SKY'S RESPONSE TO

OFCOM'S CONSULTATION ON FUTURE USE OF THE 700 MHz BAND;

COST-BENEFIT ANALYSIS OF CHANGING ITS USE TO MOBILE SERVICES

1.1 Sky welcomes the opportunity to comment on Ofcom's consultation on a cost-benefit analysis of changing the use of the 700 MHz band to mobile services ("the consultation").

1.2 Sky is a market player with varied spectrum interests in relation to this band. We are one of the largest independent channel operators on the DTT platform. We make extensive use of PMSE in creating our content. And we continue to be interested in the availability of sufficient, suitable spectrum on an unlicensed basis to be able to offer innovative wireless data services, including through our Wi-Fi operation, The Cloud.

1.3 Sky supports the move to ensure more efficient use of spectrum through the use of more advanced technologies and the application of market forces wherever practical. This approach is consistent with Ofcom's general duties as set out in statute, including securing the optimal use of the spectrum and encouraging investment and innovation.

2. Using 700 MHz for mobile services would help meet the growing demand for mobile data, but Ofcom must also make sufficient allowance for licence-exempt technologies

2.1 In general, Sky is in favour of Ofcom's proposal to make the 700 MHz band available for mobile use. Evidence identified by Ofcom, as well as that presented by Sky in previous submissions, suggests that demand for mobile data will continue to grow rapidly in the medium term. Designating the 700 MHz for mobile use will go some way towards addressing this growing demand. Sky concurs with Ofcom's assessment of the suitability of this band in meeting part of this demand, noting in particular that widespread deployment of mobile services in this spectrum is already underway in other major international markets such as the US.

2.2 The reassignment of the 700 MHz band is, however, only one aspect of the wider approach that is required to address future mobile data demand. As the consultation notes, Wi-Fi is likely to be the predominant technology for wireless data transfer in future, with between 50% and 80% of mobile traffic in 2030 predicted to be offloaded[1].

2.3 Sky has outlined at length in previous submissions[2] the benefits associated with Wi-Fi, as well as the urgency in making more spectrum available on a licence-exempt basis in order to alleviate current levels of congestion and interference – problems that, absent mitigation, will become exacerbated in the medium term. We are pleased that Ofcom has indicated as part of its mobile data strategy that examining the potential extension of Wi-Fi in the 5 GHz band to help satisfy the growing demand for mobile data is a high priority.

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[1] The consultation, Table 2.

[2] See previous Sky submissions to Ofcom, including: Mobile Data Strategy; Spectrum Management Strategy; the Future Role of Spectrum Sharing.
http://stakeholders.ofcom.org.uk/binaries/consultations/mobile-data-strategy/responses/Sky.pdf
http://stakeholders.ofcom.org.uk/binaries/consultations/spectrum-management-strategy/responses/SKY.pdf
http://stakeholders.ofcom.org.uk/binaries/consultations/spectrum-sharing/responses/BSkyB.pdf

2.4 Wi-Fi and other unlicensed methods of data transfer should also be key considerations for Ofcom when evaluating the future allocation of UHF spectrum. Ofcom must seek to strike an appropriate balance in this band between licensed spectrum made available for mobile use and the need to maintain or even increase the amount of unlicensed spectrum available for new diverse, innovative uses.

2.5 Sky has highlighted the many and varied possible uses of sub-1 GHz unlicensed spectrum in previous submissions to Ofcom. These include delivering wireless broadband in rural and suburban locations, facilitating machine-to-machine communications and enabling "Super" Wi-Fi hotspots providing coverage across wider areas. Such services could play a role in not only meeting the increased demand for mobile data, but also in driving economic growth more widely.

2.6 Sky notes that Ofcom does not attempt to quantify either the opportunity cost of precluding white space device use of the 700 MHz band, or the potential benefit associated with allocating greater amounts of sub-1 GHz spectrum to licence-exempt use (for example by using the 25 MHz in the proposed 'centre gap' of the band for this purpose). Ofcom should undertake this analysis as a means of satisfying its duties under the Communications Act 2003, in particular its duty under section 3(4) to have regard to the different needs and interests of all persons who may wish to use the electro-magnetic spectrum for wireless telegraphy. By not adequately considering in the role to be played by white space devices in meeting future mobile data demand, and making adequate provision for this use, Ofcom risks failing in its other duties, in particular pursuant to section 3 of the Wireless Telegraphy Act 2006[3].

