RESPONSE TO OFCOM'S CONSULTATION ON THE USE OF GEOLOCATION TO ENABLE LICENCE-EXEMPT ACCESS TO THE INTERLEAVED SPECTRUM

Introduction

1 This comprises British Sky Broadcasting Limited's ("**Sky's**") response to Ofcom's consultation of 17 November 2009 on the use of geolocation to enable licence-exempt access to the interleaved spectrum (the "**Consultation**").

2 Sky is a broadcaster over DTT and a licensed user of PMSE spectrum.

3 Sky welcomes the Consultation and agrees with Ofcom that allowing cognitive access to interleaved spectrum may bring economic and consumer benefits. However, as the Consultation recognises, such access can also cause harmful interference for licensed DTT and PMSE users. Ofcom should therefore take all reasonable steps to ensure that the impact of any interference is minimised.

4 Sky's comments on each of the questions raised in the Consultation are set out below.

5 This response is non-confidential.

Question 1: Should we suggest only high level parameters, leaving further work to industry, or should we seek to set out full details of parameters to be exchanged?

6 Sky agrees that Ofcom should suggest only high-level parameters and allow industry bodies to set more detailed parameters. Industry bodies will be able to allow for parameters to remain flexible as technologies and usage evolve. Further, there should be scope for supplementary parameters to be adopted, which would allow more technically advanced devices to request and receive data in addition to the minimum requirements (for example, data relating to the presence of other devices).

Question 2: Should both closed and open approaches be allowed? Should there be any additional requirements on the providers of closed databases?

7 Sky supports Ofcom's view that both "open" and "closed" databases can exist in parallel. In fact, the potential for suppliers to develop "closed" databases, to function alongside "open" databases, will likely encourage investment and innovation to the benefit of device owners. However, "closed" and "open" databases must be able to interact; in particular it should be possible for a "closed" database to draw on the "open" database for its base data.

Question 3: What information should be provided to the database? Are our assumptions about fields and default values appropriate?

8 In Sky's view, a device should be required to provide its location and information on the accuracy of its location, to the database. Sky agrees that an accuracy requirement of 100m is appropriate at this stage, although, as device-technology develops, location information to a greater accuracy may be more easily provided. Also, the minimum level of accuracy appropriate may differ depending on whether the device is fixed or "on the move".

9 However, Ofcom should consider whether requiring devices to return specific model identification information would unduly burden an "open" database. Instead, an "open" database could be required to support certain device "profiles", which would broadly outline transmission and other capabilities (such as the capability of the device to operate with "push" technology) into which specific device models could be classified.

10 Sky supports Ofcom's view that any common data format, for the provision of information from the device to the database, is most appropriately developed by industry bodies.

Question 4: Should the translation from transmitter location to frequency availability be performed in the database or in the device?

11 In Sky's view, Ofcom should adopt a flexible approach to the issue of where the translation, from transmitter location to frequency availability, should be performed. Initially, it may be appropriate for the translation to be performed within the database, but as devices become more sophisticated that translation may be performed within the device, subject to the device meeting defined technical specifications, which confirm its capability to adequately perform the translation. In time, highly sophisticated devices may be able to conduct translation even more accurately than a centralised database, or at least to translate in a way that best suits the device.

Question 5: Have we outlined an appropriate information set for the database to provide to the device? Can industry be expected to develop the detailed protocols?

12 Sky agrees with the information set proposed by Ofcom, namely location to 100m x 100m "pixel" resolution; start and end frequencies; and maximum transmit power. However, additional information may be required in the dataset. For example, in addition to data on the maximum transmit power, Effective Isotropic Radiated Power (EIRP) of the transmitting station and potentially its signal strength at the device, would also be useful additions to the database, so that sufficiently accurate information can be returned by the database.

13 Further, rather than the database transmitting the full information set required on each communication with the device, Ofcom should consider whether databases should provide data "change-tracking", to update the device as to whether data has changed since the initial communication. This would reduce information traffic flowing between the device and the database to the minimum necessary and would facilitate the development and usage of devices which can be used "on the move".

