



17th December 2001

Mrs Sallyanne Miller
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By post and by email

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Dear Mrs Miller

Initial Response to Consultation Document entitled "Use of the Licence-Exempt Spectrum For Provision of Public Telecommunications Services"

Red-M (Communications) Limited ("Red-M") welcomes the opportunity to respond to the above consultation paper.

About Red-M

We would like to begin our response by giving you some background to Red-M and our business. We are a UK wireless product and software development company founded at the end of 1999. We are recognised as a leader in Bluetooth industry having won numerous awards for our products and technology. Our global customer base includes most of the major fixed and mobile network operators in Europe, as well as numerous corporations who plan to deploy wireless technologies within their businesses. We believe we have a strong insight to the applications and services that will be offered over technologies such as Bluetooth and wireless LANs, and as a result we would like to contribute to the consultation process.

We would like to meet with you to explain our views and also to consider the results of the independent study you have commissioned Mason Communications to carry out, which we understand will be published before the end of the year.

Summary of Red-M's Position

We believe that the provision of public telecommunication services should be permitted in the licence-exempt spectrum without a WT licence: this conclusion is based on four principles which you will find underpin our responses below to the specific questions you have raised in your consultation document:

Commercial Issues

Short range communications possible in the licence-exempt spectrum are very complimentary to 3G services that will be deployed in the future. This position is taken since we understand that many operators within Europe are investigating the use of

unlicensed band technologies, such as Bluetooth and wireless LANs, to complement their 3G services. The reasons for this include:

- In high-density areas, such as public hotspots and corporate offices, it is more convenient and lower cost to use short-range technologies to deliver a high performance, quality service.
- In certain areas it will be quicker and more cost effective to use short-range technologies to deliver 3G-like services.
- Services can be easily test marketed over a short-range wireless service ahead of being offered generally over the 3G networks.

Pollution Issues

Short range communications possible in the licence-exempt spectrum are attractive to be deployed in spaces (typically in-building) where there is commercial incentive from the organisation owning the space to ensure that services they host are not compromised by any other services. The short range and rapid degradation of service levels through building walls of devices operating in the licence-exempt spectrum ensures that there is no pollution beyond the confines of the organisation offering the service.

Usage Models

The Telecommunications Act 1984 was "pre-internet" and was thus not able to consider the usage models and technologies associated with services that can be provided in the licence-exempt spectrum. The Act has thus not considered the possibility of deploying very localised services. Examples include payment transactions performed over the short-range wireless link, local Internet access, delivery of applications and information to mobile devices etc.

As services provided over the licence-exempt spectrum are very short range, they are thus used as a convenient replacement for a short cable. The same services provided over such a wireless link could thus be deployed less conveniently using cables. A short cable (for example to link a telephone socket to a PC) should not be considered a telecommunications link. It provides a connection **to** a telecommunications link. Short range wireless services should thus be considered in a similar way.

The licensing requirements for this type of wireless product should thus not be any different to the use of cables, whether they are provided by the user, loaned by a service provider, or provided as part of a service provider's service. In the case of wires, the service provider could provide short cables for use by their customers, or the customers can provide their own. The situation for delivering similar benefits using access points in the licence-exempt spectrum should be no different.

Competition in the UK

The use of the licence-exempt spectrum for public services has been ratified in territories such as Asia, other parts of Europe, and the USA. Should the use of this band for public services in the UK be restricted in some way, then the potential for users in the UK to benefit from these technologies will be limited compared with our competitors abroad. The use of this spectrum needs to keep up with the pace of change in the rest of the world if the UK is to remain at the forefront of the information revolution. As a vendor, Red-M are seeing a rapidly growing interest in products which utilise the licence-exempt spectrum so there is a need to be able to meet this demand in the UK as well as in other parts of the world. If the regulation of this spectrum in the UK differs from that elsewhere, then we believe this situation will hinder growth by UK companies that wish to supply or use products in the telecommunications industry.

Response to specific questions

1. *What are the potential gains and benefits to the UK of allowing commercial services in license-exempt bands, in terms of new innovative services (business models), promoting competition, and making Britain the best place to do e-business?*

The range of potential gains and benefits to the UK are many and varied. Through the provision of low cost short range wireless communications capability new types of service could be deployed allowing users to, for example

- Synchronise their personal information (diary, contacts, etc) held at their offices from publicly provided services at petrol stations, coffee shops, and other convenient locations. This can be extended to delivery of other business related information at the same time.
- Complete small value transactions wirelessly, such as paying for a beverage at a vending machine via a personal wireless device they carry. They could simultaneously choose to be offered information on other local amenities, and services.
- In a retail environment, the retailer could deliver product and special offer information over a localised wireless service. The retailer could deliver certain types of product (video, music, software, games) directly to a consumers' device over a wireless link, enhancing the customer experience, and at the same time more easily preventing theft and copyright issues. A shopping centre operator could provide a service to direct customers to retailers who had appropriate product in stock (clothes the right size and colour within a certain price bracket, for example).
- Travelling individuals could be provided with high value information, such as maps and directions, or tourists could be provided with information specific to their location (located by their close proximity to a service access point).