2.7 The notion that Ofcom is unable to estimate the potential deployment and take-up of white space devices is not credible. Numerous studies exist which examine the potential growth and economic benefits of licence-exempt devices[4]. Sky notes that Ofcom itself has previously estimated the value that cognitive services could deliver in the UHF spectrum band as part of its digital dividend work[5]. Updating this assessment should be relatively straightforward given the evidence available, including results from real-world deployment of such devices. Ofcom acknowledges that it has quantified the white space availability that might exist after a change of use of the 700 MHz, and therefore is aware of the number of 8 MHz channels that white space devices would lose access to in this scenario. Even a linear discounting of the estimated benefit of white space devices would provide an approximation of the quantum of the opportunity cost. Such a calculation is necessary to ensure that Ofcom's cost-benefit analysis delivers the most appropriate policy outcome.

2.8 Notwithstanding any further analysis that is undertaken to quantify this opportunity cost, it is still open to Ofcom to make policy decisions that support the development of innovative services making use of white spaces, minimising the negative impact of re-allocating the 700 MHz band. The consultation examines whether the 'centre gap' of 25 MHz in the proposed band plan could be utilised for other services, specifically supplemental mobile downlink or PMSE use. Ofcom should give due consideration to the incremental benefits that could be delivered by allocating this spectrum to licence-exempt

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3 These duties include: to have due regard to the extent to which the electromagnetic spectrum is available for use, or further use, for wireless telegraphy; the demand for use of the spectrum for wireless telegraphy; and the demand that is likely to arise in future for the use of the spectrum for wireless telegraphy and its duty to have regard in particular, to the desirability of promoting (inter alia) the development of innovative services.

4 See for instance SCF Associates Ltd, 'Perspectives on the value of shared spectrum access', February 2012, http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/scf_study_shared_spectrum_access_20120210.pdf; Richard Thanki "The Economic Significance of Licence- Exempt Spectrum to the Future of the Internet", June 2012; Perspective, "The economic value generated by current and future allocations of unlicensed spectrum", September 2009, http://apps.fcc.gov/ecfs/document/view?id=7020039036

5 Ofcom, "Digital dividend: cognitive access", February 2009, available at http://stakeholders.ofcom.org.uk/binaries/consultations/cognitive/summary/cognitive.pdf

use as well. The U.S. Federal Communications Commission recently adopted a similar approach in 600 MHz band: it will permit license-exempt use of a duplex gap between licensed uplink and downlink mobile broadband spectrum[6].

2.9 Similarly, it is incumbent upon Ofcom to ensure that this valuable spectrum continues to be utilised to its fullest degree, including in the run-up to and during the transition from broadcast to mobile use. Ofcom should commit to permitting white space devices access to 700 MHz spectrum until such time as the licensed mobile operators actually launch new services. No interference to mobile signals would be experienced once services had launched, given that white space devices would operate using centralised geolocation databases which can make real-time adjustments to take account of new licensed use.

3. Ofcom should incentivise the DTT platform to seek greater spectrum efficiency

3.1 Sky concurs with Ofcom's view that DTT plays an important role in the UK broadcasting system and delivers consumer benefits which should continue to be secured. However, Ofcom's depiction of some of the benefits associated with the platform appears incorrect.

3.2 In its parallel publication on the future of free-to-view TV, Ofcom characterises DTT as the only platform which can deliver widespread, near-universal coverage. The wide coverage of satellite is noted, but Ofcom suggests that 'true' coverage is, in practice, lower than that of DTT at less than 95%, and that certain challenges will prevent near-universal satellite coverage even in the long term.

3.3 Sky disagrees with this assertion. The challenges Ofcom identifies include obstacles blocking line-of-sight to the relevant satellite, an inability to secure planning or landlord permission, and households within multiple dwelling units with no internal satellite system. These are of course legitimate considerations that may affect whether a household can receive a satellite service. However, Ofcom does not apply these 'discounts' to the availability of DTT when assessing coverage, despite the similar issues consumers face. Installing an external aerial at a height of 10m – the assumption which the UK planning model uses to predict coverage – will likely pose the same challenges as installing a satellite dish. But Ofcom ignores this, and instead bases its coverage assessment of DTT on the results of a prediction model only, giving a coverage figure for the PSB multiplexes of 98.5% (described by Ofcom as 'near-universal').

3.4 Satellite and DTT coverage are clearly treated inconsistently by Ofcom at present. Were Ofcom to 'discount' DTT coverage on the basis of actual household availability as it does with satellite, then the 98.5% coverage figure would be reduced. Equally, previous technical assessments of satellite coverage have placed the population covered at more than 98%[7], comparable with the near-universal coverage Ofcom estimates for the DTT PSB multiplexes. To enable a proper comparison, and by extension a more accurate assessment of the incremental benefit delivered by DTT, Ofcom should adopt a consistent approach to assessing both satellite and DTT coverage.

