



SOUTH AFRICAN RADIO LEAGUE

*The National Body for Amateur Radio in South Africa
A Member of the International Amateur Radio Union*



IARU Region 1 VHF/UHF and higher Band Plans

(2017 IARU Region 1 General Conference, Landshut, Germany)

Introduction

On the following pages are the official IARU Region 1 band plans currently valid for the 50 MHz, 70 MHz, 145 MHz, 435 MHz and the microwave bands are set out. In accordance with the policy outlined in PART 3 section 1 (*Region 1 VHF Manager's Handbook*) only carefully considered modifications and/or additions have been made during the tri annual IARU Region 1 Conferences.

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

The following notes are referring to the Usage column in the band plan. 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.

The users should be aware that these band plans are generic for all member states of IARU Region 1. They can be more detailed in some Member states due to practical reasons and/or legislation. Therefore, we advise to look also to the band planning of the country of the operator.

40.675 - 40.685 Band Plan

Frequency	Maximum Bandwidth	Mode	Usage
40,675 40,685	500 Hz	MGM	Amateur Radio Propagation Study

Footnote:

License Class A1 as per the Amateur Radio Regulations. To be used for propagation study, max ERP 10 W. (ICASA Notice 890 of 2008)

50 – 54 MHz Band plan

Frequency	Maximum Bandwidth	Mode (a)	Usage
50,000	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			
50,100	2 700 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	2 700 Hz	SSB Telegraphy	General usage 50,285 for crossband
50,300	2 700 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	1 000 Hz	MGM Telegraphy	Beacons exclusive
50,500			
50,500	12 kHz	All Modes (g)	50,510 SSTV 50,540 - 580 Simplex FM Internet Voice Gateways 50,550 Image frequency 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)
52,000			
52,000	500 kHz	All modes	(f)
54,000			

DV: digital voice

Notes: band plan

- a. legacy usage for MGM is accepted, but effort should be made to move this to 50,300 – 50,400 MHz. Usage by operators may vary due to restrictions on national allocations.

Notes: Usage

For the numbering of FM telephony see PART 2 section 1.4 (*VHF Manager's Handbook*)

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).

Footnotes:

- b. The intercontinental DX calling frequency 50,110 MHz should not be used for calling within the European part of Region 1 at any time.
- c. deleted.
- d. For the specification of FM telephony PART 3 section 8.1
- e. 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
- f. In those Region 1 countries where 52 - 54 MHz (or parts thereof) is allocated, its use should be planned on the basis of up to 4 x 500 kHz blocks which may be sub-divided to suit digital applications. Amateurs using digital transmission methods must also ensure that their transmissions do not spread beyond band edges.
- g. Experiments using wider bandwidth digital modes may take place in the 50 MHz band within the 50,5 - 52 MHz segment where local conditions permit, on the basis it does not cause interference to other users (including narrowband/beacon use)
 - noting that potential options for this include around 50,6; 51,0 or 51,7 MHz and maximum bandwidth of around 50 kHz
 - That Member Societies encourage such 50 MHz digital experiments to support innovation and development of the band and report results back to IARU Region 1

70,0 – 70,5 MHz Band plan

The 70 MHz band is increasingly recognised as being appropriate for amateur allocations, In the CEPT area this progress is now recognised in the European Table of Frequency Allocations by Footnote ECA9 which states, “*EU9:CEPT administrations may authorise all or parts of the band 69,9 - 70,5 MHz 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 - 70,0 MHz in cases where 70 MHz is not available,

References:

[1] European Allocation Table www.ero-docdb.dk/Docs/doc98/official/pdf/ercrep025.pdf

[2] <http://www.70MHz.org> has a useful list of current allocations and permits

Frequency (MHz)	Maximum Bandwidth	MODE	Usage
70,000 70,090	1 000 Hz	Telegraphy MGM	Coordinated Beacons(a)
70,090 70,100	1 000 Hz	Beacons	Temporary and personal beacons
70,100 70,250	2 700 Hz	Telegraphy SSB MGM	70,185 Crossband centre of activity 70,200 Telegraphy/SSB calling 70,250 MS calling
70,250 70,294	12 kHz	AM / FM (b)	70,260 AM/FM calling 70,270 MGM centre of activity
70,294 70,500	12 kHz	FM Channels, 12,5 kHz spacing	70,3125 Digital communications 70,3250 Digital communications 70,4500 FM calling 70,4625 70,4750 70,4875 Digital communications

