Intellect response to the Ofcom call for input:

Licence exempt spectrum use in the 2400 MHz band

About Intellect

Intellect is the voice of the UK's technology industry.

We believe that a vibrant and successful technology sector is vital to the long term economic well-being of the country. Our business services help companies of all sizes compete and innovate in a dynamic global market. We represent the views of industry to government and regulators and provide opportunities for government and regulators to interact with industry on key policy and market issues. As the trade association for the UK's technology sector which includes the IT, telecoms and electronics industries, Intellect has over 850 member companies ranging from major multinationals to SMEs, which together account for approximately 10% of UK GDP. About two thirds of Intellect members are SMEs, based on the European Union definition.

Our members' products and services enable hundreds of millions of phone calls and emails every day, allow the 60 million people in the UK to watch television and listen to the radio, power London's world leading financial services industry, save thousands of lives through accurate blood matching and screening technology, have made possible the Oyster system, which Londoners use to make 28 million journeys every week, and are pushing Formula One drivers closer to their World Championship goal.

In the past 12 months 14,500 people have visited Intellect's offices to participate in over 550 meetings and 3,900 delegates have attended the external conferences and events we organise.

Response

1. INTRODUCTION

Intellect is pleased to provide information in response to Ofcom's call for input on spectrum use by licence exempt devices in the 2400 MHz band.

The UK was at the forefront of opening the 2.4 GHz band for public Wi-Fi networks in Europe and it is now one of the most intensively used bands in the UK. Many tens of millions of citizens and consumers use Wi-Fi, Bluetooth and other technologies as a routine part of their daily lives. It is also extensively used by UK businesses and in a consumer setting it is the most popular means of connecting devices to the internet.

Ofcom's duty towards consumers and citizens is set out in section 3(1) of the Communications Act 2003, which states that -

"*It shall be the principal duty of Ofcom, in carrying out their functions—.*

a) to further the interests of citizens in relation to communications matters; and .
b) *to further the interests of consumers in relevant markets, where appropriate by promoting competition.*"

From a regulatory perspective 2.4 GHz licence-exempt devices operate on an unprotected basis. Nevertheless, Intellect considers Ofcom should, when maximising opportunities for consumers to access services in new 2.3 GHz spectrum, be cognisant that UK citizens and consumers have an expectation of continued access to the internet and associated services using 2.4 GHz Wi-Fi. In the light of the extensive use of Wi-Fi in private and public applications, in both consumer and business markets, Intellect welcomes Ofcom's recognition of the importance to UK citizens and consumers of the 2.4 GHz band. Intellect notes that disruption to 2.4 GHz Wi-Fi would be of concern to consumers since

they have come to have a high expectation of service availability. To some extent this can be minimised through increased use of dual-band (2.4 GHz / 5 GHz) Wi-Fi which has increased capabilities to avoid potential interference, although the 5GHz coverage will typically not match that of 2.4GHz. Intellect also recommends that Ofcom support identification of additional 5 GHz spectrum during WRC-15 that could be used for Wi-Fi since this will also help ensure Wi-Fi capacity meets anticipated future demand.

At the same time, mobile licensed broadband usage is increasing rapidly. UK consumers have shown themselves to be enthusiastic adopters of mobile communications. The MOD's planned release of spectrum in the neighbouring 2.3 GHz band is an important development in accommodating rising mobile data volumes and Ofcom has a duty to help facilitate the availability of the band as soon as is practicable and required.

Intellect welcomes Ofcom's technical work to fully investigate potential coexistence issues following the MoD's planned release of spectrum in the adjacent 2300 MHz band. Ofcom plays a pro-active role in relevant CEPT Study Groups to ensure that co-existence between the economically important 2.4GHz band and the emerging 2.3GHz LTE band. Related to this we therefore urge Ofcom to play a pro-active role in relevant CEPT Study Groups to ensure that the spectrum resources are optimised in both important bands.

Some member companies consider that these studies should include the possibility of a modest guard band (in line with the case in the USA and parts of Asia Pacific) in the 2390-2400 MHz range. Any such guard band could still be configured for use by low density incumbents such as MoD, PMSE etc to maximise efficient use of the spectrum. Others however consider this to be unacceptable in unduly limiting the usable capacity of a vital spectrum band.

We note that ITU-R Working Party 5A has just completed work on estimating additional spectrum for Wi-Fi up to 2018 and concluded that as a minimum 880 MHz total Wi-Fi spectrum is needed between the 2.4 GHz and 5 GHz frequency bands meaning than an additional ~200 MHz is required. The proactive role for Ofcom must therefore also involve a leadership role in enabling the international availability of additional spectrum for Wi-Fi and new technologies capable of coexistence in the emerging environment.

2. RESPONSE TO CONSULTATION QUESTIONS

Question 1: Are there uses not covered in the market study with equipment characteristics or uses that are likely to make that use susceptible to interference from LTE?

If so, please answer the following questions for each identified additional LE use in the 2400 MHz band:

1.1 What is the type of application?

1.2 What is the nature of use? (i.e. how is it used? in what environment/s?)

1.3 What is the extent of use (please give an indication of regularity of use and number of units in use in the UK and/or expected future extent of use, if applicable).

1.4 What is the range of use? (i.e. what is the typical distance between the receiver and transmitter?)

1.5 What are the RF characteristics of the transmitter (i.e. power levels, occupied bandwidths) and what are the relevant technical standards that this product complies with?

1.6 What are the RF characteristics of the receiver? (e.g. minimum sensitivity, blocking levels, adjacent channel rejection) and could these be improved if they were found to suffer interference?

Please include details of equipment manufacturer make and model, if applicable.

Intellect has not identified any existing uses of the 2400MHz band other than those already mentioned by Ofcom.

Question 2. Do you have further information about uses covered in the reports?

If so, please answer the questions 1.1 to 1.6 as appropriate for each identified use.

The most prevalent use of the 2400MHz band is WiFi and Bluetooth. Ofcom is no doubt aware of the extent of this use, given that both applications are in every modern mobile device, tablet and lap-top computer and most homes have a wireless router. There are thousands of public hotspots and millions of access points deployed in the UK in homes and business premises.

Question 3. Do you have any further comments in relation to the report/s?

The reports identify all the existing uses but do not bring out clearly the extent of the use of different applications. For example the extent of public and private WiFi use with details of the extent of deployments and the benefits that these applications bring to consumers.