

## Bandplan 50-52 MHz

Frequency	Maximum Bandwidth	Mode	Usage
50.000  50.100	500 Hz	Telegraphy exclusive (except Beacon Project)	50.000 - 010 Region-1 * 50.010 - 020 Region-2 * 50.020 - 030 Region-3 * * Reserved for future Synchronised Beacon Project (b)  50.050 CW future International centre of activity 50.090 CW Intercontinental centre of activity
50.100  50.200 50.200	2700 Hz	SSB Telegraphy	International preferred 50.100 - 130 Intercontinental section 50.110 Intercontinental centre of activity(c)  50.130 - 200 international section 50.150 International centre of activity
50.200 50.200  50.300 50.300	2700 Hz	SSB Telegraphy	General usage 50.285 for crossband
50.300 50.300  50.400 50.400	2700 Hz	MGM Narrowband Telegraphy	50.305 PSK Centre of activity  50.310 - 320 EME centre of activity 50.320 - 380 MS centre of activity
50.400 50.400  50.500 50.500	1000 Hz	MGM Telegraphy	Beacons exclusive 50.401 MHz +/- 500 Hz WSPR Beacons
50.500     52.000	12 kHz	All Modes	50.510 SSTV 50.540 - 580 Simplex FM Internet Voice Gateways 50.550 Image frequency 50.600 RTTY 50.620 - 750 Digital communications 50.630 DV calling 51.210 - 390 FM/DV Repeater Inputs, 20 kHz spacing (e) 51.410 - 590 FM/DV Simplex (f) 51.510 FM calling frequency 51.810 - 990 FM repeaters output channels, 20 kHz spacing (e)

DV = Digital Voice

### 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, the 2002 San Marino Conference, and the 2011 Sun City 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. These Countries may refer to the SARL Bandplan.

#### Footnotes:

- a. deleted

#### 2. USAGE

The following notes are referring to the Usage column in the bandplan. As already set out in the introduction to section 3, 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

b. 50.0-50.1MHz is currently shared with Propagation Beacons. These are due to be migrated by August-2014 to 50.4-50.5 MHz, to create more space for Telegraphy and a new Synchronised Beacon Project

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 FM channel spacing is 20/10 kHz.

e. For the specification of FM telephony see section 8.2

f. This segment is for simplex use only with no Digital Voice gateways permitted. Embedded data traffic is allowed along with Digital Voice. DV users should check that the channel is not in use by other modes

g. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band

For the numbering of FM telephony channels see 4.1

In those countries within the European part of IARU Region 1 where it is allowed to set up FM 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 51 MHz, repeater output frequencies may be 500 kHz below the repeater input frequencies.(Tel Aviv 1996)

## Bandplan 70.0 – 70.5 MHz

Frequency (MHz)	maximum Bandwidth	MODE	Usage
70.000  70.090	1000Hz	TELEGRAPHY MGM	Coordinated Beacons
70.090  70.100	1000Hz	BEACONS	temporary and personal beacons 70.090 Personal WSPR beacons
70.100  70.250	2700Hz	TELEGRAPHY SSB MGM	70.185 Crossband center of activity 70.200 Telegraphy/SSB calling 70.250 MS calling
70.250  70.294	12kHz	AM / FM a)	70.260 AM/FM calling 70.270 MGM centre of activity
70.294  70.500	12kHz	FM CHANNELS, 12.5 kHz spacing	70.3000 RTTY/FAX 70.3125 Digital communications 70.3250 Digital communications  70.4500 FM calling 70.4625 70.4750 70.4875 Digital communications

The 70MHz band is increasingly recognised as being appropriate for amateur allocations. In the CEPT area this progress is now recognised in the European Common Allocation table by footnote EU9 which states:

EU9: "In a growing number of CEPT countries, parts of the band 70.0----70.5 MHz is also allocated to the Amateur service on a secondary basis."

In addition it is worth noting that there is some experimental access on a national basis in the range 69.90 - 70.0MHz in cases where 70MHz is not available.

