

IARU REGION 1 VHF/UHF/Microwaves BANDPLANS

On the following pages the official IARU Region 1 bandplans currently valid for the 50 MHz, the 145 MHz, the 435 MHz and the Microwave bands are set out. In accordance with the policy outlined in section IIa, point 2, only carefully considered modifications and/or additions have been made during the tri-annual IARU Region 1 Conferences.

At the IARU Region 1 Conference in Cefalu (1984) a 50 MHz bandplan was adopted for use in countries within the European part of Region 1 where amateurs had obtained a frequency allocation or assignment in the 50 MHz band. As an appreciable number of countries within the European part of Region 1 had obtained or expected to obtain such an allocation by the end of 1989, at the IARU Region 1 Conference in Torremolinos (1990) the first version of an official IARU Region 1 bandplan for use in that part of Region 1 where the 50 MHz allocation does not exceed 52.000 MHz was adopted. At the IARU Region 1 Conference in Tel Aviv (1996) the bandplan has been slightly amended in order to reflect practical experiences.

Regarding amateur-satellite bandplans, the following was decided at the IARU Region 1 Conference in Warsaw (1975):

That IARU Region 1 adopts the bandplans recommended by the sponsors of each satellite system, e.g. by AMSAT for OSCAR-7, but also informs sponsors that such bandplans must be kept simple and that in the opinion of IARU Region 1 in each case provisions should be made to segregate Telegraphy from telephony.

The currently valid satellite bandplan(s), together with some data on amateur satellites, can be found in section VII.

The appearance of manned space stations with an amateur station on board has led to the allocation of NBFM channel frequencies. In Vienna 1995 the former 145.200/145.800 MHz frequency pair was allocated.

The following general recommendations regarding the promotion of bandplans have been adopted/re-affirmed at various IARU Region 1 Conferences:

- a. VHF Managers should give maximum publicity to the adopted bandplans. In view of the many newcomers, regular repetition of the publication of the bandplans is advisable.
- b. Member Societies, and particularly their VHF Managers or VHF Committees, should strongly promote adherence to the adopted bandplans by all VHF/UHF/Microwaves amateurs in their country.

It will be noted in the following bandplans that the accommodation of the narrow-band modes in several bands is quite similar and is modelled after the plans for the 145 MHz band which existed before the 1996 Tel Aviv conference. The narrow-band modes parts of the higher bands are respectively:

432	-	434	MHz	
1296	-	1298	MHz	
2320	-	2322	MHz	alternative 2304 - 2306 or 2308- 2310 MHz
3400	-	3402	MHz	
5668	-	5670	MHz	
5760	-	5762	MHz	
10368	-	10370	MHz	alternative 10450 - 10452 MHz
24048	-	24050	MHz	
24192	-	24194	MHz	

All bandplans show two columns:

IARU Region 1 bandplan	Usage
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The left column designation is self-explanatory. The right column contains meeting/calling frequencies, agreed upon for the convenience of the VHF/UHF/Microwaves amateurs practising specific modes of communication. These frequencies are not part of the adopted IARU Region 1 bandplan and, though in the normal amateur spirit other operators should take notice of these agreements, no right on reserved frequencies can be derived from a mention in the right-hand column.

The allocation of frequency segments to the various modes of operation in the IARU Region 1 bandplans

is subject to the following condition:

The allocation of sub-bands in the IARU Region 1 bandplans allows the indicated category of users to employ any frequency within that sub-band, provided that no appreciable energy falls outside that sub-band. Users must therefore take into account the bandwidth of their sidebands when selecting an operating frequency.

(de Haan, 1993)

Attention is drawn to the "Principles of Bandplanning", which are set out in section IIa, pages 2 - 4

N.B. For information purposes the UK bandplan for 70.0 - 70.5 MHz is attached to this section as Appendix 1.

