



UK Microwave Group

Report to RSGB Spectrum Forum

Introduction to UKuG

The UK Microwave Group represents the interests of amateur GHz bands radio enthusiasts in the UK. Its Committee is an elected body representing the interests of UK amateur microwave enthusiasts. The UKuG is open to membership for both UK and overseas microwavers. UKuG is now 19 years old, having been formed at the Martlesham Microwave Roundtable in November 1999 and it is affiliated to the RSGB. Current membership is over 500.

Events organised and supported during 2018

The Group organised and/or supported 5 specialist amateur radio microwave meetings (Microwave Round Table events) during the year. The oldest established event (Martlesham) has now been run annually for almost 40 years.

Club and outreach

The UK Microwave group has overlapping interests with BATC and AMSAT-UK, where those Groups use the amateur microwave allocations.

The group has members on the RSGB Board, the Spectrum Forum, Propagation Studies Committee, Contest Committee, EMC Committee, ETC Committee, Examination Standards and Audit Committees, IARU Committee, and one of our members Chairs the Technical forum.

Members have again visited a number of radio clubs to present talks on Microwaves or Millimetre-waves. The Group membership also provided several speakers at the RSGB convention.

Technical Support and loan equipment

To support amateur microwave operation, which is sometimes seen as a difficult and expensive part of the hobby, the Group has several 'loan' systems available for members to use. These are for 5.7, 10(2), 24 and 76GHz. These loaner systems are very popular, always out on loan and have, in some cases, a waiting list.

We also support the amateur microwave band beacon network by sponsoring the build of new beacons with financial help to purchase equipment, help with beacon applications and advice on system deployment. The presence of a UK and European beacon network provides microwave enthusiasts with consistent, known, signals to allow receive equipment optimisation. A new Beacon Coordination was appointed during the year.

Our free-to-members chip bank has thousands of surface mount components for members to use in their construction. The chip bank expands by thousand of parts each year, mainly due to member donation.

The UKuG has established regional representatives in G, GW, GM and GI, to assist local members in each of those regions with matters pertaining to amateur microwaves.

The UKuG Committee responded to the Ofcom consultations on 5GHz FWA and 5G telecoms near 24 GHz, as did several of our Group members.

Group members have been instrumental in setting up and running the first SDR GNU programming course. This took place at Kents Hill on the day before the RSGB Convention.

Publications

UKuG members write four of the regular columns in RadCom, write for Practical Wireless and regularly contribute technical articles and the European activity report for Dubus magazine.

Scatterpoint

The e-newsletter of the Group, under the Editorship of Martin, G8BHC, is published at least 10 times a year and continues to attract top-line technical articles as well as being a comprehensive repository of reports of activity.

Copies of the monthly magazine are available to members via Dropbox links. Older issues are available from the UKuG web site (issues for 2018 will become available at the end of December 2018). An annual index is produced for members.

Scatterpoint carries a regular activity report column, compiled by Neil G4LDR, which has detailed reports from members of their activities on the microwave and millimetre bands, illustrating the breadth of propagation modes and modes of operation in regular use. These reports cover Wideband, Narrowband and Machine Generated Modes (MGM) activity used for both local and DX operations.

Group web presence

The Group has established a Wiki, which is still in the process of being populated with amateur radio related material. The UKuG has several GHz related videos on its YouTube video channel. The Twitter feed @UKGHZ attracts many likes and retweets, highlighting innovation such as long-distance QSOs on the 47, 76 and 122, 134 and 241GHz mmWave bands. Our main website, microwavers.org, also provides listings for Operating Firsts/DX records, chipbank stock updates, regularly updated beacon maps and a rolling events calendar.

- Web: <http://www.microwavers.org/>
- Wiki: <https://wiki.microwavers.org.uk/>
- Twitter: <https://twitter.com/UKGHZ>
- Youtube: <https://www.youtube.com/c/UKMicrowaveGroup>

Our sister site, Beaconsport.UK, created and run by UKuG member G8APZ, continues to be very popular with DXers from VHF upwards. The domain had to be changed from .EU to .UK due to upcoming changes after Brexit.

Operation

The amateur radio microwave bands are under constant threat from many different radio organisations who would wish to use them for mobile broadband and other commercial activities. It is an ongoing struggle to keep on top of the various OFCOM consultations that could, if ignored, lead to the loss of the current allocations. Increased activity during contests, new beacons, deployment of new techniques, such as digital amateur TV, amateur satellite links in the amateur bands, such as those at 1.26GHz, 2.4GHz and 10.45GHz and wider deployment of data links, all help to increase our presence and help to defend our claims to use the higher bands.

The RSGB administers NoVs for the use of the 2300-2302MHz additional band and for use of frequencies above 275GHz.

A regular and popular 'Digifest' activity has been introduced during 2018. This Wednesday evening event attracts many users who arrange contacts using various digital modulation modes on 1.3GHz and higher.

The amateur bands above 100GHz have been increasingly used by radio amateurs and recently our highest (currently) band at 241GHz has seen successful contacts by UK microwave enthusiasts.

The number of UK amateurs now using moonbounce (EME) has increased sharply during the last few years and it is now routinely possible to work stations on, at least, the 1.3GHz band whenever the moon is above the horizon. Digital modulation using JT65, JT4 or QRA64 has enabled operation with smaller and smaller dish reflectors. A 3m diameter dish is now regarded as large by many operators!

Lightwave, also known as nanowaves, continues as a popular activity. Recent developments include transmitting and receiving digital TV using reduced bandwidth modulation techniques developed for the VHF bands.

Awards

UKuG Contests and Certificates

Trophy and certificate awards are made to the winners of individual UKuG organised contests on the microwave bands.

The UKuG Awards

Locator squares awards are made for confirmed contacts with defined numbers of locator squares.

An annual construction contest is operated by the Group. Separate awards are made by clubs or groups organising or staging the Microwave Round Tables. The winners of each of these goes forward to the 'grand award' made each year at the Martlesham event. The award is for the G3VVB trophy.

Microwave related achievements are recognised by the award of the number of trophies and awards, including the prestigious Fraser Shepherd, GM3EGW, award for research into microwave applications to radio communications. The G3BNL and G3EEZ Equipment and Communications awards commemorate two of our leading UK amateur band pioneers. The annual G3VVB award is presented to the best home constructed amateur microwave radio exhibited shown at one of the microwave round tables.

The Future

The use of software defined radio (SDR) in place of traditional direct modulation (wideband) and transverting to and from the microwave bands from a much lower band is now starting to become more common. The introduction of SDR radios with transmit capability, such as the LIMESDR are becoming popular as the way to access the low to medium microwave bands (up to 5.7GHz at present) with higher band capability promised soon.