



National Table for Frequency Allocation (NTFA)

Workshop on National Spectrum Management and Spectrum Management System for Developing Countries (SMS4DC)

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Spectrum Management (SM)

Key Terms

	Allocation	Allotment	Assignment
Definition	Allocation (of a frequency band): Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions. This term shall also be applied to the frequency band concerned.	Allotment (of a radio frequency or radio frequency channel): Entry of a designated frequency channel in an agreed plan, adopted by a competent conference, for use by one or more administrations for a terrestrial or space radiocommunication service in one or more identified countries or geographical areas and under specified conditions.	Assignment (of a radio frequency or radio frequency channel): Authorization given by an administration for a radio station to use a radio frequency or radio frequency channel under specified conditions.
Frequency Distribution to	Services	Areas or Countries	Stations



Introduction

- **It is a government responsibility to develop spectrum management policies that conform to the international treaty obligations of the Radio Regulations while meeting national spectrum needs**

 - **Within the national legal framework for telecommunications a spectrum management organisation has the delegated authority to prepare spectrum plans that meet government policies**
 - National spectrum plans should be reviewed regularly and, when necessary, be updated to keep pace with technology and changing demands

 - **One of the most important tools for effective spectrum management is the National Table for Frequency Allocation (NTFA). This shows how the spectrum can be used in the country**
-



Developing a NTFA(1)

- **The NTFA is the published outcome of national spectrum planning**

 - **The NTFA is normally developed by the NRA**
 - The Regulator would normally establish working groups to undertake the detailed technical and regulatory work and provide the expertise in frequency assignment, spectrum engineering, monitoring and standardisation
 - Representatives from relevant government departments would be group members to provide detailed advice on government spectrum use and requirements
 - It is also beneficial to invite experts and practitioners from major non-government spectrum stakeholders to participate
-



Developing a NTFA (2)

- **The starting point for the NTFA should be the international Frequency Allocation Table**
 - Work through each frequency band to decide which service allocations are required nationally
 - In the case where there is more than one organisation responsible for frequency assignments (for example government and non-government use), decide how frequency bands should be shared between the organisations concerned

 - **Some flexibility is possible with national allocations while maintaining conformity with the Radio Regulations**
 - Where a frequency band is allocated to several services, the regulator may select which of those services may operate in its territory or may decide to split the band into sub-bands, each allocated to one or more services
-



Structure

- A typical structure would follow that of the Radio Regulations adding extra columns for national use
- The columns might identify the service and also the “owner” – G=Government, NG-non-Government, etc
- This approach is relatively easy to adopt and ensures alignment with the RRs

Allocation to Services			National Allocation	
Region 1	Region 2	Region 3	Frequency and Service	Use
4 063-4 438	MARITIME 5.79A 5.109 5.110 5.130 5.131 5.132 <i>5.128</i>		4063-4438 Maritime 5.79A 5.109 5.110 5.130 5.131 5.132	G
4 438-4 488 FIXED except aeronautical mobile (R) Radiolocation 5.132A	4 438-4 488 FIXED except aeronautical mobile (R) RADIOLOCATION 5.132A	4 438-4 488 FIXED except aeronautical mobile Radiolocation 5.132A	4 438-4 450 FIXED	G
			4 450-4 460 except aeronautical	NG
			4 460-4 488 except aeronautical RADIOLOCATION 5.132A	S (Mobile NG) (Radiolocation G)

Detailed information

- **Against each allocation it is helpful to provide**
- Detailed information about the assignment of frequencies or blocks of frequencies to different types of system, application or major use. (Assignments to individual stations are not normally shown at this level)
 - Technical conditions for frequency access, for example: channel arrangements, bandwidths, transmitter power limits and equipment standards
 - Licensing conditions for frequency access
-



Developing a NTFA(1)

