

February 14, 2001

Mr. Andrew Gowans  
Radiocommunications Agency  
11G/6C Wyndham House  
189 Marsh Wall  
LONDON E14 9SX  
United Kingdom

Reference: Comments on the consultation on proposals for Technical Requirements for Short Range, High Data Rate Equipment operating in the frequency range 5150 to 5875 MHz - Final Stage

Dear Mr. Gowans,

Aperto Networks would like to thank the Radio Communication Agency for providing the opportunity to comment on the above referenced consultation.

Aperto Networks is the developer and provider of multi-service fixed broadband wireless access systems, for global markets. Aperto delivers a point-to-multipoint system solution, including carrier's infrastructure equipment and subscriber equipment for 2.5 GHz MMDS, 3.5 GHz FWA, and 5 GHz NII bands. Aperto addresses service providers' needs for mass market deployment of broadband wireless solutions with products that enable rapid network deployment, multi-service scalability, ease of installation and cost-effectiveness. Aperto's solutions and patent-pending technology targets the small business, SOHO and residential markets. Further information about Aperto Networks can be found on our web site at [www.apertonet.com](http://www.apertonet.com).

After a careful review of the Radiocommunications Agency 5GHz consultation documents, we found useful to provide comments as attached to this letter. We hope that these comments will help the Radiocommunications Agency to effectively move forward with the allocation of this spectrum for the benefit of the British public and industry.

We would be happy to provide you more details and clarifications on these comments if you so desire. If that is the case, please feel free to contact me.

Respectfully,

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Cc.: Aperto Network's Comments on the Radiocommunications Agency "5GHz consultation"

## **Aperto Networks' comments on the Radiocommunications Agency "5GHz consultation"**

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### **Reference documents:**

- [1] Consultation on proposals for Technical Requirements for Short Range, High Data Rate Equipment operating in the frequency range 5150 to 5875 MHz – Final Stage
- [2] DRAFT UK Interface Requirement 2006: Short Range, Broadband, Data Services (HIPERLAN) operating in the frequency range 5-6 GHz (version1.0)
- [3] Draft ETSI EN 301 893 version 1.1.1: Broadband Radio Access Networks; HIPERLAN Type 2; Harmonized EN covering requirements article 3.2 of the R&TTE Directive (January 2001)
- [4] IEEE P802.16a/D2-2002: IEEE Draft Standard for Local and Metropolitan Area Networks part – 16: Air interface for Fixed Broadband Wireless Access systems – Medium Access Control modifications and Physical layer specifications for 2 – 11 GHz (February 2002)

### **General comments**

The following comments are relative to both documents [1] and [2].

Aperto Networks fully and strongly supports the United Kingdom's Radio Agency's effort to allow operation of Fixed Broadband Wireless Access (FBWA) systems in an unlicensed band at 5GHz. Judging from the examples of other regions where similar systems are deployed, FBWA systems deployed in licensed exempt spectrum offer the possibility of quick deployment with a limited risk to the service provider thanks to the lack of obligation to purchase spectrum.

Aperto further believes that there currently exists a window of opportunity resulting from the emergence of so-called "second generation" FBWA systems on the market. Second generation systems are characterized by a totally new integrated approach to broadband access systems optimized for the wireless environment. For instance, second generation systems are characterized by a high spectral efficiency, resistance to interference and high scalability, flexible and extensive Quality of Service capabilities and Obstructed Line of Sight coverage. All these characteristics are key to the successful and profitable deployment of a Fixed Broadband Wireless Access system. This window of opportunity should therefore be exploited rapidly to encourage the emergence of new wireless services and service providers.

In particular the proposal to allow operation of FBWA systems in band C (5 725 to 5 875 MHz) has the additional benefit of harmonizing the use of this band with other regions such as North America or certain Asian regions. This is a key element of success in the global telecommunication market.

Numerous Point to Multi-Point FBWA systems have indeed already been deployed in various parts of the World in license exempt 5.8 GHz frequency band. For example, in the many networks that are now operating with Aperto equipment in this band, it has been shown that high quality and high reliability services can be offered in a PMP FBWA system operating in license exempt spectrum. These services can be offered to Small and Medium Enterprises (SMEs), Small Office and Home Offices (SOHOs) or even residential customers. It has also been shown that such systems were capable of offering high capacity, high Quality of Service and Obstructed Line of Sight coverage, three key features of second generation FBWA systems. Aperto believes the same successful

deployments can be achieved in the UK, provided that efficient co-existence rules are applied. FBWA systems may also be used efficiently for backhauling wireless LAN traffic in the future, and therefore is an ideal complement to systems such as those based on HIPERLAN2.

Opening the 5.8 GHz license exempt band for Fixed Broadband Wireless Access operation will result in the emergence of competitive access and service providers, thus benefiting the British consumers and industry. Quick availability of proven technology is a key factor to the success of those service providers. In addition, being able to use the same equipment that is used in other parts of the World provides a more cost effective solution thanks to global economies of scale.

### **Comment on Minimum equipment requirements:**

The following comments are relative to document [2].

#### 1) Reference to EN 301 893 (document [3])

In the document [2], Band C (5 725 to 5 875 MHz – further referenced as the “5.8 GHz band”) is identified as being referenced by draft EN 301 893 (HIPERLAN2 standard – [3]). This document however does not cover operation in this particular frequency band, and therefore does not appear to be applicable to this band. Additionally, it should be noted at this point that HIPERLAN2 specifications are grossly inadequate for the design of a “last mile” Fixed Broadband Wireless Access system, due to their very limited range.

#### 2) Standards situation

Within ETSI, development of specifications for Fixed Broadband Wireless Access systems in the bands below 11 GHz is under the responsibility of the ETSI BRAN HIPERMAN group. Work has started in December 2001 within HIPERMAN on systems operating in this license exempt frequency range. The current Draft Technical Report (DTR) developed by HIPERMAN includes support for both Point to Multi-Point and Mesh systems. The current work has however been limited to discussions on the systems and functional requirements and to basic co-existence considerations. It is expected that a final standard will not be ready before late in the year 2002, or not even later. Keeping in mind that a typical 18 month delay is to be expected before standard compliant systems become commercially available after the final standard is published, this means that standard compliant equipment are not likely to be available in volumes before second half of the year 2004. Particular aspects of these systems such as the choice of a modulation schemes have not been discussed at this point, and it is premature to speculate as to what it might end up being.

In parallel to ETSI, IEEE has been developing international standards for FBWA in the 802.16 group. In particular work on the IEEE 802.16a standard for FBWA systems operating in frequency bands below 11 GHz has been progressing well and is scheduled for publication in the first half of 2002 and for ballot completion in September 2002. The current draft of this standard is represented in document [4]. 802.16a is the result of a truly global cooperation between experts from many companies and countries, and it meets all the requirements for so-called “second generation” FBWA systems, including support for license exempt bands. Another point worth mentioning is the fact that ETSI and IEEE are working in close cooperation for the development of global FBWA standards, and ETSI HIPERMAN has already decided to use the basic aspects of 802.16a for its baseline.

It is therefore important to allow maximum flexibility in the choice of technical standards applicable to the 5.8 GHz band if the objective is to favor a quick development of the broadband access

infrastructure and industry in the UK. Any unnecessary barriers would indeed limit and slow down the availability of technical solutions for the British market.

## **Conclusion**

Our proposal with regards to minimum equipment requirements is therefore to:

- Remove the reference to EN 301 893 for Band C
- Remove the reference to a modulation scheme for Band C
- Allow operation of any type of FBWA system, subject to the 2W EIRP limitation and assorted with co-existence rules