14 Sky agrees that industry bodies should be allowed to develop specifications for this information transfer. Non-UK bodies such as the Institute of Engineering

Technology (IET) and the Technology/Digital Television Group (DTG) have already made progress in this regard, which may assist UK bodies engaged in the same exercise.

Question 6: Is a two-hourly update frequency an appropriate balance between the needs of licence holders and of cognitive device users?

15 In Sky's view, the database should return information to the device with a "time validity", which, during initial deployment, can be set to a short time period (such as two hours) and thereafter be set by the database on an individual basis, subject to a longer cap (such as 24 hours) or no cap at all. This would be a flexible alternative to mandating a two-hourly update frequency at the outset.

Question 7: Is there benefit to devices receiving a time validity along with any database request and to act accordingly?

16 Please see the response to Question 6 above.

Question 8: What role could push technology play?

17 In principle, Sky supports the use of "push" technology to facilitate efficient communication between the device and the database. However, the value of "push" technology depends on the reliability and availability of the connection between the device and the database. Only devices capable of establishing a consistently stable connection with the database should be able to depend entirely on "push" technology. Therefore, while the use of "push" technology should not be mandated, its development should be encouraged.

Question 9: Do you have any comments on the suggested approach to implementing the database for DTT?

18 As Ofcom observes in the Consultation, the key information required to implement a database for DTT is readily available. To the extent not already in the public domain, all the information used in implementing a DTT database should be made publicly available. Sky considers that Ofcom's "conservative approach" to interference, not allowing interference from a device to a DTT receiver at a level of approximately 33dB C/I, is appropriate. However, Ofcom should keep under review whether this level remains appropriate as technology and usage develop.

Question 10: Do you have any comments on the suggested approach to implementing the database for PMSE?

19 Sky agrees that further discussion with the PMSE community is needed to determine the most appropriate way in which data can be provided to the PMSE database and to test Ofcom's preliminary assumptions. For example, Sky notes that where the PMSE use is indoors but the cognitive devices are outside of the building, assuming a 20dB penetration loss may not be sufficiently conservative.

Question 11: Do you believe it is practical to implement such a database?

20 Sky broadly agrees with Ofcom's proposed approach to implementing a database. Ofcom should also consider including additional parameters and/or guidelines relating to data transmission security, device authentication and audit requirements (auditing the compliance of service providers and/or devices with the standards set).

21 However, in Sky's view, Ofcom has not given sufficient consideration to the impact of multiple devices on licensed DTT and PMSE users. In the Consultation Ofcom recognises that multiple devices can result in more interference than would be generated by a single device. However, the cumulative effect of interference from multiple devices is not felt only where devices are equidistant from the licensed user. Where multiple devices are not equidistant, the closest device is the primary cause of interference, but the interference caused by other devices is not insignificant and contributes to the cumulative impact on licensed DTT and PMSE users. Sky therefore suggests that Ofcom conducts further work to investigate the impact of multiple devices on licensed users.

Question 12: Is it appropriate for third parties to host the database? If so should there be any constraints? If not, who should host the database instead?

22 Sky sees no reason why a third party should not be able to host the "open" database, provided that database services are offered on fair, reasonable and non-discriminatory terms.

Question 13: How can any costs best be met?

23 Sky agrees with Ofcom's view that the application of the principle of cost causation means that costs should be borne by the parties benefiting from cognitive access. However, Sky does not consider that the issues of practicability raised by this approach are insurmountable.

Question 14: What are the difficulties and expected costs to licence holders in providing the necessary information to the database? Could this information be provided in any other way?

24 Sky does not consider that the costs of contributing to the establishment and operation of a geolocation database would be disproportionately high. However, the burden of a requirement to provide information to the database would be greater on PMSE users than on DTT users, on account of DTT information being more readily available and warranting less frequent updating. Ofcom should therefore undertake further consultation with the PMSE community in order to understand the difficulties and expected costs to PMSE licence holders of providing the database with up-to-date information.

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