# UK Microwave Group Response to RSGB questions.

## Introduction – a Group Perspective

Following many years of neglect of our science based industries and their importance in creating wealth for the nation, there are some signs that the importance of our technology based industries is beginning to be recognised again. The economists are now hoping that manufacturing will pull the economy out of recession, as they are beginning realise that the nation cannot survive on service industries alone. If this is to continue the nation needs to promote interest in technology at all levels.

It is sometimes very hard to get even a little bit of "science" into the material that the media carry, but the public imagination is stimulated much more readily by the more challenging aspects of amateur radio. Our members' experiences, especially with EME and its connections with Radio Astronomy have lead to a number of opportunities to promote the hobby favourably including BBC Radio 4 - "Questions Questions" on EME, Blue Peter - Aspects of Radio Astronomy, Talks to astronomy societies, Presentation on Amateur Radio Astronomy at the INTECH science museum Astronomy Weekend, Science and Engineering Week events featuring EME etc.

The UK Microwave Group plan to use the forthcoming EME conference in Cambridge (August 2012), which is likely to have at least one Nobel Physics laureate in attendance as a delegate, as a means of promoting the scientific credentials of our hobby.

During a recent visit by the chairman of the FCC to the booth run by the Chinese equivalent of RSGB/ARRL, the Chinese delegation presented a chart showing that 10 years ago there were virtually no hams in China. Today, there are about 50,000. Furthermore, they expect to have 500,000 in 10 years **because they firmly believe that it is important to the technological development of their country**.

## What are the external drivers that might influence the way in which the hobby develops?

### a. Technology

Technology has already "demystified" radio - everyone has a mobile telephone and uses WiFi; they may not understand how it works, but it has no intrinsic black magic for them, unlike in earlier eras.

We need to link into the way that people use the internet and applications to provide a novel extension of their experience, something they can't get elsewhere. Amateur radio offers some of the "unknown" in that you don't know who you are going to talk to when you call CQ.

Using the extremes of the spectrum explores relatively unknown territory, where there are still new things to be learned. A significant group of experimenters is now making long distance (100km+) contacts on visible red light frequencies as well as making first steps into communications using infra red devices.

One could say that amateur microwave is the only part of the UK amateur radio hobby

where the main driving force is technology and where home construction is the norm. Microwavers are frequently in the forefront and indeed pioneer ways in which we can improve weak signal communications in the bands above 1GHz. As receive front end amplifier devices producing lower and lower noise figures, RF power devices for transmit use and complete RF modules such as synthesiser chips come onto the market at affordable prices, we have highly technically able UK amateurs who are able to take advantage of them and design state of the art circuitry for the rest of us. SDR technology is also a major influence in the development of amateur radio in general, and microwaves in particular The FunCube is perhaps the most recent development in this area ... an amateur development with a big impact.

Amateur Radio provides opportunities for education and innovation in useful and potentially wealth creating technologies, so **it is vitally important that Amateur Radio positions itself as a useful science based hobby.**

## b. Spectrum usage

There is huge commercial pressure for prime spectrum, particularly at UHF so we need to fight for segments that can be used by the steadily growing use of amateur microwave communications in the face of interference limited spectrum planning. Perhaps we need some new amateur modes that can spectrally interleave with Edge, GPRS and CDMA, but we also need to convince licensing authorities that harmful interference will be kept to a low level.

That said, top priority must be the retention of some (small) clear bands on an international basis and amateur radio would benefit greatly from more spectrum allocations being made primary, even if it meant a reduction in the actual size of the present allocations.

