



# ‘Spectrum Release’ & amateur radio

**THE DEMAND FOR SPECTRUM.** In the early days of wireless, amateurs were permitted to experiment with what was then seen to be unusable or uneconomic wavelengths above 2MHz (prior to HF DX being established); then later a similar free rein at the then heady frequencies above 50MHz. Times have changed and now most of the demand comes from the commercial mobile phone/broadband sector in the so-called ‘sweet spot’ UHF range of (see **Figure 1**). At these wavelengths traditional spectrum holders, which include governments, aviation, maritime and terrestrial broadcasters, have been faced with inexorable demands for ‘releasing spectrum’ to support mobile broadband – despite their own growing needs such as HDTV.

**VALUABLE WAVELENGTHS.** Consumers and government obviously see mobile communications and internet access as a vital ingredient for a modern society and economic growth. However, in the ideal frequency range for mobile applications there is a finite amount of bandwidth. Thus existing users have been faced with various initiatives to encourage either more efficient use, or wholesale release, in favour of the mobile community.

The first real sign of how valuable spectrum could be was the astonishing £22.5bn paid to the UK Treasury for 3G frequencies around 2.1GHz in April 2000. In these more austere times, realism prevails but we now have the era of smart phones and tablets needing more mobile broadband spectrum. Ofcom has set a minimum reserve price of £1.3bn for the imminent 4G auction, with most forecasts in the £2-4bn range for about ~70MHz of spectrum that the TV broadcasters have vacated at 790-862MHz (plus additional but lower value spectrum at 2.5-2.7GHz). The main impact from that will be an interesting change in TVI issues, but so far no amateur spectrum loss.

**PRESSURE ON AMATEUR ALLOCATIONS.**

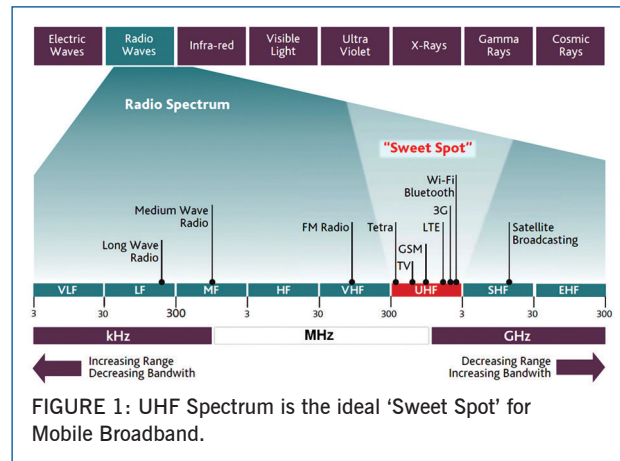
The 4G auction will not satisfy demand. A real problem for amateur radio is that all our allocations in the 430MHz-10GHz range are on a secondary basis and that leaves us vulnerable to changes in Primary Usage/Users. Of particular note is that 2.3 and 3.4GHz are Primary Mobile allocations. Despite the difficulties, we have managed to share with traditional users, but sharing with revenue-earning high density base station networks is clearly a very different situation if our fellow incumbents are forced out. The 2.3 and 3.4GHz bands were designated for future mobile telecomms use at WRC-07.

Even before then, RSGB was alert and had made inputs in 2005 to a UK spectrum audit conducted by Professor Martin Cave. Since then we have engaged with Ofcom, the Department for Culture, Media and Sport (DCMS), CEPT and most recently the EU Radio Spectrum Policy Programme. Both the DCMS and EU RSP focus on auditing and releasing further spectrum in the 400MHz to 6GHz range with candidates including 700MHz TV spectrum (DSO-2), 1.45, 2.3 and 3.4GHz.

RSGB and its partners have continued to both raise awareness and make inputs at both national and international levels in order to ensure the amateur case is heard and our usage is understood. The Spectrum Forum web pages have copies of many of these and in recent times IARU Region 1 has increased its resources for these bands, as well as more traditional goals in HF and participated in various CEPT committees. At the top level the IARU Council also extended the term of its Future Spectrum Committee, which has a remit for the long term strategy for all bands above 148MHz.

**3.4GHz.** The two most challenged amateur bands are 2.3 and 3.4GHz, both of which are nominally managed in the UK by the Primary User – the MoD. For 3.4GHz there has long been recognition that 3400-3410MHz is where we should focus our activity as it is also harmonised in Europe with other amateurs (under European allocation footnote EU17). Some time ago the MoD applied for Recognised Spectrum Access – the first step in changing the licensing arrangements in the band, though subsequent steps have been slow. UK amateurs migrated from the 3456MHz narrowband centre long ago, so ironically we have now reached the point that further delays in ‘releasing’ 3410-3600 are now having a negative impact on ourselves, as such new capacity would take the pressure off elsewhere.

**2.3GHz.** The 2.3GHz band is quite a different situation as we have a raft of activity across the band – narrowband at 2320MHz, innovative digital ATV in other sections and a number of data experiments and remote control links. In mainland Europe, amateurs also use it more extensively for ‘Hamnet’ high speed data backbones. Whilst the USA re-assigned much of the middle of the band some years ago, we have (apart from losing



**FIGURE 1: UHF Spectrum is the ideal ‘Sweet Spot’ for Mobile Broadband.**

2300-2310) been able to ‘shelter’ under the incumbents.

However there are now clear signs that the pressure is on and, whilst it is yet to be fully confirmed, we expect some release/losses around 2350-2390MHz in the UK. That will mean changes to several ATV repeaters, amongst other things. RSGB has submitted usage information to Ofcom to assist in re-planning. This includes a renewed request to access the old 2300-2310MHz segment to mitigate matters and improve the lot of the EME community. Meanwhile, IARU Region 1, having got a presence in a key document, CEPT ECC Report-172, is now engaged in CEPT-FM52, which will settle the final shared licensing framework.

Adding to a complicated mix is that new low power medical networks (MBANs) are also proposed for the 2.3GHz band. These started in the USA and are an odd piece of planning, given that new mobile phones would clearly interfere with them. Nonetheless we have to consider them and so IARU is also engaged with CEPT SE24 on this latest issue.

**WHAT NEXT.** At present we have had nothing formally confirmed by Ofcom. The picture will no doubt develop and clarify during 2013 and we have stayed in close touch with user groups such as BATC and the UK Microwave Group. However, it’s disappointing to see that elsewhere some regulators have already seen fit to move against amateur allocations prematurely, despite the fact the 2300-2400MHz will continue to be an amateur allocation in the ITU radio regulations, albeit a Secondary one.

The situation is clearly in flux. As a precautionary measure a warning note that part of 2.3GHz will be ‘subject to regulatory change’ will be added to the 2013 band plans (just as 3.4GHz has had for some time) – and, if we do get updates, we will bring you further news.