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Subject:	Introduction of a 1 minute mixed beacon mode (CW & MGM)		
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Committee:	C5	Paper number:	SC11_05_30
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(Read in conjunction with SC11_C5_31)

Into the technical standards section of the VHF managers handbook (11.1.5 Beacon message)

Realizing that most VUSHF amateurs is still using beacons rather random for tropo, Aurora, scatter etc. - but also recognizing that there is an increasing number of amateurs using advanced monitoring MGM techniques - we feel the 2 minutes sequence described in the handbook is too long for the random beacon users and that a 1 minute sequence will be sufficient for the MGM users.

It should be noted that a good CW operator can read signals below 0 dB S/N. However, please take care when comparing S/N performance without taking RX signal bandwidth into account.

The necessary characters are "A" to "Z", "0" to "9", "/" and "space" is in total 38 characters. Thus, a larger character vocabulary is not needed. The total message length is eight characters.

If possible the first tone of the MGM should be at the same frequency as the carrier to minimize the necessary signal bandwidth. The signal bandwidth should be less than 1 kHz to fit into the existing beacon allocation structure.

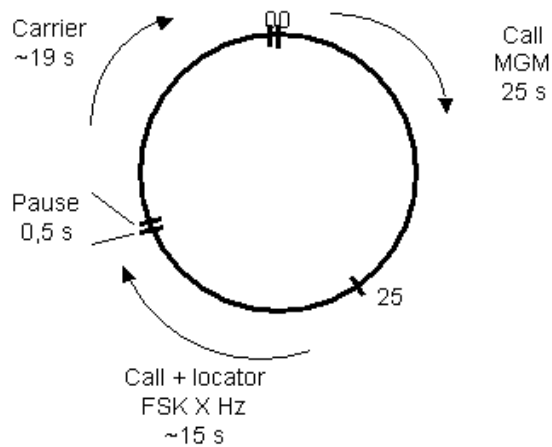
WSPR and JT4 may be the only MGM-protocols that are designed for beacon purposes. Yet the transmission sequence in the current implementation in the WSPR application is 2 minutes which does not fit with the requirement of a 1 minute sequence. Furthermore is it is primarily intended for the HF area. The JT4 takes 47 seconds leaving very little time for carrier and CW identification. Using e.g. JT65 will not help either as this also will make the total sequence 2 minutes long.

A relevant MGM-protocol must designed/selected to allow the chosen sequence to be implemented. Whether this is an existing or a new design should not stand in the way for a next generation of beacons.

One way to "speed up" the MGM part of the message is to omit the locator. If decoded by a computer the user will in most cases know the locator already either by being online or having downloaded a beacon list.

For the analogue part, the inclusion of the locator may be more useful. Alternative

requests may extend the message e.g. for a band ID character, propagation or "/B."



We therefore recommend including in the VHF managers handbook the addition of a 1-minute CW/MGM sequence following the above-described lines.

An additional point could be added to 11.1.5: For mixed mode beacons with a 1-minute, sequence efforts should be made to ensure good timing accuracy on each full minute.