



BAA's Response to Ofcom's Consultation

“Higher power limits for licence exempt devices”

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BAA welcomes the opportunity to respond to Ofcom's consultation "Higher power limits for licence exempt devices".

BAA is the world's leading private airport operator, with seven UK airports including the three London airports Heathrow, Gatwick and Stansted and eleven international airport interests. Heathrow is the world's busiest international airport in terms of passenger numbers. Every year over 140 million passengers travel through our UK airports. The UK Government forecasts that passenger numbers will double over the next 20 years.

BAA's airports are some of the most complex radio environments in the UK, with a large number of service types and a heavy demand on spectrum. Radio communications are critical to airport operations, helping to ensure the safety and security of all airport users. Airport expansion and the provision of new wireless-based services will lead to increasing demands on the radio spectrum.

BAA believes it must ensure that the radio environment is managed for the benefit of all airport users and that it is ideally placed to manage the radio spectrum due to its detailed specific knowledge of the built environments. We already manage spectrum usage across all bands, including licence-exempt bands, to minimise the risk of interference. We support moves towards a flexible micromanagement of spectrum at our airports.

WiFi in the 2.4 GHz band provides operationally critical services to BAA and its partners. It is used for baggage scanning, wireless credit card payments and many other applications. In addition there is heavy demand for WiFi access for passengers in departure lounges and in other areas. BAA has carefully managed the competing WiFi requirements and invested heavily in its own network to ensure that capacity is maximised and the risk of interference is minimised. In many cases WiFi Access Point power output is set to much less than 100mW in order to minimise interference and RF Health and Safety risks. BAA expects spectrum utilization and QoS requirements to increase due to wider adoption of technologies using the spectrum, such as Voice over WiFi.

Baggage tag scanning in particular is carried out in outdoor "apron" areas of the airports, and would therefore be highly susceptible to interference from higher power licence exempt devices operating off-airport. The reliability of baggage identification is critical for the safety of passengers.

In addition BAA will soon enable "Gatelink" which uses 802.11b/g for the wireless transfer of electronic flight manuals, navigational data, passenger manifests, maintenance data etc. to/from aircraft during turnaround. A secure high quality link per aircraft is required for the substantial volumes of data.

BAA therefore strongly opposes increased radiated power limits for licence exempt devices at 2.4GHz, due to the significantly increased risk of interference and disruption of essential airport services. We believe also that options for restricting high power devices to rural areas would not be possible to enforce and are therefore not viable. In addition many airports are close to rural areas and would therefore be at risk of interference even if devices were operating in accordance with regulations.

BAA has started to roll out 802.11a/n infrastructure at its airports and would strongly oppose increases in radiated power limits in the 5 GHz bands A and B. We are therefore pleased to see that Ofcom is proposing to make no changes to the regulations for these bands.

Answers to the specific questions in the consultation document are given below.

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

BAA disagrees with Ofcom's view in 3.14 that interference would be mitigated by 'polite protocols', as the high power devices may not be aware of the presence of low power devices. BAA agrees with interviewees' comments that there could be capacity loss overall due to the risk of increased interference, caused by everyone increasing power in order to overcome the interference they experience. We also agree with the comment that higher power at 2.4GHz could possibly "wipe out" the existing benefits obtained in this band.

The impact of increased power limits for Band C on Point to Point and Point to Multipoint Fixed Wireless Access systems does not appear to have been assessed in the consultation document. BAA currently uses FWA within this band and is concerned about the proposed higher power limits.

Q2: Have the costs and benefits been correctly captured? In particular; Are the costs of interference to WLAN's appropriately assessed?

BAA feels that the costs of reduced capacity could be huge. We disagree with the methodology used to obtain cost figures for interference at 2.4GHz. To move from 2.4GHz to 5GHz would require a complete rebuild of network infrastructures at the airports and an increased number of access points, resulting in significant cost and disruption. In addition client devices would need to be replaced, and WiFi access would no longer be available for most passengers. Data collected by BAA suggests that only a small proportion of the travelling public are able to use 802.11a/h.

802.11b is the international de-facto standard technology used at all airports for baggage tag scanning and BAA is not aware of 802.11a/h baggage reconciliation in use at any airport worldwide.

A large number of Boeing and the latest Airbus aircraft are fitted with 802.11b/g Gatelink clients. Transferring to use of 802.11a/h would require considerable aircraft development (to ensure compatibility with avionics systems etc.) and disruption to aircraft for deployment.

In summary we do not feel that a move from 2.4GHz to 5GHz is a viable proposition in airport environments due to the potential reduction in aircraft safety during any period of changeover, plus the timescales and commercial impact of making the changes.

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?

Despite geographical restrictions and the use of 'location aware' mechanisms, intended to limit high power operation to rural areas, all BAA airports either adjoin or are close to rural areas. Visual inspection of figure 4.2 (Page 22) of the consultation document appears to show that 2 out of the 3 London airports lie within rural areas.

BAA would be concerned about any higher power devices operating close to airports as there would be a high risk of interference, particularly with baggage tag scanning equipment and Gatelink systems operating outdoors.

An additional major concern is that high power devices, once available, could easily be brought onto the airport and cause severe disruption to critical airport systems, either accidentally or maliciously.

For reasons described in this response, BAA strongly believes that regulations be left unchanged. BAA believes that schemes to restrict use of high power devices to rural areas would not work in practice. Even if it were possible to restrict high power devices to rural areas then airports would still be at risk due to their location in or close to rural areas.

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

For reasons described in this response, BAA strongly believe that regulations be left unchanged.

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?

BAA strongly believes that regulations be left unchanged due to the significantly increased risk of interference to critical airport systems if higher radiated powers are permitted.

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?

BAA believes that increasing EIRP to 4W at 5.8GHz would increase the risk of interference to BAA's FWA systems on the airport, although we recognise that the power increase is relatively modest. BAA believes therefore that IR2007 should not be changed.

BAA is concerned that, subsequent to MoD investigation, the permitted power level in 5.8 GHz Band C could be increased to 25W, and seeks assurance from Ofcom that such an increase would be subject to further consultation.

BAA strongly supports the opening of the registration database for public access, to facilitate self-coordination.