Notes: BAND PLAN

Footnotes:

Refer to Beacons Chapter for coordination of beacons (PART 2 Section 6)

Usage by operators may vary due to restrictions on national allocations

Notes: Usage

Footnotes: none

144 – 146 MHz Band plan

Frequency (MHz)	Maximum Bandwidth	Mode	Usage
144,000 144,025	2 700 Hz	All Mode	Satellites (downlinks only) (s) (Varna 2014)
144,025 144,100	500 Hz	Telegraphy (a)	144,050 Centre of activity 144,100 Random MS (m)
144,100 144,150	500 Hz	Telegraphy and MGM	144,110 – 144,160 EME MGM (i)
144,150 144,400	2700 Hz	Telegraphy and SSB and MGM	144,195 - 144,205 Random MS SSB (m) 144,300 SSB Centre of activity
144,400 144,490	500 Hz	Telegraphy MGM	Beacons exclusive (b)
144,491 144,493	500 Hz	EMGM	Experimental MGM
144,500 144,794	20 kHz	All mode (f)	144,500 Image mode centre (SSTV, Fax, etc.) 144,600 Data centre of activity (MGM, RTTY, etc.) 144,750 ATV talk back
144,794 144,9625	12 kHz	MGM (h) Digital Communications	144,800 APRS 144,8125 DV Internet voice gateway 144,8250 DV Internet voice gateway 144,8375 DV Internet voice gateway 144,8500 DV Internet voice gateway 144,8625 DV Internet voice gateway
144,975 145,194	12 kHz	FM / Digital voice	Repeater Input exclusive (c)
145194 145,206	12 kHz	FM / Digital voice (i)	Space communication (p)
145,206 145,5625	12 kHz	FM / Digital voice (i)	145,2375 FM Internet Voice Gateway 145,2875 FM Internet Voice Gateway 145,3375 FM Internet Voice Gateway 145,375 digital voice calling 145,500 FM calling
145,5750 145,7935	12 kHz	FM / Digital voice	Repeater Output exclusive (c, d)
145,794 145,806	12 kHz	FM / Digital voice (i)	Space communication (p)
145,806 146,000	12 kHz	All Mode (e)	Satellite exclusive

Notes: BAND PLAN

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

General:

- i, In Europe no input or output channels of telephony repeaters shall be allowed to operate between 144,000 and 144,794 MHz.

Footnotes:

- a. Telegraphy is permitted over the whole band, except in the beacon band; Telegraphy exclusive between 144,000 - 144,110 MHz (except satellite output downlink to earth)
- b. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band Section
- c. For technical standards on FM and repeaters PART 3 section 8,2
If there is a real need for more repeater channels, 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 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.
 - ii. 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)
 - 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.
- j. Amateur Satellite Linear Transponder down-links. Subject to agreement with Region 2 and Region 3

Notes: Usage

The following notes are referring to the Usage column in the band plan, 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.

Footnotes:

- k. Not used
- l. Not used
- m. See procedures set out in section **Error! Reference source not found.**
- n. Deleted (Varna 2014)

- o. Not used
- 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)
- r. No transmission shall be made below 144,0025 MHz* (Varna 2014)
**so that a necessary guard band is provided at the bottom edge*

National usage notes

Some countries have existing use at:

- 144,660-144,690 Linear Transponder Inputs
- 144,630-144,660 Linear Transponder Outputs

