Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title: **Managing the Spectrum above 275GHz**

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Name _ _ *Murray Niman, G6JYB* _ _ _ _ Signed (if hard copy)

Ofcom consultation on:-

Managing the Spectrum above 275GHz

Joint Response by the Radio Society of Great Britain, UK Microwave Group, Amsat-UK and BATC

December 4th 2008

Introduction

This response is a joint one to the above Ofcom consultation document from the Radio Society of Great Britain (RSGB, www.rsgb.org.uk) and its national affiliates who have microwave spectrum interests - Amsat-UK (www.uk.amsat.org), UK Microwave Group (UKuG, www.microwavers.org), and the British Amateur Television Club (BATC, www.batc.org.uk).

RSGB is recognised as one of the leading organisations in the world in the field of amateur radio. It collaborates with its fellow national societies via the International Amateur Radio Union (IARU) through IARU Region-1 (www.iaru-r1.org).

Amateur radio is a science-based technical hobby that contributes to education, innovation, skills and emergency communications. It is enjoyed by over three million people worldwide. From a statutory point of view it is fully recognised by the International Telecommunication Union (ITU) as a Service and is listed in the ITU Radio Regulations as the Amateur Service and the Amateur-Satellite Service.

In 2007 RSGB made an input to the first stage of this exercise, the Licence Exemption Framework Review (LEFR). We have since made a number of submissions to the regulatory process in Europe and the UK regarding exemption including a recent Ofcom consultation on limits in the 10-100GHz range. RSGB is also respected for its grasp of the >275GHz topic by IARU-Region-1 and further a field.

Compared to lower frequencies we believe there are substantial opportunities for innovation with lower risks of interference. Amateurs in the USA, Germany and (recently) Austria have had full secondary access and operational kit on these frequencies for some time. By comparison the UK position is being impeded by an overly conservative Ofcom stance and we would hope that this opportunity is used to more thoroughly review the entire position

We would be pleased to provide any additional information on request or participate in any future discussions, both with Ofcom or any other stakeholder who has an interest in this topic.

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RSGB, Amsat-UK, UKuG & BATC, December 2008

General Position

Whilst we welcome Ofcom's opportunity to what some may consider a relatively niche topic, substantial scientific and technological developments make these frequencies worthy of wider review:-

- Unlike lower bands, the substantial atmospheric attenuation, higher sky noise and inherently low transmitter powers greatly reduce interference risks.
- Ofcom is overly protective of an excessive number of under-utilised Passive bands which are not and in all probability will never be used outdoors in the UK and most of Europe, leaving acres of spectrum fallow
- We have no wish to endanger genuine passive bands such as those needed by Space/Environmental services (EEES)
- Ideally the Amateur Services would wish to have formal allocations at these frequencies. Austria and the USA for example permit Amateur Secondary operation throughout this frequency range. Amateurs elsewhere have pioneered these frequencies with two-way contacts being achieved at 241, 320GHz and 403GHz.
- Failing that we view a general exemption as potentially acceptable under conditions which permitted realistic powers, antennas gains and regulatory certainty
- A far more adventurous position is needed than Footnote 5.565 and WRC-11 AI-1.6 which risks hindering developments for years to come.

Questions & Answers

Q1: *Is 3000 GHz a reasonable value for the upper frequency limit for licence-exempt use?*

The answer to this is a straightforward **Yes** – it makes sense to align the upper limit to the Radio Regulations.

Q2: *Do you agree with the constraints specified for licence-exempt use of the 275-3000 GHz band?*

No, this is far too conservative in the lower bands (below 500GHz) where much innovation is already occurring and would be hindered.

We disagree with Ofcom re Option-2 as a full analysis of the impact of Footnote 5.565 as displayed in our illustrated annex shows that no operation would be permitted from 275 to over 400GHz.

Instead we advocate that guidelines originally developed for 5GHz RLANS would be more appropriate to use and present negligible risk to apply in bands where no terrestrial Radio Astronomy is occurring. This would result in the three basic rules below that would help spur innovation based on making available the Cyan blocks as well as the Green ones in our diagram.

- Power 2-4W erp
- Listen–before-Transmit
- Reviewable end of 2011

Such an approach would better align to equipment availability, powers and antennas for directional communications links - typically a few mW maximum and compact yet highly directional 20-30dB antennas.

In addition we would welcome the opportunity to collaborate more closely with Ofcom to improve the information into the WRC-11 preparatory process for AI-1.6 which calls for updates on services/developments.

Bands above 275GHz
The Impact and Opportunities associated with Footnote 5.565

In the graph below are the frequency blocks referred to in Footnote 5.565 plotted on the following basis

- X-axis: 275-1000GHz in 5GHz steps. Blocks text labelled with their upper frequencies
- **RED:** Space/EEES frequency blocks
- **YELLOW:** Ground based Passive Radio Astronomy frequency Blocks
- **GREEN:** Option-2 proposed exempt bands. ie 275+ less (Red & Yellow) leaving little below 500GHz
- **CYAN:** Additional Exempt spectrum if YELLOW was available in the UK and only RED excluded