

A rural broadband study for Ofcom

Balancing the technical and economic options

SAGENTIA



UK communications regulator Ofcom was considering increasing the power levels allowed in bands used for licence exempt applications such as wireless LANs in order to facilitate new services including higher speed broadband to rural communities. But raising power levels could increase interference to other users, thereby imposing costs which would offset the benefits of the new services. So before going to consultation, Ofcom commissioned Sagentia to undertake a balanced technical and economic study* of the options.

During the first phase of work we undertook a series of interviews with key industry players to understand their views on the need for regulatory change and the likely benefits and losses that may arise. Also during this phase we examined in detail previous studies into co-existence and researched the current services and users of the 2.4GHz and 5.8GHz bands. Finally, we derived a set of higher power scenarios for further investigation.

We developed a model to examine the relationship between power limits and private net benefits for each of the scenarios. The model was a combined geographic, network and economic model. For each of the scenarios we estimated the costs of interference that might arise as a result of allowing higher powers.

Recommendations and outcomes

Based on the results of our modelling work and other research and analysis performed during the study, we put forward a number

of options for consideration in the consultation process. These included:

- higher powers at 2.4 GHz in rural areas
- higher powers at 5.8 GHz in all areas
- conducted rather than radiated power used as the basis for regulation

The case for increasing the power at 2.4 GHz in rural areas was weakened by the pace of DSL deployment and Ofcom decided not to progress with this option. The proposal to adopt the higher power limit of four watts EIRP at 5.8GHz had fair support and Ofcom proposed to implement this. Meanwhile, the change of licence specification from radiated to conducted power is to be explored at European level.

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* To undertake this study Sagentia teamed up with Lucent Technologies – experts in wireless technology, economists at DotEcon Ltd, and rural geographers at Birkbeck University of London



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