



## ***Chelmsford Amateur Radio Society***

*Established 1936*

*Affiliated to the RSGB                      Club Callsign: G0MWT*  
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## **Response to Ofcom Spectrum Framework Review**

### **Introduction**

Chelmsford Amateur Radio Society (CARS) is a vibrant club with over 100 active members holding amateur radio licences. Based in and around Chelmsford, Essex, it is nationally recognised as playing a very active role in amateur radio across a wide range activities including social, operational and development/training aspects. The club is affiliated to the national body, the Radio Society of Great Britain (RSGB).

CARS members collectively have a huge range of technical experience and operate from HF to the microwave bands. With roots going back to the 1930s, the club draws much of its membership from professionals in the electronics and radio field. The club incorporates a dedicated training team who have been strong supporters and implementers of Ofcom's current amateur radio licence structure and training/examination regime – training 50 licensees a year.

Following meetings and exchanges with our membership during the past few months on this topic, we enclose below the following responses to the Ofcom consultation document entitled the 'Spectrum Framework Review'.

**Q1:** Are there any other major medium to long-term spectrum management issues that this review should be considering? Are there any other significant technological or market developments that this review should be aware of when developing its thinking?

A1(a) Ofcom should allow scope for future development of new technologies that may not have been introduced as yet. Consideration for the management of the spectrum for the latest development should also relate to the bandwidth it requires, or the degradation in noise floor and interference its generates to others, thus allowing space for new technologies. To just release spectrum without considering future developments and technologies will limit progress and is short sighted.

Releasing spectrum to often largely unlicensed technologies on a vast uncoordinated scale (e.g. Car key fobs, Short Range Devices – SRD's, UWB, CAR Radar, LANs etc) can potentially unleash a proverbial Pandora's box of problems to the public at large, totally undermining the benefits Ofcom otherwise believes in. Ofcom rightly states that the EM spectrum is a finite resource, and therefore it is important that unnecessary EM Pollution is avoided. Fundamentally, a light touch, free-market philosophy is not always appropriate.

A1(b) Amateur Radio has been the starting place for many innovative mode of communications and careers in the electronics industry. It has a wealth of radio related expertise and in time of emergency a voluntary resource that can be relied on to be available, any time (and at no cost).

A1(c) It is disappointing to note that compared to the former Radio Communications Agency, Ofcom has severely curtailed its presence at Amateur Radio events, and its own national forums. The second part of this question could be better dealt with if Ofcom were to hold regular user forums with all stakeholders and license payers, as well as to consider our response in Q2 below.

**Q2:** Do you believe it is useful to publish a compendium of issues? How frequently should it be published? What information should be included?

A2(a) **YES**

A2(b) Every 3 months, allowing time to digest the contents and make an informed response on the issues raised. Traditional frequency allocation tables are a useful and recognised method, but in the current circumstances suffer from critical lack of detail on standards, power and bandwidth.

A2(c) Information should be included informing the spectrum user of what is planned, by whom, how it fits in within EU, ITU and World harmonisation, taking note of who has a primary allocation (even those in a listening mode only - Radio Telescopes). Radio waves are no respecter of borders - even VHF and UHF ranges are over the horizon and beyond.

A2(d) A comprehensive national allocations database should be made fully available in the public domain complete with interactive search and display tools. This would provide invaluable assistance to Radio Amateurs, industry, broadcasters, the public sector and Ofcom alike to make more informed assessments.

A2(e) The index of data and documents on Ofcom's own website also needs to be reviewed to reduce the fragmented nature and excess number of clicks to navigate. The status of current consultations should be easier to assess. Under the Freedom of Information Act, consideration should be given to immediate real-time viewing of responses to consultations, provided the respondents have agreed to full disclosure. This is essential when linked and overlapping consultations are occurring as at present.