430 – 440 MHz

Frequency MHz	Maximum Bandwidth	Mode	Usage
430,000 Sub-Regional (national band planning) (d) 431,975	20 kHz	All Modes	430,025 - 430,375 FM repeater output channel (F/PA/ON), 12,5 kHz spacing, 1,6 MHz shift (f) 430,400 - 430,575 Digital communication link channels (g) (j) 430,600 - 430,925 Digital communication repeater channels (g) (j) (l) 430,925 - 431,025 Multi-mode channels (j) (k) (l) 431,050 - 431,825 Repeater input channel (HB/DL/OE), 25 kHz spacing, 7,6 MHz shift (f) 431,625 - 431,975 Repeater input channel (F/PA/ON), 12,5 kHz spacing, 1,6 MHz shift (p)
432,000 432,025	500 Hz	Telegraphy (a)	EME
432,025 432,100	500 Hz	Telegraphy (a) MGM	432,050 Telegraphy centre of activity 432,088 PSK31 centre of activity
432,100 432,400	2 700 Hz	Telegraphy SSB MGM	432,200 SSB centre of activity 432,350 Microwave talkback centre of activity 432,370 FSK441 random calling
432,400 432,490	500 Hz	Telegraphy, MGM	Beacons exclusive (b)
432,491 432,493	500 Hz	EMGM	Experimental MGM
432,500 432,975	12 kHz	All Modes	432,500 New APRS frequency Repeater Input Region 1 Standard, 25 kHz spacing, 2 MHz shift (Channel 432,600 - 432,975 MHz) In the UK repeater OUTPUT channels
433,000 433,375	12 kHz	FM Digital voice repeater (p)	Repeater Input Region 1 Standard, 25 kHz spacing, 1,6 MHz shift (Channel 433,000 - 433,375 MHz)
433,400 433,575	12 kHz	FM Digital voice (f) (o)	433,400 SSTV(FM/AFSK) 433,450 digital voice calling 433,500 FM calling SIMPLEX CHANNELS, 25 kHz spacing, (Channel 433,400 - 433,575 MHz)

Frequency MHz	Maximum Bandwidth	Mode	Usage
433,600 434,000	20 kHz	All Modes	433,625 - 433,775 Digital communication channels (g) (h) (i) 434,000 Centre frequency of digital experiments as defined on note (m)
434,000 434,594	12 kHz (c)	All Modes ATV (c)	434,450 - 434,575 Digital communications channels (by exception !!) (i) (m)
434,594 ATV (c) and FM 434,981	12 kHz (c)	All Modes	Repeater Output Region 1 system, 25 kHz spacing, 1,6 MHz shift, (Channel 434,600 - 434,975 MHz) In the UK repeater INPUT channels
435,000 438,000	20 kHz (c)	Satellite service And ATV (c)	
438,000 ATV (c) and Sub-Regional (national band planning) (d) 440,000	20 kHz (c)	All Modes	438,025 - 438,175 Digital communications channel frequency (g) 438,200 - 438,525 Digital communications repeater channels (g) (j) (l) 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)

Notes: BAND PLAN

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

- 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)
- FM telephony channels and Repeaters are specified in chapter **Error! Reference source not found.**
- ATV Repeater outputs are not permitted in the 435 MHz band (Varna 2014)

Footnotes

- 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
- Refer to Beacons Chapter for coordination of beacons in the beacon sub-band See Section **Error! Reference source not found.**
- ATV operators should be encouraged to use the microwave allocations where available but may continue to use the 435 MHz band. In case of interference between ATV and the Amateur Satellite Service, the Satellite Service shall have priority.

Any remaining legacy wideband ATV usage in the 435 MHz band should be phased out in favour of narrower bandwidth, more compatible, modes such as DATV or SATV

For ATV transmissions National societies should provide guidance to their members on the exact frequencies to be used, with due consideration of the interests of other users (Varna 2014)

d. The words "Sub-regional (national) band planning" appearing in IARU Region 1 VHF/UHF/Microwave band plans 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 band planning" 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. Not used

Embedded data traffic is allowed along with digital voice. Digital Voice users should check that the channel is not in use by other modes

Notes: Usage

The following notes are referring to the Usage column in the band plan. 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 'exclusive' is mentioned).

