



**BBC response to Ofcom's Consultation
"Mobile data strategy"**

Overview

This response sits alongside the Digital UK's response to Ofcom's consultation on Mobile data strategy published on 21 November 2013. That submission focusses principally on terrestrial broadcasting band use of the 470-694 MHz band, whereas this response addresses two issues which are of particular interest to the BBC; namely satellite newsgathering and programme distribution and programme making and special events (PMSE).

We fully endorse the submission from Digital UK, which represents the UK digital terrestrial television (DTT) multiplex operators. Whilst we do not seek here to expand on the points raised in that document as they relate to domestic use of DTT, BBC Global News would like to draw Ofcom's attention to the BBC's interest in the existing applications using this spectrum outside the UK and the future viability of terrestrial television platforms, particularly in Africa.

BBC interest in international analogue and digital television services

BBC World Service added television services to its traditional radio offers in 2008 and 2009, with the launches of BBC Arabic TV and BBC Persian TV on various Direct to Home (DTH) satellite platforms. Since 2012, a number of additional language TV services have been launched in Africa, Turkey, India and Pakistan in English, Swahili, Turkish, Hindi and Urdu. All of these new services are syndicated on local TV network's terrestrial platforms, with the majority of these partners still broadcasting on analogue terrestrial networks.

As BBC World Service continues to meet the demands of a changing media landscape, it is likely that the use of TV to connect with our audiences will increase. Although at present this World Service Language TV is reliant on syndicated slots, there would clearly be an interest in any opportunity to deliver BBC World Service content on DTT platforms as and when they launch in Africa.

The WRC-12 proposal for a co-primary mobile allocation in 694-790 MHz in Region I was made by African and Arab regional groups in order to open up the possibility for the region to expand the Digital Dividend for IMT. Despite the ITU carrying out frequency coordination exercises in Sub-Saharan Africa since March 2012, the recommended date of June 2015 for the completion of analogue TV switch-off looks optimistic, given current progress. BBC Global News believes that any consideration to extend the co-primary mobile allocation to 470-694 MHz in Region I risks undermining this process and, similarly to the UK, risks the long term viability of the DTT platform. These concerns have also been raised with the BBC by African broadcasting colleagues. We urge Ofcom to strengthen UK links with the African Telecommunications Union (ATU) in order to better understand the African perspective on this band.

BBC Global Use of Satellites

The BBC attracts a weekly global audience of 256 million people to its international news services including BBC World Service, BBC World News television channel

and bbc.com/news. The BBC Global News division provides international multimedia broadcasting in 28 languages with regional services, including English. It comprises:

- BBC World Service (international radio services, language TV services and on-line services);
- BBC World News (international English language TV channel);
- bbc.com (international online news service);
- BBC Monitoring (open source monitoring of TV, radio, web and print media around the world); and
- The international charity, BBC Media Action.

Satellite News Gathering (SNG) is widely used by the BBC and BBC Global News internationally to provide content for BBC programme. Contributions can range from audio or video reports delivered live via a satphone, to the remote filing of a story for later transmission. Spectrum use for these applications can be in the L-Band, C-band, Ku or Ka-Bands depending upon the geographical location. The BBC is heavily reliant on these systems being readily and globally available and being reliable and free from interference. BBC Global News, BBC World and BBC Worldwide (the BBC's commercial arm providing a portfolio of BBC channels and services around the world) all use satellite to distribute programmes globally.

BBC Global News has offices in many different countries around the world to facilitate its international operation. Connectivity for a significant number of those belonging to BBC Media Action and BBC World Service is done via VSAT using Ku, Ka and C-Band satellite spectrum.

The BBC Global News Satellite Media Distribution System (SMDS) uses a number of different satellites to distribute BBC World Service radio and TV programmes to its global audience of 192 million. European distribution is done via Ku-band and distribution elsewhere in the world is done via C-band. C-Band spectrum use is currently between 3.9 and 4.2 GHz (by 2015 these downlink frequencies may change to anything between 3.4 - 4.2 GHz). BBC World News also uses C-Band satellites for distribution of programmes to its distribution partners. In addition, BBC Monitoring relies heavily on its network of receive-only earth Stations to access frequencies right across the 3.4 - 4.2 GHz band in support of source monitoring operations, both within the UK and at its international offices.

