to-space) by the Earth exploration-satellte shall be limited to tracking,telemetry and command for the operation of spaceraft. Space stations operating in the Earth exploration-satellite service(Earth-to-space) in the frequency band 7 190-7 250MHz shall not claim protection from existing and future stations in the the fixed and mobile services, and No.**5.43A** does not apply. No. **9.17** applies. Additionally,to ensure protection of the existing and future deployment of fixed and mobiles services,the location of earth stations supporting spacecraft in the Earth exploration-satellite service in non-geostationary orbits or geostationary orbit shall maintain a separation distance of atleast 10Km and 50Km,respectively,from the respective border(s) of neighbouring countries,unless a shorter distance is otherwise agreed between the corresponding administrations. (WRC-15)

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

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

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

5.461AB In the frequency band 7375-7750MHz,earth stations in the maritime mobile-satellite service shall not claim protection from,nor constrain the use and development of,stations in the fixed and mobile,except aeronautical mobile services. No. **5.43A** does not apply. (WRC-15)

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

5.462A In Regions 1 and 3 (except for Japan), in the band 8 025-8 400 MHz, the Earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following values for angles of arrival (θ), without the consent of the affected administration:
135 dB(W/m^2) in a 1 MHz band for $0° \leq \theta < 5°$
135 + 0.5 (θ-5) dB(W/m^2) in a 1 MHz band for $5° \leq \theta < 5°$
125 dB(W/m^2) in a 1 MHz band for $25° \leq \theta \leq 90°$ (WRC-12)

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.
5.468 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Costa Rica, Djibouti, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, 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-12)

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 radio-navigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz

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

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

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

5.474A The use of the frequency bands 9 200-9 300MHz and 9 900-10 400MHz by the Earth exploration-satellite service(active) is limited to systems requiring necessary bandwidth greater than 600MHz that cannot be fully accommodated within the frequency band 9 300-9 900MHz. Such use is subject to agreement to be obtained under No.**9.21** from Algeria,Saudi Arabia,Bahrain Egypt,Indonesia,Iran(Islamic Republic of),Lebanon and Tunisia. An administration that has not replied under No.**9.52** is considered as not having agreed to the coordination request. In this case,the notifying administration of the satellite system operating in the Earth exploration-satellite service(active) may request the assistance of the Bureau under sub-Section IID of Article **9.** (WRC-15)

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

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

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

5.475 The use of the band 9 300-9 500 MHz by the aeronautical radio-navigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radio-navigation service are permitted in the band 9 300-9320 MHz on condition that harmful interference is not caused to the maritime radio-navigation service. (WRC-07)

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

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

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

5.477 Different category of service: in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia,Malaysia, Nigeria,Oman,Uganda,Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Trinidad and Tobago, and Yemen,the allocation of the band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. **5.33**). (WRC-15)

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

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

5.479 The band 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 Algeria, Germany, Angola, Brazil, China, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Pakistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania and Uruguay, the frequency band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. In Costa Rica,the frequency band 10.45-10.5 GHz is also allocted to the fixed service on a primary basis. (WRC-15)

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

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

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

5.484A The use of the bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No.**9.12** for coordination with other non-geostationary-satellite systems is the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection

from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

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

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

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

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

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

5.495 Additional allocation: In France, Greece, Monaco, Montenegro, Uganda, Romania and Tunisia, the frequency band 12.5-12.75 GHz is also allocated to the fixed and mobile,except services on secondary basis. (WRC-15)

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

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

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

5.499 Additional allocation: In Bangladesh and India,the band 13.25-14GHz is also allocated to the fixed service on a primary basis. In Pakistan,the band 13.25-13.75GHz is also allocated to the fixed service on a primary basis. (WRC-12)

5.499 A The use of the frequency band 13.4-13.65 GHz by the fixed–satellite service (space to Earth) is limited to geostationary- satellite systems and is subject to agreement obtained under No. **9.21** with respect to satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015. (WRC-15)

5.499 B Administrations shall not preclude the deployment and operation of transmitting earth stations in the standard frequency and time signal-satellite service (Earth-to-space) allocated on a secondary basis in the frequency band 13.4-13.65 GHz due to primary allocation to FSS (space-to-Earth). (WRC-15)