50 - 52 MHz BANDPLAN (Tel Aviv 1996)

IARU Region 1 bandplan		Usage	
50.000	TELEGRAPHY (a)	50.020 - 50.080	Beacons
50.100		50.090	Telegraphy centre of activity
50.100	ALL NARROW-BAND MODES (TELEGRAPHY, SSB, AM, RTTY, SSTV, ETC.) (b)	50.100 - 50.130	Intercontinental Telegraphy/SSB
50.500		50.110	DX Calling (c)
		50.150	SSB Centre of activity
	50.185	Crossband centre of activity	
		50.200	MS centre of activity
50.500	ALL MODES	50.510	SSTV (AFSK)
		50.550	FAX working frequency
		50.600	RTTY (FSK)
		50.620 - 50.750	Digital communications
		51.210 - 51.390	FM repeaters input channels, 20 kHz spacing (e)
		51.410 - 51.590	FM
		51.510	FM calling frequency
52.000		51.810 - 51.990	FM repeaters output channels, 20 kHz spacing (e)

NOTES ON THE 50 - 52 MHz BANDPLAN**1. IARU REGION 1 BANDPLAN**

This bandplan, first adopted at the IARU Region 1 Conference in Torremolinos (1990) and revised at the 1996 Tel Aviv conference, is recommended for use in those countries in the European part of Region 1 which allow amateurs to operate in this part of the radio spectrum. In many countries in the African part of Region 1 (see footnotes accompanying the ITU frequency allocation table) the 50 - 54 MHz band is allocated to the Amateur Service on a primary basis, and in some cases, like for instance in South Africa, an adaptation of the Region 2 bandplan is used.

1.1. Footnotes

- a. Telegraphy is permitted over the whole band; Telegraphy exclusive between 50.000 - 50.100 MHz.
- b. The designation "Narrow Band" refers to transmission modes occupying a bandwidth of not more than 6 kHz (De Haan, 1993).

2. USAGE

The following notes are referring to the Usage column in the bandplan. As already set out in the introduction to section IIc, in the right amateur spirit operators should take notice of these agreements which are made for operating convenience, but no right to reserved frequencies can be derived from a mention in the Usage column or from the following notes.

2.1. Footnotes

- c. The intercontinental DX calling frequency 50.110 MHz should not be used for calling within the European part of Region 1 at any time.
- d. Channelized equipment: On this band the NBFM channel spacing is 20/10 kHz.
- e. For the specification of NBFM see section VIb

For the numbering of NBFM channels see appendix 2 to this section

In those countries within the European part of IARU Region 1 where it is allowed to set up NBFM repeaters on 50 MHz, the indicated channels are recommended in order to establish a commonality.

In those countries where the National Authorities do not permit repeaters to operate with output frequencies above 51MHz, repeater output frequencies may be 500kHz below the repeater input frequencies.(Tel Aviv 1996)

144 - 146 MHz BANDPLAN Lillehammer 1999)

IARU Region 1 bandplan		Usage	
144.000 144.035	E.M.E. (SSB & Telegraphy)		
144.035 144.150	TELEGRAPHY (a)	144.050 144.100 144.140 - 144.150	Telegraphy calling Random MS Telegraphy reference frequency (m) EME and FAI activity telegraphy
144.150 144.400	SSB	144.150 - 144.160 144.195 - 144.205 144.300 144.390 - 144.400	EME and FAI activity SSB Random MS SSB (m) SSB Calling Random MS SSB (m)
144.400 144.490 144.500	BEACONS Guard band		
144.500 144.800	ALL MODE (f)	144.500 144.525 144.600 144.610 144.700 144.750	SSTV calling ATV SSB talkback centre of activity RTTY calling (n) Centre of PSK31 activity FAX calling ATV calling/talk- back
144.800 144.990	DIGITAL COMMUNICATIONS (g,h)		
144.994 145.1935	NBFM REPEATER INPUT, 12.5 kHz spacing, (channel freqs 145.000 -- 145.1875 MHz) (c)		
145.194 145.5935	NBFM SIMPLEX CHANNELS 12.5kHz spacing, (channel freqs 145.200-- 145.5875 MHz) (c)	145.200 145.300 145.500	see note p RTTY local (Mobile) calling
145.594 145.7935	NBFM REPEATER OUTPUT, 12.5kHz spacing, (channel freqs 145.600-- 145.7875 MHz) (c) (d)		

IARU Region 1 bandplan		Usage	
145.800	AMATEUR SATELLITE SERVICE (e)	145.800	see note p
146.000			

NOTES ON THE 144 - 146 MHz BANDPLAN

1. IARU REGION 1 BANDPLAN

The following notes are part of the officially adopted IARU Region 1 bandplan, and all member societies should strongly promote adherence to the recommendations made in these notes.