With respect to this consultation, all earth stations used directly by BBC Global News are receive-only, and that there are very few parts of the world where there is any requirement or mechanism to register them with the local administration. This is an important consideration when assessing the feasibility of mobile broadband sharing with earth stations and the value that BBC World Service, BBC World, BBC Worldwide and BBC Monitoring bring to the UK.

Programme making and special events (PMSE)

The BBC is a significant user of audio and video PMSE applications both nationally and globally, representing a critical element of its high quality productions. PMSE uses a wide range of spectrum between 48 MHz and 47 GHz for a number of applications. In relation to this consultation, our interests focus on:

- Talkback use of 450-470 MHz; and
- Talkback and wireless microphone use of 470-694 MHz.

Ofcom has long accepted the cultural and social importance of PMSE to UK citizens and consumers. It has also accepted that co-ordination failure prevents PMSE users from participating in a market for spectrum access. However, a third issue needs to be addressed as a matter of urgency - that of there being no known substitute spectrum available for PMSE in sufficient bandwidths if either 450-470 MHz or 470-694 MHz were cleared for mobile services.

Ofcom will be aware that for peak sporting and cultural events as well as for a number of high value indoor productions, the demand for wireless audio PMSE is extremely high. Some shows can require well in excess of 100 channels for microphones, in-ear monitors and talkback devices. Even with careful frequency coordination, the recently reduced quantity of interleaved spectrum¹ between 470-790 MHz is posing challenges to programme makers seeking to meet that peak demand. Any further reduction of the DTT network in the 470-694 MHz band will inevitably lead to serious difficulties in maintaining productions to the quality that audiences have come to expect.

If access to 450-470 MHz and/or 470-694 MHz were to be reduced or removed for PMSE use, there would likely be enormous repercussions for live event productions. We are unclear as to how they could continue. This differs fundamentally from the situation with DTT, where free-to-air broadcasting could conceivably move to an alternative platform (although, as DUK makes clear in its response, the economic case for doing this does not exist). PMSE has no alternative distribution method as no other spectrum in sufficient quality is technically suitable or available.

We look forward to engaging with Ofcom on this subject in its forthcoming PMSE consultation and set out our further thoughts on the implications for Ofcom's mobile data strategy below.

¹ The 800 MHz clearance removed 72 MHz not only from the DTT network but also for PMSE use.

Responses to questions

(Q6) Is Ofcom doing all that it needs to do in other areas identified as being relevant to the mobile data challenge?

1. As stated in our response to Ofcom's recent Consultation on Spectrum Management Strategy, the BBC believes that international engagement should not be solely driven by the need to influence European or international decisions for the benefit of national spectrum issues. In the context of areas identified as being relevant to the mobile data challenge, and specifically the consideration of competing demands for spectrum, any evaluation of these should consider the value to citizens and consumers of how spectrum is used both in the UK and outside the UK.
2. When Ofcom is considering bands where UK might support major changes in spectrum use at the ITU, it is important to consider what benefit is brought to the UK by the use of these bands internationally, as well as how this spectrum might be used in the UK.

(Q9) Do you agree with the short list of bands we have identified for more detailed consideration?

450-470 MHz

3. This band is most commonly associated with business radio services. However, there is also a thriving PMSE talkback eco-system operating within this spectrum using low bandwidths between those business radio assignments. This represents a highly efficient use of frequencies which would otherwise lay fallow.
4. If this spectrum were to be repurposed for mobile services then new frequencies would have to be identified for these talkback users. Previous analysis on this as part of the PMSE AIP proposals in 2009² suggested that the interleaved spectrum between 470-790 MHz would be the most obvious substitute spectrum for 450-470 MHz. However, with the possible further truncation of the DTT platform and the subsequent reduction in available interleaved spectrum for PMSE, it is very unlikely that both talkback and wireless microphones could be facilitated in UHF IV and V. As a result, the inclusion of 450-470 MHz in the short list of bands for mobile could only be considered in the context of a broader solution for PMSE talkback use.