- **Using the international allocation table, construct a draft national table by selecting the allocation “column” for the appropriate region**
- **Identify and add all footnotes relevant for the region and country concerned**
- **Identify and reserve in the draft table the frequency bands used by all major international services, systems or applications which are already in use or are likely to be used in the country such as:**
 - International services for maritime and aeronautical
 - Public mobile communications systems
 - Broadcasting (especially if there is an ITU Regional Allotment Plan)
 - Fixed services – use ITU-R recommended frequency arrangements
 - Non-public mobile systems
 - Fixed and mobile satellite bands (especially if there is an Allotment Plan)
 - Public protection and disaster relief radiocommunication systems (see Recommendation ITU-R M.2015)



Developing a NTFA (2)

- **Identify and reserve in the draft national table all allocations which would be difficult to use without causing interference to (or receiving interference from) services in other countries such as:**
 - Primary Amateur Radio allocations
 - Radio astronomy
 - Frequencies used for Industrial Scientific and Medical applications
 - Frequencies used for Short Range Devices. See SM.1896 : Frequency ranges for global or regional harmonization of short-range devices (SRDs)

- **Collect information on existing national frequency use**
 - Potential sources include existing licensing and assignment records; request users to provide information from their own records; spectrum monitoring. This can be problematic as often records are not kept or are inadequate

- **When existing national use is added to the NTFA, it is possible that some will not conform to the Radio Regulations or will be using frequencies within frequency bands identified for the services and applications listed above. A transition plan may be needed for the migration of non-conforming use to the new plan**

Generic contents of the NTFA document



	NTFA	RR REFERENCE
Chapter 1	Meaning of abbreviations	
	Terms and definition	
	General terms	RR 1.2 – 1.15
	Frequency management	RR 1.16-1.18
	Radiocommunication services	RR 1.19-1.60
	Radio stations and systems	RR 1.61- 1.115
	Operational terms	RR 1.116-1.136
	Characteristics of emissions and radio equipment	RR 1.137-1.165
	Frequency sharing	RR 1.166-1.176
	Technical terms relating to space	RR 1.177-1.191
Chapter 2	Frequency bands	RR 2.1-2.2
Chapter 3	Technical characteristics of stations	RR 3.1-3.14
Chapter 4	Assignment and use of frequencies	
	General rules for assignment and use of frequencies	RR 4.1-4.9
Chapter 5	Frequency allocations	RR 5.1-
	Regions and areas	RR 5.2-5.9
	Categories of services and allocations	RR 5.23-5.44
	Footnotes of RR	RR 5.53-5.565
	Plan of Frequency Bands Allocations in the [<i>Country</i>] (National Frequency Table)	National footnotes and general information
	National Frequency Table	

Example 1: Moldova



A simple table showing direct alignment with ITU and simple categorisation of usage (P=shared)

Region 1	National allocation		
Frequency band – services - footnotes	Frequency band - services	Footnotes	Usage
143.65 - 144 MHz AERONAUTICAL MOBILE (OR) 5.210, 5.211, 5.212, 5.214	143.65 - 144 MHz AERONAUTICAL MOBILE (OR)	RN018, RN035	G
144 - 146 MHz AMATEUR AMATEUR-SATELLITE 5.216	144 - 146 MHz AMATEUR AMATEUR-SATELLITE	RN018, RN035	NG
146 - 148 MHz FIXED MOBILE except aeronautical mobile (R)	146 - 148 MHz FIXED MOBILE except aeronautical mobile (R)	RN018, RN018A, RN018B, RN035	G
148 - 149.9 MHz FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218, 5.219, 5.221	148 - 149.9 MHz FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space)	5.209, 5.218, 5.219, 5.221 RN018, RN018A, RN035	G
149.9 - 150.05 MHz RADIONAVIGATION- SATELLITE 5.224B MOBILE-SATELLITE (Earth-to-space) 5.209, 5.224A 5.220, 5.222, 5.223	149.9 - 150.05 MHz RADIONAVIGATION- SATELLITE MOBILE-SATELLITE (Earth-to-space)	5.209, 5.220, 5.222, 5.223, 5.224A, 5.224B RN018, RN018A, RN035	P
150.05 - 153 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	150.05 - 153 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY	5.149 RN018, RN018A, RN019, RN035	P
153 - 154 MHz FIXED MOBILE except aeronautical mobile (R) Meteorological Aids	153 - 154 MHz FIXED MOBILE except aeronautical mobile (R) Meteorological Aids	RN018, RN018A, RN019, RN035	P
154 - 156.4875 MHz	154 - 156.4875 MHz	5.226,	P

