



OFCOM'S CONSULTATION ON A LICENCE VARIATION REQUEST TO ENABLE MFCN SDL IN THE 1452-1492 MHZ BAND

Qualcomm Response

December 2014

1. INTRODUCTION

Qualcomm welcomes Ofcom's proposals to vary Qualcomm's licence for the 1452 – 1492 MHz band.

Qualcomm agrees with Ofcom's assessment of the technical work we undertook and the conclusions that Ofcom has drawn from that work. Qualcomm is pleased with Ofcom's proposal to grant the variation request and agrees with the conditions for the variation that Ofcom has set out in the consultation. We have suggested some minor amendments to terms of each of the revised licence and Interface Requirement (the "IR") but these should not have any impact on Ofcom's overall conclusions.

Qualcomm agrees that no competition concerns arise as a direct result of the proposed licence variation or a trade of the licence shortly after a variation is granted. We note the proposals for the 1452 – 1492 MHz band that Ofcom has set out in its consultation on the Public Sector Spectrum Release (the "PSSR"), and consider that the proposed approach will adequately address any competition concerns that may arise in the future.

Granting the request will set the technical conditions that enable SDL deployment, which will allow the spectrum band to be brought into optimal use, in alignment with expected use Europe-wide. The variation is in line with the ECC decision of 8 November 2013 to harmonise the 1452 -1492 MHz band for SDL, and with the mandatory legislative proposal currently being considered by the European Commission. Going forward, Qualcomm agrees with Ofcom that SDL could deliver significant value through enhancing capacity of mobile networks to carry rich multimedia applications. SDL deployment will thus enable UK citizens and consumers to enjoy high quality, innovative and enriched wireless data services.

2. CONSULTATION RESPONSE

2.1 Qualcomm's response to Question 1 and Question 2b

Qualcomm agrees with Ofcom's assessment of the detailed technical studies that Qualcomm carried out in support of its application to vary its licence.

We note that the studies we undertook demonstrated that there could, in certain 'worst case scenarios', be some interference between operators using the 1452 – 1492 MHz band for SDL and fixed link operators, in particular those fixed links at the bottom of the 1492 – 1517 MHz band. Qualcomm agrees that the proposals in Ofcom's consultation will ensure that these interference management concerns are addressed without undue disadvantage to either existing and future fixed link operators or future users of the 1452 – 1492 MHz band. Many of the potential concerns will be completely mitigated through standard engineering



techniques, which Qualcomm is confident will not place any undue burden on, nor raise any particular concerns for, the relevant spectrum users. Qualcomm also agrees with Ofcom's assessment that the proposed technical framework will avoid the need for more complex coordination procedures between SDL and adjacent fixed links.

Qualcomm supports Ofcom's distinction between Legacy Fixed Links and new fixed links. Qualcomm notes in particular that the 1452 – 1492 MHz licensee will be responsible for the costs of installing any additional measures required to protect Legacy Fixed Links, such as filters, to ensure that those with existing fixed links are not put to any significant detriment as a result of the variation.

Qualcomm welcomes Ofcom's commitment to provide regular information on fixed links to enable the 1452-1492 MHz licensee to assess and manage the interference effectively and avoid undue interference to fixed link licensees. Qualcomm supports Ofcom's decision to provide guidance for applicants for new fixed links and is happy to assist with finalising that guidance if that would be of assistance.

Qualcomm also agrees with Ofcom's proposal only to assign new fixed links in the 1498.5 – 1517 MHz band. As Ofcom's analysis demonstrates, doing so would best optimise the use of spectrum, in line with Ofcom's regulatory duties. In particular, we note and agree with Ofcom's assessment that there is a reasonable prospect that the upper 18 MHz of the 1492 – 1517 MHz band should be able to accommodate the majority of future new fixed links assignment requests over the next ten years, and that the bottom 6MHz is efficiently used by existing fixed links.

