



BATC report to the RSGB spectrum Forum – November 2020

Whilst day to day activity continues on 70cms and 23cms, experimentation on the low bands (50 and 71MHz) plus the microwave bands above 2.3GHz continues, especially during BATC activity weekends. It is interesting to note that Dutch ATV operators have now adopted the narrow band techniques pioneered by the UK ATV community and RB-TV QSOs between the countries have taken place on 146 and 437 MHz.

The ATV community continues to innovate with very low bandwidth transmissions using H265 video encoding and DVB-S2 modulation and transmissions using 33ks (50KHz bandwidth) are regularly seen on QO-100.

IARU region 1 contest

The Annual IARU contest is perhaps the best indicator of ATV activity and trends across the UK and Europe. In 2020, despite limitations on activity in some countries, there were 92 entries from 8 countries on all bands from 432MHz to 76GHz. This is an increase from 55 in 2019 and UK stations were band winners on 4 of the 6 bands above 2.3GHz.

The Bands

50 MHz

Tests have continued on 51 MHz to support the IARU region 1 team initiative at WRC 2019. The current distance record using low power stations stands at 140 km. Note, DVB-S2 is currently used which will limit the use of any enhanced propagation modes due to its vulnerability to multi-path and other phase distortion effects.

71 MHz

ATVers have had to learn new skills to operate on the band including coping with higher noise floors and huge antennas!

Even with the 100 watt ERP restriction, the current DX record is 160 km and again phase distortion will prevent the use of any enhanced propagation modes 71MHz offers.

146-147 MHz

Many ATVers have applied for a special NoV to operate in this band and even though the maximum transmit power is limited to 50 watts ERP, ATV QSOs using 500KHz or less bandwidth over 200Km are now happening regularly with the current record standing at 407Km.

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

In light of the potential changes to 23cms, BATC has published a proposed new standard migrating TV repeater outputs to DVB-S2 1Ms (1.2MHz occupied bandwidth) operation. Tests indicate a gain of 13 dB over a 16MHz FM signal with no loss in video quality.

A standard design for a repeater transmission system has been published and BATC are actively encouraging groups to adopt the new standard by providing funds to help repeater groups migrate to the new standard.

2.3 – 2.4 GHz

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

A large number of operators have built 2.4GHz DATV and NB equipment to operate on Oscar100 – we need a plan to encourage these stations to use the equipment for terrestrial contacts!

3.4 GHz

7 repeaters are now licensed 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 stations are active during BATC and IARU contests using Reduced Bandwidth DATV.

5.6GHz

With the availability of the low cost (<£20) FPV FM ATV transmit and receive 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 we believe this will become an important band to attract newcomers to ATV and microwaves.

10 GHz

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

A number of stations are active with DATV on the band using standard narrow band transverters from 144 / 432 MHz to generate DATV signals on the band. The current best DX stands at 407Kms between M0DTS and G4UVZ worked during a tropo opening in October 2018.

24GHz

A number of stations are active on 24GHz ATV undertaking mainly portable work with the current best DX standing at 136Kms.

Higher bands

The first UK 47GHz DATV QSOs have recently taken place, at least 3 stations are active on 76GHz and M0DTS has successfully transmitted video on 134 GHz. A number of ATVers have purchased 122 GHz equipment and we expect to see some FM ATV activity on that band in 2021.

Oscar 100

The launch of the geostationary Oscar100 satellite has seen a large increase in activity and interest in ATV – over 150 UK stations are known to be operational on DATV

[https://wiki.batc.org.uk/QO100 DATV Users](https://wiki.batc.org.uk/QO100_DATV_Users)

The BATC WB spectrum monitor and NB web SDR have enabled everyone to get a glimpse of the activity and innovation on the satellite which provides coverage of 60% of the world's population.

<https://eshail.batc.org.uk/wb/>

<https://eshail.batc.org.uk/nb/>

TV Repeaters

Overall we currently have 42 TV repeaters licensed on the 1.3 GHz, 2.4GHz, 3.4GHz and 10GHz bands with a mixture of analogue and digital transmission outputs.

The BATC

BATC membership continue to grow with Oscar100 encouraging more stations to be active on DATV - the Portsdown DATV system proving to be a popular route back in to the hobby for many.

BATC believes that building a community of ATV builders and operators through online communities on the member's forum, providing a reliable source of relevant information on wikis and in the CQ-TV magazine and reporting activity on social media is fundamental to the growth we have seen both in ATV activity and BATC membership.

The BATC continues to support and drive initiatives with a program of awards and grants to recognize achievements in the community and the use of the BATC shop stocks otherwise difficult to source components for BATC sponsored projects.

BATC has actively supported the development of the Raspberry Pi4 / Pluto based Langstone narrow band transceiver project and the Ryde DATV set top box project.

In order to further increase operator numbers, BATC has awarded a number of prizes for contest winners and organizes a monthly activity weekend timed to coincide with activity weekends in neighboring IARU countries, thereby helping to promote the use of all our bands from 50 MHz up.