BATC report to the RSGB spectrum Forum – October 2017

Interest in Amateur Television continues to grow as shown by a 25% increase in the membership of the British Amateur Television Club (BATC) during the past 4 years with the Portsdown DATV system proving to be a popular route back in to the hobby for many.

Reduced Bandwidth, RB-TV, digital television transmissions continue to evolve with stations active on bands from 50MHz to 10GHz. Digital modulation tests continue to indicate that DVB-S2 provides about a 2dB improvement over DVB-S for the same bandwidth and stations are now experimenting with the new H265 codec. Reports of these initiatives have been fed back to Ofcom as important examples of continued innovation in Amateur Radio.

Analogue FM is still considered an important mode with a low barrier to entry and is used on the bands above 1.2GHz including the 24GHz and 134GHz bands. The use of low cost Drone video downlink equipment provides an easy route on to 5.6GHz and a significant number of stations are experimenting with wide band FM and ATV on that band.

The Bands

50 MHz

There has been a limited amount of RB-TV testing at the top end of the existing band. BATC has supported the IARU region 1 team initiative to gain an additional 2 MHz at WARC 2019 by carrying out interference testing on AM TV. If this initiative is successful it is envisaged there will be more RB-TV activity on the band.

71 MHz

This new band is available by special request and the application system has recently been streamlined by the RSGB team. This has prompted several ATV operators to apply for permits and we expect RB-TV tests and QSOs on the band to commence before the end of the year.

144-147 MHz

The recently licensed top end of the 2mt band is regularly used for RB-TV. Even though the maximum transmit power is limited above 146 MHz to 50 watts erp, ATV QSOs using 500KHz over 200Km are now happening regularly with the current record standing at 280Km.

430-440 MHz

This band is much more active due to the narrower bandwidth of digital TV transmissions that can now fit into this crowded allocation. Regularly there are long distance transmission of over 200 Km made around the UK and into Europe.

1.3 GHz

26 repeaters are currently licensed for this band and it continues to be very popular for analogue and digital transmission. Simplex, non repeater, operation is also popular in the band.

2.3 GHz

There are still 2 repeaters licensed for this band and even though we lost 40MHz of the band in the PSSR process there is a small amount of simplex operation.

In addition to the terrestrial activity, the HamTV downlink from ISS is being increasingly used during Schools Contacts with the International Space Station. To further enhance the capability

of this system, BATC members have developed a unique system for merging the digital transport streams arriving from up to eight different ground stations in real time. This enables full video coverage for the duration of contact, sometimes exceeding the duration of the VHF contact.

3.4 GHz

5 repeaters are now licenced for this band and due to a lower noise floor and easy receive systems using C band LNBs, the performance is equal to or better than 13cms . With the band having been reduced to 10MHz, there is only sufficient bandwidth to allow the digital repeater output to be on this band with inputs on other bands.

Due to bandwidth limitations there is little simplex operation on this band although 2 stations are known to have conducted DATV tests on 3402MHz.

5.6GHz

With the availability of the low cost (<£20) FPV equipment we are seeing a significant increase in the number of ATV and WBFM stations using the 5.6 GHz band. There are 2 repeaters with inputs on 5665MHz and and we believe this will become an important band for newcomers to ATV and microwaves.

10 GHz

6 repeaters are licensed for this band and it is also quite active with simplex operation.

There is still FM activity on the band and the low cost HB100 Doppler module is being tested with a view to providing a low cost alternative to the now obsolete Solfan heads. Several stations are experimenting with DATV on the band using standard narrow band transverters from144 / 432 MHz to generate DATV signals on the band. Distances over 100Km have been worked easily .

Higher Bands

There is limited ATV activity on the bands above 10GHz although several stations are known to be building ATV equipment for 24GHz and M0DTS has successfully transmitted video on 134 GHz. We will see more of these bands in use as the higher power GASFET transistors become available.

TV Repeaters

Overall we currently have 37 TV repeaters licensed and 4 new repeater NoV have been requested. The repeaters are using the 1.3 GHz, 2.4GHz, 3.4GHz and 10GHz bands with a mixture of analogue and digital transmission outputs.

The long delay in getting new repeaters licensed has improved slightly during the year however the situation of 23cms is completely unacceptable with the GB3EY application now over 3.5 years old, despite CAA giving frequency clearance over 2 years ago.

The BATC

The BATC continues to support and drive these initiatives with a program of awards and grants and the use of the BATC shop to purchase and stock otherwise difficult to source components.

In order to further increase operator numbers, BATC has awarded a number of prizes for contest winners and have introduced a monthly activity weekend timed to coincide with activity weekends in neighboring IARU countries. Activity continues to increase as evidenced by 30 UK stations active for the recent IARU ATV contest.