



**BBC response to Ofcom's Call for Inputs
"Strategic Review of UHF Spectrum at
420-470 MHz"**

Overview

The BBC welcomes the opportunity to respond to Ofcom's Call for Inputs on the future use of UHF spectrum 420-470 MHz. Our interest in these frequencies stem from our significant programme making and special events (PMSE) commitments. In this case, these principally refer to our use of talkback technology - supporting our production capabilities in TV, Radio and Outside Broadcasts.

Given the period of time since the future of this spectrum was last assessed and the drive to realise more efficient use of spectrum more generally, we understand Ofcom's rationale for initiating this review. However, we have some concern that a prolonged process may jeopardise future necessary investment in equipment, both by the BBC and by the wider PMSE community. With that in mind, we are grateful for the opportunity to set out the importance of this spectrum for BBC (and broadcasting more generally) and the serious impact if that access were removed without suitable alternative frequencies made available.

However, we also hope that Ofcom will seek to minimise any uncertainty for all users of this spectrum through a timely conclusion of the review.

We have restricted our responses to those as they affect the BBC's PMSE interests. Accordingly, this submission should be read in the context of the questions posed in 2 c), 5 and 8 of this Call for Inputs.

How we use 420-470 MHz

The BBC uses the band 420-470 MHz intensively and for a number of purposes, including:

- Communications within and around TV studios (including larger building-wide programmes where short-range systems in 470-790 MHz are not suitable). Allocations are site specific 462/469 duplex pairs with an EIRP 5W;
- Three UK-wide duplex pairs for Satellite News Gathering outside broadcast communications onsite, there are separate transmissions to talk to cameramen/producers/floor managers/engineers (both duplex) and to presenters/guests (simplex). The same base stations are used for both to maximise system flexibility. Although only 3 duplex pairs are licensed across the UK, they are intensively used by all BBC outlets with the exception of BBC National Radio;
- For larger pre-planned events (e.g. Bafta Awards Covent Garden) extra allocations are bought in. Frequencies are chosen to be useable and compatible with currently installed equipment as hiring-in is not an option. Power levels are typically EIRP 5W. The BBC's news operation outside of studios could absolutely not survive without these;
- In the Nations these three pairs are used for mainstream OB communications, including use in dry-hired and wet hired OB units. These operate at EIRP 5W (the basic requirement for OB communications with "additional duplex pairs utilised depending on the requirements of the production". On most OB's, 4 duplex pairs is the minimum requirement);
- In the conurbations of London and Manchester UHF1 base stations at 25W EIRP are used for communications to News helicopters;
- BBC Local radio makes use of three 12.5KHz channels across England for radio car talkback, these are in three different bands, mainly due to the restrictions caused by RAF Fylingdales. These frequencies have to be compatible with the radio car programme link with an EIRP of 1W;
- English Regions local radio make use of a raster of 50KHz channels in three bands (446, 455 and 469MHz) for programme links back to a masthead receiver and the same frequencies used for cross-site operations at larger events. Again, the 3 frequencies are primarily due to the same restrictions as mentioned above 25W EIRP;
- The BBC uses the Ofcom Business Radio allocations in 449 MHz for onsite simplex uses. These operate at 1W EIRP; and
- For any external outside broadcast, BBC Network Radio hires in simplex base stations in UHF 1 and 2, operating at 5W EIRP, to complement programme links using UHF high-power radio mics in TV channels 21-60.

All of these uses are critical to the production of TV and Radio programmes as well as for the broadcasting of special events, including those of significant national prestige. Clearly none of these uses can be foregone and it is unclear that there could be any alternative technical means by which we could fulfil these uses other than by wireless. We also note that digital systems might be difficult to use successfully without actually using *more* bandwidth - if the goal is to create higher quality channels to production crews.

We would therefore need to ensure that access to suitable and sufficient spectrum is maintained by PMSE for the foreseeable future. This is aligned with Ofcom's own long-established objective for PMSE to ensure that the sector does not suffer undue disruption as a result of broader spectrum management initiatives. In assessing what would constitute "sufficient and suitable spectrum" we suggest that this would have to include the following criteria:

- 1) Sufficient bandwidth to allow for the existing use of frequencies, including those to enable duplex operations;
- 2) The risk of harmful interference is low and broadly comparable in that respect to that currently offered by UHF 1 and 2;
- 3) National coverage will have to be catered for by some applications;
- 4) Frequencies would have to offer favourable propagation characteristics without a requirement for long antennas;
- 5) Sufficient spectrum in a particular band such that dual-band operations (other than transitional arrangements) would not be needed; and
- 6) Availability of affordable equipment in spectrum made available.

The impact of not having availability of such spectrum for the BBC and wider PMSE would be severe. Programmes and coverage of events that support the cultural and social well-being of the UK would be hard to sustain in anything like their current format. For example, it would be unclear how broadcasters could continue to make cherished mainstays of UK cultural life such as *Strictly Come Dancing* or *Children in Need*. The coverage of major events such as *Formula One* and *Glastonbury* would be hugely disrupted.

Recent assessments of PMSE use of 420-470 MHz and options for moving PMSE

As well as Ofcom's review of the use of UHF 1 and 2 in 2002 and 2008, it also looked at the potential for moving PMSE use from these frequencies as part of its Band Manager award consultations in 2007 and 2008. In particular, Ofcom's assessment of administered incentive pricing (AIP) for PMSE investigated the most likely scenario for the sector in the event that its access to spectrum allocated for PMSE was removed, including that of 420-470 MHz.

That work concluded that talkback use of 420-470 MHz would have to move to lower channels of the band 470-790 MHz, sharing interleaved digital terrestrial television (DTT) spectrum with other audio PMSE uses – most notably wireless microphones and in-ear monitors (IEMs).

That same consultation accepted that there was little option open to PMSE users to use the spectrum allocated to it in 420-470 MHz more efficiently and that the frequencies being used by the sector were being already intensively operated in.

Since that time, of course, the UK and much of the EU have signalled their intent to clear the 700 MHz band for future mobile use. This will significantly reduce the quantity of spectrum available for use by wireless microphones and IEMs. Indeed, in its recent cost benefit analysis for clearing the 700 MHz band, Ofcom concluded that there would be insufficient UHF interleaved frequencies between 470-694 MHz to meet peak demands for existing PMSE use once the 700 MHz band is cleared. Accordingly, it set out its intention to secure additional spectrum to the 470-694 MHz band to ensure that wireless microphones and IEM use could continue in the longer term.

Bearing that in mind, it would be somewhat perverse for existing and intensive use of spectrum in 420-470 MHz to be displaced and moved into the higher UHF band, 470-694 MHz. This would clearly aggravate an already challenging situation for the PMSE sector. In the absence of any other suggested spectrum which could meet the criteria set out above for PMSE use, we are unclear how clearing PMSE from 420-470 MHz could be achieved without very significant disruption for the sector and UK programming as a whole.

Conclusion

The BBC accepts that Ofcom should periodically review how spectrum is being used and, given the drive to find ever greater frequencies for mobile use, this will inevitably be the case with UHF frequencies.

However, in the absence of any evidence of commercial demand for the spectrum for 420-470 MHz from the mobile sector and the very significant risk to the services underpinned by PMSE, we would urge extreme caution in putting forward any proposals which could lead to the displacement of existing use by the sector.

Any such proposals, furthermore, should only be in the context of sufficient and suitable spectrum alternative spectrum being identified and made available for PMSE use.