BBC response to Ofcom's consultation: *Enabling opportunities for innovation Shared access to spectrum supporting mobile technology*

12 March 2019

Introduction

1. The BBC welcomes the opportunity to respond to Ofcom's consultation *'Enabling opportunities for innovation - shared access to spectrum supporting mobile technology'*. We support Ofcom's spectrum sharing initiatives and share spectrum where we hold licences.[1]
2. The BBC's response concerns only one of the three spectrum bands which Ofcom is proposing to make available on a shared basis - 3.8 to 4.2 GHz.[2] The BBC has a direct interest in the 3.8 to 4.2 GHz band both in the UK and globally. In the UK, this spectrum is used by both BBC Monitoring and BBC World Service. We hold grants of Recognised Spectrum Access (RSA) in this range for Receive Only Earth Stations (ROES) and have invested considerably in antennas.
3. As we expect BBC Monitoring's ongoing use between 3.8 to 4.2 GHz will be protected by our grant of RSA, this response highlights the impact on BBC World Service operations.

BBC World Service

4. Frequencies in the range 3.8 to 4.2 GHz are essential to BBC World Service international content distribution. A number of distribution services are uplinked from the UK, and the downlinks in this band are also received in the UK (as well as abroad) for onward transmission and performance monitoring. These services provide international distribution of content for onward transmission across, Europe, Africa and the Americas.
5. The BBC recognises the opportunity for sharing in this band in the UK in extensive geographic areas where there is no incumbent use, but we do have concerns about the removal of flexibility to deploy new services.
6. In our response to Ofcom's 2016 Call for Input, '*3.8 GHz to 4.2 GHz band: Opportunities for Innovation'*, we emphasised the importance of recognising the complex way the Fixed Satellite Service uses this band to provide satellite communications for the UK.
7. In particular, we noted that launching new services in frequencies used by satellites could stifle future innovation as existing frequency allocations would be 'locked-in' preventing deployment of new services in the future.
8. Indeed, we believe that the ongoing value delivered by satellite downlinks both inside and outside the UK in this band could be better protected in the longer term by alternative approaches. This could be achieved through a commitment to dynamic

[1] The BBC shares its spectrum holdings (e.g. PMSE licences for peak demand events) and has committed significant resources to assisting Ofcom with new spectrum sharing opportunities through the White Space Devices project.
[2] We note the complementary nature of this consultation to Ofcom's proposals to award licences for 700MHz and 3.6-3.8 GHz and our response to that consultation should be read in parallel.

spectrum access from the outset. Or it could be achieved by a reconsideration of the approach proposed in 2016 whereby incumbents would have "Tier 1 spectrum access rights" meaning a given range of frequencies in a given geographic areas would not be accessed by the other tiers.

9. We set out more detailed comments below in response to the most relevant specific questions raised in the consultation.

Q1) Do you agree with our proposal for a single authorisation approach for new users to access the three shared access bands and that this will be coordinated by Ofcom and authorised through individual licensing on a per location, first come first served basis? Please give reasons supported by evidence for your views

10. In 2016 we welcomed Ofcom's suggestion that sharing in 3.8 to 4.2 GHz might be facilitated via a tiered authorisation approach.[3] In particular, we agreed with an approach providing operational flexibility for incumbent satellite users by restricting new deployments in the geographic locations where earth stations are situated.
11. The authorisation approach set out in the consultation document seems to be a departure from this which we feel is likely to constrain future satellite use in this band in the UK and potentially lead to fragmentation across the band.
12. Following on from Ofcom's decision to remove RSAs between 3.6 and 3.8GHz and the release of 3.4 to 3.6GHz, this will put the UK at odds with the way the vast majority of other countries around the world use C-band and extended C-band spectrum. In other countries, satellite users operate across these bands, but as parts of it are licensed for mobile in the UK, in the future it is possible that only small fragmented chunks will remain for UK satellite downlinks.
13. For the BBC this is problematic because our usage is likely to change over time. For example, BBC World Service recently increased the C-band capacity of its international distribution to accommodate additional African TV services. This necessitated investment in a new UK ROES site to monitor these services, and for which an RSA was recently granted. Ofcom's plans could prevent this type of use from the UK in the future.

Q3) Do you have any other comments on our authorisation proposal for the three shared access bands?

