Ofcom Call for Input: Future demand for mobile broadband spectrum and consideration of potential candidate bands

British Sky Broadcasting Limited ('Sky') Response

1. Sky welcomes the opportunity to respond to Ofcom's call for inputs ahead of key discussions on WRC-15 agenda item 1.1.

2. Decisions on spectrum allocation – particularly in the scarce and highly valuable sub-1GHz bands – will be hugely influential in the future development of new and innovative services. The WRC-15, and other spectrum allocation processes running in parallel, are significant opportunities to maximise the potential value of this asset for the benefit of consumers and wider economic growth.

3. The UK can use these opportunities to help deliver universal and affordable wireless broadband access in the long term – notably through the availability of licence-exempt spectrum. A licensed-only approach, or even a predominately licensed-only approach, to spectrum allocation is unlikely to address consumers' growing demands for wireless data services and applications. The dynamic use of unlicensed UHF spectrum should therefore be a central component of any UK position on spectrum allocation.

Wi-Fi networks will be fundamental in meeting future mobile data demand

4. The likely growth of mobile data traffic is well documented. Ofcom acknowledges that, under different growth scenarios, mobile data capacity can be expected to experience an 80-300 fold increase by 2030. Ofcom also acknowledges that half of this predicted increase in demand can be expected to be served by offloading mobile data onto fixed networks, including Wi-Fi networks[1].

5. Wi-Fi is already an essential component of the mobile data ecosystem. The European Commission estimates that European Wi-Fi networks already carry up to 20 times more internet data traffic than all cellular networks combined, and Wi-Fi traffic growth is around 4-6 times that of cellular data growth, with 4 out of 5 new wireless technologies using unlicensed spectrum[2]. In the UK, Wi-Fi carries around 70% of smartphone data traffic, with many MNOs now either pushing data traffic onto third party Wi-Fi networks or deploying their own Wi-Fi networks[3]. Analysys Mason estimate

---

[1] Paragraphs 1.8, 1.10, 'Securing long-term benefits from scarce spectrum resources', Ofcom, March 2012. Available at: http://stakeholders.ofcom.org.uk/binaries/consultations/uhf-strategy/summary/spectrum-condoc.pdf

[2] Presentation by Pearse O'Donohue, Head of Radio Spectrum Policy Unit, DG Infosoc, April 2012. Available at: http://www.cambridgewireless.co.uk/Presentation/CWS-EC_Pearse%20ODonohue.pdf.

[3] See the report by Richard Thanki "*The Economic Significance of Licence- Exempt Spectrum to the Future of the Internet*" (June 2012).

that the proportion of data traffic attributable to Wi-Fi on connected mid-screens is around 80%[4].

6. Wi-Fi networks are a cost-efficient approach to data transfer services. There is a lower cost, in general, of deploying Wi-Fi hotspots compared to constructing a macro cell network built using licensed spectrum.

7. As a Wi-Fi hot-spot service provider via The Cloud, Sky is acutely aware of the importance of Wi-Fi in catering for consumers' mobile data demands.

The UK should promote dynamic use of unlicensed UHF spectrum

8. As Ofcom studies have suggested, congestion and interference are already adversely affecting Wi-Fi performance[5]. Together with recent and forecast increases in data traffic, it is clear that a capacity crunch is looming. There will be an increasing need not only to satisfy demand for more licensed spectrum for data usage, but also to balance this by substantially increasing the amount of unlicensed spectrum available to meet the exponential growth of traffic expected over Wi-Fi for new diverse, innovative uses.

9. Consequently, Sky considers that an increase in unlicensed spectrum is a topic which needs more urgent attention and targeted action if economic growth is not to be curtailed by cost and availability of mobile data bandwidth.

10. Ofcom is aware that Sky and others have undertaken trials which demonstrate that dynamic use of UHF spectrum (in TV 'white spaces') using geo-location database technology can fulfil a variety of innovative uses and support economic growth. These uses include enhanced Wi-Fi in home and for hot-spots, machine to machine communications and rural broadband. Such uses would prove significant in allowing spectrum users to meet the inexorable increase in consumers' mobile data demands.

11. The benefits of white space device technology and the potential use of licence-exempt UHF spectrum should be a central component of the UK's position on the future spectrum requirements for mobile broadband. In particular, Sky considers that reserving some spectrum in the sub 1 GHz band exclusively for this technology and its applications would be of enormous benefit to the take-up of the technology.

12. Ofcom states that initial ITU-R discussions in July will be used in part to 'prioritise frequency ranges for study'. In light of the significant potential benefits of dynamic use of UHF spectrum, any study should include as a priority a comprehensive investigation into the ability of unlicensed approaches (both contiguous and interleaved) in this frequency range to keep up with future growth in demand for mobile data. This study should include the 600MHz band, given its propagation and capacity characteristics.

Licence-exempt approaches should also be pursued in other spectrum bands

13. Given the continued growth of Wi-Fi and the role it will play in meeting mobile data demands, the UK should also support the increased availability of licence-exempt use

[4] Analysys Mason webinar: '*Too little traffic: strategies for MNOs in developed economies facing weakening mobile data demand*', October 2012.
[5] See http://stakeholders.ofcom.org.uk/binaries/research/technology-research/wfiutilisation.pdf

in the 5350-5470 MHz band. Ofcom indicates that the ITU has received proposals for study of this band, and the UK should actively engage with any such studies that are undertaken.

14. Other territories are pressing ahead with moves to implement spectrum sharing approaches and free up encumbered frequencies in other bands. In the U.S., for example, the FCC plans to release more 5 GHz frequencies for Wi-Fi use, creating a contiguous block of spectrum which will facilitate faster data transfer speeds and reduced congestion.

Sky **May 2013**