### NOTES ON THE 70 MHz BANDPLAN

- a) Refer to Beacons Chapter for coordination of beacons Section 11
- b) Usage by operators may vary due to restrictions on national allocations

## Bandplan 144 – 146 MHz

Frequency (MHz)	Maximum Bandwidth (-6dB)	MODE	USAGE
144.000	500Hz	Telegraphy(a)	144.050 Telegraphy calling
144.110		EME	144.100 Random MS(m)
144.110	500Hz	Telegraphy	144.110–144.160 EME MGM
144.150		MGM	144.138 PSK31 center of activity
144.150	2700Hz	Telegraphy, SSB, MGM	144.160-144.180 alternative MGM allocation
144.180			144.170 alternative MGM calling frequency
144.180	2700Hz	Telegraphy & SSB	144.195-144.205 Random MS SSB (m)
144.360			144.300 SSB calling
144.360	2700Hz	Telegraphy, SSB, MGM	144.370 FSK441 Random calling(m)
144.399			
144.400	500Hz	Telegraphy	Beacons exclusive(b)
144.491		MGM	144.4905 +/-500Hz WSPR Beacons
144.500	20kHz	All mode (f)	144.500 SSTV calling
144.794			144.525 ATV SSB talk back
			144.600 RTTY calling(n)
144.794			144.630-144.660 Linear Transponder OUT
			144.660-144.690 Linear Transponder IN
	144.700 FAX calling		
	144.750 ATV talk back		
144.794	12kHz	MGM (h)	144.800 APRS
144.9625			

144.975 145.194	12kHz	FM / Digital voice	Repeater Input exclusive (c)
145194 145.206	12kHz	FM / Digital voice (i)	Space communication (p)
145.206 145.5625 145.5750	12kHz	FM / Digital voice (i)	145.2375 FM Internet Voice Gateway 145.2875 FM Internet Voice Gateways 145.300 RTTY local 145.3375 FM Internet Voice Gateway  145.375 digital voice calling 145.500 (mobile) calling
145.7935 145.794 145.806	12kHz	FM / Digital voice	Repeater Output exclusive (c,d)
145.806 146.000	12kHz	FM / Digital voice (i)	Space communication (p)
	12kHz	ALL MODE (e)	Satellite exclusive

## 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 telephony repeaters shall be allowed to operate between 144.000 and 144.794 MHz.

ii. Except in the part of the band allocated to the Amateur Satellite Service and the linear transponders 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, San Marino 2002).

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.

#### 1.2. Footnotes

a. Telegraphy is permitted over the whole band, but preferably not in the beacon band; Telegraphy exclusive between 144.000 - 144.110 MHz.

b. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band Section 11

c. For technical standards on FM and repeaters see section 8

If there is a real need for more repeater channels (see section 10), 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 FM channels in order to effectively implement the 12.5 kHz system .

For the numbering of FM telephony 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, except for linear transponders and ARDF beacons. (Tel Aviv 1996, San Marino 2002)

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).

i. This segment is for simplex use only with no Digital Voice gateways. Embedded data traffic is allowed along with digital voice. Digital Voice users should check that the channel is not in use by FM

## **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.

EME activity using MGM is commonly practised between 144.110-144.160MHz

### **2.1. Footnotes**

m. See procedures set out in section 7.4

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 FM 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 It is recognised that in the IARU Region 1 rules for the Championships in Amateur Radio Direction Finding (ARDF) competitions, the frequencies for the unmanned beacons are in the segment 144.500 – 144.900 MHz. These beacons run low power and are on the air only during ARDF events. (Davos 2005)

## Bandplan 430 – 440 MHz

Frequency MHz	Maximum Bandwidth	MODE	USAGE	
430.000	20kHz	ALL MODES	430.025 - 430.375	FM repeater output-channel freqs (F/PA/ON), 12,5 kHz spacing, 1.6 MHz shift (f)
SUB-REGIONAL (national bandplanning) (d)			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)
431.975			431.625 - 431.975	Repeater input channel freqs (F/PA/ON), 12.5 kHz spacing, 1.6 MHz shift
432.000	500Hz	Telegraphy (a)		EME
432.025	500Hz	Telegraphy (a) MGM	432.050	Telegraphy centre of activity
			432.088	PSK31 centre of activity
432.100	2700Hz	Telegraphy SSB MGM	432.200	SSB centre of activity
432.100			432.350	Microwave talkback centre of activity
432.400			432.370	FSK441 random calling
432.400	500Hz	Telegraphy, MGM		Beacons exclusive (b)
432.490				