**Q3: Are there any other issues of sufficient significance to merit mention in this document?**

I feel that the Consultative Document and suggested actions have serious implications to the future of Amateur Radio, which should be regarded as a National Resource and Asset. In particular the following are of greatest concern:

- A3.1) The proposal to withdraw from Amateur Licences will encourage a free for all by new entrants on the present Amateur bands, and undisciplined attempts at communication could result in increased levels of abuse and interference. A similar approach to licensing Aeronautical Radio should be adapted across to Amateur Radio; as the same importance and intent applies here to.
- A3.2) The disregard of existing international agreements such as those in force with the ITU and EU can only result in disruption to international amateur communications.
- A3.3) Cognitive Radio will interfere with Radio Amateur stations operations without warning resulting in a major problem to the normal operations within.
- A3.4) Ofcom have previously agreed the recently revised three-tier Amateur Radio License structure. It has a 'Foundation' entry level point accessible by a broad age range from 8 years to OAPs. We see no sense in making it easier as the resulting entry level would fall far short in critical areas, namely safety interference etc. It is correct now, and serves the purpose it was designed for a safe and educated progression from Foundation, Intermediate to Advanced with correct safety / instruction for each licence category gained.
- A3.5) The deployment of Ultra Wide Broadband transmissions, is a form of EM pollution. Wide bandwidth transmissions, be they at HF from broadband over domestic power supply (PLT/BPL), or in the microwave bands, such as 21-26GHz car radar, would constitute a major source of electronic pollution / RF smog. In time this may be so bad that loss of life may result due to critical information being corrupted in high RF smog areas.

**In the UK, Amateur Radio provides the following National and International facilities:-**

- A3.6) As a hobby it nurtures a source of interest and expertise and encourages careers in the electronics industries and services. Without this entry point many young people will have never perused a technical based career leading to a slow and potential skill shortage that is being seen in other areas of industry (Teaching, Doctors etc).
- A3.7) Amateur Radio operates and maintains National and International emergency communications networks for disaster relief including Lockerbie air crash, New York's September 11th, and the Tsunami aftermath. Due to the construction of Amateur Radio equipment operation from portable / mobile power sources is possible and the reliance on national power grid / domestic supply is unnecessary. Also its application to assist in countering the effects of a major terrorist attack should be recognized. There are some 60,000 licensed radio amateurs in the United Kingdom and within this an emergency network of volunteers (Raynet – see Lockerbie air crash).
- A3.8) Amateur Radio overcomes cultural, ethnic boundaries, language and disabilities (Sight, Sound) to allow a multitude of modes communications to be used and developed.
- A3.9) Amateur Radio has been the starting place for many innovative modes of communications and career in electronics. It has a wealth of radio related expertise and in time of emergency a voluntary resource that can be relied on to be available, any time (and at no cost).
- A3.10) Ofcom's recent record has been to show insufficient respect for Primary users on a number of allocations/applications.- Radio Amateurs, Astronomers/EarthScience etc This is to be deplored. The Framework review says little regarding 'rights' and their protection.

**Q4:** Are there important lessons to be learnt from experience in other countries that is not addressed here?

**A4** The countries quoted in the document are hardly representative of a crowded island such as the UK. It is ludicrous to suggest certain countries as examples of best practice. We would urge co-ordination with the EU.

We are led to believe the USA have only been re-auctioning spectrum after the previous occupiers business has failed.

**Q5:** Do you agree with Ofcom's intent to maximise the use of trading and liberalisation?

**A5(a): In short NO.** The document fundamentally assumes that 100 years of 'Command and Control' was wrong. This is simply wrong, as many achievements and breakthroughs have occurred under this. Our own experience of the former Radiocommunications Agency was generally a good one as it was largely a understanding consensus organisation, staffed by Engineering professionals, many of whom were also Radio Amateurs and responsive to our and others needs. Many of the RA staff have left since the formation of Ofcom, undermining a realistic approach.

**A5(b)** Trading etc is a free market philosophy and can only work if there is balanced and fair supply, demand and competition. This simply is not the case, and the entire 'Spectrum Trading' concept is flawed

**Q6:** Are there other areas, apart from those identified above, where trading and liberalisation should be restricted? Are there areas identified above where you believe the trading and liberalisation could be fully implemented?

