



# International Amateur Radio Union Region 1

Europe, Middle East, Africa and Northern Asia

Founded 1950



## General Conference, Davos, 11 to 16 September 2005

<b>SUBJECT</b>	<b>IARU Region 1 HF Bandplan Proposal</b>		
<b>Society</b>	<b>NRRL</b>	<b>Country:</b>	<b>Norway</b>
<b>Committee:</b>	<b>C4</b>	<b>Paper number:</b>	<b>12</b>
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### Introduction

This IARU Region 1 HF bandplan proposal is based on decisions made at the last IARU Region 1 Conference 2002. Further it is based on the IARU Region 1 HF bandplan principles, supported by the majority of the societies present at the IARU Region 1 Interim Meeting 2004 in Friedrichshafen, submitted by NRRL as a separate paper to be discussed and decided on prior to the treatment of this bandplan proposal.

### Background

The present IARU Region 1 bandplan was decided on at the IARU Region 1 Conference in 1993. Proposals for a new IARU Region 1 HF bandplan have been discussed at all IARU Region 1 conferences since then. A first HF Bandplan Committee was appointed by C4 at the IARU Region 1 Conference 1999 at Lillehammer, Norway.

A new IARU Region 1 HF Bandplan Committee was appointed at the IARU Region 1 HF Interim Meeting 2004 in Friedrichshafen, consisting of G3PSM, OM3LU, LA4LN, DK4VW, and G3PLX. The majority of the societies present expressed, according to the minutes from the meeting, that a new bandplan [to be proposed by the new HF Bandplan Committee] should consider the following principles, given in the NRRL Position Paper regarding the proposal for a new HF bandplan, of 20 June 2004 [available at [www.nrnl.no](http://www.nrnl.no); go to its English pages]:

- CW QSOs are accepted all over the bands.
- Telephony is limited to certain telephony segments.
- Digital modes are limited to certain digital segments.

The minutes contain more premises for the work of the committee [available from <http://folk.uio.no/tomvs/la4ln.htm>].

The Norwegian HF Bandplan Committee member LA4LN does not agree with the bandplan proposal submitted by the majority of the committee. LA4LN presented to the committee on October 31, 2004, an HF bandplan proposal based on the premises of the IARU Region 1 HF Interim Meeting 2004, within the timeframe set by the Interim Meeting. The minority's bandplan proposal was not accepted by the majority of the HF Bandplan Committee, but is presented here as NRRL's proposal.

## Key points and proposal

The HF bandplanning basis, on which the current IARU Region 1 HF bandplan is based, accepts CW QSOs across all bands, except within CW beacon segments.

Experience shows that telephony and digital modes cannot share the same segments, and should be assigned separate segments in the HF band plan. The sparse AM activity by users of old or antique radio sets should be accepted in all phone segments.

The establishment of all mode segments, mixing analog and digital modes, should be avoided because of mutual interference.

Digitized speech should be considered a digital mode in bandplan matters, because such a mode is transmitting digital signals determined by a digital protocol (recommendation by the IARU Region 1 Interim Meeting 2004). [For one such protocol, see G4GUO's web pages at [www.chbrain.dircon.co.uk/dvhf.html](http://www.chbrain.dircon.co.uk/dvhf.html) and [www.chbrain.dircon.co.uk/td.html](http://www.chbrain.dircon.co.uk/td.html)].

An IARU Region 1 band plan for 7.0 - 7.2 MHz should be decided on at the next conference in 2008; giving ample time for publication of a new 40 m band plan before 29 March 2009 (when most Region 1 countries are expected to make 7.1 - 7.2 MHz available to the radio amateurs).

The narrow 2.1 kHz wide LF band at 135.7 - 137.8 kHz needs not to be included in the IARU Region 1 HF bandplan. The IARU Region 1 Conference 2002 decided to include the RSGB recommendations, for the use of this band, in the IARU Region 1 HF Manager's Handbook.

The current IARU Region 1 bandplan is well known and receives a high degree of respect and adherence within the IARU Region 1; hence major changes to the bandplan is not necessary for the time being.