2.2 Qualcomm's response to Question 2(a)

Qualcomm agrees with Ofcom's proposal to grant the variation request as set out in Ofcom's consultation. Qualcomm notes that Ofcom's proposals are consistent with the ECC Decision taken on 8 November 2013 to harmonise the 1452 – 1492MHz band for use for SDL, and with the ongoing harmonisation work that the European Commission is undertaking. It appears likely, following the CEPT's work, that the European Commission will take a decision mandating the harmonisation of the 1452-1492 MHz band for SDL. The UK is supporting this process.

Permitting the licence variation at this stage, in advance and in expectation of the European Commission's decision, should bring to the market as early as practically possible significant qualitative improvements for consumers in the UK. The potential benefits include better services in terms of higher data speeds and ability to support more users. As such, SDL should permit enhanced services, bringing faster download speeds, and higher capacity. For example, it could help allow mobile broadband to contribute to achieving EU's Digital Agenda target of 30 Mbps for all by 2020. Qualcomm therefore strongly believes that Ofcom's proposal to grant the variation request has the capacity to place the UK at the forefront of innovation, enabling the development of new mobile multimedia services for UK consumers.

Qualcomm agrees with Ofcom's assessment that the licence variation does not raise any specific competition concerns which need to be addressed in the context of the licence variation. In particular, Qualcomm agrees that it is right to consider the relatively small amount of spectrum that Qualcomm intends to sell (40 MHz) in the context of the much larger volume of spectrum that will be made available to the market in the PSSR auction



shortly afterwards (190 MHz). Qualcomm notes in particular that Ofcom has proposed in its consultation on the Public Sector Spectrum Release¹ that:

- the 1452 – 1492 MHz band would be included in any calculations of spectrum holdings for the purposes of the PSSR auction, which would take place less than 12 months after Qualcomm expects to trade the 1452 – 1492 MHz licence; and
- the 1452 – 1492 MHz band would be included in the schedule to the Wireless Telegraphy (Mobile Spectrum Trading) Regulations 2011 shortly before the PSSR award if the licence variation is granted. The consequence of such an amendment would be that Ofcom's consent would thereafter be required to any proposed future transfer of the spectrum.

Qualcomm agrees with and supports these proposals. Qualcomm considers this to be an appropriate and proportionate approach, for the reasons advanced by Ofcom, and also given that the 1452-1492 MHz spectrum will not be ready to be put to commercial use prior to the PSSR auction. In particular, we anticipate that Ofcom's approach would permit the trade of the spectrum to be finalised in advance of the PSSR, which will enable the MNOs to take the results of Qualcomm's sale process into account when bidding in the PSSR auction, but whilst also ensuring that no long-term spectrum asymmetries will arise. The alternative approaches that Ofcom could choose would require Ofcom to take earlier and speculative intervention, at a stage when no realistic competition concerns could arise. We agree with Ofcom that it is correct to avoid any such intervention until it is needed, and we note specifically Ofcom's concerns, as set out in the PSSR consultation, that intervention can risk doing more unintended harm than it does good.

Qualcomm also agrees with Ofcom that it is correct to distinguish the unpaired 1452 – 1492 MHz band from the lower paired frequency bands such as 800 MHz and 900 MHz which have different properties, including uplink capabilities, and for which there is already an established eco-system. Qualcomm notes Ofcom's view that it could in any event address any competition concerns arising at the time of an auction of 700 MHz spectrum which enjoys already a global ecosystem (and we note that Ofcom recently issued a decision confirming that spectrum in the 700 MHz band will be auctioned, probably in or around 2020).²

2.3 Qualcomm's response to Question 2(c)

Qualcomm considers that the technical parameters listed in Annex 9 are sufficient to enable the 1452 – 1492 MHz licensee to assess and manage the interference potential from base stations operating in the 1452 – 1492 MHz band to adjacent fixed point to point links. Qualcomm does not believe any additional parameters are required.

2.4 Qualcomm's comments on the proposed licence variation and the IR

We have set out below some limited comments on the proposed terms of the varied licence and the IR. We would be happy to discuss these comments. In each case deleted text is shown in red strikethrough, and additional text is shown in red italics.