1.1. General

- i. In Europe no input or output channels of NBFM repeaters shall be allowed to operate between 144 and 145 MHz.
- ii. Except in the part of the band allocated to the Amateur Satellite Service it is not allowed to use input- or output frequencies in the 145 MHz band for repeaters with in- or output in other amateur bands (Miskolc-Tapolca 1978).
- iii. No packet-radio networks will be set up in the 145 MHz band (revised Lillehammer 1999)
It is recognised that in some parts of Region 1 the introduction of packet-radio may require the use of access frequencies in the 144 - 146 MHz band for a limited time (Düsseldorf 1989).

Note. The parts of Region 1 meant are those parts with low amateur population and/or those at the periphery of the Region, where exceptions can be tolerated as these do not harm the orderly use of the band in the parts of Region 1 where there is a greater pressure on the available spectrum space. In the latter part of the Region the second paragraph of the footnote should **never** be used to justify ignoring the first part for a considerable time.

- iv. Beacons, irrespective of their ERP, will have to be situated in the beacon part of the band.

1.2. Footnotes

- a. Telegraphy is permitted over the whole band, but preferably not in the beacon band; Telegraphy exclusive between 144.035 - 144.150 MHz.
- b. Within IARU Region 1 the frequencies for beacons with an ERP of more than 50 Watts are coordinated by the IARU Region 1 Beacon Coordinator; the frequencies for beacons with an ERP of 10 Watts or more shall be communicated to the Beacon Coordinator. (see section IX).
- c. For technical standards on NBFM and repeaters see section VIb

If there is a real need for more repeater channels (see section VIIIa !), it is recommended that Societies or Repeater Groups consider setting up a repeater system on the higher frequency band(s).

Further to this subject the following recommendation was adopted in De Haan, 1993:

For FM repeater and simplex operation in the 144 to 146 MHz band IARU Region 1 will change to a genuine 12.5 kHz channel spacing system. Furthermore in Tel Aviv, 1996 it was decided that societies shall promote the use of the 12.5 kHz channel spacing standard for NBFM channels in order to effectively implement the 12.5 kHz system .

For the numbering of NBFM channels, see annex 2 to this section.

- d. Established simplex frequencies on repeater output channels may be retained.
- e. In view of the important public relations aspect of amateur satellite activities, it was

decided at the IARU Region 1 Conference in Miskolc-Tapolca (1978) that:

- i) AMSAT will be allowed to use the band 145.8 - 146.0 MHz for amateur satellite activity.

This decision was re-confirmed at the IARU Region 1 Conference in Brighton (1981).

- iii) see also footnote p

- f. No unmanned stations shall use the all-mode segment (Tel Aviv 1996)
- g. Attention is drawn to section 1.1. point iii of these Bandplan notes!
- h. Network stations shall only operate in the part of the 145 MHz band allocated to Digital Communications and will be permitted only for a limited time. Such network stations should also have access ports on other VHF/UHF or Microwave bands and should not use the 145 MHz band to forward traffic to other network stations. In view of the time limitation the set-up of new network stations is not encouraged (De Haan, 1993).

Unmanned packet radio stations are only allowed in the segment 144.800 - 144.990 MHz. Outside of this segment the signal level produced by those stations shall be not larger than 60 dB below the carrier level (measured in a 12 kHz bandwidth). Any other unmanned packet radio and digital access points must cease operation not later than 31 December 1997.(Tel Aviv 1996).

2. **USAGE**

The following notes are referring to the Usage column in the bandplan. As already set out in the introduction to section IIc, in the right amateur spirit operators should take notice of these agreements which are made for operating convenience, but no right to reserved frequencies can be derived from a mention in the Usage column or from the following notes.

At the meeting of the VHF/UHF/Microwaves Committee in Vienna, March 1992, the following recommendation was adopted:

Societies should publish the use of 144.140 - 144.160 MHz as an alternative for EME operation. The results of this test should be monitored with the aim of incorporating this segment as EME alternative into the Usage part of the bandplan if successful.