At the IARU Region 1 Conference 2002 it was decided that the existing HF bandplan remains, *changes to the bandplan should be minor*, because there was very little interest by the member societies to make changes to the existing HF bandplan. The Doc. 02/SM/C4.3 rev 2, with bandwidths added to the existing HF bandplan, was accepted as an opportunity to educate members to understand a new bandplan approach using bandwidths.

This NRRL proposal for a new HF bandplan builds on the IARU Region 1 Doc. 02/SM/C4.3 rev 2 bandplan, *dividing the HF bands in mode segments, further subdivided into subsegments characterized by different bandwidths*. This should ideally lead to a simplified HF bandplan, that can be displayed on one sheet of paper for its major parts, suitable for most users (see appendix).

Hence the NRRL HF bandplan proposal builds on the best parts of both the old and the new concepts of bandplanning, accepted by the last IARU Region 1 Conference and HF Interim Meeting.

## Details

Based on the commission given by the Friedrichshafen 2004 meeting to the IARU Region 1 HF Bandplan Committee (described above), NRRL has attempted to make a "fine tuning" of the existing HF bandplan. The goal has been to make it simple, in an easy to understand graphic form. The bandplan is accompanied by the traditional written bandplan table (see appendix). The details of the "fine tuning" will be explained below. The recent ARRL proposal has been considered, where appropriate. No large changes have been proposed here for the IARU Region 1 HF bandplan, because that is not considered smart vs. the users, already knowing and using the existing bandplan without many complaints.

160 m: There is no need for wideband digital modes in such a small common allocation (1810-1850 kHz). The existing 2700 Hz digimode allocation within a 2 kHz wide segment (1840-1842 kHz) is irrelevant, and has been dropped from the proposal. A 500 Hz bandwidth digimode allocation between 1838 and 1842 kHz is proposed.

80 m: No changes. [The 500 Hz allocation for CW between 3560 and 3580 kHz in the IARU Region 1 HF Manager's Handbook bandplan of Nov. 2002 is a typo for 200 Hz, and was corrected in the Jan. 2003 version].

40 m: No changes. It may be premature to already propose usage of the 7.1-7.2 MHz segment. The IARU Region 1 HF Interim Meeting 2004 decided on a recommendation to simply extend the 7045-7100 kHz usage to 7200 kHz for the time being, which is supported.

30 m: No changes. According to the IARU AC Resolution 88-2, narrow-band non-voice emissions should be used. Administrations who have established bandwidths, have put maximum 1 kHz bandwidth for emissions in this band. This rules out phone and wideband digital modes. The South African footnote about phone in this band is in conflict with the IARU resolution. The IARU resolution should be ruling the situation for the 30 m band, until we hopefully can get a wider 30 m band and a primary status for the band in the future.

20 m: The existing Region 1 HF bandplan, with bandwidths attached (IARU Region 1 Conference San Marino 2002), calls for 200 Hz digimode bandwidth at 14070-14089; 500 Hz digimode bandwidth at 14089-14099; and 2700 Hz digimode bandwidth at 14101-14112 kHz. [A fourth digital bandwidth of 6 kHz is established in the 10 m band, at 29200-29300 kHz]. NRRL proposes that it is only necessary with 3 different digimode bandwidths in the HF band: 500, 2700, and 6000 Hz. Therefore we have proposed the segment 14070-14099 kHz as a 500 Hz bandwidth digimode segment. The notation "store-and-forward preferred" can be deleted at 14101-14122 kHz in the written version of the bandplan.

17 m: The existing 500 Hz bandwidth 18100 - 18109 kHz digital segment is proposed as a 2700 Hz bandwidth digital segment.

15 m: A 2700 Hz bandwidth digimode segment is proposed at 21151-21170 kHz. The IARU Region 1 Interim Meeting 2002 urged the Bandplan Committee to propose such a digital segment in the 15 m band. The proposed segment is within the similarly proposed ARRL 3 kHz bandwidth digimode segment. The usage today does not warrant a wider segment in Region 1 at the present time. If more interest emerges for digital modes, this segment can be expanded in the future.

12 m: The existing 500 Hz bandwidth 24920 - 24929 kHz digital segment is proposed as a 2700 Hz bandwidth digital segment.