[3] Ofcom Call for Input "3.8 GHz to 4.2 GHz band: Opportunities for Innovation" para 3.7

14. The BBC supports Ofcom in securing optimal use of spectrum and welcomes opportunities for shared access in 3.8-4.2GHz "in locations unused by other licensed users" which do not "change incumbent users' existing and future rights to deploy". The BBC believes the use of a database for Dynamic Spectrum Access could lead to the most efficient and flexible use of spectrum for both incumbent and new services in this band, and that DSA would be particularly suited to enabling sharing with dynamic satellite services and therefore providing maximum benefit for efficient and flexible use.

15. The BBC believes that Ofcom's aim to enable access to spectrum "as quickly as is practicable" and "which can be used immediately with existing equipment" can be more easily realised in some geographical locations rather than others. Any urgency in Ofcom's approach should be balanced alongside greater benefits afforded by DSA, which could enable co-existence and development of incumbent and new users' services, leading to a more efficient use of spectrum.

16. Whilst the adjacency of the 3.6-3.8GHz band, identified for 5G in Europe, might make the 3.8-4.2GHz band attractive for 5G in the UK, the BBC questions that the statement "several countries are looking to make this band available for 5G" provides strong enough evidence of significant international support for 5G in this band. Certainly this band is currently under consideration by the FCC in the US, and Japan recently announced their award of the 3.6-4.1 GHz band. However, as Ofcom has itself stated, C-band and extended C-band spectrum "has certain technical advantages compared to other satellite bands, particularly in tropical areas" which might prevent wider global adoption.[4]

17. Divisive discussions under WRC-15 Agenda item 1.1 four years ago made consensus hard to achieve and there was very little support for opening the band above 3.8GHz. It is difficult to see that that the positions of the vast majority of countries will have changed since then or are likely to in the foreseeable future.

Q4) What is your view on the status of equipment availability that could support DSA and how should DSA be implemented?

18. The BBC believes that an approach similar to that used for TV White Space devices would offer the greatest spectral efficiency and flexibility for services, and supports the creation of an industry group to discuss the technical requirements for the DSA equipment and database. BBC urges Ofcom to consider the benefits of waiting until DSA can be implemented in this band before awarding licences for new users under a

[4] Para 1.11 of Ofcom consultation on the UK preparations for the World Radiocommunication Conference 2015 (WRC-15)

static spectrum authorisation model. Allowing new users into this spectrum without DSA being a requirement is likely to discourage users from adopting a DSA approach at a later date.

Q8) Do you have other comments on our proposed new licence for the three shared access bands?

19. The BBC notes that some types of licence will be restricted to rural areas and that some licence types will have no geographic restriction. The BBC RSA for ROES grants are both within rural areas and the BBC therefore is of the opinion that restriction on location and frequency use for new licensees will need to be such that the maximum interference levels and protection within the existing RSA for ROES can be maintained.

Q11) Do you agree with the proposed technical licence conditions for the three shared access bands? Please give reasons supported by evidence for your views.

20. BBC agrees with Ofcom's proposal (para 5.63) to maintain existing defined protection criteria for earth stations and therefore expects that any technical licence conditions for new users maintains the current protection levels afforded by RSAs.

Q13) Do you agree with our proposed coordination parameters and methodology? Please give reasons supported by evidence for your views.

21. BBC notes that Ofcom proposes that current assumptions will be maintained for the existing earth stations with respect to propagation losses (para 5.72), however these assumptions are not referenced anywhere within the consultation document or in RSA grant documentation.

Q14) What is your view on the potential use of equipment with adaptive antenna technology (AAS) in the 3.8-4.2 GHz band? What additional considerations would we need to take into account in the technical conditions and coordination methodology to support this technology and to ensure that incumbent users remain protected?

22. BBC agrees with Ofcom's proposal (para 5.63) to maintain existing defined protection criteria for earth stations and therefore expects that any coordination with new users or potential use of AAS will maintain the current protection levels afforded by RSAs.

Q15) Do you agree with our proposal not to assign spectrum to new users in the 3800-3805 MHz band and the 4195-4200 MHz band?

23. Whilst the BBC welcomes the 5 MHz guard band between 3800-3805 MHz which "reduces the risk of interference to and from the uncoordinated and potentially unsynchronised base stations below 3.8 GHz", BBC seeks assurances from Ofcom that the current protection afforded to BBC monitoring operations by their RSA at 3.8GHz will be retained.
24. These assurances are sought in light of para 5.43, where Ofcom proposes not to consider coordination with other uses in adjacent bands and also in light of Ofcom's view that there is no need to include any specific conditions in 3.6-3.8 GHz licences to mitigate the risk of adjacent band interference (see BBC response to Q11 of Ofcom's Consultation on the "Award of the 700 MHz and 3.6-3.8 GHz spectrum bands").

ENDS.