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. At the Tel Aviv 1996 conference an additional NBFM channel (partly overlapping the new beacon band) has been allocated for a limited (three year) period for a SAREX uplink. It became very clear that for such applications a world wide *exclusive allocation cannot be easily found in the 145 MHz band and a move to higher frequency bands appears necessary.*

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*

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**)* ***50.100***	*50.020 - 50.080 Beacons* *50.090 Telegraphy centre of activity*
50.100 *ALL NARROW-BAND MODES (TELEGRAPHY, SSB, AM, RTTY, SSTV, ETC.) (**b**)* ***50.500***	*50.100 - 50.130 Intercontinental Telegraphy/SSB* *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* ***52.000***	*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* *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 *(Vienna 1998)*

IARU Region 1 bandplan	*Usage*	
144.000		
E.M.E. (SSB & Telegraphy)		
144.035		
144.035		
	144.050	*Telegraphy calling*
*TELEGRAPHY (**a**)*	*144.100*	*Random MS Telegraphy reference frequency (**m**)*
144.150	*144.140 - 144.150*	*EME and FAI activity telegraphy*
144.150	*144.150 - 144.160*	*EME and FAI activity SSB*
	144.195 - 144.205	*Random MS SSB (**m**)*
SSB	*144.300*	*SSB Calling*
144.400	*144.390 - 144.400*	*Random MS SSB (**m**)*
144.400		
BEACONS		
144.440		
*BEACONS(**j**)*	*144.490*	*SAREX uplink (**q**)*
144.490		
Guard band		
144.500		
144.500	*144.500*	*SSTV calling*
	144.525	*ATV SSB talkback centre of activity*
*ALL MODE (**f**)*	*144.600*	*RTTY calling (**n**)*
	144.700	*FAX calling*
	144.750	*ATV calling/talk-back*
144.800		
144.800		
*DIGITAL COMMUNICATIONS (**g,h**)*		
144.850		
*DIGITAL COMMUNICATIONS (**g,h,k**)*		
144.990		
144.994		
*NBFM REPEATER INPUT, 12.5 kHz spacing, (channel freqs 145.000 -- 145.1875 MHz) (**c**)*		
145.1935		
145.194	*145.200*	*see note **p***
*NBFM SIMPLEX CHANNELS 12.5kHz spacing, (channel freqs 145.200-- 145.5875 MHz) (**c**)*	*145.300*	*RTTY local*
	145.500	*(Mobile) calling*
145.5935		
145.594		
*NBFM REPEATER OUTPUT, 12.5kHz spacing, (channel freqs 145.600-- 145.7875 MHz) (**c**) (**d**)*		
145.7935		
145.800	*145.800*	*see note **p***
*AMATEUR SATELLITE SERVICE (**e**)*		
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 and no access from the 145 MHz band to networks on other bands will be allowed.

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 and 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 144 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).

j. For a limited period - and never longer than novice stations in The Netherlands are only allowed to use SSB between 144.440 and 144.490 MHz - SSB and Telegraphy operations are also allowed in the 144.440/144.490 MHz part of the beacon band. (Tel Aviv 1996)

k. *All beacons shall move from the 144.850/144.990 MHz segment to the 144.400/144.490 MHz segment before 1 July 1997. When coordinating frequencies the beacon coordinator shall try to place well known DX-beacons in the 144.400-144.440 MHz segment. Digital communications shall not use the 144.850/144.990 MHz segment before 1 July 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).*

q. *In order to make worldwide operation of the SAREX project possible in its initial phase and facilitating the conversion towards use of higher frequency bands, the frequency 144.490 MHz can be used for uplink communication using NBFM for a limited period but not after 1 October 1999 (Tel Aviv 1996).*

430 - 440 MHz BANDPLAN

IARU Region 1 bandplan		*Usage*	
430.000		*430.025 - 430.375*	*NBFM repeater output-channnel 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**)*
	*SUB-REGIONAL (national bandplanning) (**d**)*	*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		*432.000 - 432.025*	*Moonbounce*
	*TELEGRAPHY (**a**)*	*432.050*	*Telegraphy centre of activity*
432.150			
432.150		*432.200*	*SSB centre of activity*
	SSB/TELEGRAPHY	*432.350*	*Microwave talkback centre of activity*
432.500		*432.500*	*Narrow-band SSTV*
432.500		*432.600*	*RTTY (FSK/PSK)*
	*LINEAR TRANSPONDER INPUT (**e**)*		
432.600			
432.600		*432.700*	*FAX (FSK)*
	*LINEAR TRANSPONDER OUTPUT (**e**)*		
432.800			
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		*433.400*	*SSTV (FM/AFSK)*
	NBFM SIMPLEX CHANNELS, 25 kHz spacing, (Channel freq 433.400 -- 433.575 MHz)	*433.500*	*(Mobile) NBFM calling*
433.581			

