Response to statement consultation on improving consumer access to mobile services at 3.6 GHz to 3.8 GHz

UK Space Agency

Introduction

The UK Space Agency thanks Ofcom for the opportunity to respond to the statement published on 28th July 2017 regarding improving consumer access to mobile services at 3.6 GHz to 3.8 GHz. We oppose the decision and request Ofcom reconsider. We oppose Ofcom's proposal to adopt option B because it goes against the intent of the EU decision that this spectrum be made available to mobile on a non-exclusive basis and will have significant negative impact on the government's ambition for the UK Space Sector to capture 10% of the global market by 2030.

Question 1: Do you agree with our proposed approach towards registered fixed link and satellite earth stations users of the 3.6GHz to 3.8GHz band?

No. In our view, Ofcom in selecting option B, have not properly taken into account the interests of the UK space industry, particularly their interests in delivering international services from a UK base. Ofcom state this decision is in the interests of UK Citizens and Consumers and the assessment of the impact on space has been largely based on the limited use by satellite earth stations within the UK.

As we indicated in our consultation response, we support sharing but it is essential that space sector access with appropriate protection from interference and scope for growth is retained. Option B, will in practice remove all protection for satellite earth stations, despite these operating within a PRIMARY FSS allocation. The intent of the EC decisions[i] was that this spectrum be made available to mobile on a non-exclusive basis, "**without prejudice to the protection and continued operation of other existing users in this band**".

The conclusion presented in paragraph 7.49 that most if not all current services can be delivered is flawed; The reduced spectrum quality indicated in paragraphs 7.45-7.48 would make it unlikely an operator could meet any reasonable quality of service requirements.

We are disappointed that no further applications for PES or RSA are being accepted. This eliminates the potential for any future growth of the UK space sector within this spectrum and is not compatible with government policy to grow the space sector. Paragraph 5.53 justifies removal of protection on the basis that this is not a growth band. However, there is no evidence use is decreasing nor that this spectrum is no longer required. Operators continue to make filings in the band and there are new satellite services emerging, particularly in "New Space" NGSO constellations.

The UK Space Agency proposed concentrating satellite teleports in to a limited number of key sites which would be fully protected from mobile interference. The relatively small number of UK ground stations would facilitate this move which would then enable space use to continue and to grow. The impact on the mobile sector would be minor, especially if the sites were in remote areas where the spectrum demand for 5G can be satisfied in other bands. This would require compromise on both sides but appears to have been rejected out of hand. We request this option be urgently reconsidered.

We note that paragraph 1.23, proposes some scope for limited protection of satellite services. This goes some way but not far enough towards a solution. We are keen to investigate how this might be

realised, although this should not be constrained to "not have a material impact" on mobile deployments.

We reiterate that it is important to recognise that UK satellite industry stakeholders have international interests that are dependent on this spectrum and this is where much of the benefits are generated. These may not directly impact citizen benefits, but they do benefit the UK economy and UK global influence and soft power. This point has not been adequately addressed. We also note that Ofcom are actively pressing for harmonisation of this band for 5G in section 5.39 and are not opposing the use of the band for mobile in other regions where climatic factors place limits on the use of higher frequency bands.

The UK will be the first administration to propose that satellite earth stations operating in this band are no longer taken into account for frequency management purposes. These actions are likely to influence decisions around spectrum management in other European administrations and beyond. This is not in the interest of the many satellite operators, manufacturers and service providers based in the UK. They contribute significantly to our economy and the sector is growing with significant inward investment. Much of this success arises from a favourable regulatory environment. Through adopting option B as proposed, it is possible that future investment in the UK will be discouraged and that some industry may leave the UK.

Question 2: Do you have any comments on our assessment of the likely costs and benefits of our proposed approach?

The approach to mitigation costs is not consistent. Ofcom did not consider it appropriate to refund satellite industry mitigation costs, citing reasonable notification. Conversely, in Paragraphs 6.18 and 7.33 Ofcom have rejected mitigation proposals that could potentially enable sharing on the basis of increased costs to the mobile sector. The proposal appears to be that incumbent services completely fund any mitigation, in order to enable what is expected to be a lucrative auction process.

We do not consider June 2020 as a reasonable period of notice; satellite re-investment cycles are typically 20 years. Commercial service provision arrangements are often long-term lease agreements for specific transponders with translation frequencies pre-determined by the satellite configuration and coverage. Freedom to change frequency is limited and may be subject to co-ordination agreements. Many channels in the upper bands are likely to be already in use. There is no guarantee of spare capacity. Therefore at least 15 years notice would be needed. Recognising this would incompatible with the introduction of 5G and that there is no alternative spectrum that could be used by some space services, it would be far better to find a way for satellite and 5G to equitably share this spectrum.

Without an exclusion zone, local high power 5G transmissions in 3.4 – 3.8 GHz are likely to cause interference to existing earth stations designed for high sensitivity across the current allocation. Additional filtering would be required, which would add losses, reducing G/T. This filtering would make it impossible for earth stations to monitor transmissions in 3.6 – 3.8 GHz intended for reception outside the UK. Reception within the UK of the signals in 3.4 – 3.8 GHz is required for monitoring purposes, either of a ground station's own uplink or for news/intelligence gathering. There is also a strong risk that the out of band emissions of 5G devices will cause interference within the remaining

3.8 – 4.2 GHz band when in proximity to earth stations. All of this means the costs falling on satellite operators and unrecoverable loss of capability are likely to be significant and could result in operations moving out of the UK.

It would be sensible to await the outcome of the adjacent 3.4 – 3.6GHz auctions before making any irreversible decisions around the need for mobile to displace satellite use in the 3.6 – 3.8 GHz band. It is unlikely that any 5G deployments would be in place before 2020. At the moment the demand and utility of this spectrum for 5G is unproven. Several previous attempts to use this spectrum for broadband have failed in the market whereas satellite use is successful.

[i] Article 2 of decision 2008/411/EC amended by 2014/276/EU