2.1. Footnotes

- m. See procedures set out in section Vb.
- n. Publicity should be given to the usage of frequencies around 144.600 MHz by RTTY stations, in order to keep these frequencies clear from other traffic and to avoid interference with those RTTY stations.
- p. For NBFM voice communications with special stations like manned spacecraft it is recommended to use 145.200 MHz for simplex operation or 145.200/145.800 MHz for split-channel operation (Vienna 1995/Tel Aviv 1996).

430 - 440 MHz BANDPLAN

IARU Region 1 bandplan		Usage
430.000	SUB-REGIONAL (national bandplanning) (d)	430.025 - 430.375 NBFM repeater output-channel freqs (F/PA), 25 kHz spacing, 1.6 MHz shift (f)
		430.400 - 430.575 Digital communication link channels (g) (j)
		430.600 - 430.925 Digital communications repeater channels (g) (j) (l)
		430.925 - 431.025 Multi mode channels (j) (k) (l)
		431.050 - 431.825 Repeater input channel freqs (HB/DL/OE), 25 kHz spacing, 7.6 MHz shift (f)
431.981		431.625-431.975 Repeater input channel freqs (F/PA), 25 kHz spacing, 1.6 MHz shift
432.000	TELEGRAPHY (a)	432.000 - 432.025 Moonbounce
432.150		432.050 Telegraphy centre of activity
432.150	SSB/TELEGRAPHY	432.200 SSB centre of activity
432.500		432.350 Microwave talkback centre of activity
432.500	LINEAR TRANSPONDER INPUT (e)	432.500 Narrow-band SSTV
432.600		432.600 RTTY (FSK/PSK) Centre of PSK31 activities
432.600	LINEAR TRANSPONDER OUTPUT (e)	432.610
432.800		432.700 FAX (FSK)
432.800	BEACONS (b)	
432.990		
432.994	REPEATER INPUT REGION 1 STANDARD, 25 kHz spacing, 1.6 MHz shift (Channel freq 433.000--433.375MHz)	
433.381		
433.394	NBFM SIMPLEX CHANNELS, 25 kHz spacing, (Channel freq 433.400 -- 433.575 MHz)	433.400 SSTV (FM/AFSK)
433.581		433.500 (Mobile) NBFM calling
433.600	ALL MODES	433.600 RTTY (AFSK/FM)
		433.625 - 433.775 Digital communications channels (g) (h) (i)
434.000		433.700 FAX channel (FM/AFSK)
		434.000 Centre frequency of digital experiments as defined on note m

IARU Region 1 bandplan		Usage	
434.000 434.594	ATV (c)	434.450 - 434.475	Digital communications channels (by exception !!) (i)
434.594 434.981	ATV (c) & REPEATER OUTPUT (region 1 system), 25 kHz spacing, 1.6 MHz shift, (Channel freq 434.600) -- 434.975MHz)		
434.981 438.000	ATV (c) & SATELLITE SERVICE		
438.000 440.000	ATV (c) & SUB-REGIONAL (national bandplanning) (d)	438.025 - 438.175 438.200 - 438.525 438.550 - 438.625 438.650 - 439.425 439.800 -- 439.975	Digital communications channel freqs (g) Digital communications repeater channels (g) (j) (l) Multi-mode (j) (k) (l) Repeater output channels (HB/DL/OE), 25 kHz spacing, 7.6 MHz shift, (f) Digital communications link channels (a) (i)

NOTES ON THE 430 - 440 MHz BANDPLAN

1. IARU REGION 1 BANDPLAN

The following notes are part of the officially adopted IARU Region 1 bandplan, and all member societies should strongly promote adherence to the recommendations made in these notes.

1.1. General

- i. In Europe no input or output channels of FM repeaters shall be allowed to operate between 432 and 433 MHz.
- ii. Beacons, irrespective of their ERP, will have to be located in the exclusive beacon part of the band.
- iii. NBFM Channels and Repeaters are specified in section VIb

1.2. Footnotes

- a. Telegraphy is permitted over the whole narrow-band DX part of the band; Telegraphy exclusive between 432.000 - 432.150 MHz.
- b. Within IARU Region 1 the frequencies for beacons with an ERP of more than 50 Watts are coordinated by the IARU Region 1 Beacon Coordinator (see section IX).
- c.
 - i. ATV operators should be encouraged to use the microwave allocations where available, but may continue to use the 430 MHz band where permitted by the licensing authority. In case of interference between ATV and the Amateur Satellite Service the Satellite Service should have priority.
 - ii. ATV transmissions in the 435 MHz band should take place in the segment