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.

g. In the Usage section of the 435 MHz band plan 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 communication

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:

i. 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.

ii. Use of these channels must not interfere with linear transponders.

iii. 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.

n. Common frequencies for Simplex (FM) Internet voice gateways are: 433,950, 433,9625, 433,975, 433,9875, 434,0125, 434,025, 434,0375, 434,050 MHz (Cavtat 2008)

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

National usage notes

p. Some countries have existing use at:

432,500 - 432,600 Linear Transponder Inputs

432,600 - 432,800 Linear Transponder Outputs

439,9875 POCSAG (Paging)

q. In countries without access to the full 70 cm band, the following 12,5 kHz repeater channels with a 1.6 MHz separation between uplink and downlink can be implemented:

a. Input Frequencies (uplink) 431,225 – 431,600 MHz

b. Output Frequencies (downlink) 432,825 – 433,200 MHz

This needs international coordination if necessary

DATV and SATV in the 435 MHz Band (Varna 2014)

As the national 70 cm allocations vary considerably, it is not possible in the VHF Handbook to specify exact centre frequencies for DATV/SATV operation – but it should be where its bandwidth is compatible with other uses.

If the 435 - 438 MHz amateur satellite section is used for ATV, it shall be on the following basis:

- ATV (like Voice) Repeater outputs are not permitted
 - ATV Internet gateways are not permitted
 - ATV Repeater inputs are permitted (e.g. for cross band usage)
 - ATV Simplex usage is permitted
 - Transmission times by ATV users should be as short as possible
- Any usage should also be compliant with the Region 1 Technical Recommendations for DATV/SATV and in particular the maximum bandwidth.

Centre frequencies of ATV usage in the amateur satellite section shall be chosen to place its bandwidth at the upper end of the amateur satellite section

1200 – 1300 MHz Band plan

Frequency MHz	Maximum Bandwidth	Mode	Usage
1240,000 1240,500	2 700 Hz	All Mode	(reserved for future)
1240,500 1240,750	500 Hz	Telegraphy MGM	Beacons (reserved for future)
1240,750 1241,000	20 kHz	FM Digital voice	(reserved for future)
1241,000 1243,250	20 kHz	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 Digital communications, 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	20 kHz	All Mode	1270,025 - 1270,700 Repeater input, ch, RS1 - RS28 1270,725 - 1271,250 Digital communication, ch, RS29 - RS50
1272,000 1290,994	(d)	ATV Digital ATV	
1290,994 1291,481	20 kHz	FM Digital voice Repeater INPUT	RM0 (1291,000) - RM19 25 kHz spacing RM19 (1291,475)
1291,494 1296,000	(d)	All Modes	1293,150 – 1294,350 Repeater input, R20 (1293,150) - R68 (1294,350)
1296,000 1296,150	500 Hz	Telegraphy MGM	1296,00-1296,025 Moonbounce 1296,138 PSK31 centre of activity
1296,150 1296,800	2 700 Hz	Telegraphy SSB MGM	1296,200 Narrow-band centre of activity 1296,400-1296,600 Linear transponder input 1296,500 Image centre (SSTV, Fax etc) 1296,600 Narrowband Data centre (MGM, RTTY, etc) 1296,600 - 1296,700 Linear transponder output 1296,741- 1296,743 experimental MGM (500 Hz) 1296,750 - 1296,800 local beacon (10 W ERP max)

Frequency MHz	Maximum Bandwidth	Mode	Usage
1296,800 1296,994	500 Hz	Telegraphy MGM	Beacons exclusive (b)
1296,994 1297,481	20 kHz	FM Digital voice repeater output	RM0 (1297,000) 25 kHz spacing RM19 (1297,475)
1297,494 1297,981	20 kHz	FM (c) Digital Voice (e)	SM20 (1297,500) (25 kHz spacing - SIMPLEX) 1297,500 FM centre 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	20 kHz	All modes	General mixed analogue or digital use in 25 kHz channels 1298,025 MHz (RS1) to 1298,975 MHz (RS39)
1299,000 1299,750	150 kHz	All modes	Arranged as 5 x 150 kHz channels for high speed Digital Data (DD) usage: Centres: 1299,075, 1299,225, 1299,375, 1299,525, 1299,675 MHz (+/- 75 kHz)
1299,750 1300,000	20 kHz	All modes	8 x 25 kHz channels (available for FM/DV use): Centres: 1299,775 - 1299,975

