



BAA's Response to Ofcom's  
Ultra Wideband Consultation

## Introduction

BAA welcomes the opportunity to respond to Ofcom's Ultra Wideband (UWB) Consultation.

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 130 million passengers travel through our UK airports. The UK Government forecasts that passenger numbers will double over the next 20 years.

The Government has recently given the green light to major expansion of London's airports in its' 30 year Aviation White Paper. Announcing plans for a new runway at Stansted and a possible third runway at Heathrow, Alistair Darling said "Air travel remains crucial to our growing economy – our future prosperity depends on it". BAA will invest over £8 billion in airport development, including Terminal 5, over the next 10 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.

UWB is a new technology proposed for use in the 3.1 – 10.6GHz band to provide short-range, high bandwidth communications. The introduction of UWB raises serious concerns for BAA with respect to the impact of interference on existing wireless systems in operation at UK airports. Of particular concern is equipment such as traffic alert collision avoidance systems (TCAS), DME, VOR and ILS, operating at relatively low frequencies. Also of concern are the effects on primary radar, radio altimeters, microwave landing systems and terminal Doppler weather radar.

Many safety of life services at airports need to be adequately protected from interference which could arise from change of use of spectrum. To date there have been no practical studies to determine the affect of UWB interference on aeronautical systems.

BAA believes it is ideally placed to manage spectrum at airports, especially for low power indoor systems, due to its detailed specific knowledge of the built environments. However, UWB applications for Personal Area Networks (PAN) will be very difficult to police given that they can be deployed on an 'ad hoc' basis, without existing infrastructure, in a similar manner to Bluetooth.

There are alternative technologies available or in the pipeline that can either match the performance of UWB (e.g. IEEE 802.11n WLAN) or deliver similar applications. These should also be investigated to determine the true benefit of UWB.

BAA does therefore not support plans to allow UWB unless there are suitable safeguards to minimise disruption to airport operations. BAA believes that the potential benefits to its business, airport stakeholders and passengers are currently far outweighed by the potential risks to existing or planned airport systems.

## Answers

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

***Q1: Are these the appropriate topics to be consulting on?***

Yes, BAA considers the scope of the consultation to be appropriate.

***Q2: Do you agree with this analysis of our statutory duties? Are there any important factors that have been omitted?***

BAA agrees with Ofcom's interpretation of most of its statutory duties. However, regarding the '**Current and Future Demand for Spectrum**' it is misleading to suggest that there are applications that can only be provided using UWB technology. UWB is certainly a key enabling technology for high data rate wireless applications however, there are alternatives in development (e.g. IEEE 802.11n WLAN) that will offer similar capabilities. Adoption of UWB over such a broad frequency range may preclude the adoption of future, better technologies if UWB becomes well established. Further research is required to determine if UWB is really the optimal solution.

***Q3: Do you agree with the economic study? Are there other studies that Ofcom should be conducting?***

BAA agrees with Ofcom that the Masons study is incomplete. Based on the narrow scope of the study, we would suggest that the findings are only loosely indicative of the potential economic value of UWB.

The scope of the study is quite limited, mainly focusing on the cost to UMTS services. No costs have been considered in respect to the effects of UWB on aeronautical systems.

It is unclear whether the study assumes that UWB will be the only technology available for high rate wireless links. Forthcoming alternative technologies e.g. 802.11n could have a very significant impact on the net benefit of UWB.

***Q4: Is there a better way that future use of the spectrum could be taken into account?***

BAA agrees that future use of the spectrum should be afforded due consideration when estimating the value of UWB. The 3G expansion band, 2500-2690MHz, is important as increased interference in this band will adversely affect 3G services at airports.

Consideration should also be given to alternative technologies deployed in the same band as UWB e.g. 802.11n. Research should be carried out to determine whether established widespread use of UWB will preclude the deployment of future systems that could be more efficient.

***Q5: What is the most appropriate solution to the potential interference from UWB to BFWA?***

BAA will look to deploy BFWA systems in the near future, probably using the IEEE 802.16 standard (WiMax) or similar initially. Interference from UWB is a threat to these deployments and BAA is in agreement that this area requires further study.

BAA advocates the adoption of a solution that does not rely on goodwill between users competing for resources. The solution should require that mandatory actions

be taken out of the control of the user, at the device level, to avoid conflict e.g. mask modification (notches) or collision avoidance.

***Q6: Would it be possible to achieve sufficient isolation between radio astronomy and UWB through practical methods of physical separation?***

This is not applicable to BAA.

***Q7: Are there any other options that we should consider?***

As stated above BAA believes the risks of UWB to airport operations outweigh the potential net benefits. However if UWB is to be permitted in the UK then BAA suggests:

1. No deployment of UWB should be permitted in or near airports
2. High Band (>6GHz) UWB deployment only is permitted, or
3. Low Band using OFCOM spectrum mask and then notch out BFWA Spectrum

***Q8: Are there any major technical studies that we have omitted?***

BAA is aware of recent work carried out by the International Telecommunications Union, ITU-R Task Group 1/8 (TG 1/8). Working Group 2 (UWB Compatibility) has carried out a study of the impact of UWB on aeronautical systems (WP8B "Maritime Aeronautical Radiodetermination").

This work is of great interest to BAA as it addresses key issues relevant to the airport environment. We feel this work should be included in the consultation process.

Further, BAA believes that the conclusions arrived at through this theoretical analysis would benefit from qualification by a program of practical measurements.

***Q9: Have we made an accurate assessment of the existing studies?***

BAA is not able to comment on the accuracy of Ofcom's assessment without further in-depth analysis.

***Q10: Do you agree that we should seek a common European framework for the introduction of UWB?***

BAA agrees that Ofcom should seek a common European framework for the introduction of UWB.

BAA would like to see this work extended to a worldwide agreement on the UWB framework. Even although standards have been ratified in the US, pressure could be exerted on manufacturers for voluntary adoption of the Ofcom spectrum mask.

Given that Personal Area Networks can be deployed on an 'ad hoc' basis, without existing infrastructure (in a similar manner to Bluetooth), they are very difficult to police. Airports are particularly vulnerable as passengers arriving with US specified equipment are not likely to be aware of the interference issue.

BAA would prefer if this could be addressed through regulation and standardisation.

***Q11: Have we proposed the most appropriate mask? Will it be possible to deliver equipment conforming to this mask?***

Please refer to the answer given to Qu. 7 as to BAA's preferred approach. However, of the proposed solutions presented, BAA would advocate adoption of the Ofcom spectrum mask if UWB is to be permitted.

***Q12: To what extent should we define parameters such as those listed above?  
What is the most appropriate definition for each of these parameters?***

If UWB is to be permitted then BAA would prefer any constraints on UWB to minimise the impact on airport systems, particularly aeronautical and BFWA.

***Q13: Is our proposed approach to international bodies appropriate?***

BAA agrees that the proposed approach to international bodies is appropriate.

***Q14: How should we best deal with the precedent potentially set by its proposed approach to UWB?***

BAA has no view on this question.

***Q15: What should Ofcom's role be in setting and monitoring EMC standards?***

BAA believes that Ofcom's duties should include setting and monitoring of EMC standards.