10 m: The existing 500 Hz bandwidth 28120 - 28150 kHz digital segment is proposed as a 2700 Hz bandwidth digital segment.

AM is accepted in all phone segments in these HF bands. Digitized speech is to be considered a digital mode in bandplan contexts, as recommended by the IARU Region 1 Interim Meeting 2004.

*Digitized speech activity centers* proposed for IARU Region 1:

3614, 7044, 14104, 18104, 21164, 24924, 28124 kHz.

These are proposed within "wideband" digital segments, somewhat separated from traditional AX.25 packet frequencies, and with ample separation from the beacon frequencies.

### **Graphical bandplan**

The proposed graphic representation of the bandplan by LA4LN (see appendix) is based on the design by ON6JG, but the current proposal has been made in color. An attempt has been made to present the most important parts of the bandplan on one A4 page, with all major features clearly displayed.

The different bands are expressed by horizontal bars, given by the frequency layout (in blue color) at the top: ...000 to ...500, and ...500 to ...000 kHz for the different bands 160 to 12 m. 10 m has been compressed compared to the other bands, with its own frequency layout.

The colors are explained in an inset positioned at the right, upper half of the page. The note at the bottom of the page states that CW is accepted across all the bands, except in beacon segments, and that AM is accepted in all phone parts of the bands.

The different HF bands are indicated with band designations in boxes with rounded corners. Where contest preferred segments have been established, there is a second bar with contest information attached on top of the mode allocation bar.

The colors have been chosen to correspond to the ARRL bandplan coloring for CW (red) and for phone (green). A darker color has been assigned for a wider bandwidth. Blue color has been assigned for digital modes; intermediate blue for 500 Hz, dark blue for 2700 Hz, and purple for 6000 Hz. SSTV and FAX have been called IMAGE (black color), like in the ARRL bandplan. Satellite downlink has been colored pink (for contrast with the other colors).

Beacon segments have been colored orange. Because of the frequent complaints about QSOs and calling in the beacon segments, the beacon segment frequencies have been printed in orange as well, for highlighting purposes.

Contest preferred segments have been colored yellow, and contest free segments have been colored white. Although these functions cannot be regarded as "modes" with assigned bandwidths, they are anyhow included in the legend inset, for practical reasons.

Note that the best printing result is obtained by choosing the highest printing resolution in your printer. When printing with lower than maximum resolution in the printer, some lines in the graph may be lost.

## Recommendations

1. It is recommended that the C4 decides on this proposed HF bandplan (in the appendices to this proposal), that builds on the proposed principles for new IARU Region 1 HF bandplans.
2. The existing notes and remarks of the existing bandplan, occurring in the IARU Region 1 HF Manager's Handbook, may be kept, with these additions:
3. Digitized speech is to be considered a digital mode in bandplan contexts.  
*Digitized speech activity centers* proposed for IARU Region 1:  
3614, 7044, 14104, 18104, 21164, 24924, 28124 kHz.
4. The frequencies 3555, 14055, 21055, and 28055 kHz are kept as *CW QRS activity centres* [as decided by the IARU Region 1 Conference 2002].
5. The frequencies 3560, 7030, 14060, 18096, 21060, 24906, and 28060 kHz are kept as *QRP activity centres* [as decided by the IARU Region 1 Conference 2002].
6. AM is accepted in all phone segments of these HF bands.

Appendices, constituting parts of this proposal:

- Table proposal for a new IARU Region 1 HF Band Plan
- Graphical proposal for a new IARU Region 1 HF Band Plan

# IARU REGION 1 HF BAND PLAN

(adopted at the 1996 General Conference; bandwidth additions 2002; adjusted 2005)

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	500	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 [extended to 7200 kHz for nations with early access]

**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	500	digimode, cw
14089 - 14099	500	digimode (non-automatic packet preferred), cw
14099 - 14101	200	<b>IBP</b>
14101 - 14112	2700	digimode, 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	2700	digimode, cw
18109 - 18111	200	<b>IBP</b>
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	<b>IBP</b>
21151 - 21170	2700	digimode, phone, cw
21170 - 21450	2700	phone, cw
21340	2700	calling frequency SSTV & FAX