434.000 - 440.000 MHz. The video carrier should be below 434.500 MHz or above 438.500 MHz. National societies should provide guidance to their members on the exact frequencies to be used, with due consideration of the interests of other users.
(Noordwijkerhout 1987)

- d) The words "Sub-regional (national) bandplanning" appearing in IARU Region 1 VHF/UHF/Microwave bandplans mean the following:

In bands and sub-bands not available throughout Region 1, band-planning should be coordinated on a sub-regional basis between the countries where those bands and sub-bands are allocated to the Amateur Service. The words "national bandplanning" refer to bands/segments which are available only in a single country (such as the 70 MHz band allocation), or only in a few widely separated countries. (Torremolinos 1990)

- e) At the IARU Region 1 Conference in Torremolinos (1990) the output band for linear transponders was extended from 432.700 to 432.800 MHz under the following condition:

The established use of 432.600 MHz for RTTY (FSK/PSK) and 432.700 MHz for FAX should be respected when installing linear transponders which use this allocation.

2. USAGE

The following notes are referring to the Usage column in the bandplan. As already set out in the introduction to section IIc, in the right amateur spirit operators should take notice of these agreements which are made for operating convenience, but no right to reserved frequencies can be derived from a mention in the Usage column or from the following notes.

2.1. General

During contests and bandopenings local traffic using narrow-band modes should operate between 432.500 - 432.800 MHz.

2.2. Footnotes

- f. The HB/DL/OE wide-shift repeater system, already in use for a long time, is valuable with a view to a better utilisation of the whole band. Hence IARU Region 1 endorses the system.
This also applies for the French repeater channel system, also adopted by the Netherlands, which IARU Region 1 supports as a useful measure to fill a hitherto unused part of the band.
For the numbering of NBFM channels see appendix 2 to this section

- g. In the Usage section of the 435 MHz bandplan the following frequency segments have been designated for digital communications:

- i) 430.544 - 430.931 MHz Extension of the 7.6 MHz repeater system input for digital comm.
437.194 - 438.531 MHz Output channels for the above
- ii) 433.619 - 433.781 MHz
438.019 - 438.181 MHz
- iii) 430.394 - 430.581 MHz For digital communication links
439.794 - 439.981 MHz For digital communication links

With due regard to the band allocated to the Amateur Service by the national Administration, the interests of other users, possible interference from e.g. ISM, the specific digital technique or system to be accommodated etc., a sub-regional, or national choice may be made within the above segments.

- h. In those countries where 433.619 - 433.781 MHz is the only segment of the 435 MHz band available for digital communications, modulation techniques requiring a channel separation exceeding 25 kHz should not be used. If different or incompatible use of this part of the frequency spectrum is contemplated in neighbouring countries, this use should be coordinated between the countries concerned with the aim of avoiding harmful

interference.

- i. On a temporary basis, in those countries where 433.619 - 433.781 MHz is the only segment of the 435 MHz band available for Digital Communications:
 - 1. Channels with centre frequencies 433.700, 432.725, 432.750, 432.775, 434.450, 434.475, 434.500, 434.525, 434.550 and 434.575 may be used for digital communications.
 - 2. Use of these channels must not interfere with linear transponders.
 - 3. Modulation techniques requiring a channel separation exceeding 25 kHz must not be used on these channels.
(De Haan, 1993)
- j. At the IARU Region 1 Conference in Torremolinos (1990) the following recommendation was adopted regarding the segments for repeaters and links, shown in footnote g:

For a repeater/link to be installed within 150 km of a national border, the member society should co-ordinate the frequency allocation and the technical (system) data with the member societies in neighbouring countries. Special attention should be paid to the common good practice of using directional antennas and the minimum power necessary.

