



# International Amateur Radio Union Region 1

Europe, Middle East, Africa and Northern Asia

Founded 1950

## Committee C4 (HF Matters) Interim Meeting 16-17 April 2016 InterCity Hotel, Vienna

<b>SUBJECT</b>	80m band planning		
<b>Society</b>	DARC	<b>Country:</b>	Germany
<b>Committee:</b>	C4	<b>Paper number:</b>	VIE16_C4_07
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### Introduction

Over the years the interest in operation with Digimodes has increased very much leading to congestion in those parts of the bands which are indicated for preferred mode 'Digimodes' in the IARU Region 1 band plan.

### Background

The IARU Region 1 Conference Davos 2005 adopted a new band plan philosophy based on bandwidth.

A band plan working group made proposals for the width of different segments based on usage in the years *before* the Davos Conference.

One major role of amateur radio is experimenting; this particularly justifies the right to request allocation of spectrum to the amateur service by ITU. Since the Davos conference a lot of innovation has taken place especially in digital communication techniques and more is expected to come. Therefore it is essential to provide sufficient spectrum for Digimodes in the band plan.

The width of Digimode preferred segments now seems to be insufficient to allow experiments and usage with digital modes without congestion.

The driving idea behind a band plan based on maximum bandwidth is to provide more flexibility. However, it is recognized that equipment used to decode digital modes might fail to detect weak CW signals. Therefore CW has been specified as "preferred mode" in the segment with up to 200 Hz bandwidth, meaning that Digimodes should avoid these segments even if they meet the 200 Hz limit.

It has been realised that this has led some operators to insist on certain band segments being "owned" by certain modes. This is a misinterpretation of the band plan and was never intended. Actually it has also been noticed that some operators generate intentional interference to "underline" their view. Where the band plan mentions specific modes this is meant as *recommendation* in order to reduce the potential of conflicts and to improve the chance to find a QSO partner using the same mode.

Most Digimodes need more bandwidth than a CW signal. The current small Digimode segment, together with occupation by fixed service/mobile services on this co-primary band, makes it more difficult for narrow band operators to find a suitable frequency slot. CW operators have much more flexibility because their segment is wider. CW operation concentrates in the lower part of the 200 Hz segment; the upper part of this segment is much less populated.

Extending the narrow band segment by 10 kHz, starting at 3570 kHz, would improve the opportunities for appropriate modes, without serious restriction for CW, beside the fact that CW is possible anywhere in the whole band.

Additionally, recommending a segment width of 70 kHz on 80m for CW would follow the practice of other major bands, like 10m, 15m and 20m which partly show even denser utilisation.

### Recommendation

It is recommended to modify the IARU Region 1 band plan for 80m:

FREQUENCY SEGMENT (kHz)	MAX BANDWIDTH (Hz)	PREFERRED MODE AND USAGE	
3500 - 3510	200	CW	Priority for intercontinental operation
3510 - 3560	200	CW	CW contest preferred 3555 kHz - CW QRS Centre of Activity
3560 - 3570	200	CW	3560 kHz - CW QRP Centre of Activity
3570 - 3580	200	All Narrow Band Modes	Digimodes
3580 - 3590	500	All Narrow Band Modes	Digimodes
3590 - 3600	500	All Narrow Band Modes	Digimodes, automatically controlled data stations (unattended)

## Annex 1

### Registered Activity on RBN during a day (by DJ1YFK)

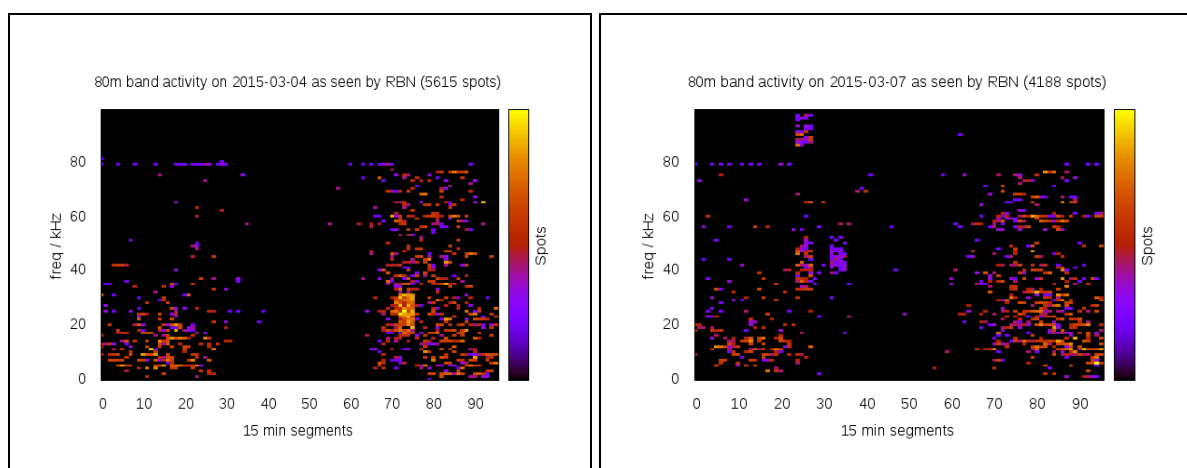
#### Methodology

Reverse beacon network raw data from single days was used to compile a “heat map” style diagram of the band activity over full day.