Example 2: Bahrain



Somewhat more comprehensive providing more details of utilisation and some additional information

Frequency Allocation	ITU RR allocations for Region 1	National Allocations for Kingdom of Bahrain	Major utilization in Kingdom of Bahrain	Additional Information
1 710-2 025 MHz	1 710-1 930 FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.386 5.387 5.388	1 710-1 930 FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.388	Public fixed and mobile GSM1800 IMT candidate band (1710-1885 MHz) Op1 1735-1760 / 1830-1855 MHz, Op2 1780-1785 / 1875-1880 MHz GSM Guard band 1790 - 1795 MHz DECT 1880-1900 MHz IMT2000	1710-1785 MHz paired with 1805-1880 MHz 3rd mobile licence incl GSM1800 – 2x15 MHz IMT2000 TDD 1900-1920 MHz FDD 1920-1930 / 2110-2120 MHz
	1 930-1 970 FIXED MOBILE 5.388A 5.388	1 930-1 970 FIXED MOBILE 5.388A 5.388	Public fixed and mobile IMT2000 (FDD) 3 operators each with 2x15 MHz FDD & 5 MHz TDD	IMT2000 FDD 1930 – 1970 / 2120 – 2160 MHz
	1 970-1 980 FIXED MOBILE 5.388A 5.388	1 970-1 980 FIXED MOBILE 5.388A 5.388	 IMT2000 (FDD)	IMT2000 FDD 1970 – 1980 / 2160 – 2170 MHz
	1 980-2 010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F	1 980-2 010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F	 IMT2000 space segment	
	2 010-2 025 FIXED MOBILE 5.388A 5.388B 5.388	2 010-2 025 FIXED MOBILE 5.388A 5.388B 5.388	 IMT2000 (TDD)	
2 025-2 200 MHz	2 025-2 110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392	2 025-2 110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392	Government mobile	



Example 3: USA

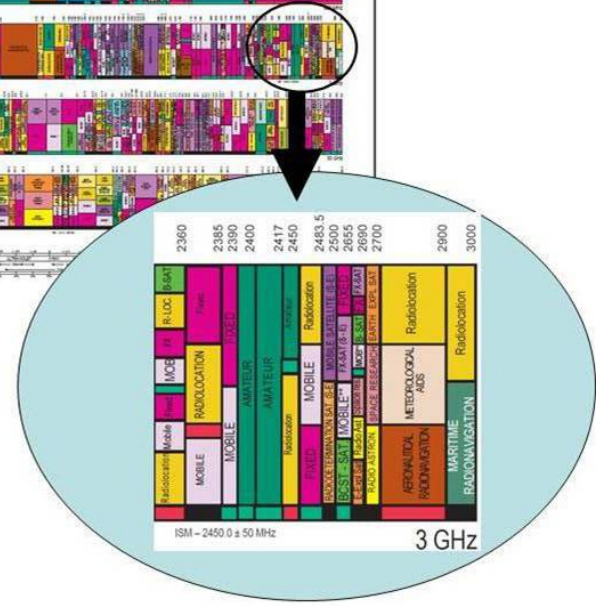
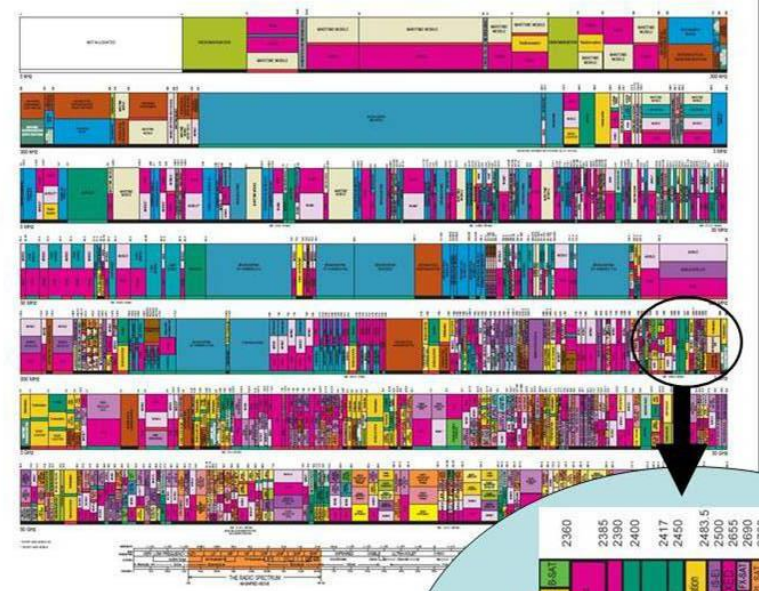
A slightly different arrangement split between Federal (Government) and non-Federal. Helpful identification of any FCC rules that apply to the band

