

IARU REGION 1 HF BAND PLAN

(as adopted at the 1996 General Conference)

FREQUENCY SEGMENT (kHz)	TYPE OF EMISSION
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1.8 MHz Band:

1810 - 1838	cw
1838 - 1840	digimode except packet, cw
1840 - 1842	digimode except packet, phone, cw
1842 - 2000	phone, cw

3.5 MHz Band:

3500 - 3510	intercontinental dx cw
3500 - 3560	cw, contest preferred segment cw
3560 - 3580	cw
3580 - 3590	digimode, cw
3590 - 3600	digimode (packet preferred), cw
3600 - 3620	phone, digimode, cw
3600 - 3650	phone, contest preferred segment phone, cw
3650 - 3775	phone, cw
3700 - 3800	phone, contest preferred segment phone, cw
3730 - 3740	SSTV & FAX, phone, cw
3775 - 3800	intercontinental dx phone, cw

7 MHz Band:

7000 - 7035	cw
7035 - 7040	digimode except packet (*), SSTV, FAX, cw
7040 - 7045	digimode except packet (*), SSTV, FAX, phone, cw
7045 - 7100	phone, cw

(*) See remarks

10 MHz Band:

10100 - 10140	cw (*)
10140 - 10150	digimode except packet, cw

(*) see remarks

14 MHz Band:

14000 - 14070	cw
14000 - 14060	cw, contest preferred segment cw
14070 - 14089	digimode, cw
14089 - 14099	digimode (non-automatic packet preferred), cw
14099 - 14101	IBP
14101 - 14112	digimode (store-and-forward preferred), phone, cw
14112 - 14125	phone, cw
14125 - 14300	phone, contest preferred segment phone, cw
14230	calling frequency SSTV & FAX
14300 - 14350	phone, cw

18 MHz Band:

18068 - 18100	cw
18100 - 18109	digimode, cw
18109 - 18111	IBP
18111 - 18168	phone, cw

21 MHz Band:

21000 - 21080	cw
21080 - 21100	digimode, cw
21100 - 21120	digimode (packet preferred), cw
21120 - 21149	cw
21149 - 21151	IBP
21151 - 21450	phone, cw
21340	calling frequency SSTV & FAX

24 MHz Band:

24890 - 24920	cw
24920 - 24929	digimode, cw
24929 - 24931	IBP
24931 - 24990	phone, cw

28 MHz Band:

28000 - 28050	cw
28050 - 28120	digimode, cw
28120 - 28150	digimode (packet preferred), cw
28150 - 28190	cw
28190 - 28199	regional time shared IBP
28199 - 28201	world wide time shared IBP
28201 - 28225	continuous-duty IBP
28225 - 29200	phone, cw
28680	calling frequency SSTV & FAX
29200 - 29300	digimode (NBFM packet), phone, cw
29300 - 29510	satellite down-link
29510 - 29700	phone, cw

NOTES:

The expression "digimode (packet preferred)" means preferred areas of activity for packet radio operations.

Where several modes are shown in the sub-bands the first has priority. But this has to be exercised on a Non-interference Basis (NIB) according to the ITU Radio Regulations.

A mode written in brackets () means "preferred area of activity".

REMARKS

The expression RTTY shall be replaced by the expression DIGIMODE. The expression "digimode" includes all modes of this form of transmission. (RTTY, Packet Radio etc.)

The expression "phone" includes all modes of this form of transmission. Up to 10 MHz LSB and above USB should be used on HF bands.

1.8 MHz band:

Those societies which have an existing SSB allocation below 1840 kHz may continue to use it. However, they are requested to take all necessary steps with their licensing Administrations to adjust the phone allocations in accordance with the Region 1 Band Plan.

The bandsegment 1907.5 to 1912.5 kHz (Japanese DX window) should be kept free for transmissions by Region 1 stations. Instead use the split-frequency technique when operating here.

3.5 MHz band:

Intercontinental operation should be given priority in the 3500-3510 kHz and 3775-3800 kHz band segments.

Member Societies should approach their national telecommunications authorities and ask them not to allocate frequencies to other than amateur stations in the band segment that IARU has assigned to intercontinental long distance (DX) traffic, i.e. 3500-3510 and 3775-3800 kHz.

Contest Preferred Segments:

Where no DX traffic is involved, the contest preferred segments should not include 3500-3510 kHz or 3775-3800 kHz. Member Societies will be permitted to set other (lower) limits for national contests (within these limits). This recommendation does not apply to digimode stations.

Contest activity shall not take place on the 10, 18 and 24 MHz Bands.

7 MHz band:

The use of Packet Radio is discouraged on 7 MHz band.

