Update on amateur activities during the past 12 months in the 146-147 and 70.5-71.5 MHz experimental spectrum

November 2022

Progress in the last year:

During the past year 379 NoVs for 146-147MHz have been issued, an increase on the previous 12 months, clearly demonstrating a continuing spirit of experimentation and innovation.

The UK Amateur Television community continues to conduct regular tests making two-way contacts using DVB-S2 and DVB-T RB-DATV (Reduced Bandwidth Digital Amateur Television). The focus has changed from many pre-pandemic tests carried out from well sited portable locations to tests between fixed amateur locations at both 146MHz and 71MHz. The use of DVB-T(OFDM) RB-DATV has enabled contacts on 146MHz, 71MHz and now 51MHz to be made over paths not previously possible, due to multi-path distortion, encountered with single carrier DVB-S.

Amateur operators outside the UK, across Europe, South Africa and Australia are now becoming equipped with narrow band DVB-T equipment developed by the UK amateur television community initially for experimental work on 146MHz and 71MHz. These circuit boards enable the use of DVB-T based OFDM technology with H265 video encoding to be used in bandwidths as low as 333 kHz.

Most of the work to date has been using specifically developed amateur hardware and software such as the DVB-T boards highlighted above. It had been hoped that significant progress would have been made during the year using the set of OFDM software modules which have been made available as part of the open source GNU Radio initiative. Unfortunately, the worldwide shortage of specialised silicon chips, in this case FPGAs used in SDR transceivers has held back this work rather the software or the enthusiasm of the experimenters. In the longer term it had been hoped that the use of OFDM with modulation tailoring software running over SDR transceivers would have been an answer to the significant spectral regrowth issues that have limited the work on moderate (200-500Kbps) bandwidth data communications

Looking Forward:

Hopefully, amateur innovation will find work-arounds to enable relatively low cost SDR transceivers to return to the amateur market despite the continuing global chip shortages. This will, in turn enable the porting of OFDM software onto these platforms to continue the innovation of using moderate bandwidth OFDM at VHF frequencies.

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