**24 MHz Band:**

24890 - 24920	200	cw
24920 - 24929	2700	digimode, cw
24929 - 24931	200	<b>IBP</b>
24931 - 24990	2700	phone, cw

**28 MHz Band:**

28000 - 28050	200	cw
28050 - 28120	500	digimode, cw
28120 - 28150	2700	digimode, cw
28150 - 28190	200	cw
28190 - 28199	200	regional time shared <b>IBP</b>
28199 - 28201	200	world wide time shared <b>IBP</b>
28201 - 28225	200	continuous-duty <b>IBP</b>
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 accepted in the phone segments of all these bands.**



## 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, AMTOR, PACTOR, PSK31, digitized speech, etc.)

The expression "phone" includes all analog modes of this form of transmission. On the HF bands LSB should be used up to 10 MHz, and USB should be used above 10 MHz in the amateur radio band phone segments.

### 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 Bandplan.

The band segment 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 in the 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 AX.25 packet radio is encouraged.

#### 10 MHz band:

The use of Packet Radio is discouraged in the 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 band segment 10.120 to 10.140 MHz may be used for SSB transmissions in the area of Africa south of the Equator during local daylight hours.

News bulletins on any mode should not be transmitted in 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 downlinks.

#### 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 29210 to 29290 kHz inclusive should be used. A deviation of +/- 2.5 kHz being used with 2.5 kHz as maximum modulation frequency.

Digitized speech is considered a digital mode in bandplan contexts in IARU Region 1.

*Digitized speech activity centers* for IARU Region 1:

3614, 7044, 14104, 18104, 21164, 24924, and 28124 kHz.

*CW QRS activity centres* for IARU Region 1:

3555, 14055, 21055, and 28055 kHz.

*QRP activity centres* for IARU Region 1

3560, 7030, 14060, 18096, 21060, 24906, and 28060 kHz.

Footnotes:

Footnotes to the HF Band Plan should be avoided.

National Societies are requested to advise their members to follow this bandplan.



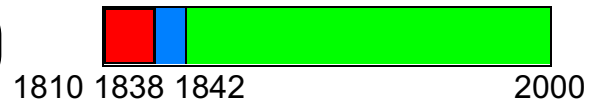
SIMPLIFIED PROPOSAL BY NRRL, FEBRUARY 2005

# IARU REGION 1 HF BAND PLAN

RF FREQUENCIES GIVEN IN kHz; BANDWIDTHS IN Hz

...000 ...100 ...200 ...300 ...400 ...500  
...500 ...600 ...700 ...800 ...900 ...000

160 m



3500 3560 3600 3650 3700 3800



80 m

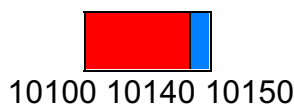
3500 3580 3620 3730 3740 3800  
DX-3510 IMAGE 3775-DX

7035 7045



40 m

7000 7040 7100 7200



30 m

14000 14060 14125 14300



20 m

14000 14070 14112 14230 14350

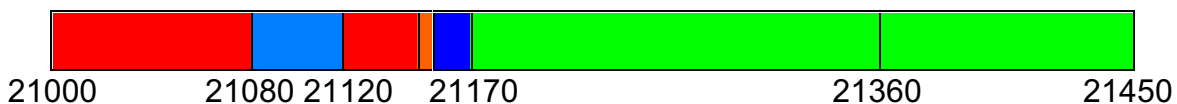
14099-14101

IMAGE



17 m

18109-18111



15 m

21149-21151

IMAGE

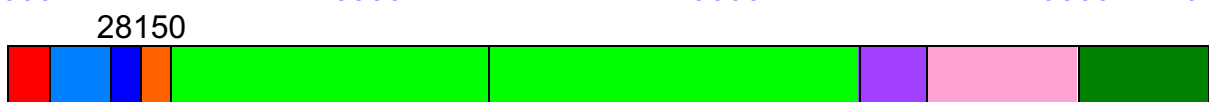
12 m

24929-24931



10 m

28000 28150 28500 29000 29500 29700



28000 28120 28680 29200 29300 29510 29700  
28050 28190-28225 IMAGE

Note: CW QSOs are accepted across all bands, except in beacon segments; AM is accepted in all phone segments.