The band segment 7035 - 7045 kHz may be used for store-and-forward traffic in the area of Africa south of the equator during local daylight hours. However, the use of more efficient modes than the AX.25 packet radio are encouraged.

10 MHz band:

The use of Packet Radio is discouraged on 10 MHz band.

It is recommended that unmanned stations using digital modes shall avoid the use of the 10 MHz band.

SSB may be used during emergencies involving the immediate safety of life and property and only by stations actually involved in the handling of emergency traffic. The bandsegment 10.120 to 10.140 MHz may be used for SSB transmissions in the area of Africa south of equator during local daylight hours. News bulletins on any mode should not be transmitted on the 10 MHz band.

14 MHz band:

The band segment 14.089-14.099 MHz should be used for non-automatic digimode transmissions. The band segment 14.101-14.112 MHz should be used for store-and-forward traffic. However, the use of more efficient modes than the AX.25 should be encouraged.

SSTV/FAX:

The frequencies 14.230, 21.340 and 28.680 MHz should be used as calling frequencies for SSTV and FAX operators. After having established contact, they should move to another free frequency within the telephony portion of the band.

Satellite operation frequencies:

Member Societies should advise FM (and other) operators not to transmit on frequencies between 29.3 and 29.51 MHz in order to avoid interference to amateur satellite downlink.

Unmanned transmitting stations:

IARU Member Societies are requested to limit this activity on the HF bands. It is recommended that any unmanned transmitting station on HF shall only be activated under operator control except for IARU approved beacons or specially licensed experimental stations. It is recommended to use more efficient modes than the AX.25 packet radio.

Transmitting Frequencies:

The announced frequencies in the Band Plan are understood as "transmitting frequencies" (not those of the suppressed carrier!).

Experimentation with NBFM Packet Radio on 29 MHz Band:

Preferred operating frequencies on each 10 kHz from 29210 to 29290 kHz incl. should be used. A deviation of +/- 2.5 kHz being used with 2.5 kHz as maximum modulation frequency.

Footnotes:

Footnotes to the HF Band Plan should be avoided.

National Societies are requested to advise their members to follow this Band Plan.

Project for new IARU REGION 1 HF BAND PLAN

Recommendation 02/SM/C4.3

That Doc.02/SM/C4.3 rev 2 be accepted as a new principle of bandwidth approach for bandplanning. The existing bandplan remains. Doc C4.3 (after harmonizing the frequency list with the actual bandplan) will be published together with the existing band plan, in the HF Managers' Handbook as a help.

In this way every society will have the opportunity to educate members to understand the new bandplan approach.

IARU Region 1 Conference 2002

San Marino 10 – 15 November

SUBJECT	Region 1 HF Bandplan
SOCIETY	DARC and SARA

1. Introduction

The concept of a band-plan based upon emission bandwidths was put to the IARU Region 1 HF Committee in 1992 by DARC. The idea was prompted by the emergence of new modes, changes in usage of existing modes and the need to ensure spectrum efficiency. The Region 1 HF Committee reviewed that plan several times. Following the Lillehammer Conference in 1999 further discussions between DARC, RSGB and SARA has resulted in the following proposal of a technical bandplan

2. Proposal

Harmonisation of the high and changing usage patterns seen on the amateur HF bands is going to improve along with spectral efficiency when operating modes, which cause each other equivalent interference, occupy the same spectrum sub-band. The logical extension, or “could be” position, for an emission bandwidth based band-plan would be to de-regulate usage to the point where emission bandwidth was allowed, for example, to continuously increase with frequency across each amateur band. The frequency boundary at which different bandwidth usages change could flex depending upon demand. A framework would be in place to enable all to understand where a new mode would slot into any specific HF amateur band. However, for a number of reasons this “could be” position, even if wanted, is not realisable in the medium-term. This proposal sets out a logic that allows a transition from the “as is” position of today to a “should be” position for tomorrow. This is an improvement and part way towards the ultimate “could be” state. The proposal would enable better spectral efficiency to be achieved without the need for continual review, yet would provide the necessary framework to allow flexible interpretation as demands change. Further, it would provide useful guidance to Regions 2 & 3 in order to achieve harmonisation in the future.

The initial step towards continuously variable bandwidth is to group emission widths into four categories that for convenience are named by their bandwidth in term of Hz, thus

	<i>Emissions less than 200Hz</i>
500	Emissions less than 500Hz
2700	Emissions less than 2700Hz
6000	Emissions less than 6000Hz

Given current practice, preference and existing band plan definition the first step is to map these categories of emission bandwidth onto the existing usage of the HF amateur bands, but ignoring much of the detail of current practice and preference.

