

OFCOM Consultation: Higher power limits for licence exempt devices

The Community Broadband Network (CBN) welcomes this opportunity to respond to OFCOM's consultation on higher power limits for licence exempt devices.

CBN was set up with government support to help rural communities achieve broadband coverage. We represent local community-based broadband groups delivering services in both rural and urban areas but with a preponderance of rural groups. We are in touch with around 200 local projects. Most of these groups use licence-exempt spectrum to deliver fixed wireless access services in their communities. They are wireless ISPs.

Responses to Consultation questions

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

Community networks and wireless ISPs are not specifically listed as possible victims of interference, perhaps understandably since the consultation is primarily about fixed wireless access. However the consultation notes:

3.16 From the modelling work undertaken it is expected that outdoor WBA would suffer interference from an indoor WLAN over a longer range than vice versa. Commercial WBA operators are unlikely to want to use 2.4GHz for WBA-type services in non-rural areas or near business parks because of the risk of interference from other WLAN users of the band. Evidence from operators supports this hypothesis.

Responses from CBN members have expressed concern that higher power in the 2.4GHz spectrum including 'domestic' devices could cause interference problems for those delivering services in their communities. It should also be noted that several CBN members operate services in urban areas including quite large projects for example Manchester Eastserve delivering FWA to 1900 households in East Manchester, and the Boundless network in South London, a 40 node mesh network in Deptford SE8 with many hundreds of users.

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

We are not in a position to provide detailed comments on the cost benefit analysis presented by the consultants. However CBN members expressed concern that the costs of interference were not adequately estimated. Community networks and other WISPs provide services to both business and residential users. Increased interference will inevitably increase technical, customer support and other costs. This in turn will reduce the viability of small businesses that are delivering services often in commercially and geographically tough areas which cannot get adequate DSL or cable services.

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?

CBN members who responded to this question favoured a registration system over location-aware devices which are likely to be much more costly. However the drawbacks to the registration system were recognised.

Q4: Should we move from specifying radiated power to specifying conducted power?
We received no strong views on this.

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?

There were very strong views expressed by CBN respondents to this question.

Overwhelmingly CBN members are **not in favour** of any generalised increase in power. Even in rural areas the spectrum is getting crowded.

Below are three representative quotes. The first quote is from a consultant who set up an extensive rural network in the South East and has advised many other local groups. The second respondent runs village networks in North Yorkshire, and has helped set up other networks in Yorkshire, the North East and Scotland. The third runs a network covering seven villages in the East Midlands.

Respondent 1

"As for the 2.4 GHz band. It's swamped now - increasing the power from 100mW to 10W will just drown the spectrum completely.

Love their third option. So with SEEDA's assistance, BT OpenZone swamp the South East with 2.4 GHz radiation, and [WISP business owner] wants to them to negotiate over the interference they cause his customers. Is that really going to happen? How big is the stick?"

Respondent 2

"EIRP is stupid. The last thing I want is an increase in power around the place. People will start using amplifiers and the already dubious situation becomes worse.

I don't have any problem with an increase in power on directional links - these do not cause as much noise and interference in the surrounding areas, as they are sending the signal where they want to.

To put it in perspective, there is a world of difference between transmitting at 30db over a 10db omni antenna, and transmitting at 10db over a 30db parabolic antenna.

We already have the situation of people getting "range boosters" which are amplifiers to increase their signal without any appreciation of the problems that can occur.

I think that anything making the spectrum more crowded is a retrograde step. What they should do is to allow people to use highly directional antennas with higher power, rather than increasing the transmit power."

Respondent 3

"10W instead of 100 mW is an increase of 20 dBm which in free space terms takes the range from 5 to 50 km. Line of sight, fresnel zone and other issues may intrude, but that's a useful step up.

It's the same as using a 24 dBi dish at each end instead of a 14 dB Yagi, for example, so need not be expensive to implement. Standard 15 dBm output kit with a 24 dBi dish will be close to the new limit, the 200 mW higher power radios will provide it.

With no restrictions or registration we could expect a corresponding increase in "interference" or competition for the frequency if domestic equipment were on sale with the higher EIRP. A US-style restriction to use of higher power by WISPs only could be helpful."

At a meeting CBN held on 19th September the strongly expressed and general view was that any blanket increase in power would be a bad thing – except in the case of directional antennas. However the difficulty of policing this was also recognised.

In relation to the three options presented in the consultation this means:

Option 1 is not supported.

Option 2 is not favoured because of the likely increased costs of location-aware devices.

Option 3 finds slightly more support, but CBN members expressed strong concerns that enforcement would be weak.

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?

Feedback we received on this question was mixed. A good representative view is:

"My own experience is that the 5.8GHz band works very well - the trade off between power and the number of channels (only 4) means good reach with no material interference. Increasing the power to 4W may change that, especially as this is a band some big commercial operators will want to use for WiMax.

The real argument is not about the 5.8GHz band C, it is about the adjacent Band B. If this were opened up for non-mobile use, then they could do what they liked with Band C as there would be so many channels no reasonable operator should interfere with another. "

Malcolm Corbett
20th September 2006