Frequency MHz	Maximum Bandwidth	MODE	USAGE	
432.500	12kHz	ALL MODES	432.500	NEW APRS FREQUENCY
432.500-432.600			LINEAR TRANSPONDER IN(e)	
432.600			432.600	RTTY (ASK/PSK)
432.700			432.700	FAX (ASK)
432.600-432.800			432.600-432.800	LINEAR TRANSPONDER OUT (e)
432.975				REPEATER INPUT REGION 1 STANDARD, 25 kHz spacing, 2 MHz shift (Channel freq 432.600 - 432.975MHz)
433.000	12 kHz	FM Digital voice Repeater (p)		REPEATER INPUT REGION 1 STANDARD, 25 kHz spacing, 1.6 MHz shift (Channel freq 433.000--433.375 MHz) I
433.375				
433.400	12 kHz	FM Digital voice (f) (o)	433.400 433.450 433.500	SSTV(FM/AFSK) digital voice calling (Mobile) FM calling
433.575				SIMPLEX CHANNELS, 25 kHz spacing, ( Channel freq 433.400 -- 433.575 MHz)
433.600	20kHz	ALL MODES	433.600	RTTY (AFSK/FM)
433.625 - 433.775			Digital communications channels (g) (h) (i)	
433.700			FAX channel (FM/AFSK)	
434.000			434.000	Centre frequency of digital experiments as defined on note (m)
434.400	12kHz (c)	ALL MODES ATV (c)	434.450 - 434.575	Digital communications channels (by exception !! ) (i)
434.594				



Frequency MHz	Maximum Bandwidth	MODE	USAGE	
434.594 ATV (c) & FM	12kHz (c)	ALL MODES		REPEATER OUTPUT (region 1 system), 25 kHz spacing, 1.6 MHz shift, (Channel freq 434.600 -- 434.975 MHz)
434.981				In the UK repeater INPUT channels
435.000	20kHz (c)	Satellite service & ATV (c)		
438.000				
438.000			438.025 - 438.175	Digital communications channel frequency (g)
			438.200 - 438.525	Digital communications repeater channels (g) (j) (l)
ATV (c) & SUB-REGIONAL (national bandplanning) (d)	20kHz (c)	ALL MODES	438.550 - 438.625	Multi-mode (j) (k) (l)
			438.650 - 439.425	Repeater output channels (HB/DL/OE), 25 kHz spacing, 7.6 MHz shift, (f) (p)
			439.800 -- 439.975	Digital communications link channels (g) (j)
440.000			439,9875	POCSAG centre

#### NOTES ON THE 430 - 440 MHz BANDPLAN

##### 1.IARU REGION 1 430-440MHz 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 telephony repeaters shall be allowed to operate between 432 and 433 MHz.( From 1-1-2004 those frequencies are between 432.000 and 432.600 MHz )

iii. FM telephony channels and Repeaters are specified in chapter 8.8.4

##### 1.2. Footnotes

a. Telegraphy is permitted over the whole narrow-band DX part of the band; Telegraphy exclusive between 432.000 - 432.100 MH. PSK31, however, can be used as well in this segment

b. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band See Section **Fehler! Verweisquelle konnte nicht gefunden werden.**

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 bandallocation), 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 (ASK/PSK) and 432.700 MHz for FAX should be respected when installing linear transponders which use this allocation.

f). This segment is for simplex use only with no Digital Voice gateways. Embedded data traffic is allowed along with digital voice. Digital Voice users should check that the channel is not in use by other modes

## 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 ( except where Aexclusive@is mentioned@).

### 2.1. 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 and Belgium, which IARU Region 1 supports as a useful measure to fill a hitherto unused part of the band. For the numbering of FM telephony channels see 4.1

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.  
438.194 - 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 432.500, 432.525, 432.550, 432.575, 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 coordinate 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)

n. Common frequencies for Simplex (FM) Internet voice gateways are: 433.950, 433.9625, 433.975, 433.9875, 434.0125, 434.434.025, 434.0375, 434.050 MHz (Cavtat 2008)

o. All Voice repeater channels may use FM or Digital Voice modes. (Cavtat 2008)