¹ Public Sector Spectrum Release (PSSR) Award of the 2.3 GHz and 3.4 GHz bands published on 7 November 2014

² Decision to make the 700 MHz band available for mobile data – statement (19 November 2014).



Varied licence:

1. Deleted paragraph 3(a)(i)(d)(ii) – 'number' should also be deleted, as follows. We assume its retention in the draft revised licence was in error.

~~"(ii) a statement of the **number** of subscribing customers:"~~

2. Paragraph 4(a) of Schedule 1 – Qualcomm considers that the Licensee should not be responsible for any licence breach in circumstances in which the Notified Licensees have failed to operate their services in accordance with the guidance notes. Qualcomm therefore suggests that paragraph 4(a) is amended as follows:

"The Licensee must ensure that the establishment, installation and use of Radio Equipment will allow services established by the Notified Licensees to be operated without undue interference *(to the extent that such Notified Licensees operate the services in accordance with guidance issued by Ofcom).*"

3. Paragraphs 4(c) and 9(g) of Schedule 1 – the two provisions are circular and there is therefore no clear definition of "Notified Licensees". We suggest substituting the defined term 'the Notified Licensees' in paragraph 4(c) with 'holders of wireless telegraphy licences which relate to a frequency within the band 1492-1517 MHz', as follows:

"(c) Ofcom shall supply the Licensee with such information in relation to the **Notified Licensees-holders of wireless telegraphy licences which relate to a frequency within the band 1492 – 1517 MHz** as Ofcom may consider appropriate for the purposes of enabling the Licensee to fulfil its obligations under sub-paragraph 4(a)."

4. Paragraph 4b – Qualcomm agrees that the Licensee should discharge the purchase and installation costs of the equipment to be used by the Existing Fixed Links but considers that the Licensee should not be responsible for recurring costs such as for operation, repair and maintenance of the equipment used by the Existing Fixed Links and therefore suggests inserting wording as follows:

"In complying with its obligations under sub-paragraph 4(a), the Licensee must, in particular pay to an Existing Notified Licensee all costs which may be reasonably incurred by it to mitigate the risk of undue interference from Radio Equipment established by the Licensee but shall not be responsible for *(i) the payment of operating, repair, maintenance or other recurring costs; or (ii) the payment of any costs incurred by a New Notified Licensee.*"

5. Paragraph 9 (c) – suggest replacing 'band' with 'block' as follows, as there are no longer references to out of block emissions in the Schedule to the Licence (it is now part of the IR):

"out of ~~block-band~~ emissions" means radio frequency emissions generated by the Radio Equipment and radiated at any frequency outside 1452 MHz – 1492 MHz into the frequency(s) adjacent (in terms of frequency) to the Licensee's Permitted Frequency(s)."



IR:

1. Paragraph 1.7 – delete in its entirety as Decision ECC/DEC/(03)02 is no longer active as it was withdrawn by ECC Decision ECC/DEC/(13)02, as follows:

~~"1.7 Electronic Communications Committee Decision ECC/DEC/(03)02 on the designation of the frequency band 1479.5 – 1492 MHz for use by Satellite Digital Audio Broadcasting systems."~~

2. New Paragraphs 1.9 and 1.10 – Qualcomm suggests inserting new paragraphs after 1.8 as follows, because SDL uses ETSI/3GPP base station standards.

"1.9 ETSI EN 301 908 Title: IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 18: "E-UTRA, UTRA and GSM/EDGE Multi-Standard Radio (MSR) Base Station (BS)".

1.10 ETSI EN 301 908 Title: IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 14: "Evolved Universal Terrestrial Radio Access (E-UTRA) Base Stations (BS)".

1.11 ETSI EN 301 908 Title: IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 3: "CDMA Direct Spread (UTRA FDD) Base Stations (BS)".

1.12 ETSI TS 136 104 Title: LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception.

1.13 ETSI TS 125 104 Title: Universal Mobile Telecommunications System (UMTS); Base Station (BS) radio transmission and reception (FDD)."

3. Row 5 of Table 3.1 – delete 'None' as it is no longer applicable, as follows:

~~"None~~68dBm/5MHz"