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Subject	50 MHz Beacons		
Society	RSGB	Country:	United Kingdom
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1. Introduction

As the Synchronised Beacon pilot scheme and technology options have progressed, this paper proposes some updates and clarifications.

2. Background

At the 2014 Varna working group on 50 MHz beacons, frequency moves to 50.4xx and pilot testing for the synchronised multiplex scheme were reviewed. This paper captures a number of points from ongoing developments and test work.

3. Key Points and Proposals

Steady progress is occurring as Region 1 Beacons are migrating to their 50.4xx frequencies (nearly 60 as of April 2017). Meanwhile the initial Synchronised Beacon candidates (see C5 Wiki) are upgrades of existing beacons rather than entirely new sites. The most popular implementations for SBP have so far utilised:

- Frequency sources based on NGN(OZ2M) and QRP-Labs(G0UPL) – though others are possible
- Modes: PI4 is the most popular – but others should not be dismissed

As work has progressed the following has been further considered:

- a) Beacon usage, when not on 1 minute time slot (e.g. optional transmissions on 50.4xx MHz to make better usage of valuable beacons/sites and offer differential MUF assessments)
- b) Graceful behaviour if/when GPS is lost
- c) Desire to upgrade some standard 50.4xx beacons to include MGM (and the potential benefit if the mode can be changed by remote control to optimise for 'Es', meteor scatter, etc.
- d) Need for timing/location planning in a full 10-frequency times 5-timeslot multiplex (50 slots)
- e) As we pass the test phase, the relatively slow roll out and population of the SBP multiplex (given the need for hardware upgrades, etc.) needs to be carefully considered and guided.

4. Recommendations

VHF Handbook Section 11.3 (50 MHz beacons) to be updated to include the following:

- 50 MHz Synchronised beacons may optionally also transmit on 50.4xx when not transmitting in their 50.0xx synchronised scheme time slot.
- If they use this dual-frequency option, the beacon callsign on each frequency should be slightly different to assist reception and reporting systems. For example, to append /S and /B onto the callsign to indicate Synchronised and ordinary Beacon frequency respectively
- Synchronised Beacons should detect loss/failure of GPS and mute transmissions on their synchronised frequency assignment (50.0xx). However, they remain free to transmit on their (optional) 50.4xx assignment (where they may revert to a CW-only to indicate the problem)
- Consider the advantages of adaptive MGM and remote control for propagation events
- 50 MHz users and propagation experts are encouraged to propose multiplex sequences, with due consideration for access to remote beacon locations/re-programming
- Both transmit and receive software should be flexible to support the above including for example the use of more than one time slot, if a multiplex is sparse during roll out