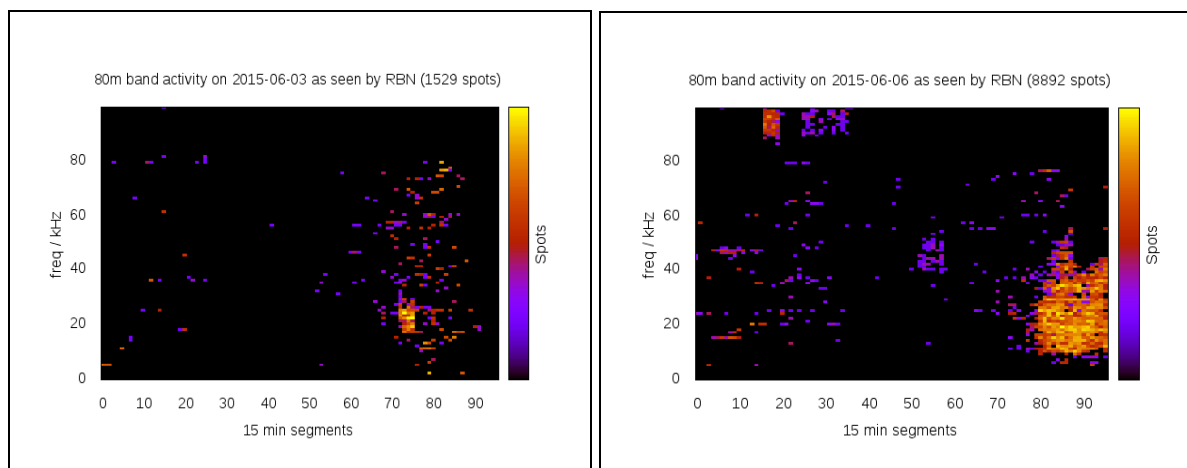
The band was segmented into 100 channels of 1 kHz bandwidth on the frequency scale (vertical) and 96 slots of 15 minutes on the time scale (horizontal).

The number of RBN spots for each of the  $100 * 96 = 9600$  slots was counted and plotted. (0 => 0h, 96 => 24h)

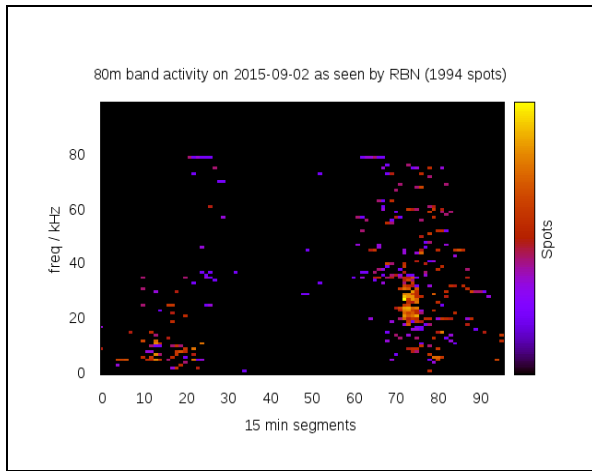
Note that frequency runs from bottom to top in these illustrations and the time runs on the horizontal line from 0 (0h utc) to 96 (24h utc).



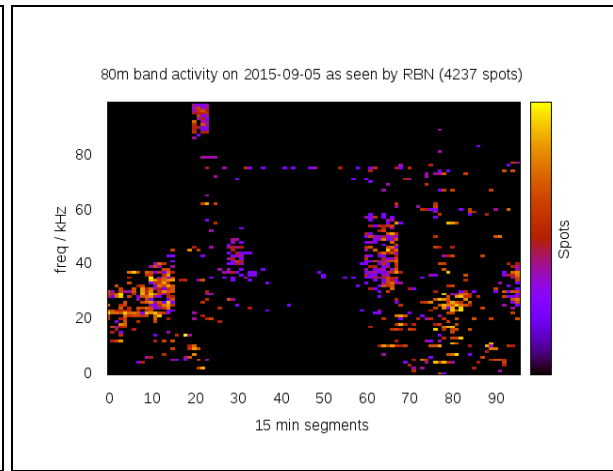
**Figure 1:** Activity Wednesday 4 March 2015    **Figure 2:** Activity on Saturday 7 March 2015



