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Cliff Mason
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30 May 2014

Dear Cliff

Three's response to Ofcom's consultation on variation of 1800 MHz mobile licences

Hutchison 3G UK Ltd ("Three") welcomes the opportunity to respond to Ofcom's consultation on variation of 1800 MHz mobile licences.

Three supports Ofcom's proposal to vary the 1800 MHz licences to increase the maximum permissible base station power by 3dBm.

Three applied for this licence variation in March 2013 and stated the reasons for the application in the application letter to Ofcom to increase the maximum permitted base station power for 4G technology in the 1800MHz and 800MHz bands (the "Application Letter"). In the Application Letter, we discussed the impacts of the proposed licence variation on consumers, competition and on spectrum management. This application letter is attached as Annex 1 below.

Three's responses to Ofcom's specific questions

Question 1 Do you agree with the proposal to vary the 1800 MHz Public Wireless Network licences to increase the maximum permissible downlink transmit power (e.i.r.p.) by 3 dB from 62 dBm per carrier to 65 dBm per carrier for UMTS and

Yes, for the reasons set out in the Application Letter, we agree.

Yours sincerely,

Yulia Kossykh
Regulatory & Strategy Manager

Annexe 1: Application to increase the maximum permitted base station power for 4G technology in the 1800MHz and 800MHz

Charles Jenne
Office of Communications
Riverside House
2a Southwark Bridge Road
London
SE1 9HA

22 March 2013

Dear Charles

Application to increase the maximum permitted base station power for 4G technology in the 1800MHz and 800MHz bands

We refer to the licence awarded by Ofcom to Hutchison 3G UK Limited ("Three") dated 8 November 2012 (the "1800 MHz Licence") and the licence dated 1 March 2013 (the "800 MHz Licence").

This is Three's application for Ofcom to vary:

(a) the 1800 MHz Licence to increase the maximum permitted base station transmit power for 4G technology by 3 dB, taking the current power limit from 62 dBm per 5MHz to 65 dBm per 5 MHz; and
(b) the 800 MHz Licence so as to increase the maximum permitted base station transmit power for 4G technology by 4 dB, taking the current power limit from 61 dBm per 5 MHz to 65 dBm per 5 MHz.

Ofcom is currently consulting on increasing the maximum power limit for the 900 MHz UMTS and 4G technology[1] ("the Consultation"). Ofcom proposes to vary the 900 MHz licences to increase the maximum power limit for UMTS and 4G technology by 3 dB from 62 dBm per carrier to 65 dBm per carrier.

Ofcom identifies a number of benefits from varying the 900 MHz licences to increase the maximum power limit, such as:

- improved coverage and capacity;
- improved deep indoor coverage; and
- greater ability to manage the handover between network layers operating at different frequencies, leading to the improved quality of service and/or a reduction in the cost of providing a given level of service.

Ofcom concludes that "the 900 MHz licence holders, Telefonica and Vodafone, are likely to benefit from the additional flexibility provided by an increase in maximum permitted base station transmit power at 900 MHz".

Three considers that the same consumer benefits favour a variation of the 1800 MHz and 800 MHz licences, taking the current power limit from 62 dBm and 61 dBm respectively to 65dBm per 5 MHz

[1] A Consultation on Variation of 900MHz, 1800MHz and 2100MHz Licences, Ofcom, 01/02/2013

carrier. For the avoidance of doubt, Three has no objection to the variation of all the UK 1800 MHz and 800 MHz licences.

Below we discuss the reasons for the 1800 MHz and 800 MHz licence variation to increase maximum power limit from 62 dBm and 61 dBm respectively to 65 dBm in more detail.

Impact on consumers

1. Consumers would benefit from improved coverage and increased capacity

   It is well understood that an increase in base station transmit power would allow operators to serve customers over a wider geographic area (improved coverage) and/or to serve more customers (increased capacity). This is clearly desirable as long as increased power does not cause interference issues or raise emission levels above the safety threshold (these issues are considered below).