**A6(a)** You have identified areas including Amateur Radio where trading and liberalisation should be restricted but have all ready ignored primary status and allocated to some wholly inappropriate application to some Amateur Radio spectrum - 24GHz and 79GHz to start with.

**A6(b)** Having identified these areas, including Amateur Radio we would answer NO. Amateur Radio is a world-wide pastime, which lays the building blocks for all radio, related innovation. See A3

**A6(c)** We are aware that there is to be a separate consultation on Amateur Radio Licensing. Consideration should be given as part of this to simplification, and plainer English, of the current Ofcom BR68 documents, which define Amateur Radio operations.

**A6(d)** Applications for Amateur Radio Repeaters and Beacons, which are usually built to more stringent technical standards than commercial operators, are regularly faced with numerous regulatory clearance obstacles, undermining vital national infrastructure. There should be additional delegation to the RSGB and an obligation on the authorities to be more open and accommodating.

**Q7:** Do you agree with Ofcom's approach to providing spectrum for licence-exempt use?

**A7(a)** NO. Licence exempt use should be in defined bands where power levels and standards are mutually compatible

**A7(b)** Please bear in mind the primary and secondary users on any band. Incompatible systems will lead to much investment being wasted along with aggravation for the new end user. A prime example is the use 433.920MHz for car key fob entry systems. One transmission on the 70cm band (and not necessarily a radio amateur transmission) will render the entire alarm system locked out. The AA and RAC receive thousands of callouts each year on account of such poor frequency planning.

**Q8:** Is Ofcom's proposed methodology to estimate the amount of spectrum provided for licence-exempt use likely to deliver the right results?

A8(a) **NO.** Ofcom should realise that the modest amount of spectrum around 2.45GHz for example has seen some of the most explosive and innovative growth, yet the Framework review suggest that this will be adequate for the future.. CARS notes that Ofcom has also started a review of 2.5-2.69GHz and urges the exclusive allocation of at least 50MHz of bandwidth to extend the upper end of the 2.45GHz ISM band for low power unlicensed devices.

A8(b) The threshold and scaling employed for the coloured spectrograms in the appendix limits the results. To measure vacant spectrum against a reference signal of a TV transmitter will put all weaker transmissions down, as if they are just background noise. This will lead to a false conclusion, whilst gratifying to Ofcom's plans, of a vacant and underused spectrum. Also Radio Amateurs only transmit for short time intervals utilising the remaining time to receive a reply that are invariably of a weak signal nature.

**Q9:** What is the appropriate timing and frequency bands for making available any additional spectrum needed for licence-exempt use?

A9 **CARS cannot support the release of any frequencies, allocated to Radio Amateurs, for licence-exempt use.** See A8a above regarding 2450-2500MHz. CARS also recommends an accelerated migration of SRD's out of the 430MHz band away from higher power Primary and Secondary users.

**Q10:** Do you agree with Ofcom's longer term proposals for spectrum trading?

A10 **NO.** No actual trades have yet taken place in the UK, and so the presumption that trading is operational and the correct method is therefore flawed. There needs to be more study from the feedback created from this consultation input.

**Q11:** Is the approach set out here, and in Annex H, for developing technology-neutral spectrum usage rights appropriate? Are there alternatives?

A11(a) **NO.** Annex H concentrates on Cellphone operators and not necessarily appropriate for other users or systems. There needs to be clear guidelines to prevent an uninformed and lawless free for all.

A11(b) Neutrality can be viewed as an abdication of responsibility by the regulator. Consideration and favour should be given to scoring systems based on power, bandwidth, overall spectrum occupancy, coexistence/compatibility and interference potential.

**Q12:** Should Ofcom do more to resolve interference?

A12(a) **YES.** Ofcom is the only body that can resolve interference with any enforcement, and need to be far more pro-active than it currently is.

A12(b) Ofcom should have regard for the new EU position recently enshrined in law on EMC issues with regard to Amateur Radio. The withdrawal from EMC testing by Ofcom Whyteleaf department is a serious backward step. Even the tendering out of this service has serious implications on the validity of the EMC testing standards if Ofcom has no direct control over the methods of EMC testing. Also see A3.1 There are an increasing number of example of imported consumer electronics breaching EMC standards. Equipment is frequently displaying CE test labels, when clearly the items/designs have not been tested. RF interference from switch mode power supplies, which radiate via electrical supply wiring, is a frequent occurrence.

