



## RSGB Microwave Manager Report Nov 2019

The Microwave Manager (RSGB MM) is responsible for looking after the amateur bands at 23cm and above and also acts as the liaison with Ofcom on beacon applications. Current duties also include some IARU/international matters.

**Actions Arising:** (From the 2018 Spectrum Forum Minutes) – None.

### Summary:

- QO-100 satellite availability has encouraged a high interest in 2.4 GHz and 10 GHz projects and operating for both narrowband and DATV interests.
- A small but dedicated group have continued to push the boundaries in mm-wave band achievements (specifically at 288 GHz).
- RSGB MM attended three UK microwave round table events during 2019. (Including a new Cardiff event).
- From an international regulatory perspective, European WRC-19 preparatory activities were completed during 2019 with RSGB MM attention focussed on WRC AI1.15 (THz bands), 1.16 (5GHz), 1.13 (47 GHz band) and 10 (New Agenda Items).
- RSGB MM personally supported the IARU engagement in the development of the CEPT WRC preparation for AI1.15 (THz bands) and 10 (New Agenda Items). The latter includes the “Galileo issue” in the 23cm band.
- The European regulators are looking into the 23cm Galileo problem too.
- Commercial and governmental policy interest in the lower microwave bands continues to put pressure on the amateur allocations especially in parts of the 2.3 GHz band but also the 3.4 GHz and 5.6 GHz bands.
- Interim IARU-R1 Meeting delegation on behalf of the RSGB.
  - Two RSGB microwave specific papers delivered.

### Detailed Comments:

#### 1) QO-100 – Es’hail-2 Satellite

The availability of the QO-100 geostationary transponder for narrowband and DATV amateur use since February 2019 has provided a major boost for activity and projects in the 2400 MHz (UL) and 10 GHz (DL) bands. Social media posts pay testament to the plethora of constructional projects associated with all elements of the equipment needed. The ease of operation, modest equipment requirements (see June 2019 RadCom article) and SDR developments have encouraged the activity as well as a good deal of publicity at round table events, radio club activities and in the special interest groups.

## 2) 23cm and the “Galileo issue”

Following a small number of interference events in Europe, work has started amongst the European administrations to develop regulatory guidance to minimise the risk of interference between the secondary service amateur operations in 1240-1300 MHz and the primary service Galileo navigation satellite system. Early measurements indicate good opportunities for mutual coexistence although it is likely that the amateur band plan may need to be adjusted to take account of primary user sensitivity.

In the UK the issue is less urgent due to our national arrangement with access to the range 1300-1325 MHz for amateur TV operations but vigilance is required to prevent wider reaching consequences on the availability of the band for amateur (and amateur satellite) services.

In addition, at the insistence of the European Commission a CEPT WRC agenda item proposal was revised and adopted at WRC-19 inviting studies into the matter under agenda item 9.1 of the WRC-23 conference. This is a standing agenda item relating to report back from the ITU Study Groups.

## 2) WRC-19 Preparation

The RSGB MM supported the IARU WRC-19 preparatory process for WRC agenda items 1.15 and 10 mainly. During 2019 the final European Positions were agreed on the following topic areas of interest to the microwave amateur community:

- The Radio Regulations will continue to enable the Amateur service to gain access to the bands above 275 GHz without any new restrictions if new bands are identified for land mobile and fixed service use between 275 and 450GHz at WRC-19 (which is likely).
- A “no change” position was adopted on adding a mobile service allocation in the primary amateur 47-47.2 GHz band.
- The secondary amateur and amateur satellite service use of the 5 GHz band remains unaffected in the European AI 1.16 position. For the range 5 725 – 5 850 MHz some countries (including the UK) are proposing a footnote to add the mobile service on a primary basis in some countries in Europe (the UK has already opened the band for WiFi applications).
- Despite strong push back from the IARU and some administrations, a proposal for the agenda of WRC-23 from the European Commission on the band 1260-1300 MHz was adopted. The IARU (and RSGB) has maintained support for the activity in CEPT but not in the ITU-R.

The RSGB MM volunteer continues to assist the IARU to actively participate in these international activities that can impact our microwave bands.

## Microwave Bands Round-up

### 1.3 GHz:

As mentioned above, work has started in Europe regarding spectrum coexistence between the amateur service and radio-navigation services in the range 1 240 – 1 300 MHz. A revised IARU band plan may be required.



### **2.3 GHz:**

The revised UK amateur allocation in 2 320 – 2 350 MHz following the 2015 Public Sector Spectrum Release (PSSR) continues to be available. The range 2 390 – 2 400 MHz has been identified for UK shared access local licensing to be coordinated by Ofcom and authorised on a per location, first come, first served basis. The RSGB welcomed a clarification from Ofcom that there is no intention to remove or change the amateur allocation at this time. 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.

During 2019 the 2 300-2 350 MHz band was highlighted in the PSSR programme as a priority band for future release. Within this range there has been strong interest in developing 2 345 – 2 350 MHz for emergency service applications in the UK.

In Europe the range 2 290 – 2 400 MHz is under investigation as a tuning range for future railway communications.

### **3.4 GHz:**

Although the sub-range 3 400 - 3 410 MHz tends not to be included, around 30 countries have now issued 5G cellular licences in the 3400-3800 MHz range. This transition to 5G services continues.

### **5.7 GHz:**

No new developments beyond the WRC-19 preparatory considerations (AI 1.16). Many operators in this band are noticing increased noise levels with the band open to broadband services and other uses.

### **10 GHz:**

No new developments in this popular band but need to be watchful for any new WRC agenda item proposals.

### **24 GHz:**

The band immediately above at 24.25 – 27.5 GHz has also been identified as a pioneer band for 5G in Europe. Although there are no provisions proposed to protect the primary amateur service specifically, protection for the earth exploration passive sensor band interests below 24 GHz have driven stringent 5G unwanted emission limits in the band 23.6-24 GHz that are helpful to the amateur service.

### **47 GHz:**

This was within the scope of the WRC-19 Agenda Item 1.13 discussions the band, but no changes to the amateur service status are expected.

### **77 GHz:**

No new regulatory developments.

**122 GHz:**

No new regulatory developments. Recently, some commercial operations in spectrum nearby have prompted new upcoming amateur activity.

**134 GHz and 241 GHz:**

No new regulatory developments. However new operating records are being set in these bands.

**>275 GHz:**

The NoV process is open for >275 GHz access. Experimentation in the 288 GHz band has continued with QSO distances increasing. Possible new studies in ITU-R for new allocations.

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