## Bandplan 1240 – 1300 MHz

Frequency MHz	Maximum Bandwidth	MODE	USAGE
1240.000 1240.500	2700 Hz	ALL MODE	(reserved for future)
1240.500 1240.750	500Hz	Telegraphy MGM	Beacons (reserved for future)
1240.750 1241.000	20kHz	FM Digital voice	(reserved for future)
1240.000 1243.250	20kHz	ALL MODE	1240.000-1241.000 Digital communications 1242.025-1242.250 Repeater output, ch. RS1 - RS10 1242.275-1242.700 Repeater output, ch. RS11 - RS28 1242.725-1243.250 Packet radio duplex, ch. RS29 -RS50
1243.250 1260.000	(d)	ATV Digital ATV	1258.150-1259.350 Repeater output, ch. R20 - R68
1260.000 1270.000	(d)	Satellite Service	
1270.000 1272.000	20kHz	All Mode	1270.025-1270.700 Repeater input, ch. RS1 -- RS28 1270.725-1271.250 Packet Radio duplex, ch. RS29 -- RS50
1272.000 1290.994	(d)	ATV Digital ATV	
1290.994 1291.481	20kHz	FM Digital voice Repeater INPUT	RM0 (1291.000) -- RM19 25kHz spacing RM19 (1291.475)
1291.481 1296.000	(d)	ALL MODES	1293.150-1294.350 Repeater input, R20 (1293.150) R68 (1294.350)

Frequency MHz	Maximum Bandwidth	MODE	USAGE
1296.000 1296.150	500Hz	Telegraphy MGM	1296.00-1296.025 1296.138 Moonbounce PSK31 centre of activity
1296.150 1296.800	2700Hz	Telegraphy SSB MGM	1296.200 1296.400-1296.600 1296.500 1296.600 Narrow-band centre of activity Linear transponder input Image center (SSTV, Fax etc) Narrowband Data center (MGM, RTTY,...) 1296.600-1296.700 1296.750-1296.800 Linear transponder output Local Beacon (10W ERP max)
1296.800 1296.994	500Hz	Telegraphy MGM	Beacons exclusive (b)
1296.994 1297.481	20kHz	FM Digital voice Repeater OUTPUT	RM0 (1297.000) 25 KHz spacing RM19 (1297.475)
1297.481 1297.494	20kHz	FM (c)  Digital Voice (e)	SM20 (1297.500)  (25 KHz spacing - SIMPLEX) 1297.500 FM center of activity 1297.725 Digital Voice calling (25 KHz spacing - SIMPLEX) 1297.900-1297.975 Simplex FM Internet voice gateways SM39 (1297.975)
1298.000 1299.000	20kHz	All modes	General mixed analogue or digital use in 25 kHz channels 1298.025MHz (RS1) 1298.975MHz (RS39)
1299.000 1299.750	150kHz	All modes	Arranged as 5 x150kHz channels for high speed Digital Data (DD) usage: Centres: 1299.075, 1299.225, 1299.375, 1299.525, 1299.675 MHz (+/- 75kHz)
1299.750 1300.000	20kHz	All modes	8x25kHz channels (available for FM/DV use) : Centres: 1299.775-1299.975

## 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.

At the IARU Region-1 Conference at Cavtat (2008), Recommendation CT08\_C5\_27 was adopted which designated the 1240.0-1240.75MHz segment as an alternative narrowband section and makes a series of recommendations for replanning other parts of the band for DATV and Digital Voice & Data

#### 1.1. Footnotes

a. deleted

b. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band Section 11

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.

d. Bandwidth limits according to national regulations.

e. This segment is for simplex use only with no Digital Voice gateways. Embedded data traffic is allowed along with digital voice. Digital Voice users should check that the channel is not in use by other modes