470-694 MHz

5. PMSE use of 470-694 MHz (primarily wireless microphones and in-ear monitors but also some talkback use) is critical to the provision of wireless audio services to BBC broadcasting productions. Even a partial repurposing of this spectrum to mobile services would likely create chaos for these services. There simply would not be sufficient spectrum for PMSE.
6. Ofcom has done a great deal of work on this issue over the past decade and made some significant progress for which the BBC is grateful. However, we do think that there

² <http://stakeholders.ofcom.org.uk/binaries/consultations/aip13/annexes/report.pdf>

needs to be a genuine acceptance that any further decisions about UHF spectrum will need to be accompanied by a clear roadmap for the future of PMSE. This solution will need to provide sufficient certainty for critical investment decisions.

3.6-3.8 GHz and 3.8-4.2 GHz

7. From the mobile data strategy perspective these bands are attractive for mobile data services. However, we believe Ofcom must take account of the value to the UK of the existing use of this spectrum (both within and outside the UK) in any considerations. The BBC's view on the need to protect existing applications in these bands has not changed since our response to Ofcom's consultation on WRC-07 Agenda Item 1.4 in March 2007 when these bands were also candidate bands.
8. All earth stations directly used by BBC World Service and BBC World News are receive-only, and there are very few parts of the world where there is any requirement or mechanism to register them with the local administration. Currently, less than 2% of receive-only earth stations used for BBC World Service programme distribution internationally are registered.

Table 1: Quantity and audience of BBC World Service earth stations

Registered Earth stations	Total number of earth stations	Weekly audience
10	629	192 million

9. Protection can only be afforded to existing users if they are either licensed or registered. Licensing of receive-only satellite terminals (through TVROs) ceased many years ago in Europe as part of the move to deregulation to ease the burden of unnecessary regulation. Regulation then became necessary in the UK to address the interference which followed the introduction of fixed broadband wireless access (BWA). The introduction of recognised spectrum access (RSA) in the UK has provided a mechanism to address this problem within the UK. However, outside the UK, receive-only satellite terminals remain acutely vulnerable to interference (for more details see BBC response to Ofcom Call for Input on WRC-15 Agenda Item 1.1).
10. Given the European Commission Decision on 3.6–3.8 GHz and the current CEPT position, we urge Ofcom to ensure that existing services in Europe are adequately protected and that Ofcom retains its position from June 2007 to support “a requirement for an associated Resolution to reflect the need to provide appropriate protection for existing satellite use whilst facilitating access to the band for new use”³
11. The BBC has significant concerns that 3.8 – 4.2 GHz is being considered once again as a candidate band. Ofcom changed its position in 2007 on 3.8 – 4.2 GHz after consultation: supporting no change to the Radio Regulations and citing “little prospect of an ECP being agreed for a co-primary mobile allocation and identification for IMT” and a belief that “the best interests of the fixed satellite community worldwide are best served

³ <http://stakeholders.ofcom.org.uk/binaries/consultations/wrc07/statement/statement.pdf>

if a position of no change is adopted for the sub-band 3800 to 4200 MHz”. There is still no consensus in Europe and there is still significant opposition from outside Europe, especially where these bands are essential for satellite services because of local conditions. Based on the steady increase in interference that we have experienced both within the UK and internationally since 2007, if wireless access systems were to be deployed between 3.8 – 4.2 GHz, we would expect this to have a profound effect on the BBC’s ability to reach audiences around the world.

(Q10) Do you agree with our methodology for prioritising potential bands for mobile data use?