Table of Frequency Allocations			2200-2655 MHz (UHF)		Page 37
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
2200-2290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space)			2200-2290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED (line-of-sight only) MOBILE (line-of-sight only including aeronautical telemetry, but excluding flight testing of manned aircraft) 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space)	2200-2290	
5.392 2290-2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)			5.392 US303 2290-2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	US303 2290-2300 SPACE RESEARCH (deep space) (space-to-Earth)	
2300-2450 FIXED MOBILE 5.384A Amateur Radiolocation	2300-2450 FIXED MOBILE 5.384A RADIOLOCATION Amateur		2300-2305 Amateur G122 2305-2310 US97 G122 2310-2320 Fixed Mobile US339 Radiolocation G2 US97 US327 2320-2345 Fixed Radiolocation G2 US327 2345-2360 Fixed Mobile US339 Radiolocation G2 US327 2360-2390 MOBILE US276 RADIOLOCATION G2 G120 Fixed US101 2390-2395 AMATEUR MOBILE US276	2300-2305 Amateur 2305-2310 FIXED MOBILE except aeronautical mobile RADIOLOCATION Amateur US97 2310-2320 FIXED MOBILE US339 BROADCASTING-SATELLITE RADIOLOCATION 5.396 US97 US327 2320-2345 BROADCASTING-SATELLITE 5.396 US327 2345-2360 FIXED MOBILE US339 BROADCASTING-SATELLITE RADIOLOCATION 5.396 US327 2360-2390 MOBILE US276 US101 2390-2395 AMATEUR MOBILE US276	Amateur Radio (97) Wireless Communications (27) Amateur Radio (97) Wireless Communications (27) Aviation (87) Satellite Communications (25) Wireless Communications (27) Aviation (87) Aviation (87) Personal Radio (95) Aviation (87) Personal Radio (95) Amateur Radio (97)
5.150 5.282 5.395	5.150 5.282 5.393 5.394 5.396		US101	US101	

Example 3: Graphical Representation

Useful for public consumption and a quick overview of the use of the radio spectrum

UNITED STATES FREQUENCY ALLOCATIONS THE RADIO SPECTRUM



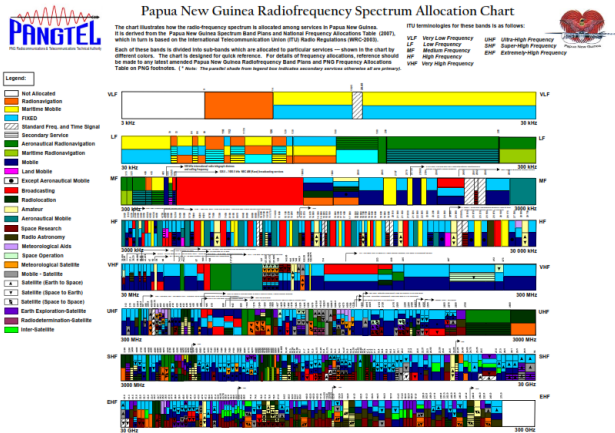
Example 4: PNG

- All three ITU-R regions allocations information
- Global Usage scenarios
- Graphical representation