## **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.

## Bandplan 2300 – 2450 MHz

Frequency	Maximum Bandwidth	Mode	Usage
2300.000 SUB-REGIONAL (national) BANDPLANNING (a)	20 kHz	ALL MODES	2304 - 2306      Narrow band segment in countries where the 2320-2322 segment is not available  2308 - 2310      Narrow band segment in HB
2320.000 2320.000	500 Hz	TELEGRAPHY EXCLUSIVE (c)	2320.000-2320.025      EME 2320.138                  PSK31 centre of activity
2320.150 2320.150	2700 Hz	TELEGRAPHY/ SSB (c)	2320.200                  SSB centre of activity  2320.750-2320.800      Local Beacons (10W ERP max)
2320.800 2320.800		Telegraphy MGM	BEACONS EXCLUSIVE (c)
2321.000 2321.000	20 kHz	FM and Digital Voice	VOICE 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 2392.000-2400.000      Digital communications
2400.000 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 FM 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

c) Refer to Beacons Chapter for coordination of beacons in the beacon sub-band Section

## Bandplan 3400 – 3475 MHz

Frequency	Maximum Bandwidth	Mode	Usage
3400.000	500 Hz	Telegraphy MGM	3400.100 Center of activity and EME (b)
3400.800			3400.750-3400.800 Local Beacon (d)
3400.800		MGM Telegraphy	BEACONS ONLY (e)
3400.995			
3401.000	2700 Hz	ALL MODE	
3402.000			
3402.000		ALL MODE	SATELLITE DOWNLINKS (a) (c)
3410.000			
3410.000		ALL MODE	
3475.000			

### NOTES ON THE 3400 – 3475 MHz BANDPLAN

- a) CEPT Footnote EU17 permits Amateur Service in 3400-3410MHz
- b) EME Centre of Activity has migrated from 3456 to 3400.1MHz to promote harmonised usage and activity
- c) Amateur Satellite Service is allocated in 3400-3410MHz in Regions 2&3 and in some countries of Region-1.
- d) 3400.750-3400.800MHz may be designated for Local Beacon use (10W ERP max) by National Societies.
- e) Refer to Beacons Chapter for coordination of beacons in the beacon sub-band Section 11



## Bandplan 5650 – 5850 MHz

Frequency	Maximum Bandwidth	Mode	Usage
5650.000	2700 Hz	ALL MODES	AMATEUR SATELLITE SERVICE ( up-link)
5668.000			
5668.000	2700 Hz	ALL MODES	5668.200 Narrow band center of activity (a)
5670.000			AMATEUR SATELLITE SERVICE ( up-link)
5670.000			MGM
5700.000		ATV	
5720.000			
5720.000			ALL MODES
5760.000	2700 Hz	ALL MODES	5760.200 Narrow band center of activity (a)
5760.800			5760.750-5760.800 Local Beacon (d)
5760.800		Telegraphy MGM	BEACONS ONLY
5760.990			
5761.000	2700 Hz	ALL MODE	
5762.000			
5762.000		ALL MODES	
5790.000			
5790.000		ALL MODES	AMATEUR SATELLITE SERVICE (down-link)
5850.000			

### NOTES ON THE 5650 - 5850 MHz BANDPLAN

#### Footnotes

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

b) 5760.750-5760.800MHz may be designated for Local Beacon use (10W ERP max) by National Societies.

d) Refer to Beacons Chapter for coordination of beacons in the beacon sub-band Section 11.

## Bandplan 10.000 – 10.500 GHz

Frequency	Maximum Bandwidth	Mode	Usage
10.000			
10.150		MGM	
10.150			
10.250		ALL MODES	
10.250			
10.350		MGM	
10.350			
10.368		ALL MODES	
10.368	2700 Hz	ALL MODES	10.3682 Narrow band center of activity
10368.800			10368.750-10368.800 Local Beacon (d)
10.368.800			
10.368.990			BEACONS ONLY (c)
10.369	2700 Hz	ALL MODES	
10.370			
10.370		ALL MODES	
10.450			
10.450		ALL MODES	10.450-10.452 Narrow band modes in countries where 10.368-10.370 is not available
10.500			AMATEUR SATELLITE SERVICE

### 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.

b) 10368.750-10368.800 may be designated for Local Beacon use (10W ERP max) by National Societies.

d) Refer to Beacons Chapter for coordination of beacons in the beacon sub-band Section 11