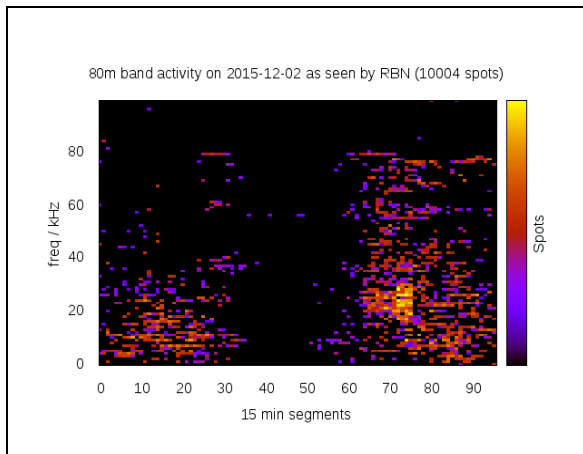
**Figure 3:** Activity on Wednesday 3 June 2015    **Figure 4:** Activity on Saturday 6 June 2015 (CW Field day)



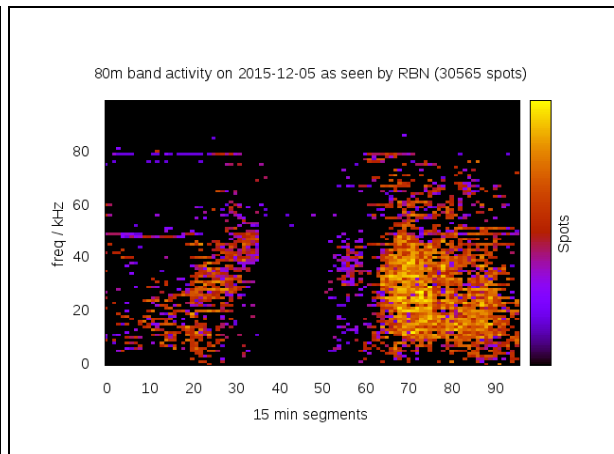
**Figure 5:** Activity Wednesday 2 Sept. 2015



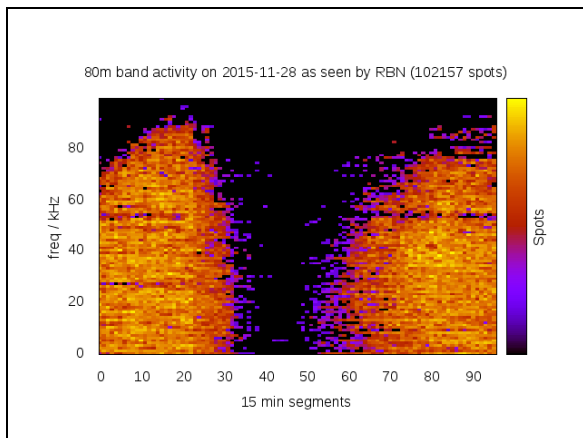
**Figure 6:** Activity on Saturday 5 Sept. 2015



**Figure 7:** Activity Wednesday 2 Dec. 2015



**Figure 8:** Activity on Saturday 5 Dec. 2015



**Figure 9:** Extreme high activity on Saturday 28 November 2015 due to CQ WW CW contest.

### **Conclusion**

Morse activity is concentrated in the lower part of the 80m band. Despite the very generous assumptions that are made for a part of the band to be occupied (1 kHz channel width, 15 minute slots), there are still enough free frequencies to work CW QSOs at almost any time, even during the weekend, below 3570 kHz.