3. Bandplan table:

Based on Chapter 5.1 of the HF Managers Handbook

IARU REGION 1 HF BAND PLAN

Note: The column “Type of emission” points to the usage of the frequency segment, as based on the bandwidth taken into consideration.

FREQUENCY SEGMENT (kHz)	MAX BAND-WIDTH (Hz)	TYPE OF EMISSION
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1.8 MHz Band:

1810 – 1838	200	cw
1838 – 1840	500	digimode except packet, cw
1840 – 1842	2700	digimode except packet, phone, cw
1842 – 2000	2700	phone, cw

3.5 MHz Band:

3500 – 3510	200	intercontinental dx cw
3500 – 3560	200	cw, contest preferred segment cw
3560 – 3580	200	cw
3580 – 3590	500	digimode, cw
3590 – 3600	500	digimode (packet preferred), cw
3600 – 3620	2700	phone, digimode, cw
3600 – 3650	2700	phone, contest preferred segment phone, cw
3650 – 3775	2700	phone, cw
3700 – 3800	2700	phone, contest preferred segment phone, cw
3730 – 3740	2700	SSTV & FAX, phone, cw
3775 – 3800	2700	intercontinental dx phone, cw

7 MHz Band:

7000 - 7035	200	cw
7035 - 7040	500	digimode except packet (*), SSTV, FAX, cw
7040 - 7045	2700	digimode except packet (*), SSTV, FAX, phone, cw
7045 - 7100	2700	phone, cw

10 MHz Band:

10100 - 10140	200	cw (*)
10140 - 10150	500	digimode except packet, cw

14 MHz Band:

14000 - 14070	200	cw
14000 - 14060	200	cw, contest preferred segment cw
14070 - 14089	200	digimode, cw
14089 - 14099	500	digimode (non-automatic packet preferred), cw
14099 - 14101	200	IBP
14101 - 14112	2700	digimode (store-and-forward preferred), phone, cw
14112 - 14125	2700	phone, cw
14125 - 14300	2700	phone, contest preferred segment phone, cw
14230	2700	calling frequency SSTV & FAX
14300 - 14350	2700	phone, cw

18 MHz Band:

18068 - 18100	200	cw
18100 - 18109	500	digimode, cw
18109 - 18111	200	IBP
18111 - 18168	2700	phone, cw

21 MHz Band:

21000 - 21080	200	cw
21080 - 21100	500	digimode, cw
21100 - 21120	500	digimode (packet preferred), cw
21120 - 21149	200	cw
21149 - 21151	200	IBP
21151 - 21450	2700	phone, cw
21340	2700	calling frequency SSTV & FAX

24 MHz Band:

24890 - 24920	200	cw
24920 - 24929	500	digimode, cw
24929 - 24931	200	IBP
24931 - 24990	2700	phone, cw

28 MHz Band:

28000 - 28050	200	cw
28050 - 28120	500	digimode, cw
28120 - 28150	500	digimode (packet preferred), cw
28150 - 28190	200	cw
28190 - 28199	200	regional time shared IBP
28199 - 28201	200	world wide time shared IBP
28201 - 28225	200	continuous-duty IBP
28225 - 29200	2700	phone, cw
28680	2700	calling frequency SSTV & FAX
29200 - 29300	6000	digimode (NBFM packet), phone, cw
29300 - 29510	6000	satellite down-link
29510 - 29700	6000	phone, cw

AM is permitted in the phone segments of all these bands

Notes

Usage is to be on a non-interference basis according to ITU regulations.

Within the same bandwidth sub-division the operation of incompatible modes, i.e. those that exhibit unequal levels of mutual interference, could benefit from mode separation. CW is allowed within the entire band.

The above Band Plan shows that the emission widths do not consistently increase with frequency across each sub-band. Neither is there a specific allocation for modes that occupy significantly less than 2700Hz but more than 500Hz. These are areas for further transition towards the “could be” state, that will be appropriate when either harmonisation with Regions 2 and 3 is being discussed or when usage patterns significantly change, including the impact of new modes.

Preference should be given to quoting centre frequencies for emissions for any mode when national societies specify further sub-division of the band plan. In some cases, guard-bands will be required to avoid errors where the “dial” frequency is offset from the centre frequency for the emission.

Remarks to the Bandplan:

Packet Radio is not allowed on the 1.8, 7, and 10 MHz bands.

1.8 MHz band:

Those societies which have SSB allocation below 1840 kHz may continue to use it, but they are requested to take all necessary steps with their licence administrations to adjust the phone allocations in accordance with the Region 1 Bandplan.

3.5 MHz band:

3.500 – 3.510 and 3.775 – 3.800 MHz Intercontinental operation should be given priority in these segments.