12. We believe it is incomplete because there is no evaluation of UK interests in spectrum outside the UK. Under the criterion “Constraints/challenges”, we would like to see this recognised. For example, both of the examples cited under “domestic constraints” can be applicable internationally when considering the international satellite distribution for BBC World Service.

(Q11) Do you agree with our provisional assessment and the results of our band prioritisation?

450-470 MHz and 470-694 MHz

13. The existence of PMSE talkback is briefly referenced but no suggestions are made as to what would happen to these services if the spectrum was repurposed for mobile.
14. This is compounded by a suggestion that “some spectrum could remain available” in 470-694 MHz. This is a worrying direction for Ofcom to take as it appears that it is suggesting that a “rump” UHF allocation – smaller than 470-694 MHz - could facilitate very significant PMSE use including displaced talkback services in 450-470 MHz. This would need to be thoroughly tested technically and comprehensively costed. Our strong suspicion is that trying to squeeze all audio PMSE use into a small UHF allocation in (likely) UHF IV would be impossible.
15. However, we also recognise that Ofcom plans to look at this in more detail in its PMSE consultation later this year and will engage constructively to assess the best future approach.

3.8-4.2 GHz

16. Given our view on the limitations of the methodology, we believe that there are problems with the resulting assessments and prioritisation. This is illustrated by the fact that the provisional results add the band 3.8 – 4.2 GHz to the band 2.7 – 2.9 GHz as a medium to high priority for further work. The conclusion that “UK costs or constraints might not be exceptionally high” does not recognise the value to the UK of satellite usage in 3.8 – 4.2 GHz outside the UK and the impact on UK interests if this spectrum were no longer available for international satellite communications between the UK and the rest of the world. We believe that the assessment is incomplete and passes over the reality of what potential outcomes could actually emerge.

(Q12) Do you agree with the possible timelines we have identified in this section?

17. The timeline identified for 3.8 – 4.2 GHz looks very optimistic given the current lack of European and international agreement and previous discussions at WRC-07 when this band was last considered.
18. From a PMSE perspective, these appear to be broadly correct but would clearly need further investigation.

(Q14) Do you agree with the next steps we have identified for further domestic work based on the proposed priorities?

19. Again, given our view on the limitations of the methodology, and the problems with the resulting assessments and prioritisation, we believe for both 3.6 – 3.8 and 3.8 – 4.2 GHz, the “domestic next steps” must be complemented by a consideration of impact internationally to UK interests. Specifically, this means assessing and addressing the impact on receive-only satellite terminals outside the UK and an evaluation of UK interest in this spectrum use outside the UK.
20. We note that Ofcom did not specially refer to the forthcoming PMSE consultation as part of its domestic priorities for 450-470 MHz and 470-694 MHz. However, we assume that this is an oversight and look forward to the publication of this document.

(Q15) How do you think we should adjust our support for international harmonisation based on our proposed priorities?

470-694 MHz

21. Digital UK’s response sets out in the full the reasons why Ofcom should not seek co-primary allocation for the 470-694 MHz band at the World Radiocommunications conference in 2015. Additionally, we would add that there would be danger to the ongoing provision of live events if a premature decision was made at WRC-15 that led to the clearance of this spectrum before a comprehensive settlement for PMSE was reached. This is particularly the case, because in 2014, there are no options obvious as to what that solution could possibly be.

3.8-4.2 GHz

22. With respect to “international next steps” for 3.8 – 4.2 GHz, the next steps are acceptable to the BBC as long as Ofcom also actively supports measures to be put in place both in Europe and internationally to ensure adequate protection for existing services in this band.
23. For “international next steps” for 3.8 – 4.2 GHz, the BBC does not agree that this band should be supported for WRC-15 by Ofcom. We do not believe that appropriate consideration of the value to the UK of the existing services using this band has been made, nor has the full impact of supporting this band for mobile services internationally been assessed. In addition, it is unclear how proposing a UK or European allocation for

mobile in 3.8 – 4.2 GHz to replace a globally harmonised satellite allocation makes sense in the context of support for global harmonisation.