5.499 C The allocation of the frequency band 13.4-13.65 GHz to the space research service on a primary basis is limited to:
---satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the bureau by 27 November 2015**,**
--- active spaceborne sensors,
--- satellite systems operating in the space research service (space-to-Earth) to relay data from space stations in the geostationary-satellite orbit to associated earth stations. Other uses of the frequency band by the space research service are on a secondary basis. (WRC-15)

5.499D In the frequency band 13.4-13.65 GHz, satellite systems in the space research service (space-to-Earth) and/or the space research service (space-to-space) shall not cause harmful interference to, nor claim protection from, stations in the fixed, mobile, radiolocation and Earth exploration-satellite (active) services. (WRC-15)

5.499E In the frequency band 13.4-13.65 GHz, geostationary-satellite networks in the fixed-satellite service(space-to-Earth) shall not claim protection from space stations in the Earth exploration-satellite service (active) operating in accordance with these Regulations, and No **5.43A** does not apply. The provision of No. **22.2** do not apply to the Earth exploration-satellite service (active) with respect to the fixed-satellite service (space-to-Earth) in this frequency band. (WRC-15)

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

5.501A Additional allocation of the frequency band 13.65-13.75GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the frequency band by the space research service are on a secondary basis. (WRC-15)

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

5.502 In the band 13.75-14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2
m and an earth station of a non-geostationary fixed-satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radio-navigation services shall not exceed 59 dBW for elevation angles above 2° and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna diameter smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed:
– –115 dB (W/(m^2 · 10 MHz)) for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal State;
– –115 dB(W/(m^2 · 10 MHz)) for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning

to deploy land mobile radars in this band, unless prior agreement has been obtained.
For earth stations within the fixed-satellite service having an antenna diameter greater than or equal to 4.5 m, the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW. (WRC-03)

5.503 In the band 13.75-14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band:
– in the band 13.77-13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed satellite service operating with a space station in geostationary-satellite orbit shall not exceed:
i) 4.7D + 28 dB(W/40 KHz), where D is the fixed-satellite service earth station antenna
diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 m;
ii) 49.2 + 20 log(D/4.5) dB(W/40 KHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m;
iii) 66.2 dB(W/40 KHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m;
iv) 56.2 dB(W/4 KHz) for narrow-band (less than 40 KHz of necessary bandwidth) fixed satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater;
– the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz. Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions. (WRC-03)

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

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

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the frequency band 14.14.5GHz shall comply with the provisions of Annex 1,Part C of Recommedation ITU-RM.1643-0 with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz frequency band located on the territory of Spain,France,India,Italy,the United Kingdom and South Africa.(WRC-15)

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

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

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

5.506B Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14-14.5 GHz without the need for prior agreement from Cyprus and Malta, within the

minimum distance given in Resolution **902 (WRC-03)** from these countries. (WRC-15)

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

5.509A In the band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Vietnam 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-RM.1643-0 unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)

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

5.510 Except for use in accordance with Resolution **163(WRC-15)** and Resolution **164(WRC-15),** the use of the frequency band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe. Uses other than feeder links for the broadcasting-satellite service are not authorized in Regions 1 and 2 in the frequency band 14.75-14.8 GHz. (WRC-15)

5.511A Use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. **9.11A**. (WRC-15)

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

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

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

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

5.514 Additional allocation: in Algeria, Saudi Arabia, Bahrain, Bangladesh, Cameroon, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kuwait, Libya, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Sudan and South Sudan, the band 17.3-17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **21.3** and **21.5** shall apply. (WRC-15)

5.515 In the band 17.3-17.8GHz, sharing between the fixed-satellite service (Earth-to-space) and the broadcasting-satellite service shall also be in accordance with the provisions of § 1 of Annex 4 of Appendix **30A**.

5.516 The use of the band 17.3-18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. The use of the band 17.3-17.8 GHz in Region 2 by systems in the fixed-satellite service (Earth-to-space) is limited to geostationary satellites. For the use of the band 17.3-17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2-12.7 GHz, see Article **11**. The use of the bands 17.3-18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8-18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unaccepteable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

17.3-17.7 GHz (s-E) in Region 1
18.3-19.3 GHz (s-E) in Region 2
19.7-20.2 GHz (s-E) in all Regions
39.5-40 GHz (s-E) in Region 1
40-40.5 GHz (s-E) in all Regions
40.5-42 GHz (s-E) in Region 2
47.5-47.9 GHz (s-E) in Region 1
48.2-48.54 GHz (s-E) in Region 1
49.44-50.2 GHz (s-E) in Region 1
27.5-27.82 GHz (E-s) in Region 1
28.35-28.45 GHz (E-s)in Region 2

