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Subject: Harmonisation Considerations for R1/2/3 HF Band Plans

Committee: C4

Summary: This paper attempts to document the major elements of the HF band plans in Regions 1, 2 and 3, noting any significant differences between regions with a view to increasing cooperation and coordination of HF band planning between regions.

Background:

Various attempts have been made over the years to align the HF band plans across regions as the majority of band planning occurs at regional level. Recently the 3.5 MHz, 7 MHz, and 10 MHz band plans have been successfully aligned between Regions 1 and 2.

The purpose of this paper is to outline the major segments of the HF band plans across all three IARU regions and note where inconsistencies exist. As agreed at the IARU Region 1 General Conference in Landshut 2017, this will form the basis for discussions with the other regions with a goal to develop proposals which will improve the band plan alignment.

It should be noted that this paper does not cover detail for each band plan, nor is it intended to replace or be used instead of current regional band plans. The information here is focused only on identifying the major mode segment boundaries with a view to identifying inconsistencies. Any changes to regional band plans should be handled at the respective IARU regional general conference.

It is proposed the HF bands from 160M to 10M be covered. Appendix 1 details the major band plan segments by mode for each region.

160 Metres:

The amateur service only has allocation between 1800 - 1850 kHz (1810 - 1850 kHz in Region 1 although many countries have article 4.4 and footnote 5.96 arrangements allowing operation to 2000 kHz. The only real band planning problems are in the range from about 1838 -1850 kHz where it is necessary to fit CW, Digital and SSB modes into a narrow window which is also the de facto DX window.

80 Metres:

Following significant work between Region 1 and 2, this is quite well aligned. The only major inconsistency is the significantly smaller CW exclusive segment in Region 3 which ends at 3535 kHz vs. 3570 kHz elsewhere.

60 Metres:

Allocated to the amateur service at WRC15, this has a simple band plan that has been largely adopted by all 3 regions. The only issues occur in the countries that have not yet implemented the WRC15 allocation, which results in an inconsistent overlap of some article 4.4 permissions within the amateur allocation.

40 Metres:

The band plans in Regions 1 and 2 were aligned in recent years. There are some inconsistencies in the DX windows across regions.

30 Metres:

Region 1 recently adjusted the 30M band plan to be inline with Regions 2 and 3 so this is now well aligned. Other than noting that Region 2 permits digital modes with bandwidths up to 2700Hz between the 10140 - 10150 kHz, the band plans are the same.

20 to 10 Metres:

These band plans are already well aligned as they have long been used for international contacts. Some slight variations may be more due to typographical errors rather than differences in the band plans. The frequencies above 29000 kHz have not been analysed as these tend to be used for more local styles of operation similar to the VHF bands and it is considered unnecessary to consider further alignment. The segment used by the satellite service is by definition aligned globally.

Proposal:

That IARU Region 1 continues its work with Regions 2 and 3 to share band planning discussions and information with a goal to align HF band plans across all regions as far as possible.

Financial Implications: To be managed within existing meetings structure.

Appendix 1: Current Band Plans (simplified)

The tables on the following pages show a simplified summary of the key band plans across regions.

Modes have been split into CW, Phone (including digital voice), and Digital (may also be referred to as digital data, DM, digimodes, MGM, datamodes).

All Mode segments may have bandwidth restrictions that could preclude phone operation or certain wideband digital modes.

CW segments shown are CW-exclusive, noting that most band plans allow CW operation anywhere in the band.

For clarity, centre of activity frequencies have been omitted, but intercontinental DX windows and contest preferred segments, where defined, are shown.

The Horizontal frequency axis is not to scale.

HF Band Plan Overview between IARU Regions 1, 2 and 3

160 Metres, 1.8 MHz

160M (kHz)	1800-1810	1810-1830	1830-1838	1838-1840	1840-1850	1850-2000
Region 1	Not allocated	CW		Digital 500Hz	All Modes 2700Hz	
Region 2	Digital 500Hz	CW	CW DX	Digital 200Hz	SSB DX 2700Hz	All Modes 2700Hz
Region 3	CW		Digital 500Hz		All Modes 2700Hz	

Notes:

1. The 1838-1850 range is quite complex as it tries to fit a number of modes and a DX window into a very narrow segment. See regional band plans for full details.
2. The amateur service only has an allocation to 1850 kHz so most operation between 1850 - 2000 kHz where allowed is under RR article 4.4 and footnote 5.96 arrangements.