As a matter of course this agreement is also valid for any link experiments carried out on the multi-mode channels in the segment 438.544--438.631 MHz. (De Haan, 1993).
- k. These multi-mode channels are to be used for experimenting with new transmission technologies (De Haan, 1993)
- l. In the United Kingdom the use of low-power speech repeaters on repeater channels in the segment 438.419--438.581 is allowed. Where necessary, frequencies will be coordinated with neighbouring countries (De Haan, 1993).
- m. Experiments using wide band digital modes may take place in the 435 MHz band in those countries that have the full 10 MHz allocation. These experiments should be in the all modes section around a frequency of 434 MHz, use horizontal polarisation and the minimum power required.(Tel Aviv 1996)

1240 - 1300 MHz BANDPLAN

IARU REGION 1 bandplan		Usage	
1240.000 1243.250	ALL MODES	1240.000-1241.000 1242.025-1242.250	Digital communications Repeater output, ch. RS1 -- RS10
1243.250 1260.000	ATV	1242.250-1242.700 1242.725-1243.250 1258.150-1259.350	Repeater output, ch. RS11 -- RS28 Packet radio duplex, ch. RS29 -- RS50 Repeater output, ch. R20 -- R68
1260.000 1270.000	SATELLITE SERVICE		
1270.000 1272.000	ALL MODES	1270.025-1270.700 1270.725-1271.250	Repeater input, ch. RS1 -- RS28 Packet Radio duplex, ch. RS29 -- RS50
1272.000 1290.994	ATV		
1290.994 1291.481	NBFM REPEATER INPUT, 25 kHz spacing, ch. RM0 (1291.000) -- RM19 (1291.475)		
1291.494 1296.000	ALL MODES	1293.150-1294.350	Repeater input, ch. R20 -- R68
1296.000 1296.150	TELEGRAPHY (a)	1296.00-1296.025	Moonbounce
1296.150 1296.800	TELEGRAPHY/SSB	1296.200 1296.400-1296.600 1296.500 1296.600 1296.700 1296.600-1296.800	Narrow-band centre of activity Linear transponder input SSTV RTTY FAX Linear transponder output
1296.800 1296.994	BEACONS EXCLUSIVE (b)		
1296.994 1297.481	NBFM REPEATER OUTPUT, ch. RM0 -- RM19		
1297.494 1297.981	NBFM SIMPLEX, ch. SM20 -- SM39 (c)	1297.500	NBFM activity centre

IARU REGION 1 bandplan	Usage	
1298.000	1298.025-1298.500	Repeater output channelk freqs, ch. RS1 -- RS28
ALL MODES	1298.500-1300.000	Digital communications
1300.000	1298.725-1299.000	Packet-Radio duplex channel freqs, ch. RS29 -- RS40

NOTES ON THE 1240 - 1300 MHz BANDPLAN

1. IARU REGION 1 BANDPLAN

The following notes are part of the IARU Region 1 bandplan for this band, originally adopted during the IARU Region 1 Conference at Noordwijkerhout (1987), and all member societies should strongly promote adherence to the recommendations made in these notes. For the specification of NBFM see section VIb

1.1. Footnotes

- a. Telegraphy is permitted over the whole narrow-band DX part of the band; Telegraphy exclusive between 1296.000 - 1296.150 MHz.
- b. Within IARU Region 1 the frequencies for beacons with an ERP of more than 50 Watts are coordinated by the IARU Region 1 Beacon Coordinator (see section IX).
- c. In countries where 1298 - 1300 MHz is not allocated to the Amateur Service (e.g. Italy) the FM simplex segment may also be used for digital communications.

2. USAGE

The following note refers to the Usage column in the bandplan. As already set out in the introduction to section IIc, in the right amateur spirit operators should take notice of these agreements which are made for operating convenience, but no right to reserved frequencies can be derived from a mention in the Usage column.

2.1. General

During contests and bandopenings local traffic using narrow-band modes should operate between 1296.500 - 1296.800 MHz.