28.45-28.94 GHz (E-s) in all Regions
28.94-29.1 GHz (E-s) in Regions 2 and 3
29.25-29.46 GHz (E-s) in Region 2
29.46-30GHz (E-s) in all Regions
48.2-50.2GHz (E-s) 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 Resolutions **143(WRC-03).** (WRC-03)

5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

5.516B The following bands are identified for use by high-density applications in the fixed-satellite service:
17.3-17.7 GHz (space-to-Earth) in Region 1,
18.3-19.3 GHz (space-to-Earth) in Region 2,
19.7-20.2 GHz (space-to-Earth) in all Regions,
39.5-40 GHz (space-to-Earth) in Region 1,
40-40.5 GHz (space-to-Earth) in all Regions,
40.5-42 GHz (space-to-Earth) in Region 2,
47.5-47.9 GHz (space-to-Earth) in Region 1,
48.2-48.54 GHz (space-to-Earth) in Region 1,
49.44-50.2 GHz (space-to-Earth) in Region 1,
And,
27.5-27.82 GHz (Earth-to-space) in Region 1,
28.35-28.45 GHz (Earth-to-space) in Region 2,
28.45-28.94 GHz (Earth-to-space) in all Regions,

28.94-29.1 GHz (Earth-to-space) in Region 2 and 3,
29.25-29.46 GHz (Earth-to-space) in Region 2,
29.46-30 GHz (Earth-to-space) in all Regions,
48.2-50.2 GHz (Earth-to-space) in Region 2.

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

5.520 The use of the band 18.1-18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of geostationary-satellite systems in the broadcasting-satellite service. (WRC-2000)

5.522A The emissions of the fixed service and the fixed-satellite service in the band 18.6-18.8 GHz are limited to the values given in Nos. **21.5A** and **21.16.2**, respectively. (WRC-2000)

5.522B The use of the band 18.6-18.8 GHz by the fixed-satellite service is limited to geostationary systems and systems with an orbit of apogee greater than 20 000 km. (WRC-2000)

5.523A The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. **9.11A** and No. **22.2** does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. **9.11A** with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **4** notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

5.523B The use of the band 19.3-19.6 GHz (Earth-to-space) by the fixed-satellite service is limited to feeder links for non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A**, and No. **22.2** does not apply.

5.523C No. **22.2** shall continue to apply in the bands 19.3-19.6 GHz and 29.1-29.4 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **4** coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

5.523D The use of the band 19.3-19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of No. **9.11A**, but not subject to the provisions of No. **22.2**. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. **5.523C** and **5.523E**, is not subject to the provisions of No. **9.11A** and shall continue to be subject to Articles **9** (except No. **9.11A**) and **11** procedures, and to the provisions of No. **22. 2**. (WRC-97)

5.523E No. **22.2** shall continue to apply in the bands 19.6-19.7 GHz and 29.4-29.5 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **4** coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997. (WRC-97)

5.524 Additional allocation: in Afghanistan, Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, 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 frequency band. (WRC-15)

5.525 In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7-20.2 GHz and 29.5-30 GHz.

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

5.527 In the bands 19.7-20.2 GHz and 29.5-30 GHz, the provisions of No. **4.10** do not apply with respect to the mobile-satellite service.

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

5.528 The allocations 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 20.1-20.2GHz shall take all practical steps to ensure the continued availability of these bands for administration operating fixed and mobile systems in accordance with provisions of N0. **5.526**

5.530A Unless otherwise agreed between the administrations concerned,any station in the fixed or mobile services of an administration shall not produce a power flux-density in excess of -120.4 dB (W/(m^2 · MHz)) at 3 m above the ground of any point of the territory of any other administration in Regions 1 and 3 for more than 20% of the time. In conducting the calculations, administrations should use the most recent version of Recommendation ITU-R P.452 (see also the most recent version of Recommendation ITU-R BO.1898). (WRC-15)

5.530B In the band 21.4-22 GHz, in order to facilitate the development of the broadcasting-satellite service, administrations in Regions 1 and 3 are encouraged not to deploy stations in the mobile service and are encouraged to limit the deployment of stations in the fixed service to point-to-point links. (WRC-12)

5.530D See Resolution 555(WRC-12). (WRC-12)

