Subject*: Frequency segments Unmanned Machine Generated Mode (UMGM)*
2m,70cm and 23 cm Bands
Society: REF - Réseau des Emetteurs Français
Contact Sylvain Azarian - F4GKR
Status: Proposal

Introduction:

The objective of this proposal is to define a new allocation of frequency segments to facilitate further development of Unmanned Machine Generated Mode experiments (UMGM). The proposal is a follow-up recommendation to the withdrawal of the WSPR frequency allocation (VIE 16_C5_Rec_27: remove all dedicated WSPR spot frequencies and footnotes from the VHF Managers Handbook).

The proposal below make deliberately no reference to any specific digital mode to fulfil requirements of 144 MHz Narrowband Modernisation approach, with the objective to create more flexibility and provide more opportunities for future experiments.

Experience:

By nature, the location and time of operation of stations participating in such experiments change dynamically and cannot practically be centrally coordinated as the well-established and fully coordinated static beacon sub-bands. This proposal still aim to protect the static beacon sub-band.

There is, to day, a growing number of new modes to experiment with. A specific allocation of frequency to each mode would be too complex and inefficient, however a lack of defined segment and agreed frequencies for these experiments will make international technical coordination of such experiments difficult and prone to un-guided local initiatives which will most likely lead to inefficiencies and perturbations.

Solution:

The general principle of the proposed approach is to define, in each of the 2m, 70cm, 23cm bands a segment with three clearly identified frequencies and modulation characteristics. These segments are reserved for UMGM experiments without any mention of specific mode or protocols but only definition of centre frequencies and modulation characteristics.

In each segment the three frequencies are labelled UMGM 1-3 with for each of them a “channel bandwidth” and modulation characteristics. (see table below)

On the 2m Band, the 6-kHz segment from 144.4915 to 144.4975 MHz is proposed since it has been traditionally considered as guard band between the beacon segment and an all Modes allocation.

The 144.500 MHz “Image mode centre frequency” should be changed to a recommended “Image mode centre frequency USB” to avoid possible interference in FM mode considering that this mode is not optimal for such usage.

On the 70cm band a similar situation exists above the beacon segment. The 432.500 MHz APRS frequency would be recommended to migrate to 432.525MHz. The 6kHz UMGM segment will then be located from 432,4915 to 432,4975MHz.

On the 23cm band, since there is no guard slot above the beacon segment with a wider band activity, the 6-kHz segment can be placed just below the local beacon segment from 1296.7415 to 1296.7475 MHz

UMGM1 is the centre frequency maximum modulation bandwidth 50Hz.

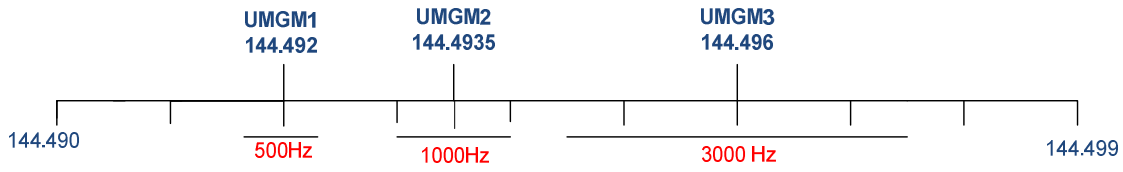
UMGM2 is the centre frequency maximum modulation bandwidth 500Hz.

UMGM3 is the centre frequency maximum modulation bandwidth 2700Hz.

Recommended maximum transmit/receive ratio over one hour period is 50%

	Segment UMGM	Frequency UMGM 1	Frequency UMGM 2	Frequency UMGM 3
2m Band	144 4915-144 4975	144 492	144493.5	144 496
70cm band	432 491-432 499	432 492	432493.5	432 496
23 cm Band	1296 741,5-1296 747,5	1 296 742	1 296 744	1 296 746
Channel Bandwith		500 Hz	1000 Hz	3000 Hz

All frequencies above are the centre of the transmitted frequency.



Proposal:

- Agreed the definition of the band segments, frequencies and modulation characteristics as above .
- Agreed on the changes on SSTV activity on 2m and APRS one on 70cm
- Update the Bands Plan in the VHF Manager Manual accordingly.