## Bandplan 24.000 – 24.250 GHz

Frequency	Maximum Bandwidth	Mode	Usage
24.000		ALL MODES	
24.048			
24.048	2700 Hz	ALL MODES	24.0482 Narrow band center of activity AMATEUR SATELLITE SERVICE NARROW BAND MODES 24048.750-24048.800MHz Local Beacon (b)
24.048.800			
24.048.800		ALL MODES	BEACONS (d)
24.048.995			
24.049	2700 Hz	ALL MODES	AMATEUR SATELLITE SERVICE & NARROW BAND MODES
24.050			
24.050		ALL MODES	24.125 Preferred operating frequency for wide-band equipment (not preferred) (a)
24.250			

### 1. Footnotes

a) In the lower 50 MHz of the 24 GHz band the amateur and amateur satellite service have a primary/exclusive status, while the status is secondary in the upper 200 MHz .  
The all mode section in the secondary segment should only be used in case the preferred segment cannot be used.

b) 24048.750-24049.800MHz may be designated for Local Beacon use (10W ERP max) by National Societies.

d) Refer to Beacons Chapter for coordination of beacons in the beacon sub-band

### Bandplan 47.000 – 47.200 GHz

Frequency	Maximum Bandwidth	Mode	Usage
47.000		ALL MODES	
47.088			
47.088	2700 Hz	ALL MODES	47.088200 Narrow band center of activity AMATEUR SATELLITE SERVICE
47.090			
47.090		ALL MODES	
47.200			

### Bandplan 134 – 141 GHz

Frequency	Maximum Bandwidth	Mode	Usage
134.000 134.928		ALL MODES	AMATEUR SATELLITE SERVICE
134.928 134.930	2700 Hz	ALL MODES	Narrow band centre of activity
134.930 136.000		ALL MODES	
136.000 141.000		ALL MODES	Not Preferred (a)

## Bandplan 75.50 – 81.50 GHz

Frequency	Maximum Bandwidth	Mode	Usage
75.500	2700 Hz	All Mode	AMATEUR SATELLITE SERVICE (Preferred [1])
76.000			75976.200 MHz : Preferred Narrow band centre of activity
76.000		All Mode	76032.200 MHz : Narrow Band Centre of activity in some countries (not preferred) [2]
77.500			
77.500	2700 Hz	All Mode	77500.200 MHz: Preferred NB centre of activity in countries outside the CEPT area (non-preferred / preferred)[3]
77.501			AMATEUR SATELLITE SERVICE
77.501		All Mode	ALL MODES (Preferred segment)
78.000			
78.000		All Mode	ALL MODES (not preferred)
81.500			

### Footnotes

1. Preferred in those CEPT countries having implemented EU35.

2. Between 77.5 and 78 GHz the amateur and amateur satellite service have a primary/exclusive status and between 75,5-76 GHz a primary status through ECA footnote EU35 in CEPT countries, while the status is secondary in the remainder of the allocation. The all mode section in the secondary segment should only be used in case the preferred segment cannot be used

3. Preferred in those countries not having implemented EU35

### Bandplan 122.25 – 123 GHz

Frequency	Maximum Bandwidth	Mode	Usage
122.250	2700 Hz	All Mode	NARROW BAND MODES
122.251			
122.251		All Mode	
123.000			

## Bandplan 134 – 141 GHz

Frequency	Maximum Bandwidth	Mode	Usage
134.000		ALL MODES	AMATEUR SATELLITE SERVICE
134.928			
134.928	2700Hz	ALL MODES	134.930 GHz Narrow band center of activity
134.930			
134.930		ALL MODES	
136.000			
136.000		ALL MODES	(not preferred) (a)
141.000			

### 1. Footnotes

a. Between 134 and 136 GHz the amateur and amateur satellite service have a primary/exclusive status, while the status is secondary in the remainder of the allocation.

The all mode section in the secondary segment should only be used in case the preferred segment cannot be used



## Bandplan 241 – 250 GHz

Frequency	Maximum Bandwidth	Mode	Usage
241.000		ALL MODES	(not preferred) (a)
248.000		ALL MODES	AMATEUR SATELLITE SERVICE & NARROW BAND MODES
248.001		ALL MODES	(Preferred segment)
250.000			

### Footnotes

Between 248 and 250 GHz the amateur and amateur satellite service have a primary/exclusive status, while the status is secondary in the remainder of the allocation.

The all mode section in the secondary segment should only be used in case the preferred segment cannot be used

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