



# International Amateur Radio Union Region 1

## Interim Meeting – Vienna Austria

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**Subject:** Defending the bands from 1 GHz to 10 GHz

**Committee:** C5

#### **Background**

The growth in consumer and commercial wireless applications is putting increasing pressure on all the microwave amateur service bands above 1GHz. Many of the amateur service allocations have a secondary status in the international regulatory framework which leaves them particularly vulnerable in the face of concerted commercial and political pressure.

For amateurs, the lower microwave bands provide a springboard for developing interest and skills in the use of higher bands. Modern components, sub-systems, surplus equipment and software radio technology have improved their accessibility for experimentation and operation of high-performance amateur systems.

This paper reviews the bands in question and proposes actions for their defence.

#### **1240-1300 MHz:**

The Radio Navigation Satellite Service (RNSS) has a primary allocation across this frequency range and a large part of this band (1260 – 1300 MHz) has been developed for the European Galileo navigation system. This system has been under development for some time and the entire system is expected to be complete for full service by 2020. The GLONASS system also operates in this band below 1254 MHz.

Another, long-established, primary user is the radiolocation service (notably for long range en-route radars for civilian air traffic) with whom amateurs have been able to coexist for many years.

Although these developments may lead to some operational restrictions for certain amateur applications in this range, we should remain vigilant that these remain proportionate and realistic.

#### **2300 – 2450 MHz:**

The range 2300-2400 MHz is identified for IMT (cellular mobile applications) in the radio regulations but the take up for these has been patchy in Europe often due to other national priorities (in some cases governmental/defence). However, there is a regulatory framework for mobile communications in place and therefore some countries have been releasing the whole (or parts) of the range for commercial services which has resulted in part or complete removal of the amateur allocation in some countries.

There could be further national releases of parts of the band for other applications (e.g. emergency services, train communications) that might have an impact on amateur access to parts of the band.

The range 2400-2450 MHz (parts of which are important to the amateur satellite community) continues to be a focus for commercial short-range devices (including Wi-Fi). Despite their licence-exempt status, some countries have imposed severe restrictions on amateur operation (e.g. very low power limits) rendering it unusable for some applications.

### **3400 – 3410 MHz (3475 MHz):**

The amateur service access to this band is particularly vulnerable as there is no allocation to the amateur service in Region 1 in the radio regulations except on a secondary basis by footnote in two countries. However, the CEPT EFIS database identifies 20 CEPT countries that have identified an amateur service application in the band in Region 1. Recently, the range 3400 – 3600 MHz has been identified as a priority band for 5G communications in Europe (and therefore quite likely for auction in the coming years) and some regulatory bodies have questioned the identification for amateur usage in this context.

The current European regulatory documentation records that the range 3400-3410 MHz is still in use by some countries for land, airborne and naval military radars and is therefore not available for 5G communications use <sup>1</sup>.

Although proposed during the 2018 update process, the amateur applications for this range were not removed from the CEPT ECA table. However despite a request by IARU, the ECA17 footnote requesting that administrations pay attention to the amateur service in 3400-3410 MHz was deleted.

### **5650 – 5850 MHz:**

This secondary band sits across the top end of the 5 GHz Wi-Fi band and the 5.8GHz ISM band. The range 5725-5850 MHz is also within the scope of the WRC-19 studies under agenda item 1.16 and ITU-R Resolution 239. It is possible that a Mobile Service allocation could be made in this range opening the band for an expansion of Wi-Fi activity up to 5850 MHz (in the UK this is already enabled for indoor use). BFWA systems also exist in the 5725 – 5850 MHz range.

Most commercial operations in this band operate under a licence exempt (or lightly licensed) regime and therefore address a mass market. It is entirely likely that Wi-Fi operation will increase across the band bringing the potential for an increased receiver noise floor in both terrestrial amateur stations and amateur satellite service ground stations.

### **10 – 10.5 GHz**

This secondary band is relatively free of any immediate international pressures at the moment. Amateur satellite service developments<sup>2</sup> are acting as a catalyst for increasing narrowband and wideband activity and interest in the band. However, this large band may look attractive to commercial users and we should remain vigilant for any developments that might change this situation.

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<sup>1</sup> ECC DEC(11)06 Amended 26 October 2018

<sup>2</sup> Es' hailSat2 specifically. See <https://amsat-uk.org/satellites/geosynchronous/eshail-2/>

**Proposals:**

Member Societies are encouraged to raise the profile of microwave and millimetre wave band operation in the context of experimentation and innovation in amateur radio activity.

The following recommendations are proposed for ALL Member Societies:-

- 1) **Appoint a specific microwave manager** to help raise the profile of the interest in these bands. (The latest VHF Handbook currently lists just 8).
- 2) Engage closely with the activities of national administrations (e.g replying to consultations and attending workshops) relating to national spectrum management of the bands above 1GHz.
- 3) Member Societies should drive a position with their administration that unrestricted amateur services can successfully share spectrum with commercial users as demonstrated already in some bands.
- 4) Engage closely with national administrations to ensure that amateur stakeholder interests feed into international spectrum management developments.
- 5) Ensure that national administrations are aware of the interest and opportunity these bands provide for experimentation, training and learning.
- 6) Provide incentives to individuals and clubs to encourage construction and operation in these bands (e.g. awards, publicity).
- 7) Ensure national administrations understand the importance that the range of amateur allocated frequency bands provides in enabling differing opportunities and challenges for amateur activities.
- 8) Be ready to question any unreasonable national restrictions on amateur usage that appear disproportionate or unrealistic.

**Financial Implications:**

None directly.