41.015-75.2 MHz

Allocation to services				
Region 1	Region 2	Region 3	Papua New Guinea	Usage
41.015-42 FIXED MOBILE 5.160 5.161 5.161A			41.015-44 FIXED MOBILE	Conventional fixed stations and PMR.
42-42.5 FIXED MOBILE Radiolocation 5.161A 5.160 5.161B	42-42.5 FIXED MOBILE 5.161		42-42.5 FIXED MOBILE	Conventional fixed stations and PMR.
42.5-44 FIXED MOBILE 5.160 5.161 5.161A			42.5-44 FIXED MOBILE	Conventional fixed stations and PMR.
44-47 FIXED MOBILE 5.162 5.162A			44-47 FIXED MOBILE 5.162	Conventional fixed stations and PMR. 46 MHz Cordless Telephone in accordance with the TR421.
47-68 BROADCASTING 5.162A 5.163 5.164 5.165 5.160 5.171	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING 5.162A	47-50 FIXED MOBILE BROADCASTING	Conventional fixed stations and PMR. 46 MHz Cordless Telephone in accordance with the TR421.
		50-54 AMATEUR 5.162A 5.166 5.167 5.168 5.170	50-54 AMATEUR 5.166 5.167 5.168	
		54-68 BROADCASTING Fixed Mobile 5.172	54-68 FIXED MOBILE BROADCASTING 5.162A	Conventional fixed stations and PMR.

ITU assistance in developing the NTFA



European Frequency Information System (EFIS)



- **The ERO (part of CEPT) is developing an on-line searchable NTFA covering the whole of the CEPT region**
 - <http://www.efis.dk>

- **EFIS is the tool to fulfil EC Decision 2007/344/EC on the harmonised availability of information regarding spectrum use in Europe and the ECC Decision ECC/DEC/(01)03**

- **At the time of writing it was still under development**
 - Gaining all the necessary information from all of the NRAs in the right format is a massive task
 - Nevertheless, there is much useful information available on the site include relevant reports and the ability to search individual country allocations



Other on-line systems - US

The US spectrum dashboard is an initiative to make much more information publicly available and searchable

SPECTRUM DASHBOARD

BROWSE SPECTRUM BANDS

BROWSE USING A MAP

SEARCH BY NAME

ADVANCED SEARCH

SPECTRUM DASHBOARD REPORTS

AVAILABLE SPECTRUM MAP

UNDERSTANDING YOUR RESULTS

Featured Discussion

About the Spectrum Dashboard

The Spectrum Dashboard provides a public means of reviewing how spectrum bands are allocated and for what uses, and who holds licenses and in what areas. This version provides basic, plain language information about frequencies generally deemed appropriate for mobile broadband (225 MHz to 3700 MHz). In addition, Spectrum Dashboard contains more detailed information, mapping, and research capabilities for the bands where broadband service is either already available, or potentially could be provided.

- 700 MHz
- 800 MHz Cellular
- Advanced Wireless Service (AWS)
- Broadband Personal Communications Service (PCS)
- Broadband Radio Service (BRS) and Educational Broadband Service (EBS)
- 2.3 GHz Wireless Communications Service (WCS)
- Full Power TV Broadcast
- Mobile Satellite Services (MSS)

Spectrum Dashboard

Browse Spectrum Bands | Browse Using a Map | Search by

Browse Spectrum Bands (225 MHz - 3700 MHz)

Frequency Range: to MHz

Radio Service:

Select Radio Service(s):

- 1390 - 1392 MHz
- 1392 - 1395 MHz
- 1470 - 1480 MHz**
- 1670 - 1675 MHz
- 3650 - 3700 MHz
- 700 MHz
- AWS - 1
- AWS - 2
- Amateur

Frequency Purpose (Tags):

Select Tags:

- Broadband
- Fixed Wireless
- Mobile Radio
- Personal Use
- Phone
- Radar
- Radio
- Safety of Life
- Satellite

Select Using Frequency Band:

Browse non-federal spectrum bands by entering a frequency range, selecting one or more tags or by using the graphical tool.

