RSGB Spectrum Forum
Microwave Manager Report Nov 2021

The Microwave Manager (RSGB MM) is responsible for looking after the amateur radio interests in the bands above 1 GHz and assists the RSGB on liaison activities with Ofcom. The RSGB MM volunteer also continues to assist the IARU to actively participate in the wider international regulatory developments that can impact our microwave bands regionally and chairs the IARU Region 1 Spectrum and Regulatory Liaison Committee.

Actions Arising: (From the 2020 Spectrum Forum Minutes) – None.

Summary:

Throughout 2021 restrictions caused by the Covid-19 pandemic have eased somewhat to allow a roll back of the travel limitations re-enabling portable microwave operating again. Throughout 2021 this has driven an increasing re-growth in activity across the range of bands with many operators enthusiastically returning to portable operations both for narrowband activity as well as ATV activity. Unfortunately scheduled social events such as rallies and microwave round-tables have continued to be difficult to plan and for the most part have not taken place. These events have been sorely missed by the microwave enthusiast community for whom these provide a valuable opportunity to swap ideas, equipment and plans.

Interest in the 122 GHz band has continued to grow with a second tranche of the VK3CV boards becoming available despite Covid-19 related problems with manufacture and delivery. A lively community of operators continues to experiment with system and operational improvements supported by a lively community on social media. Members of the UK Microwave Group have been following and engaging in these activities too (https://wiki.microwavers.org.uk/122_GHz).

Extending the use of digi-modes (in particular the WSJT mode Q65) up into the microwave bands has been a key area for experimentation and has enabled interesting contacts to be made particularly in the area of EME operating using stations less well equipped than previously thought necessary.

New stations are appearing on the microwave bands too with a growing availability of affordable technology and modern transverter designs. Some operators have found it possible to activate the mm-wave bands (e.g. 47 GHz and 76 GHz) with very simple equipment. Contesting continues to promote good activity especially in the lower bands (e.g. monthly UKAC SHF sessions) and both narrowband and ATV contests have provided opportunities to exploit the mm-wave bands to good advantage.

As ever, more activity in all the bands would be welcome as the commercial interests in using those frequencies are not diminishing.

- The “Langstone Project” continues to be supported by the BATC TV enthusiasts and brings the potential for a multi-band microwave transceiver project using off the shelf components.
- QO-100 satellite continues to encourage newcomers to involve themselves in 2.4 GHz and 10 GHz projects for operating through the narrowband and DATV transponders.
- The focus on the amateur services in the 23 cm band and the potential for ongoing coexistence with radio navigation satellite systems (e.g. Galileo) is intensifying as international regulatory work continues. This is an agenda item for WRC-23.

Detailed Comments:

1) 23cm and the “Galileo issue”

The situation here has not changed over the last year nor has the potential threat diminished. Studies regarding coexistence between the amateur and amateur satellite services and the Galileo RNSS system continue in both the European body CEPT and the international ITU. The objective is to study the need for and determine any new technical, operational or regulatory constraints on amateur operations to ensure the protection of (not just Galileo) all the global “Primary” RNSS services in the band. The IARU is actively engaged in both bodies with a goal to minimise the impact on amateur activities. (See https://www.iaru.org/spectrum/iaru-and-itu/wrc-23/agenda-item-9-1-topic-b/). There has been no let-up in the strong political pressure behind these activities and it is quite likely that some constraints on amateur operations will be forthcoming. Discussion of the topic will continue right up to the WRC in 2023 and beyond.

2) Other WRC related items

Here is a reminder of the other WRC related agenda items that could impact the amateur allocations above 1.3 GHz.

- Agenda item 1.14 will review the range 231.5 – 252 GHz and the existing or possible new primary frequency allocations to Earth Exploration Satellite Service.
- Under agenda item 1.2, the bands 3300 - 3400 MHz and 10 -10.5 GHz are under consideration amongst others for mobile cellular services in Region 2 (the Americas).
- Under agenda item 1.18, mobile satellite service spectrum in the bands 3300-3315 MHz and 3385-3400 MHz are under consideration for Region 2.

Even though some of these items may not directly address amateur services, (or our region) they do fall in band or in adjacent bands and could result in wider pressure on our allocations in the future. E.g. the band 3400 to 3410 MHz could find itself sandwiched between mobile broadband internet (5G) spectrum bands. Again the IARU represents the amateur services community in the international discussions and actively participates. (See https://www.iaru.org/spectrum/iaru-and-itu/wrc-23/)

Microwave Bands Round-up

1.3 GHz:

As mentioned above, work has started globally to study spectrum coexistence between the amateur services and radio-navigation satellite services in the band 1 240 – 1 300 MHz. Initial technical studies are under discussion and the work will eventually influence how we can use the band and it is possible that attention could fall particularly on the wideband modes such as ATV.

2.3 GHz:

NoV's continue to be obtainable in most of the UK and some crown dependencies for use of the 2 300 - 2 302 MHz part of the band and these can still be renewed for a further three years. Sharing the band with the primary user under the UK licence conditions (geographic and time restrictions) seems to be working well.

In Europe the range 2 290 – 2 400 MHz is under investigation as a tuning range for future railway communications and its use for mobile cellular services (and 5G) continues to impact and fragment the availability of the band in certain countries (especially in the range 2300-2400 MHz).

3.4 GHz:

Although the sub-range 3 400 - 3 410 MHz tends not to be included, many European countries have now issued 5G cellular licences in the 3400-3800 MHz range. The amateur allocation status of this band in the European region remains very weak from the regulatory perspective.

5.7 GHz:

Wi-Fi and other licence exempt services continue to expand across this band and whilst the amateur services are not causing any difficulties to those services, the "noise on the band" from the amateur perspective can be a challenge.

10 GHz:

No regulatory developments in this popular band. But note the WRC related activity in other regions.

24 GHz / 47 GHz / 77 GHz / 122 GHz:

No changes in these bands in the last year but interest in applications for automotive radars and short range device security scanners continues in and around the 77 GHz band.

134 GHz and 241 GHz:

No changes from the amateur perspective, however the availability of 'Spectrum Access: EHF' licences across three bands (116-122 GHz, 174.8-182 GHz and 185-190 GHz) continues. These will be reviewed in 2024.

>275 GHz:

The NoV process remains open for >275 GHz access. Possible new studies in ITU-R for new primary allocations for radiolocation systems and an identification for radiolocation applications in

the frequency range 275-700 GHz for millimetre and sub-millimetre wave imaging systems may result from preliminary agenda item 2.1 for WRC-27.

Barry Lewis G4SJH, RSGB Microwave Manager

November 2021