2. Consumers would benefit from deeper indoor coverage

   Apart from improving geographic coverage, an increase in base station transmit power would also affect the quality of signal deep indoors. For any given power level, 900 MHz spectrum has an advantage over 1800 MHz spectrum in terms of its ability to provide deep indoor coverage. Permitting 900 MHz power increase to 65 dBm, while keeping power of 1800 MHz spectrum at 62 dBm would only exacerbate the discrepancy. Therefore, Ofcom should consider varying all licences (900 MHz, 1800 MHz and 800 MHz) simultaneously to maximise consumer benefits (assuming no significant interference and emission issues).

Impact on spectrum management

3. There are unlikely to be any significant interference issues

   We believe that there is unlikely to be a significant increase in the interference environment experienced by existing systems operating in neighbouring spectrum bands if the 1800 MHz and 800 MHz licences are varied to allow an increase in maximum permitted base station transmit power by 3~4 dBm to 65 dBm per 5 MHz carrier.

   Three and the other 1800 MHz and 800 MHz spectrum operators would have to maintain conformance to the pre-existing emission limits for any out of band emissions irrespective of the level of any power increase.

   Thus, Three is confident that a detailed assessment undertaken by Ofcom (similar to the one undertaken for the 900 MHz spectrums) would lead Ofcom to conclude that a significant increase in the interference environment is unlikely.

There can be no valid objection to the 1800 MHz and 800 MHz licence variation

4. All mobile operators hold 1800 MHz and 800 MHz spectrum.

   Variation of the 800 MHz licences to take the maximum power limit to 65 dBm per carrier should be uncontroversial given that all mobile operators hold some 800 MHz spectrum.

   Variation of the 1800 MHz licences similarly should face no objections, given that it is completely ‘symmetric’ to the 900 MHz licence variation proposed by Ofcom. Two operators -

Telefonica and Vodafone – stand to benefit from the 900 MHz licence variation. Similarly, two remaining mobile operators – EE and Three – would benefit from the 1800 MHz licence variation, proposed in this letter[2].

5. Variation of the 800 MHz and 1800 MHz licences would be consistent with the European practices

   Ofcom has enquired with a number of European countries to ask whether they limit base station transmit power and established that Germany, Portugal and Finland had no specific maximum base station transmit power limits, while Sweden set a base station transmit power limit of 68 dBm per 5 MHz[3], which is substantially higher than the maximum base station transmit power limit proposed in this letter. Therefore, increasing maximum power limit for the 1800 MHz and 800 MHz licences to 65 dBm per carrier would not be inconsistent with existing European practices.

6. Emission from cellular base stations are found to be very low

   In its Consultation, Ofcom states that emissions near to mobile base stations have been consistently found to be below 0.5% of the emission safety levels published by the UK Health Protection Agency[4].

   The maximum power increase proposed in this letter would result in a similar maximum permitted base station power as granted for licences in the 2100 MHz band and is unlikely to make a material change in the emission level.

Please treat this letter as our formal application to vary the 1800 MHz and the 800 MHz licences to increase the maximum permitted base station transmit power for 4G technology from 62 dBm and 61 dBm per carrier respectively to 65 dBm per carrier. We look forward to hearing from you as soon as possible.

In the meantime, please do not hesitate to contact us should you have any questions regarding our request.

Yours sincerely,

Xavier Mooyaart

Head of Legal – Competition and Regulatory

[2] We note that Vodafone and Telefonica also hold 1800 MHz spectrum (2 x 5.8 MHz each), which would not be sufficient to be an effective LTE carrier, but could be aggregated and used effectively in LTE Advanced. Therefore, Vodafone and Telefonica would eventually benefit from the 1800 MHz licence variation.
[3] Para 4.10 of the Ofcom Consultation.
[4] Para 4.11 of the Ofcom Consultation.

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