A12(c) Interference enforcement by Ofcom Baldock is essentially by a handful of personnel and has woefully inadequate resources compared to current demand. As that demand will inevitably rise in line with Ofcom's policy of increasing spectrum occupancy, a major review and accelerated investment is urged.

A12(d) Ofcom's desire to deregulate Amateurs, Aeronautics and Maritime should not weaken the linkage of these stakeholders to Ofcom and their ability to request for enforcement action.

A12(e) We urge Ofcom to deploy a national monitoring network at VHF-Microwaves as rapidly as possible with proper ability to assist with enforcement actions, rather than just to assist with occupancy/trading. In particular it should have good ability to spot and locate 'sporadic' sources by pattern recognition such as 30 second bursts of pirate music playing.

A12(f) Amateur Radio operators, being numerous in mature, and often equipped with a considerable range of receiving equipment, should be considered to be a resource that can be called upon to supplement interference monitoring

**Q13: To what extent should Ofcom intervene in promoting innovation?**

A13(a) OFCOM should review the situation to ensure that innovation is neither impeded or ignored on a regular time frame. Its Impact Assessments should explicitly consider whether an applicant is truly innovative, and whether it would potentially block other innovations at a later date due to excessive bandwidth/noise etc

A13(b) Amateur Radio is a huge free national development resource manned by 60000 people who innovate on a daily basis. Ofcom should consider its duty of care to protect and foster this source of innovation.

**Q14: Do you agree with Ofcom's proposed approach to harmonisation?**

A14 **NO.** It appears Ofcom has no harmonised approach in respect of EU / ITU or other band users. Do look at the wider picture of what other Radio Regulatory Body's are doing in respect of harmonisation in the EU / World. To just "go it alone" as advocated in paragraph 2.5.1 of the Framework Review will have consequences on EU co-ordination, equipment costs to the end user and interference issues for all concerned let alone the chaos it will cause.

**Q15: Can you foresee any problems with the proposed approach to harmonisation other than those listed above?**

A15 See Response A14

**Q16: Do you agree with Ofcom's proposal to continue with division by frequency as the primary method of dividing the spectrum?**

A16 Frequency division should be continued as the primary method allocating Licences to users.

**Q17: Is Ofcom's approach of not Intervening to mandate entitlements in time appropriate?**

A17 **NO.** The uses of cognitive radio systems and similar technologies have little regard to the Radio Amateur and can cause interference to all band users. Command and Control management must be implemented to ensure interference issues are avoided. Ofcom highlights the 'hidden terminal' problem and the risk of interfering to receivers or other weak signal flux systems. This is a fundamental problem and can only be resolved by limiting cognitive systems to defined bands

**Q18:** Do you agree with the RIA?

A18(a) **NO.** Assessments seem to be based purely on monetary gain only. CARS notes that there is a new Ofcom consultation specifically on Impact Assessments, as no doubt it is conscious that the current process has flaws.

In making assessments Ofcom must have regard to International obligations, minority stakeholders, safety, innovation, science, and education/training.

It is quite clear that genuine preparation and research, including true consultation, customer and stakeholder focus groups etc. are not occurring prior to major policy documents. Otherwise many of the comments made in this reply would not have been necessary

A18(b) More scientific judgements must be used to assess interference and overall spectrum occupancy. Traditional models can't easily account for wideband or multi-carrier waveforms, and scenarios with many thousands of rf devices per square kilometre.

Current assessments of interference only deal with impact on Primary users, and not necessarily of the ability of systems to operate in the presence of interference from Primary users

A18(c) Ofcom policy boards employ consultancy firms, which are too closely linked to Ofcom staff, biasing policy and impact assessments.

Ofcom also needs to implement an Appeals procedure as its accountability for decisions is lacking. CARS envisages that if reforms are not made, Ofcom lays itself open to intervention by Judicial Review.