## Annex 2

### Other band plans

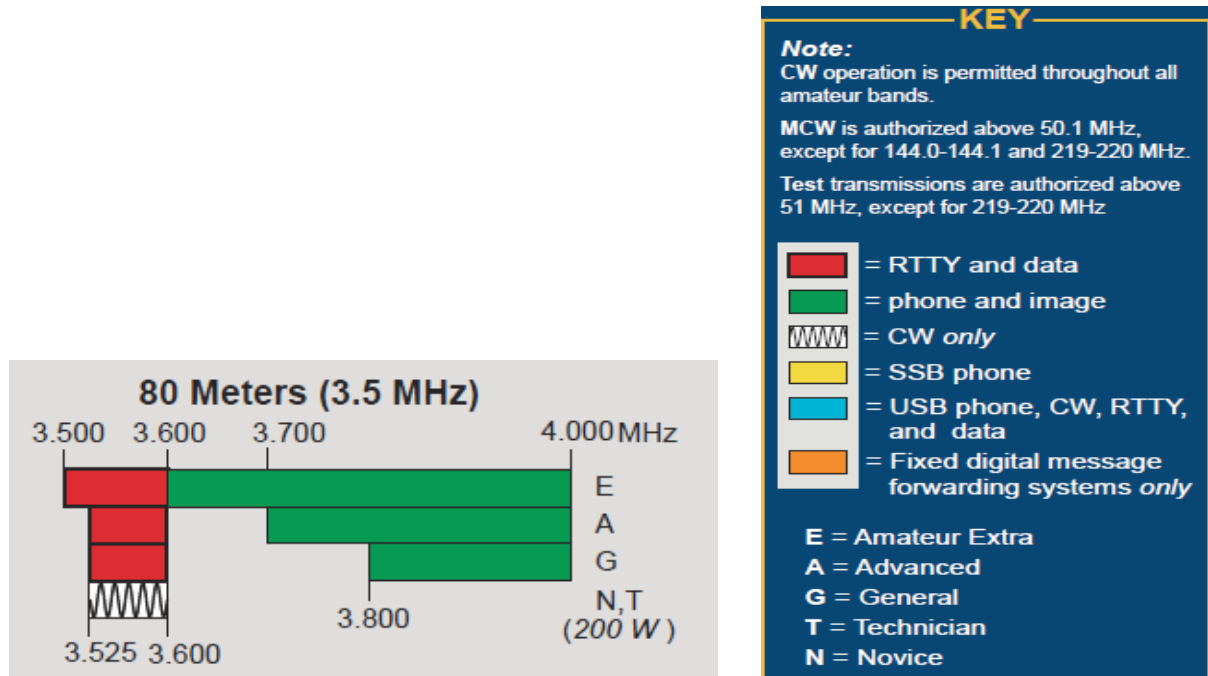
IARU Region 2 band plan

On 80m the Region 2 band plan for the segment 3.500-3.600 MHz is identical with Region 1.

However, on 80m the practice in Region 2 is a mixture based on IARU Region 2 band plan and FCC rules to which US amateurs are bound.

### ARRL band plan

The ARRL band plan expects a smooth transition in modes in the segment 3500 kHz – 3600 kHz:  
From CW starting at 3500 kHz to Digimodes which concentrate in the upper part.



### FCC Rules for US amateurs

80m

Novice and Technician classes:

3.525-3.600 MHz: CW only

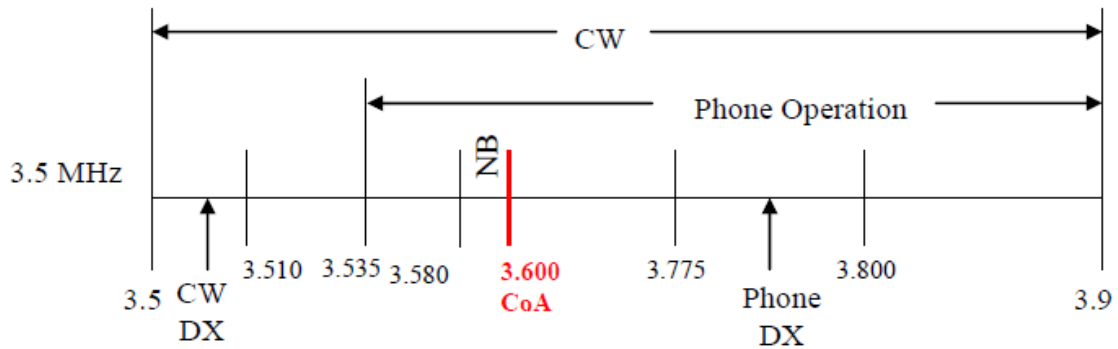
General and Advanced classes:

3.525-3.600 MHz: CW, RTTY/Data

Amateur Extra class:

3.500-3.600 MHz: CW, RTTY/Data

## IARU Region 3 band plan



Note:

- ✓ Emergency CoA frequency 3.600 MHz (All Modes  $\pm$  5 KHz )

\* Note that in contrast to other regions Region 3 does *not* specify any bandwidth limits but instead just refers to the terms “CW” and “Narrow Band Modes”.

### Legends

The “Legends”/ “Abbreviations” used are:

- CoA: Emergency “Centre of Activity” frequency (IARU recommended)
- EME: Earth-Moon-Earth, Meteor Scatter, Auroral Scatter and other weak-signal modes
- NB: Narrow bandwidth modes including CW, RTTY, Packet and modes with similar bandwidth not exceeding 2 kHz.
- Phone: Phone operation includes SSTV, FAX and modes with similar bandwidth not exceeding 6 kHz.
- Satellite: This segment should be kept clear of other operating modes.
- WB: Wide bandwidth modes including FM.