**RSGB has a crucial role to play here.**

## c. Consumerism and social/economic trends

Consumerism drives the commoditisation of radio applications, and this results in low cost high performance technology becoming widely available. This then creates tremendous pressure on spectrum, as many of the technological innovations drive an increase in the man-made noise floor on amateur bands. The demand from industry to drive down consumer prices appears to have led to a deliberate policy adopted by Ofcom that all services should be interference limited rather than attaining intrinsic physical limits. This impacts on all weak signal modes and should be opposed.
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Consumerism (e.g. the "black box" syndrome prevalent on frequencies below 1GHz) does not yet have a major impact on UK microwaves where the majority of amateurs construct their own equipment, but this is changing, with a number of suppliers (Kuhne, Down East Microwave) producing fully assembled transverters and the like.

One major concern to the UKuG is the poor public understanding of the effects of RF fields. There is concern that Planning or Health and Safety may have a disproportionate impact on microwavers. A worrying trend is the requirement in

Australia and some European countries to measure/calculate ERPs and register them with regulators.

**The RSGB should elicit the support of the many experts in the special interest groups to help them be proactive in working with regulators to address this.**

**The UKuG offers to be at the forefront of this**

The rising average age of amateur populations is very obvious among amateur microwavers where the average age is probably in the mid to high 50s and where there is a disturbing lack of younger amateurs, especially from the Foundation and Intermediate licensee groups. Intermediate licensee restrictions limit them to 50 watts, not a big issue on bands above 1GHz.

**There is a great need to encourage Intermediate licensees into the technical side of amateur radio.**

## 2. Internally

### a. In what areas of technological innovation and change should the RSGB be prepared to support its membership?

The microwave spectrum is an important area, with great commercial focus and plenty of opportunity to take up the developments made for consumer markets and apply them for amateur purposes in a way that demonstrates the value added by amateur radio.
**Radcom and the RSGB need to influence technological change**. In past decades, Radcom was the driving force behind the developments in UK microwaves; not so today. It is a perception amongst some of our members that RSGB feel microwaves to be an unimportant, minority interest! This led UK microwavers to form their own organisation, with a monthly journal, to support radio amateurs in this area of the spectrum. Today the UK Microwave Group has some 400 members in 23 countries and is the largest such group in the world.

### b. How would you characterise your/your Committee's relationship with HQ and the Board and how might it be changed / improved?

After a rather uneasy relationship in the late 1990s and early 2000s, especially after the RSGB Microwave Committee was disbanded with no warning to its committee members, the independent UK Microwave Group now has closer links with RSGB, but the perception still persists that microwave is viewed as a minority pursuit and of little interest to the RSGB Board.
That said, the RSGB's Spectrum manager is a key member of the UK Microwave Group Committee and UK microwave beacon planning has also become the responsibility of UK Microwave Group. UK Microwave Group is now an Affiliated Society but remains entirely autonomous and self supporting, and would prefer to stay that way.
**However, we see many benefits in forging even closer co-operative links with RSGB, especially at Board level.**

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## c. Is there some crossover between your Committee and other RSGB Committees or Working Groups? If so, how well are the interfaces working, is there scope for improvement and do you have any proposals for improving these linkages?

Some crossover exists with the RSGB Contest Committees. We are already using the RSGB CC web site for contest entries, but there could be closer liaison on contest rules and calendars however. Cross membership with the RSGB CC has been proposed but not yet implemented.
There could be better co-operation between the RSGB Contest Committee and UK Microwave Group, particularly in relation to two important microwave Contest Trophies for 1.3 and 10GHz. UK Microwave Group would like to take over administration of these two trophies and their relevant contests, leaving the RSGB Contest Committee free to concentrate on their area of the spectrum.
Much of the innovative work within amateur radio has been lost to the RSGB by the "floating off", or at least the disconnection, of the "special interest" groups such as UK Microwave Group, BATC and AMSAT. While I'm sure all these groups are happy with their independence, there is scope for more co-operation.

**If the RSGB is to capitalise on the re-branding of Amateur radio as a modern Science-base Hobby it needs to promote and publicise the activities of these "special interest groups" much more vigorously.**

Dr John C Worsnop CEng MIET
Chairman UK Microwave group
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