80 Metres, 3.5 MHz

80M (kHz)	3500-3510	3510-3535	3535-3570	3570-3580	3580-3600	3600-3775	3775-3800	3800-3900	3900-4000
Region 1	CW DX	CW		Digital 200Hz	Digital 500Hz	All Modes 2700Hz	All Modes DX	Not allocated	
Region 2	CW DX	CW		Digital 200Hz	Digital 500Hz	All Modes 2700Hz	All Modes DX	All Modes 2700Hz	
Region 3	CW DX	CW	All Modes 2700Hz				All Modes DX	All Modes 2700Hz	Not allocated

Notes:

1. Regions 1 and 2 contest preferred segments: 3600-3650 kHz and 3700-3800 kHz

60 Metres, 5 MHz

60M (kHz)	5351.5-5354.0	5354	5357-5360	5360	5363	5366.0-5366.5
Region 1	CW	All Modes 2700Hz				Weak Signal ²
Region 2	CW	All Modes 2700Hz				Weak Signal ²
Region 3	CW	All Modes 2700Hz				Weak Signal ²
Various non WRC15 ¹		All Modes 2700Hz	All Modes 2700Hz		All Modes 2700Hz	

Notes:

1. Some countries that have not yet implemented the WRC15 allocation, do have permissions to certain segments or channels within the band. For clarity, these are not shown in detail but certain frequency segments are shown where helpful to assist international contacts.
2. Weak Signal modes, undefined in other HF band plans, is an attempt to leave a narrow segment clear of other activity for very narrow band (<20Hz) weak signal modes. Modes such as, but not limited to, WSPR and JT9 fall into this category.

40 Metres, 7 MHz

40M (kHz)	7000-7025	7025-7030	7030-7040	7040-7050	7050-7200	7175-7200	7200-7300
Region 1	CW			Digital 500Hz	All Modes 2700Hz	All Modes DX	Not allocated
Region 2	CW DX	CW		Digital 500Hz	All Modes 2700Hz		
Region 3	CW		All Modes 2700Hz Phone DX 7095 kHz			Not allocated	

Notes:

1. Regions 1 and 2 contest preferred segments: 7060-7100 kHz and 7130-7200 kHz
2. Region 3 has a DX phone window at 7095 kHz

30 Metres, 10 MHz

30M (kHz)	10100-10130	10130-10140	10140-10150
Region 1	CW	Digital 500Hz	
Region 2	CW	Digital 500Hz	Digital 2700Hz
Region 3	CW	Digital 500Hz	

Note: Phone operation on this band is permitted in some areas.

20 Metres, 14 MHz

20M (kHz)	14000-14025	14025-14070	14070-14099	14101-14350
Region 1	CW		Digital 500Hz	All Modes 2700Hz
Region 2	CW DX	CW	Digital 500Hz	All Modes 2700Hz DX 14190-14200kHz
Region 3	CW		Digital 500Hz	All Modes 2700Hz

Notes:

1. Contest preferred segments: Region 1 14125-14300 kHz, Region 2 14025-14060 and 14112-14285 kHz
2. IBP window at 14100 kHz

17 Metres, 18 MHz

17M (kHz)	18068-18095	18095-18109	18111-18168
Region 1	CW	Digital 500Hz	All Modes 2700Hz
Region 2	CW	Digital 500Hz	All Modes 2700Hz
Region 3	CW	Digital 500Hz	All Modes 2700Hz

Note: IBP window at 18110 kHz

15 Metres, 21 MHz

15M (kHz)	21000-21070	21070-21110	21110-21120	21120-21149	21151-21450
Region 1	CW	Digital 500Hz	Digital 2700Hz	Digital 500Hz	All Modes 2700Hz
Region 2	CW	Digital 500Hz	Digital 2700Hz	Digital 500Hz	All Modes 2700Hz
Region 3	CW	Digital 500Hz		All Modes 2700Hz	

Notes:

1. IBP window at 21150 kHz

12 Metres, 24 MHz

12M (kHz)	24890-24915	24915-24929	24931-24990
Region 1	CW	Digital 500Hz	All Modes 2700Hz
Region 2	CW	Digital 500Hz	All Modes 2700Hz
Region 3	CW	Digital 500Hz	All Modes 2700Hz

Notes:

1. IBP window at 24930 kHz

10 Metres, 28 MHz

10M (kHz)	28000-28070	28070-28190	28190-28225	28225-28300	28300-29000	29000-29700
Region 1	CW	Digital 500Hz	Beacons		All Modes 2700Hz	Various
Region 2	CW	Digital 500Hz	Beacons		All Modes 2700Hz	Various
Region 3	CW	Digital 500Hz	Beacons	All Modes 2700Hz		Various

Notes:

1. IBP window at 28200 kHz