International Amateur Radio Union Region1
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SUBJECT	**Narrow frequency band on 2 m for an automatic reporting beacons network**		
Society	**REF**	**Country:**	**France**
Committee:	**C5**	**Paper number:**	**CT08_C5_40**
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Introduction:

The existing beacons network of the 2m band is widely monitored by most of the DX'ers for testing the propagation properties applicable to their traffic. Since an accurate updated beacons' catalogue is available for informing on their important characteristics, their situation on wide open areas over hills or high buildings are not always reflecting the real configuration of most of the 2m users. If the existing system is already widely appreciated some improvement can be achieved by use of a more interactive system now available through new communications process under deployment on HF bands and fully applicable also in VHF.

Background:

Most of EME users are familiarized with the WSJT technology allowing reception of very weak signals below the noise level. An extension of such a process has been recently developed for very narrow band and slow transmission called WSPR (Weak Signal Propagation Reporter) based on computer applications available on dedicated Internet websites like for any digital transmission. Recent tests on the 2m band have also proved the benefit achievable from its use:

- Bandwidth is only a few Hertz and low power transmission is advisable
- Transmission of 2 minutes length with maximum Tx/RX ratio of 33%
- Instantaneous or recorded reporting of SNR received to a central website collecting data
- Call sign, grid locator and transmitted power announced
- Decoding of multiple transmission possible within 200 Hertz band pass
- Flexibility for being used at any location even at home on own antenna
- Wide analysis' possibilities through statistics processing of collected data

Recent experiments have shown the interest of such a system either for analysing long distance propagation or testing locally performances of any kind of antenna or external noise desensitisation within more than 30 dB dynamic range and accurate reporting. The very narrow bandwidth has also allowed identification of Doppler effects from reflection on moving aircrafts. Then the access to a wide database allows different kind of processing for personal statistics and applications.

Proposal:

In order to allow free use of WSPR techniques by any amateur radio operator at any time on the 2m band a clear channel of at least 200 Hz could look appropriate. However, taking into account the difficulty of achieving the required frequency accuracy, and allowing the deployment independent networks in dense areas, it is proposed to extend the tuning range requirement to

1000 Hertz bandwidth around a central frequency dedicated to such application. Considering its main use for propagation analysis, it is suggested to fix the central frequency close to the edge of the beacons allocated band plan

Recommendation:

REF-Union recommend to allocate a 1000 Hz bandwidth channel at 144.4895 MHz (+/- 500Hz) for very narrow band and low power automatic and synchronized beacons transmitted by any amateur radio station reporting to a specified data base under an approved and well defined process open to all users. The use of the existing WSPR protocol and modulation is fully recommended.