

## General Comments

- *I am a user these bands and other amateur microwave bands*
- *I am a member of RSGB and associated specialist group UKuG, BATC*
- *My use is typical narrowband, beacon monitoring and little ATV*
- *Shouldn't the MoD be determining the operational characteristics and licensing constraints in the adjacent bands to the Spectrum Release bands as there is NO RSA in place.*
- *Will the same protection criteria for the Spectrum Release bands also be imposed on the primary user's (MoD) of the adjacent bands?*
- *The technical characteristics of equipment to be used in the Spectrum Release bands appears poorly defined as it will be susceptible to interference from adjacent bands (poor RF filtering). Constraining the use of adjacent frequency bands is not efficient spectrum usage. It looks as if industry is dictating spectrum policy*
- *Question 1 implies the only user of 2350-2390, 3410-3475 MHz are amateurs that would make the amateur service Primary service in that case more weight should be given to the needs of the amateur service.*
- *Under 2.16 of the consultation document Ofcom has a third key obligation to ensure that the new civilian use of this spectrum is efficient and will not cause interference to other users in these bands or adjacent bands nor restrict the use of the adjacent bands now or in the future.*
- *The unpaired 2GHz band as well as the 1.4GHz band have lay fallow for many years so why to mobile operators need the *Release bands*?*

## Questions and Answers

### The release bands (2350-2390, 3410-3475 MHz)

*Q1. Do you agree that it is likely that the benefits to UK consumers and citizens will be greater from the MoD's release of spectrum in the 2.3 GHz and 3.4 GHz release bands than from retaining the current amateur use?*

A1: By definition the Amateur and amateur satellites services are non-commercial. It is therefore Impossible to compete on the same terms as commercial Mobile services and the comparison inappropriate. The question is there for unfair. It is recognised that the UK benefits significantly from modern RF/microwave (wireless) technologies –

The releases of these bands is unlikely to significant benefit consumer:-

- The release of the 2.3/3.4 bands will not make any significant contribution to consumer/citizen, consumer/citizen need reliable connectivity over a large area, this would better provided by lower frequency, alternatives such as 700/800/900MHz that have far better reach and building penetration. Tablets and other portable devices are predominantly Wi-Fi based in 2.4GHz with 5GHz Wi-Fi use increasing in future. Without 2.3 and 3.4 bands being harmonised worldwide or at least within Europe the benefits could be negative (UK consumer/citizen paying high prices for a poor service)
- Careful technically planning needs to be undertaken before Spectrum releases to avoid greater damage than net benefit – as identified by both amateur and commercial responses to the recent separate consultation on LTE vs 2.4GHz exempt use. That quite clearly showed there is genuine concern regarding net damage to valuable consumer use of 2.4GHz Wi-Fi and other exempt devices, from the adjacent 2.3GHz release. It is disappointing to see there is no consensus on a single standard for the 3.4GHz band,

- Apart from exempt Wi-Fi, no Time-Duplexed (TDD) wireless broadband spectrum/technologies have succeeded in the market. GSM(2G), UMTS(3G) and LTE(4G) are predominately or exclusively Frequency Duplexed (FDD). No FDD option exists for the 2.3GHz band. Previous examples of TDD have been the 'unpaired 2GHz' bands for 3G. These had no interest and have lain idle for many years (as has the 1.4GHz band). This shows that TDD is detrimental to their original users who were cleared, with no benefit to any consumer/citizen, industry already has far more spectrum than it can effectively use - or can incorporate in multi-band handset for consumers.
- It is of considerable concern that the number of experienced senior RF engineers in the UK is rapidly declining (and many are licensed amateurs). In these bands the self-training aspect of amateur radio is considerable as it is all homemade or adapted. In the past, amateurs have given considerable service to the nations and regains. Radio amateurs are employed many RF companies in the UK.

