OFFICE OF COMMUNICATIONS

Higher power limits for licence-exempt devices

Statement

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Section 1

Summary

1.1 On 12 July 2006 Ofcom published a consultation on higher power limits for licence-exempt devices. It raised three key questions:

i) Should higher powers be allowed at 2.4GHz in rural areas?

ii) Should power levels be raised in all areas at 5.8GHz?

iii) Should conducted rather than radiated power levels be used as the basis for regulation?

1.2 We received 30 responses from a wide range of organisations. This note provides a brief summary of the responses across each of the key questions and sets out our proposals for further action.

1.3 Concerning the use of higher powers in rural areas, there was a variety of responses from stakeholders. Many stakeholders highlighted the issue of potential interference resulting from increasing powers which, they argued, would outweigh the potential benefits. This, they argued, would result in a net cost rather than benefit of introducing higher power levels. Further, DSL deployment has progressed substantially in rural areas since Ofcom started this work to the extent that 99.6% of all UK households can now get data rates of 512kbits/s or higher. Therefore, there is now much less need for these services to provide broadband in rural areas. After careful consideration of the evidence presented to us by stakeholders we have concluded not to progress with allowing higher powers at 2.4GHz in rural areas.

1.4 Concerning our proposal to adopt the higher power limit of four watts EIRP (in all geographical areas), from the draft ECC Recommendation (06) 04 in 5.8GHz, this had fair support and we are proposing to implement this by updating the relevant licence documentation for the band.

1.5 Concerning the change of licence specification from radiated to conducted power, there was a mixed reaction, but those that were supportive generally felt that we should make any such change through European bodies rather than in the UK alone. We will therefore investigate the possibility of this concept being explored at a European level.

Section 2

Higher powers in rural areas

2.1 We first raised the idea that higher powers might be allowed in rural areas in our Spectrum Framework Review (SFR), published in November 2004. At that time, the deployment of fixed and wireless broadband in rural areas was relatively sparse and Ofcom's consultation explored whether increasing the allowed power levels at 2.4GHz was one way to increase geographical broadband coverage in rural areas. However, since the publication of the SFR the coverage of broadband - deployed mainly though DSL - has substantially increased. Today over 99% of the UK households have broadband coverage. This positive development, along with the potential spectrum interference issues associated with increasing the power limits, was reflected in the stakeholder responses to the consultation.

2.2 We had put forward a suggestion that there might be economic benefit in increasing the power levels in the 2.4GHz band in rural areas because the cost of any increased interference might be negligible, while there may be benefits to under-served communities, albeit small.

2.3 Respondents, however, generally did not accept this suggestion. In terms of the interference, there was concern among some respondents that devices intended for rural areas would find their way into urban areas where our study recognised that the cost of the interference caused would likely outweigh the benefits. Some examples of the responses include:

- BAA thought that higher powers could affect airport operations and that the costs of moving to a different band would be great. BAA noted that airports are often in rural areas so even a perfect rural restriction mechanism still might not work.

- Ericsson and others noted that Bluetooth could be affected, preventing, for example, hands-free use in cars driven in rural areas. Even if only one WiFi channel was at higher power, it suggested that the out-of-band emissions would also affect the next channel. The company noted that since rural broadband can be provided in licensed spectrum they felt that there was no reason to risk higher powers in bands used for licence-exempt devices in order to provide this service.

- T-Mobile was also concerned about the ability to restrict devices to rural areas and expected a cost of many £m to re-engineer its hotspot network.

- The Cloud was concerned about interference but suggested that a modest increase to 1W might be acceptable. It suggested higher powers above this should only be allowed to operators who demonstrate that they are responsible.

2.4 In terms of the benefits, many suggested that the data used by the consultants who had built the business case (Scientific Generics) needed to be updated based upon recent price reductions in broadband provision. For example, SEEDA (the South-East England Development Agency) noted that

> "We are concerned that at least some of Scientific Generics' research appears to have been conducted before ADSL became widely available in rural areas. Now, nearly all of BT's exchanges support ADSL and "pre-WiMAX" backhaul solutions can be used.

The economics of providing broadband services to rural areas have changed considerably".

2.5 There was a widespread view that as a result of increasing DSL penetration the demand for rural wireless services would be lower than the figures which had been used in our original calculations.

2.6 The proposals gained only limited support even from the communities that might be expected to embrace them. Bodies such as RDAs said:

- Community Broadband Networks (CBN) were concerned about the possible interference that would result. They concluded "Overwhelmingly CBN members are not in favour of any generalised increase in power. Even in rural areas the spectrum is getting crowded."

- The Western Isles (of Scotland) Connected Communities Network supported a power increase at 5GHz but were silent about 2.4GHz.

- The Welsh Assembly gave a cautious approval to higher powers at 2.4GHz but only if it were raised as part of a pan-European initiative.

- SEEDA also cautiously welcomed higher powers at 2.4GHz but only in "not spots" – areas with no DSL coverage, rather than all rural areas, and with the "not spots" regularly reviewed and removed as DSL provision emerged.

2.7 Overall, our conclusions from the responses are that:

- If we were to introduce higher powers in rural areas we would need a robust mechanism to prevent devices migrating to urban areas. GPS-based location awareness coupled to a database describing approved locations is the only solution we are currently aware of that would achieve this.

- Given that the business case now appears weak and that location-aware devices will add additional cost to the equipment, it seems likely that if we were to allow higher power in rural areas on this basis there would be very limited take-up. This is supported by the limited support for higher powers from those bodies most likely to benefit from it.

- The costs of developing legislation and then building and administering an appropriate database of rural locations could be significant and does not appear justified given the consultation responses and market developments.

2.8 Therefore, we conclude that we should not modify the existing legislation at this time. We may wish to review this decision in future, for example, if location-aware devices become widespread or if wireless provision becomes viable for next generation network (NGN) access.

2.9 Equally it is possible that the Ofcom spectrum awards programme or the developing bandsharing programme may result in increased access to spectrum in rural areas. For example, awards at 2.5-2.69GHz or bandsharing with Governmental users in 2.7-3.4GHz band might result in substantial amounts of spectrum becoming available in rural areas in bands close by the licence-exempt 2.4GHz band.

Section 3

Higher powers at 5.8GHz

3.1 There was almost universal approval of the move to 4W at 5.8GHz in line with current EC initiatives. We will move ahead with this by releasing a statement with the implementation date for this change to the general public via a press announcement on the Ofcom website. In addition we will also inform 5.8GHz licensees directly of the changes in their conditions of use which will allow them to transmit at the increased power of 4W EIRP. The implementation date for this change will be decided upon after the notification period for publication of the draft IR2007 in the Official Journal of the EU has been completed. We are aiming to release the press announcement with the implementation date before the end of 2006.

Section 4

Conducted or radiated power

4.1 There was a mixed reaction to the proposals to move from radiated to conducted power. Some welcomed it, some were concerned about the possibility of interference and many chose not to comment. Among those who welcomed it, many stressed that it should be introduced at a European level and requested that Ofcom work within Europe to introduce appropriate measures.

4.2 We will work within CEPT and the EC to raise this as a work item for future study.

Section 5

Other proposals

5.1 A few respondents put forward their own ideas. We will investigate these further, conducting modelling where appropriate. Equally, however, we are limited in our ability to make regulatory changes by the MoD ownership of a large part of the 2.4GHz band.