Notes: BAND PLAN

The following notes are part of the IARU Region 1 band plan 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 - 1240,75 MHz segment as an alternative narrowband section and makes a series of recommendations for replanning other parts of the band for DATV and Digital Voice and Data

Footnotes

- a. deleted
- b. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band
Section **Error! Reference source not found.**
- 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. Embedded data traffic is allowed along with digital voice. Digital Voice users should check that the channel is not in use by other modes

Notes: Usage

The following note refers to the Usage column in the band plan. 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.

During contests and band openings, local traffic using narrow-band modes should operate between 1296,500 - 1296,800 MHz.

2300 – 2450 MHz Band plan

Frequency	Maximum Bandwidth	Mode	Usage
2300,000 Sub-Regional (national) band planning (a) 2320,000	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 2320,150	500 Hz	Telegraphy Exclusive (c)	2320,000 - 2320,025 EME 2320,138 PSK31 centre of activity
2320,150 2320,800	2700 Hz	Telegraphy/ SSB (c)	2320,200 SSB centre of activity 2320,750 - 2320,800 Local Beacons (10 W ERP max)
2320,800 2321,000		Telegraphy MGM	Beacons Exclusive (c)
2321,000 2322,000	20 kHz	FM and Digital Voice	Voice Simplex and Repeaters (b)
2322,000 2400,000		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 2450,000		Amateur Satellite Service	2400 – 2402 Narrow band segment in countries where the 2320 - 2322 segment is not available 2427,00 - 2443,00 ATV if no satellite uses this segment

Notes: BAND PLAN

a. The words "Sub-regional (national) band planning" appearing in IARU Region 1 VHF/UHF/Microwave band plans 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 band planning" 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 and 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
- 2400 -2402 MHz

3400 - 3475 MHz

Frequency	Maximum Bandwidth	Mode	Usage
3400,000 3400,800	500 Hz	Telegraphy MGM	3400,100 Centre of activity and EME (b) 3400,750 - 3400,800 Local Beacons (d)
3400,800 3400,995		MGM Telegraphy	Beacons Only (e)
3401,000 3402,000	2 700 Hz	All Mode	
3402,000 3410,000		All Mode	Satellite Downlinks (a) (c)
3410,000 3475,000		All Mode	

Notes: BAND PLAN

Footnotes:

- a. CEPT Footnote EU17 permits Amateur Service in 3400 – 3410 MHz
- b. EME Centre of Activity has migrated from 3456 to 3400,1 MHz to promote harmonised usage and activity
- c. Amateur Satellite Service is allocated in 3400 - 3410 MHz in Regions 2 and 3 and in some countries of Region 1.
- d. 3400,750 - 3400,800 MHz may be designated for Local Beacon use (10 W ERP max) by National Societies.
- e. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band

5650 – 5850 MHz Band plan

Frequency	Maximum Bandwidth	Mode	Usage
5650,000 5668,000	2 700 Hz	All Modes	Amateur Satellite Service (up-link)
5668,000 5670,000	2 700 Hz	All Modes	5668,200 Narrow band centre of activity (a) Amateur Satellite Service (up-link)
5670,000 5700,000		MGM	
5700,000 5720,000		ATV	
5720,000 5760,000		All Modes	
5760,000 5760,800	2 700 Hz	All Modes	5760,200 Narrow band centre of activity (a) 5760,750 - 5760,800 Local Beacon (d)
5760,800 5760,990		Telegraphy MGM	Beacons Only
5761,000 5762,000		All Modes	
5762,000 5830,000		All Modes	(d)
5830,000 5850,000		All Modes	Amateur Satellite Service (down-link)

Notes: BAND PLAN

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 - 5760,800 MHz may be designated for Local Beacon use (10 W ERP max) by National Societies.
- c. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band Section
- d. Any wideband system shall protect narrowband applications, which have priority