*Q2. Are there current uses in the release bands other than those detailed in RSGB's band plan and discussed in Section 3 of this consultation?*

A2: In the Ofcom document summary in Section-3 and additional data in Annex-6 appear to have covered existing armature use quite well. It is a shame that Ofcom seems to have lost the equipment and or technical skills to measure the power in adjacent the channel that it once had.

*Q3. Are there further consequences of removing the release bands from amateur licences that have not been considered in our analysis?*

A3: If not mitigated, the size/nature of the release bands and the consequential changes in the adjacent bands, will detrimental to analogue ATV There are also some consequential changes to licensing guides/specifications for NoVs (repeaters, beacons etc) and the RCF Examinations that would need changing.

### **The adjacent bands (2310-2350, 2390-2400, 3400-3410 MHz)**

*Q4. There is an option (although not preferred) to remove access to the adjacent bands, as well as to the release bands. What are the consequences of removing access to the adjacent bands from amateur licences?*

A4: I would consider such a step a serious and disproportionate step with a far wider impact than the release bands. ITU and CEPT decisions full accept ongoing use by existing services specifically including the amateur service on a secondary basis. This will not just impact on UK users but also has an extended impact on European. European Amateurs who have narrowband and ATV contacts with their UK Amateurs, and rely on reception reports of the UK propagation beacons. It will also impact on technical articles and collaborative experimenting worldwide.

*Q5. Are there current uses in the adjacent bands other than those detailed in the RSGB's band plan and discussed in Section 3?*

A5: Not that I am aware..

*Q6. Are there additional mitigation measures which would provide demonstrable proof that amateurs would not cause interference into LTE in the release bands following the release?*

A6: My understanding from groups I belong such as RSGB, AMSAT, UKuG and BATC is that around 90% of our membership are very experienced Full Licensed Amateurs.

I also understand that UKuG, BATC are willing to extend their existing network of technical support, to support amateurs regarding best practice, filtering, test facilities etc. This would complement existing services such as the RSGB EMC service and advice. Many microwave events

already feature sophisticated test equipment facilities to achieve high technical standards and considerable attention is paid to construction, optimisation, frequency stability, testing. Repeaters and beacons usually have remote control facilities and automated monitoring - these could be extended for early detection/mitigation of any faults

*Q7. Do you agree with the proposed process for varying licences following cases of reported interference and our proposal to vary licences should dealing with the number of reported cases become too onerous?*

A7: As Ofcom stats, there are very few cases of interference. Many amateurs who monitor the bands alert the current Primary Users to unusual operation or fault conditions from professional services. To my knowledge there has never been serious case of interference to from armatures in these bands

Ofcom has plenty of existing powers available to Ofcom, should a case of harmful interference be proved then Ofcom should focus on the individuals or particular systems that might be at fault.

The proposed modification to the main frequency schedule follows established practice, my greatest concern is the additional closedown clause, creates more uncertainty than.

I also have concern that it may be open to manipulation, whereby amateurs are unfairly blamed by other organisations or other individuals with a vested interest in order to precipitate a band clearance.

*Q8. Do you agree with our preferred option?*

A8: I do indeed prefer to retain as much spectrum as possible to facilitate flexibility and future innovation and thus agree with Ofcom's preferred option.

should spectrum in 2300-2310 which is allocated by the ITU and CEPT to the amateur service be made available in the UK, I would suggest the UKuG and the RSGB would be prepared to discuss re-plan that might be of greater benefits both amateur and Primary Users in the long term.

*Q9. Are there additional changes to the Amateur Radio Licence which would assist amateur in lowering the risk of causing harmful interference to new uses?*

A9: The amateur radio licence is a statutory document so I am not in favour of additional changes at that level. However if Ofcom could find a way of speed up the clearance procedure for beacons, voice repeaters and ATV repeater and the issuing of NoVs. This would allow a larger network of repeaters and would mean that the users would need less power to access them, thus less likely cause interference. By speed up the clearance procedure changes to mitigate any perceived interference would also be quicker – repeaters have a typically EIRP of 25W.