To use the graphical tool, click in a box to display the range of frequencies for the service(s) or click in a box and drag your cursor to select a wider range of frequencies. The frequencies will appear in the Frequency Range box.

Zoom:

Frequency Range: 1559 MHz - 1610 MHz

This band is used in the Radionavigation Satellite Service. This band is allocated for both Federal and Non-Federal use.

Services shown in chart: Amateur, Aviation, MSS, AWS-2, CARS, TTTS, TV Auxiliary, EES, LFT, TV Aux.

Like other NRAs
Ofcom publish a
NTFA. Here we look
into a part of it in
detail to understand
some of the issues



UNITED KINGDOM
FREQUENCY ALLOCATION TABLE
2013

Issue No. 17

Including
The International Telecommunication Union Table of Frequency
Allocations contained in the current Radio Regulations

Issued by the National Frequency Planning Group on behalf
of the Committee on UK Spectrum Strategy



Looking at one entry in detail

Allocation to United Kingdom Services	Comments
<p>470 – 790 MHz</p> <p>BROADCASTING Mobile</p> <p>5.149 5.296 5.306 5.312A UK1, 8, 10, 11, 27, 72, 189, 214, 222, EU1</p>	<ul style="list-style-type: none">• UK27 Services for Programme Making and Special Events are authorised to use some frequencies in this band by agreement with Ofcom. See Annex H.• UK72 Subject to prior agreement between Ofcom and the MoD, limited access is permitted to the band 606-790 MHz for testing and development of military equipment for emergency operation. Such access shall not in any way interfere with or restrict the planning or operation of television broadcasting, OB services, or any transmissions for testing and development associated with television services.• UK189 The band 470-790 MHz is the subject of Ofcom’s UHF Strategy Review which covers the future use of this spectrum and the next WRC-15 decision on mobile use of the 700MHz Band. In the meantime, the UK Table reflects the international allocations as modified by WRC-12.• UK214 The bands 542-550 MHz in the Cardiff area and 758-766 MHz in the Manchester area have been awarded by Ofcom by auction. See general note 5.2, c).• UK222 The Geneva 2006 agreement (GE06) applies to the bands 174 – 230 MHz and 470 – 862 MHz.• EU1 Commission Decisions 2006/771/EC, 2008/432/EC, 2009/381/EC, 2010/368/EU and 2011/829/EU (harmonised use of spectrum for short range devices (SRDs)) applies.



Understanding the entry (1)

- **This is a particularly interesting band because there are many uses and much discussion of its future use**
- **Its primary allocation is broadcasting and the UK conforms to this with national TV broadcasting throughout the band**
- **Like many regulators, Ofcom permits the use of PMSE (predominantly wireless microphones) throughout the band, working around the TV broadcasts**
 - Ofcom provide an Annex setting out all the PMSE allocations, part of this is shown on the next slide

Annex H (part)

- Details all PMSE usage
- Only part of the table shown here for brevity
- It is referenced via a footnote (UK27)

ANNEX H

SPECTRUM AVAILABLE FOR USE IN PROGRAMME MAKING AND SPECIAL EVENTS

Footnote UK 27

Frequency	Comments & typical use
47-55 - 48-8 MHz	Audio.
52-0 -52-95 MHz	Audio.
53-75 - 55-75 MHz	Audio.
60-75 - 62-75 MHz	Audio.
67-75 - 67-8375 MHz	Audio.
69-15625 - 69-18125 MHz	Audio.
74-68125 - 74-71875 MHz	Audio.
75-2625 - 75-3 MHz	Audio, airborne use permitted, restrictions apply.
76-80625 - 76-84375 MHz	Audio.
78-18375 - 78-25875 MHz	Audio.
82-65625 - 82-68125 MHz	Audio.
86-66875 - 86-68125 MHz	Audio, geographical restrictions apply.
86-80625 - 86-84375 MHz	Audio, airborne use permitted, restrictions apply.
139-54375 - 139-55625 MHz	Audio, geographic restrictions apply.
139-56875 - 139-58125 MHz	Audio, geographic restrictions apply.
139-64375 - 139-66875 MHz	Audio, geographic restrictions apply.
140-9875 - 141-4875 MHz	Audio, geographic restrictions apply. Airborne use permitted, restrictions apply.