2. *Will the introduction of public telecommunications services into existing licence-exempt frequency bands, within the conditions of use identified in Appendix B, result in unacceptable levels of interference to existing end users, and if so, in what geographic locations might this be expected?*

No. The spectrum can be reused beyond the short range of each access point. In addition, channel access techniques already used in this spectrum already allow co-existence of multiple services that are within range of each other. The use of the unlicensed band to enable deployment of highly localised public communications services permits users to exploit such services without the need to extend the radio spectrum to support these services.

3. *Would the introduction of public telecommunication services, into existing licence-exempt allocations and within the current conditions of use identified in Appendix B, result in congestion of the frequency bands?*

No. For the reasons stated above, the short range and ability for co-existence within range of multiple services, permits very efficient use and re-use of spectrum without causing congestion.

4. In bands where channel access techniques have been identified for specific services, will these technologies be sufficient to avoid future congestion? If not, please give information about other techniques that might be applicable.

Yes. In addition, adaptive access techniques are being developed to further mitigate future potential issues including interference from non-telecommunications services already operating in the same spectrum, such as microwave ovens.

5. What type of public telecommunication services could be offered in licence exempt spectrum and what is the anticipated market potential?

The kind of applications that could be provided are explored in the answer to Q1.

Short range services that can be provided in the unlicensed band will simply replace a wired connection to an existing 'traditional' wired or wireless telecommunications network. There can be both voice and data services provided over these services. For example:

Access to the existing PSTN, ISDN, Broadband, GSM, GPRS, or 3G networks where it is inconvenient to use a wired connection, or where reception (coverage or capacity) to an established wireless network is poor.

6. Assuming that there would be a lower quality of service available from public telecommunications services using license-exempt spectrum, compared to those using licensed spectrum, how could potential end users be informed of this?

The service would be shorter range, rather than lower quality. For data services, for example, bandwidth available to the end user over such a wireless service is likely to be similar to wired broadband services today, which are considered high performance.

It will be in the commercial interest of the service provider to communicate to end users the basic user experience and usage model for the service, and the service range is a fundamental metric that affects the usage model.

7. Which, if any, frequency bands identified in Appendix B, are not suitable for the introduction of public telecommunications services and why?

Any band may be used for public services if the power output and the range is consistent with the services' use as a local wire replacement.

8. Are there any potential problems associated with allowing commercial services in licence-exempt spectrum?

No. Services are likely to be deployed by service providers, for example, in buildings. The control over the use of the building sits with the owner of the building. There is thus a commercial driver (resulting in self regulation) from the service provider to control and police the deployment of multiple co-located services.

9. Assuming that public telecommunication services are permitted in licence-exempt spectrum, what would be considered suitable time scales for making these changes in each of the bands identified in Appendix B?

Red-M are aware of potential service providers who are already able to deploy trail public services, subject to the unlicensed availability of the spectrum required for Bluetooth and/or 802.11b technologies.

We hope to be able to meet with year early in January 2002. If you have any queries in the meantime, please do not hesitate to contact Simon Gawne, co-founder and vice president of Red-M, on 01753 661683 or at simon.gawne@red-m.com.

Yours sincerely.

For and on behalf of

Red-M (Communications) Limited

Red-M Background

Red-M is a pioneer in advanced wireless networking solutions. Since the end of 1999, when we were founded, we have consistently innovated in wireless hardware and software solutions that combine multiple local wireless technologies in a single networking platform. As the recognised leader in Bluetooth networking, we have built a strong customer base where mobility and access to information is critical to the performance of the customer's business. Our products include the 3000AS access server, 1000AP access point, and Blade personal digital assistant (PDA) expansion modules. Our unique Genos™ architecture and wirelessware technology provides a secure and fully managed environment for the delivery of voice, video and data services across a multitude of wireless technologies – including Bluetooth and 802.11 wireless LANs – to a broad range of mobile devices including laptops, PDAs, phones and handheld computers.

We are a UK company and are backed by two of the world's leading venture capital firms, Apax Partners and Amadeus Capital Partners, as well as Intel Capital and Madge Networks NV. In April 2001, we closed \$35m in second round funding. We have key strategic relationships with a number of key industry players including Motorola, Computer Associates, Toshiba and Intel. Since we were founded, we have won numerous product and business awards including the first ever award for innovation at the annual Bluetooth Congress (June 2000), PC Magazine's Technical Innovation Award, Tornado Insider Top-100 award, and a CIO magazine Top-100 award. You can find more information about Red-M at: www.red-m.com.