3.5 Ofcom further risks overstating the incremental value that DTT provides. In particular, in estimating the DTT opportunity cost Ofcom assumes a counterfactual where future consumer demand would be for '*as many channels as can be provided by 6 multiplexes upgraded to DVB-T2*' – i.e. an increase on the number of channels that the platform currently provides. Sky does not consider that the evidence supports this assumption.

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6 See Press Release, Federal Communications Commission, *FCC Adopts Rules for First Ever Incentive Auction; Will Make Available Additional Airwaves, Increase Competition for Mobile Broadband* (May 15, 2014), available at https://apps.fcc.gov/edocs_public/attachmatch/DOC-327100A1.pdf

7 A technical study carried out by the ITC, one of Ofcom's predecessor bodies, estimated that technical coverage of UK satellite services was 98.2% (with errors of -1.6% and +1.3%). Referenced by Ofcom at footnote 12, http://stakeholders.ofcom.org.uk/binaries/broadcast/tv-ops/Local_TV_FINAL.pdf

3.6 Previous Ofcom research has suggested that consumer demand for more (free) channels from current levels is marginal[8]. This is consistent with the recent experience of the DTT platform. The demand for more channels, where capacity has become available, is becoming restricted to genres to which consumers attach marginal value (notably teleshopping channels).

3.7 Indeed, the consultation goes on to note that the consumer benefits of the DTT platform are likely to be primarily delivered by a small group of channels that command high viewing share:

> *"...a DTT platform which only offered SD and HD PSB channels would likely deliver significant value. Conversely a large number of current DTT channels have a very low viewing share, suggesting that the availability of highly popular content and channels is more of a constraint on the platform than capacity."* [9]

3.8 Sky agrees with this view, which Ofcom presents in response to a report from Communications Chambers on the marginal value of using UHF spectrum for DTT. It is unclear therefore, why Ofcom has not applied this view consistently when considering the counterfactual development of the DTT platform. Such a view would suggest that demand for further DTT channels is likely to remain low in future and, as a consequence, the DTT opportunity cost is much lower than that Ofcom estimates.

3.9 Ofcom's policy objectives in relation to the DTT platform are also unclear at times. The consultation states there is a need to provide for the continued delivery of "*a broad range of services on six national DTT multiplexes with coverage broadly matching that achieved today*" (emphasis added)[10]. Sky understands why a broad range of services and wide coverage would be relevant policy objectives. But we are unclear as to why maintaining six national multiplexes should be a necessity. If a broad range of services could be delivered to the same coverage level as today, then the benefits of the platform would remain. Indeed, if this could be achieved with fewer multiplexes then it would be beneficial for UK citizens, allowing freed-up spectrum to be used for other purposes.

3.10 Ofcom has a duty to promote the efficient management of radio spectrum. An appropriate policy objective would, in this context, be to explore and incentivise methods of reducing the amount of spectrum that the DTT platform currently uses.

3.11 For example, efficiencies could be delivered through technological developments, be that a wider adoption of the existing transmission standard of DVB-T2/MPEG 4, or new video compression standards such as HEVC. Similarly, more innovative approaches to network planning such as Single Frequency Networks could be explored as another way of increasing the amount of spectrum available for other purposes.

3.12 Sky would support any industry moves to adopt new technological standards. But there are limited incentives for multiplex operators to seek greater efficiencies, so Ofcom's involvement may be necessary to keep the UK competitive internationally. In particular, Ofcom's current policy of setting prices for DTT spectrum only on the basis of cost recovery patently does nothing to incentivise multiplex operators to adopt more efficient technology standards.

3.13 Any measures which delivered a more efficient DTT platform would go some way to alleviating the impact on PMSE. With a 30% reduction of available channels proposed as

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8 See Figures 12 and 13, BDRC, 'UHF Strategy Research', February 2012. Available at http://stakeholders.ofcom.org.uk/binaries/consultations/uhf-strategy/UHF-strategy-research/research_report.pdf

9 The consultation, paragraph 5.89.

10 The consultation, paragraph 5.12.

part of this move, any additional spectrum in these bands would have significant incremental benefits. Sky supports Ofcom's proposals to move towards more efficient methods of delivering PMSE in the medium term, as well as the suggested mitigations in the short term. In managing this transition, it will be vital that Ofcom and Government maintain an ongoing dialogue with PMSE users.

3.14 The consultation raises the question of how these changes should be funded. Sky observes that the approach adopted in the case of the 800 MHz award, where winning licensees funded and ran the resulting consumer facing campaign, was relatively efficient.

Sky **1 Sep 2014**