Understanding the entry (2)

- There is some shared use with the military. The table is clear that this military use is secondary and must not cause any interference to the primary use
- The third note is particularly interesting. Ofcom has noted that part of the band (above 700MHz) may be changed to mobile status at the next WRC and that Ofcom is conducting studies and consultation on this – effectively they are signposting a possible major change to the band in the future
- The fourth note (UK214) is informative. Most of the broadcasting channels are assigned by legislation but Ofcom have noted that two regional TV channels have recently been assigned via auction and references some general principles – provided on the next slide
- The remaining notes reference relevant documents and standards that apply to the band such as the Geneva frequency planning that determined the frequencies for broadcasting across Europe



Example: UK general footnotes (1)

- **The generic footnotes appearing in the UK NTFA are listed below:**
- UK1 Except by special agreement having the approval of the NFPG this frequency band, or the allocation to this radio service, is reserved exclusively for CIVIL use in accordance with 'Allocation to Services'
 - UK2 Except by special agreement having the approval of the NFPG this frequency band, or the allocation to this radio service, is reserved exclusively for MILITARY use in accordance with the 'Allocation to Services'
 - UK3 Responsibility for assigning frequencies in this band in accordance with the Allocation to Services rests with Ofcom and the Scottish Government for emergency services
 - UK4 Responsibility for assigning frequencies in this band in accordance with the Allocation to Services is as follows ...
 - UK5 Responsibility for assigning frequencies to this service in accordance with the Allocation to Services is as follows...
 - UK6 Industrial, scientific and medical (ISM) applications are designated for use in this band
 - UK7 The conditions of use by the Amateur and/or Amateur-Satellite services in this band are contained in Annex F
 - UK8 Details the Memoranda of Understanding (MoUs) and Agreements entered into by Ofcom relating to cross-border radio frequency coordination and the management of interference are contained at Annex K

Example: UK General Footnotes (2)



- UK9 The Ministry of Defence requires at times to activate stations of the land mobile service, employing low power for voice communications, in the range 1.5-30.0 MHz. Temporary assignments will be negotiated directly with Ofcom and the Departments concerned or likely to be affected. In certain bands however this general but qualified agreement to MILITARY out-of-band usage cannot be permitted. These bands are annotated UK9
- UK10 Specific details of frequency bands, observatories and protective measures applicable to the radio astronomy service are contained in Annex D
- UK11 Specific details of frequency bands available for low power devices exempt from licensing are contained in Annex B. Please note that in addition to this footnote Ultra wide-band (UWB) equipment is also authorised to transmit in most frequency bands, as mandated by European Commission Decisions 2007/131/EC and 2009/343/EC. Due to the wide-band nature of the devices they permitted to operate across most frequency bands and for this reason we have not included them in the footnotes
- UK12 Specific details of frequencies for Distress and Safety, Search and Rescue and Emergencies are contained in Annex G



Summary

- **The NTFA is a core element of the national use of radio spectrum and will be one of the most important documents for the NRA**
- **Most countries adopt a similar format, using the RRs as a template and then showing the national use alongside this**
- **It can be helpful to provide informative notes, cross-references and footnotes so that most of the activities of the NRA can be “hung from” the NTFA**
- **Developing the NTFA is a large undertaking and once produced it will need regular updates**
- **Most NRAs now make the NTFA available on-line both as a published document and sometimes as a searchable database**

ITU is finalizing guidelines on preparation of National Frequency Allocation Table



I Thank **U**

**“Committed to
connecting the
WORLD”**

Major ITU SM Events in 2016



**ITU Study Group Meetings
ITU-D (Res. 9) and ITU-R SG1**

**ITU COE training workshop on
Spectrum Management and
Monitoring
Chengdu, China 16 – 21 May 2016**

**Economic Aspects of Spectrum
Management
Iran, Q3/4 2016**

**2nd Asia Pacific Spectrum Management
Conference
Bangkok, Thailand 25-29 April 2016**

Your active participation in and contribution to these events is most welcome!