Member societies should approach their national telecommunication authorities and ask them not to allocate frequencies to other than amateur stations in the band segment that IARU has assigned to intercontinental long distance traffic.

Contest Preferred Segments:

Where no DX traffic is involved, the contest segments should not include 3.500 – 3.510 MHz or 3.775 – 3.800 MHz (National Contest). Member societies will be permitted to set other (lower) limits for national contest (within these limits).

Contest activity shall not take place on the 10, 18 and 24 MHz bands.

7 MHz band:

The use of Packet Radio is discouraged on the 7 MHz band. The band segment 7.035 – 7.045 MHz may be used for S&F traffic in the area of Africa south from the equator

during local daylight hours. However, the use of more efficient modes than AX.25 packet radio should be encouraged.

10 MHz band:

The use of Packet Radio is discouraged on the 10 MHz band.

It is recommended that unmanned stations using S&F shall avoid the use of the 10 MHz band.

SSB may be used during emergencies involving the immediate safety of life and property and only by stations actually involved in the handling of emergency traffic.

The bandsegment 10120 to 10140 kHz may be used for SSB transmissions in the area of Africa south of equator during local daylight hours.

News bulletins on any mode should be transmitted on the 10 MHz band.

14 MHz band

The band segment 14.089 – 14.099 MHz should be used for non-automatic digimode transmissions. The band segment 14.101 – 14.112 MHz should be used for store and forward traffic.

However, the use of more efficient modes than AX.25 packet radio should be encouraged.

Satellite operation frequency:

Member Societies should advise operators not to transmit on frequencies between 29,3 and 29,51 MHz to avoid interference to amateur satellite downlink.

Unmanned transmitting stations:

IARU Member Societies are requested to limit this activity on the HF bands. It is recommended that any unmanned transmitting station on HF shall only be activated under operator control except for IARU approved beacons or specially licensed experimental stations. It is recommended to use more efficient modes than AX.25 packet radio.

Transmitting frequencies:

The announced frequencies in the Bandplan are understood as “ transmitting frequencies” (not those of the suppressed carrier!).

Experimentation with NBFM Packet Radio on 29 MHz Band

Preferred operating frequencies on each 10 kHz from 29.210 to 29.290 MHz included should be used. A deviation of +/-2,5 kHz being used with 2.5 kHz as maximum modulation frequency.

13th November 2002

On behalf of C4: DL1VDL, G3PSM, OM3LU

HFC-C4: Bandplan Matters (Working Group)

An Introduction to the New HF-Bandplan

Summary of Arguments:

Advantage of the old HF-bandplan:

- Allocation of mode to frequency has been well understood,
- It's a traditionally grown bandplan,

Disadvantage

- Not flexible for implementing new modes, especially computer-assisted modes, which are developing rapidly,

Why did we (HFC of Region 1) create a new bandplan ?

- Because radio-amateurs are experimenters and we need flexibility to implement new kinds of transmissions into the given frame of the HF-bandplan,
- Because we are aware that our authorities want to have self-regulation of the amateur-radio service within the ITU band allocations,

What has changed ?

- In the old bandplan frequency segments were allocated to a certain type of transmission, that was fixed but known worldwide.
- In the new bandplan an association between frequency and usage is made, whereas frequency includes the frequency segment plus the maximum bandwidth within a given segment, and usage defines the mode.
- In the case of worldwide programmes established and co-ordinated with Region-2 and Region-3, frequency segments such as beacon-windows, dx-windows and contest-preferred segments the new bandplan is equivalent to the old one,
- Frequency segments formerly assigned to various different modes like phone, cw and digimodes have now been "summarised", taking account the maximum bandwidth of the modes used in the old bandplan, This decision requires more tolerance between hams, because new wideband (within 2700 Hz bandwidth) digimodes or MGM=machine generated modes may be used within the formally allocated to "phone-only" segments of the band. Care was taken where dx-windows and contest segments were concerned,

SSTV and FAX

- We decided to add all "so called" centres of activity to the annex of the bandplan, to keep the bandplan-table as readable as possible,
- Practice has shown, that SSTV and FAX operators start experimenting after having established a ssb-contact. That is why the frequencies mentioned in the former bandplan are added to the annex of the bandplan table. For those parts of the bandplan the usage is named: "all = all modes with less than 2700 Hz bandwidth".

How to deal with certain DIGIMODES or MGM (Machine Generated Modes).

- No change in operating MGM's (digimodes) as it is at present,
- MGM's with maximum bandwidth of 200 Hz , like PSK31, may be operated within the 200 Hz frequency segments, when "Usage=ALL" is indicated.

Experimentation with upcoming MGM's or Digital-Voice with maximum bandwidth of 2700 Hz may take place within frequency segments, when "Usage=ALL" is indicated.