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

5.532A The location of earth stations in the space research service shall maintain a separation distance of at least 54 Km from the respective border(s) of neighbouring countries to protect the existing and future deployment of fixed and mobile services unless a shorter distance is otherwise agreed between the corresponding administrations. Nos. **9.17** and **9.18** do not apply. (WRC-12)

5.532B Use of the band 24.65-25.25 GHz in Region 1 and the band 24.65-24.75 GHz in Region 3 by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5m. (WRC-12)

5.533 The inter-satellite service shall not claim protection from harmful interference from airport surface detection equipment stations of the radio-navigation 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. **22.2**, except as indicated in Nos. **5.523C** and **5.523E** where such use is not subject to the provisions of No. **9.11A** and shall continue to be subject to Articles **9** (except No. **9.11A**) and **11** procedures, and to the provisions of No. **22.2**.
(WRC-97)

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

5.536A Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in

the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account the most recent version of Recommendation ITU-R SA.1862. (WRC-12)

5.536C In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-12)

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

5.538 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 radio-communication 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, Cameroun, China, Congo(Rep. of the),Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran(Islamic Republic of), Iraq, Japan, Jordan, Kuwait Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Oman, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. Of Korea, Somalia, Sudan, South-Sudan, Sri-Lanka and Chad, the band 29.5-31GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos.21.3 and 21.5 shall apply. (WRC-12)

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

5.544 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.

5.547 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 radio-navigation service in the 31.8-33.4 GHz band, taking into account the operational needs of the airborne radar systems. (WRC-2000)

5.548 In designing systems for the inter-satellite service in the band 32.3-33 GHz, for the radio-navigation service in the band 32-33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radio-navigation service (see Recommendation **707**). (WRC-03)

5.549 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

5.549A In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any space borne 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/m^2) in this band. (WRC-03)

5.550A For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **752 (WRC-07)** shall apply. (WRC-07)

5.551H The equivalent power flux-density (epfd) produced in the band 42.5-43.5 GHz by all space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time:
-□230 dB (W/m^2) in 1 GHz and –246 dB(W/m^2) in any 500 KHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and
-□209 dB (W/m^2) 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 min of the radio-

telescope (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 operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station:
–137 dB (W/m^2) 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/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.
These values shall apply at the site of any radio astronomy station that either:
– was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004;
Or was notified before the date of receipt of the complete Appendix **4** information for coordination or notification, as appropriate, for the space station to which the limits apply.
Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-03)

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

take all practicable steps to reserve the band 47.2-49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5-42.5 GHz

5.552A The allocation to the fixed service in the 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 66-71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radio-communication 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 radio-navigation-satellite service. (WRC-2000)

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

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

5.555B 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, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1 000 Km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m^2 · 100 MHz)) for all angles of arrival. (WRC-97)

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

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

5.558A Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 Km to 1 000 Km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m^2 · 100 MHz)) for all angles of arrival. (WRC-97)

5.559 In the band 59-64 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **5.43**). (WRC-2000)

5.559B The use of the frequency band 77.5-78GHz by the radiolaocation service shall be limited to short-range radar for ground-based applications,including automotive radars. The technical characteristics of these radars are provided in the most recent versions of Recommendation ITU-R M.2057. The provisions of No. **4.10** do not apply. (WRC-15)

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

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

5.561A 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 space borne 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 1 000 Km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed –148 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) and space research (passive) services shall terminate on 1 January 2018. (WRC-2000)

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

5.562H Use of the bands 174.8-182 GHz and 185-190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1 000 Km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed −144 dB (W/(m^2·MHz)) for all angles of arrival. (WRC-2000)

5.563A In the bands 200-209 GHz, 235-238 GHz, 250-252 GHz and 265-275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents. (WRC-2000)

5.563B The band 237.9-238 GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for space borne cloud radars only. (WRC-2000)

5.565 The following frequency bands in the range 275-1 000 GHz are identified for use by administrations for passive service applications:
– radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;
– Earth exploration-satellite service (passive) and space research service (passive): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz, 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz, 713-718 GHz, 729-733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 850-854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, 951-956 GHz, 968-973 GHz and 985-990 GHz.
The use of the range 275-1 000 GHz by the passive services does not preclude use of this range by active services. Administrations wishing to make frequencies in the 275-1 000 GHz range available for active service applications are urged to take all practicable steps to protect these passive services from harmful interference until the date when the Table of Frequency Allocations is established in the above-mentioned 275-1 000 GHz frequency range. All frequencies in the range 1 000-3 000 GHz may be used by both active and passive services. (WRC-12)