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Subject	**Harmonisation of WSPR frequencies**		
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Introduction

The aim of this paper is to start a worldwide harmonisation process of the WSPR frequencies in the VHF- and upper bands. There shouldn't be a mismatch between the frequencies used by the community and the allocations in the bandplan. Accidentally mistakes in the VHF manager handbook in IARU Region 1 should be corrected immediately.

Background

A common mistake can easily happen due to the offset of 1500 Hz between the so called „USB dial“ frequencies used by the WSPR community and the effective frequencies shown in the bandplans. Some footnotes have been already added to bandplans with WSPR allocations.
In order to harmonise the WSPR frequencies (if not already harmonised) there are only two options:
1. The WSPR community is willing to align affected WSPR frequencies
2. The bandplan is adapted to the current use

The challenges for #1:

- The WSPR community must be involved and convinced of the benefit (e.g. http://wsprnet.org should reflect the decision of the community)
- The fact that actual frequencies are baked into WSPR software needs to be taken into account

The challenges for #2:

- The current used WSPR frequencies must fit with the narrowband segment of the bandplans

- The WSPR frequencies shown on http://wsprnet.org (the normative power of factual) must be accepted by IARU Region 1, 2 and 3

Proposal/Recommendation

<u>6-m-band:</u>

- Current state:
  - http://wsprnet.org: 50.293 MHz „USB dial“ or 50.2945 MHz effective frequency
  - IARU R1 VHF manager handbook 7.0: 50.401 MHz effective frequency
- Proposal:
  - 50.2945 MHz effective frequency
    - by shifting the MGM/Narrowband/Telegraphy segment from “50.3 – 50.4 MHz” to “50.29 – 50.4 MHz”
    - or by making an exception for 50.2945 MHz
- Justification:
  - Frequency used by the community
  - 50.2945 MHz is within the narrowband segment of the 6-m-band
  - 50.2945 MHz is the de facto standard even in Europe
  - There is no usage of 50.401 MHz at all

<u>4-m-band:</u>

- Current state:
  - http://wsprnet.org: 70.091 MHz „USB dial“ or 70.0925 MHz effective frequency
  - IARU R1 VHF manager handbook 7.0: 70.091 MHz effective frequency
- Proposal:
  - 70.0925 MHz effective frequency
- Justification:
  - It seems the IARU R1 VHF manager handbook 7.0 is suffering from the common mistake mentioned in the section “Background” of this paper

2-m-band:

- Current state:
  - http://wsprnet.org: 144.489 MHz „USB dial“ or 144.4905 MHz effective frequency
  - IARU R1 VHF manager handbook 7.0: 144.492 MHz effective frequency
- Proposal:
  - 144.4905 MHz effective frequency
  - or a complete different frequency within the “MGM/Telegraphy” (500 Hz max. bandwidth)-segment
- Justification for 144.4905 MHz:
  - The popular 1kW beacon DB0FAI is QRT
  - The operators of DB0FAI are fine by changing the frequency if a new location for the beacon will be found (not expected)
  - Frequency used by the community (some are even using the old effective community frequency 144.490 MHz)
  - Almost no activity on the effective frequency 144.492 MHz (a German station is officially coordinated by the local frequency regulator taking the VHF Manager handbook into account)

70-cm-band:

- Current state:
  - http://wsprnet.org: 432.300 MHz „USB dial“ or 432.3015 MHz effective frequency
  - no entry within the IARU R1 VHF manager handbook 7.0
- Proposal:
  - 432.3015 MHz effective frequency
- Justification:
  - Frequency used by the community
  - 432.3015 MHz is within the narrowband segment of the 70-cm-band

23-cm-band:

- Current state:
    - http://wsprnet.org: 1296.500 MHz „USB dial“ or 1296.5015 MHz effective frequency
    - no entry within the IARU R1 VHF manager handbook 7.0
- Proposal:
    - 1296.5015 MHz effective frequency
- Justification:
    - Current allocation “Image center” could be reallocated (if still needed)
    - Frequency used by the community
    - 1296.5015 MHz is within the narrowband segment of the 23-cm-band

<u>Bandwidth:</u>

- Current state:
    - The typical frequency window for WSPR is 200 Hz
    - IARU R1 VHF manager handbook 7.0: All WSPR allocations (6-m, 4-m, 2-m) have allocations with a frequency window of 1000 Hz
- Proposal:
    - Change the frequency window to 200 Hz
- Justification:
    - The WSPR software is designed for a 200 Hz frequency window
    - The 200 Hz frequency window reflects the center of WSPR activity
    - The bandplans do not forbid a frequency window of 1000 Hz or more (expect the 2-m-band

    → guard band → solutions?), however it is not common

<u>Harmonisation:</u>

Any changes should only be done in agreement with all parties, especially the WSPR community

Recommendation

• Change the frequency for Personal WSPR beacons from 70.091 MHz to 70.0925 MHz in the 4- m-bandplan

• Add the WSPR frequency 432.3015 MHz (+- 200 Hz) in the 70-cm-bandplan

• Add the WSPR frequency 1296.5015 MHz (+- 200 Hz) in the 23-cm-bandplan

• Make sure the footnote explaining „USB dial“ vs. effective frequency is added in any bandplan with WSPR allocations

• Open a topic in the IARU wiki to develop solutions for WSPR frequencies and to be able to close the topic at IARU R1 conference 2017

• Find out whether a discussion „personal vs. coordinated WSPR beacons“ is necessary