10,000 – 10,500 GHz Band plan

Frequency GHz	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 10,368.800	2 700 Hz	All Modes	10,368.2 Narrow band centre of activity 10,368.750 – 10,368.800 Local Beacon (d)
10,368.800 10,368.990			Beacons Only (c)
10,369 10,370	2700 Hz	All Modes	
10,370 10,450		All Modes	
10,450 10,500		All Modes	10,450 - 10,452 Narrow band modes in countries where 10,368 - 10,370 is not available Amateur Satellite Service

Notes: BAND PLAN

Footnotes

- a. In those countries where the narrow-band segment 10,368 – 10,370 MHz is not available, the segment 10,450 – 10,452 MHz is suggested as an alternative narrow-bandwidth segment.
- b. 10.368.750 – 10,368.800 may be designated for Local Beacon use (10 W ERP max) by National Societies.
- c. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band Section

24,000 – 24,250 GHz Band plan

Frequency GHz	Maximum Bandwidth	Mode	Usage
24,000 24,048		All Modes	24,025 Wideband centre of activity (Varna 2014)
24,048 24,048.800	2700 Hz	All Modes	24,0482 Narrow band centre of activity Amateur Satellite Service Narrow Band Modes 24048,750 – 24048.800 MHz Local Beacon (b)
24,048.800 24,048.995		All Modes	Beacons (c)
24,049 24,050	2700 Hz	All Modes	Amateur Satellite Service and Narrow Band Modes
24,050 24,250		All Modes	

Notes: BAND PLAN

Footnotes

- a. Deleted (Varna 2014)
- b. 24048.750 - 24049.800 MHz may be designated for Local Beacon use (10 W ERP max) by National Societies.
- c. Refer to Beacons Chapter for coordination of beacons in the beacon sub-band

47,000 – 47,200 GHz Band plan

Frequency	Maximum Bandwidth	Mode	Usage
47,000 47,088		All Modes	
47,088 47,090	2 700 Hz	All Modes	47,088200 Narrow band centre of activity Amateur Satellite Service
47,090 47,200		All Modes	

75,500 – 81,500 GHz Band plan

Frequency	Maximum Bandwidth	Mode	Usage
75,500 76,000	2 700 Hz	All Mode	Amateur Satellite Service (Preferred) (a) 75976.200 MHz: Preferred Narrow band centre of activity
76,000 77,500		All Mode	76032.200 MHz: Narrow Band Centre of activity in some countries (not preferred) (b)
77,500 77,501	2 700 Hz	All Mode	77500.200 MHz: Preferred NB centre of activity in countries outside the CEPT area (non-preferred / preferred) (c) Amateur Satellite Service
77,501 78,000		All Mode	All Modes (Preferred segment)
78,000 81,500		All Mode	All Modes (not preferred)

Notes: BAND PLAN

Footnotes

- a. Preferred in those CEPT countries having implemented EU35.
- b. 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 ECA35 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
- c. Preferred in those countries not having implemented EU35

122,250 – 123,000 GHz Band plan

Frequency	Maximum Bandwidth	Mode	Usage
122,250 122,251	2700 Hz	All Mode	Narrow Band Modes
122,251 123,000		All Mode	

134,000 – 141,000 GHz Band plan

Frequency	Maximum Bandwidth	Mode	Usage
134,000 134,928		All Modes	Amateur Satellite Service
134,928 134,930	2 700 Hz	All Modes	134,930 GHz Narrow band centre of activity
134,930 136,000		All Modes	
136,000 141,000		All Modes	(not preferred) (a)

Notes: BAND PLAN

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

241,000 – 250,000 GHz Band plan

Frequency	Maximum Bandwidth	Mode	Usage
241,000 248,000		All Modes	(not preferred) (a)
248,000 248,001		All Modes	Amateur Satellite Service and Narrow Band Modes
248,001 250,000		All Modes	(Preferred segment) (b)

Notes: BAND PLAN

Footnotes

- a. The all mode section in the secondary segment should only be used in case the preferred segment cannot be used
- b. 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