Higher power limits for licence exempt devices

Understanding the Scope for a Power Increase at 2.4 and 5 GHz

Broadband Access Strategies LLP welcomes the move by Ofcom to introduce higher powers within at least part of the licence-exempt spectrum in the UK. The increase in power will be of particular benefit to rural areas as communities seek to enjoy the same social and financial benefits as their urban counterparts from the Next Generation Networks that are starting to be introduced.

Failing to implement the higher powers proposed in this consultation on the basis of the hope that licence holders of 3.4 – 4.2GHz spectrum will start to trade parts of their spectrum will undoubtedly disadvantage rural areas. On one hand the licence holders of this spectrum have shown no willingness to start trading, on the other the fragility of rural business models indicates that in any case the price for this prime WiMAX band would be too high.

The consultation document enters into some detail on the power limits for the 5.8GHz 'C' band, little is mentioned of the very significant spectrum available in the 5GHz bands 'A' and 'B'. These two bands appear to be relatively little used, we suspect this is due to the low power limits that have been set. Broadband Access Strategies LLP recommends that Ofcom takes the initiative at a European level to encourage greater use of these bands through raising the power limits.

Q1: Have all the possible victims of interference been correctly identified and quantified as far as possible?

Between the two reports there is a comprehensive review of potential victims with no obvious omissions.

Q2: Have the costs and benefits been correctly captured? In particular, are the costs of interference to WLANs appropriately assessed?

The study captures the costs and benefits but does reflect the value of innovation and the need to demonstrate real wireless capability for a range of solutions as diverse as remote monitoring for the London Olympics in 2012 to mobile backhaul.

The cost of WLAN interference appears to have been properly addressed.

Q3: Are there any other mechanisms that could be used to restrict device operation to appropriate areas? Of the schemes set out which should be preferred?

Broadband Access Strategies' view is that a distinction should be made between fixed and mobile devices. A simple registration scheme should be sufficient for fixed devices. Mobile devices on the other hand should have an integrated location determination function, capable of interacting with a central system that defines the area of prohibited use. Mobile devices would therefore be more expensive to operate at higher powers than their fixed counterparts but this would be offset by the significant financial advantages afforded by mobility.

Q4: Should we move from specifying radiated power to specifying conducted power?

We believe that there are significant benefits in moving from specifying radiated power to specifying conducted power. Our financial modelling of broadband systems over the years has clearly shown that the business model for broadband delivery in rural areas is strongly dependent upon the cost of backhaul. This is the case for both wireless and DSL broadband access systems. Switching from specifications based on radiated power to conducted power will greatly improve the capacity and range (and hence the economic effectiveness) of point-to-point wireless links for backhaul.

Q5: For 2.4GHz which of these options do you favour? Are there other viable options that should be considered? Or should regulations be left unchanged?

The current 100mW EIRP is unduly restrictive as the universally applied UK limit and a higher power limit should be available on some basis. Whatever basis is applied it should not prevent the operation of mobile devices in the high power area.

Distilling the essence of the options:

> Option one – maximise benefits. Under this option we would allow higher powers of 10W at 2.4GHz throughout the UK in the band 2450-2483MHz. With no geographical restrictions devices need not be location aware. No registration requirements would be placed on users.

This option would undoubtedly cause interference in urban areas.

> Option two – minimise risks. Under this option we would restrict higher power operations to hamlets, villages and rural towns. Devices would be required to be location aware and only transmit at higher powers if they were in appropriate areas.

This option semantically excludes the use of high power in open space and introduces the need for a location awareness device in all cases of high power operation.

> Option three – a balance between risks and benefits. Under this option we would restrict higher powers to all areas except large and major urban conurbations. Devices would not need to be location aware but a mandatory registration scheme would operate and users would need to adhere to a code which required them to work collaboratively to resolve interference issues.

This option raises the prospect of the same loss of flexibility introduced into the UK at 5GHz Band C by comparison with the major global markets.

It is suggested that a further option be considered:

> Option four – a balance between risks and benefits. Under this option Ofcom would allow higher powers in all areas except large and major urban conurbations. Mobile devices would need to be

location aware and a mandatory registration scheme would operate for all high power users. High Power Users would need to adhere to a code which required them to work collaboratively to resolve interference issues.

Q6: For 5GHz should Ofcom increase the power to 4W EIRP at 5.8GHz in accordance with ECC Recommendation and as set out in the draft IR2007? Should Ofcom open the database for public access to facilitate coordination?

We favour the moderate increase in power in the 5.8GHz band but would strongly recommend that rather than specifying the power in terms of EIRP Ofcom adopts a conducted power limit (see also our response to Q4 above). The draft IR2007 would need to be modified to specify power levels in accordance with conducted power methodologies. We also note that the current draft fails to take steps to regularise the use of this band to include mobility and therefore recommend that the opportunity of this consultation is used to correct this omission.

Opening the deployment database would be extremely useful in promoting operator awareness of potential interference issues.