IARU Region 1 bandplan	*Usage*	
433.600 *ALL MODES* ***434.000***	*433.600* *433.625 - 433.775* *433.700* *434.000*	*RTTY (AFSK/FM)* *Digital communications channels (**g**) (**h**) (**i**)* *FAX channel (FM/AFSK)* *Centre frequency of digital experiments as defined on note **m***
434.000 *ATV (**c**)* ***434.594***	*434.450 - 434.475*	*Digital communications channels (by exception !!) (**i**)*
434.594 *ATV (**c**)* *&* *REPEATER OUTPUT (region 1 system), 25 kHz spacing, 1.6 MHz shift, (Channel freq 434.600) -- 434.975MHz)* ***435.981***		
435.981 *ATV (**c**)* *&* *SATELLITE SERVICE* ***438.000***		
438.000 *ATV (**c**)* *&* *SUB-REGIONAL (national bandplanning) (**d**)* ***440.000***	*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 (**g**) (**j**)*

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 in 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 *ALL MODES* ***1243.250***	*1240.000-1241.000 Digital communications* *1242.025-1242.250 Repeater output, ch. RS1 -- RS10*
1243.250 *ATV* ***1260.000***	*1242.250-1242.700 Repeater output, ch. RS11 -- RS28* *1242.725-1243.250 Packet radio duplex, ch. RS29 -- RS50* *1258.150-1259.350 Repeater output, ch. R20 -- R68*
1260.000 *SATELLITE SERVICE* ***1270.000***	
1270.000 *ALL MODES* ***1272.000***	*1270.025-1270.700 Repeater input, ch. RS1 -- RS28* *1270.725-1271.250 Packet Radio duplex, ch. RS29 -- RS50*
1272.000 *ATV* ***1290.994***	
1290.994 *NBFM REPEATER INPUT, 25 kHz spacing, ch. RM0 (1291.000) -- RM19* *(1291.475)* ***1291.481***	
1291.494 *ALL MODES* ***1296.000***	*1293.150-1294.350 Repeater input, ch. R20 -- R68*
1296.000 *TELEGRAPHY (**a**)* ***1296.150***	*1296.00-1296.025 Moonbounce*
1296.150 *TELEGRAPHY/SSB* ***1296.800***	*1296.200 Narrow-band centre of activity* *1296.400-1296.600 Linear transponder input* *1296.500 SSTV* *1296.600 RTTY* *1296.700 FAX* *1296.600-1296.800 Linear transponder output*
1296.800 *BEACONS EXCLUSIVE (**b**)* ***1296.9875***	
1296.994 *NBFM REPEATER OUTPUT, ch. RM0 -- RM19* ***1297.481***	
1297.494 *NBFM SIMPLEX, ch. SM20 -- SM39 (**c**)* ***1297.981***	*1297.500 NBFM activity centre*
1298.000 *ALL MODES* ***1300.000***	*1298.025-1298.500 Repeater output channelk freqs, ch. RS1 -- RS28* *1298.500-1300.000 Digital communications* *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**)* ***2320.000***	*2304 - 2308* *Narrow band segment in countries where the 2320-2322 segment is not available* *2308 - 2310* *Narrow band segment in HB*
2320.000 *TELEGRAPHY EXCLUSIVE (**c**)* ***2320.150***	*2320.000-2320.025 Moonbounce*
2320.150 *TELEGRAPHY/ SSB (**c**)* ***2320.800***	*2320.200 SSB centre of activity*
2320.800 *BEACONS EXCLUSIVE (**c**)* ***2321.000***	
2321.000 *NBFM SIMPLEX & REPEATERS (**b**)* ***2322.000***	
2322.000 *ALL MODES (**b**)* ***2400.000***	*2322.000-2355.000 ATV* *2355.000-2365.000 Digital communications* *2365.000-2370.000 Repeaters* *2370.000-2392.000 ATV* *2392.000-2400.000 Digital communications*
2400.000 *AMATEUR SATELLITE SERVICE* ***2450.000***	*2427.00 - 2443.00 ATV if no satellite uses this segment*

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		*3400.100*	*Centre of activity*
	NARROW-BAND MODES		
3402.000			
3402.000		*3420.000-3430.000*	*Digital*
	ALL MODES		
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		*5668.200*	*Narrow band centre of activity*
	AMATEUR SATELLITE SERVICE (up-link) *&* *NARROW BAND MODES (**a**)*		
5670.000			
5670.000			
	DIGITAL		
5700.000			
5700.000			
	ATV		
5720.000			
5720.000			
	ALL MODES		
5760.000			
5760.000		*5760.200*	*Narrow band centre of activity*
	*NARROW BAND MODES (**a**)*		
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 *DIGITAL* ***10.150***		
10.150 *ALL MODES* ***10.250***		
10.250 *DIGITAL* ***10.350***		
10.350 *ALL MODES* ***10.368***		
10.368 *NARROW BAND MODES* ***10.370***	*10.3682*	*Narrow band centre of activity*
10.370 *ALL MODES* ***10.450***		
10.450 *AMATEUR SATELLITE SERVICE* *&* *ALL MODES* ***10.500***	*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* ***24.050***	*24.0482 Narrow band centre of activity*
24.050 *ALL MODES* ***24.192***	*24.125 Preferred operating frequency for wide-band equipment*
24.192 *NARROW BAND MODES* ***24.194***	*24.1922 Narrow band centre of activity*
24.194 *ALL MODES* ***24.250***	

47.000 - 47.200 GHz BANDPLAN

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

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