2300 -2450 MHz BANDPLAN (Vienna 1998)

IARU Region 1 bandplan		Usage	
2300.000	SUB-REGIONAL (national) BANDPLANNING (a)	2304 - 2306	Narrow band segment in countries where the 2320-2322 segment is not available
2320.000		2308 - 2310	
2320.000	TELEGRAPHY EXCLUSIVE (c)	2320.000-2320.025	Moonbounce
2320.150			
2320.150	TELEGRAPHY/ SSB (c)	2320.200	SSB centre of activity
2320.800			
2320.800	BEACONS EXCLUSIVE (c)		
2321.000			
2321.000	NBFM SIMPLEX & REPEATERS (b)		
2322.000			
2322.000	ALL MODES (b)	2322.000-2355.000	ATV
		2355.000-2365.000	Digital communications
		2365.000-2370.000	Repeaters
		2370.000-2392.000	ATV
2400.000		2392.000-2400.000	Digital communications
2400.000	AMATEUR SATELLITE SERVICE	2427.00 - 2443.00	ATV if no satellite uses this segment
2450.000			

NOTES ON THE 2300 - 2450 MHz BANDPLAN

- a) The words "Sub-regional (national) bandplanning" appearing in IARU Region 1 VHF/UHF/Microwave bandplans mean the following:

In bands and sub-bands not available throughout Region 1, band-planning should be coordinated on a sub-regional basis between the countries where those bands and sub-bands are allocated to the Amateur Service. The words "national bandplanning" refer to bands which are available only in a single country (such as the 70 MHz band allocation), or only in a few widely separated countries.

(Torremolinos 1990)

- b) In countries where the ALL MODES segment 2322 - 2400 MHz is not allocated to the Amateur Service, the FM SIMPLEX & REPEATER segment 2321 - 2322 MHz may be used for digital data transmissions.
For the specification of NBFM see section VIb
- c) In countries where the narrow-band segment 2320 - 2322 MHz is not available, the following alternative narrow-band segments can be used:

2304 - 2306 MHz
2308 - 2310 MHz

3400 -3475 MHz BANDPLAN

IARU Region 1 bandplan		Usage	
3400.000	NARROW-BAND MODES	3400.100	Centre of activity
3402.000			
3402.000	ALL MODES	3420.000-3430.000	Digital
3475.000		3450.000-3455.000	Digital

5650 - 5850 MHz BANDPLAN

IARU Region 1 bandplan		Usage	
5650.000	AMATEUR SATELLITE SERVICE (up-link)		
5668.000			
5668.000	AMATEUR SATELLITE SERVICE (up-link) & NARROW BAND MODES (a)	5668.200	Narrow band centre of activity
5670.000			
5670.000	DIGITAL		
5700.000			
5700.000	ATV		
5720.000			
5720.000	ALL MODES		
5760.000			
5760.000	NARROW BAND MODES (a)	5760.200	Narrow band centre of activity
5762.000			
5762.000	ALL MODES		
5790.000			
5790.000	AMATEUR SATELLITE SERVICE (down-link)		
5850.000			

NOTES ON THE 5650 - 5850 MHz BANDPLAN

1. Footnotes

- a. Societies are urged to inform their members that stations should preferably be able to operate in both narrow-band segments.

10.000 - 10.500 GHz BANDPLAN

IARU Region 1 bandplan		Usage	
10.000 10.150	DIGITAL		
10.150 10.250	ALL MODES		
10.250 10.350	DIGITAL		
10.350 10.368	ALL MODES		
10.368 10.370	NARROW BAND MODES	10.3682	Narrow band centre of activity
10.370 10.450	ALL MODES		
10.450 10.500	AMATEUR SATELLITE SERVICE & ALL MODES	10.450-10.452	Narrow band modes in countries where 10.368-10.370 is not available

NOTES ON THE 10.0 - 10.5 GHz BANDPLAN

1. Footnotes

- a. In those countries where the narrow-band segment 10368 - 10370 MHz is not available, the segment 10450 - 10452 MHz is suggested as an alternative narrow-bandwidth segment.

24.000 - 24.250 GHz BANDPLAN(Vienna 1998)

IARU Region 1 bandplan		Usage	
24.000	AMATEUR SATELLITE SERVICE		
24.048			
24.048	NARROW BAND MODES	24.0482	Narrow band centre of activity
24.050			
24.050	ALL MODES	24.125	Preferred operating frequency for wide-band equipment
24.192			
24.192	NARROW BAND MODES	24.1922	Narrow band centre of activity
24.194			
24.194	ALL MODES		
24.250			

47.000 - 47.200 GHz BANDPLAN

IARU Region 1 bandplan		Usage	
47.000	ALL MODES	47.088000	Narrow band modes centre of activity
47.200			

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