Response to the Radio Spectrum Policy Group Public Consultation on Wireless Access Platforms for Electronic Communications Services (WAPECS)

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1.0 Introduction

The European Commission has requested its Radio Spectrum Policy Group develop and adopt an Opinion during 2005, on a coordinated EU spectrum policy approach for wireless electronic communications radio access platforms, to be addressed to the European Commission. The objective is to ensure an innovation-friendly regulatory environment which facilitates rapid access to spectrum for new technologies and leads to the provision of a wide variety of wireless services and applications. The Commission wishes to use the resulting regulatory framework initially to ensure spectrum availability for, and efficient spectrum use by, wireless broadband services (e.g. W-LANs) and to co-operate with Member States with regard to the introduction of such services. The framework is required to be technology neutral, that is, the service regulation is not to be based on technology. Unlike GSM, micro-innovation is to pave the way to the future.

2.0 Spectrum Authorisation without Technical Standards

The essential task of a Regulator is to establish **clear policies which encourage competition through innovation**. Innovation is largely unpredictable and can not be directed by the Regulator, therefore conditions are needed which offer flexible radio spectrum access to industry.

The application of traditional spectrum management procedures and methodologies to spectrum liberalisation through the use of technical standards leads to an unnecessarily narrow interpretation of spectrum access "authorisation" especially where the real objective is to encourage competition through innovation. The EC Radio Spectrum Decision, applied 25 July 2003, refers to authorisation through "harmonised radio spectrum use". The phrase "spectrum use" encompasses the more general situation of flexible use using authorisation conditions based on spectrum space interference benchmarks alone. A common radio spectrum policy framework does not have to depend solely on common radio interface technical standards. From a legal

perspective, spectrum does not have to be allocated to a particular service but can instead be allocated to a method of flexible management[1].

3.0 New Management for a New Vision

A radio spectrum allocation and management method based on **authorising flexible spectrum access through either compliance with fully defined interference benchmarks or provision of guard space based on those benchmarks** is available to the Commission. This method, while new to Europe, is the result of almost 20 years of cooperative research and development between industry and government, and proven through almost a decade of industry practice. In that time there have been no cases of litigation with regard to interference settlement.

Authorisation does not include licensing or frequency assignment methods and these would be determined by each Regulator based on the interference benchmarks set by the EC. This authorisation method is scalable and will work with radio spectrum spaces of any size creating an up front basis for equitable spectrum access when dissimilar equipment is operated in adjacent spectrum spaces. It provides faster access to spectrum for individuals and service providers than is possible under traditional methods. It can also form the fundamental rules for more efficient methods of sharing spectrum based on dynamic spectrum access by opportunistic software reconfigurable devices. It is relevant to liberalised spectrum management for the rapid development of new markets and services using market mechanisms and provides a method of up front full definition of spectrum access rights to support spectrum trading combined with change of use. The method contains no more constraints on spectrum use than are necessary for the management of the three different categories of harmful interference in a technical

[1]For example, Spectrum Plan expressed as "A frequency band may be used for a service that:
(a) is operating in accordance with a spectrum licence; and
(b) is an unspecified service."

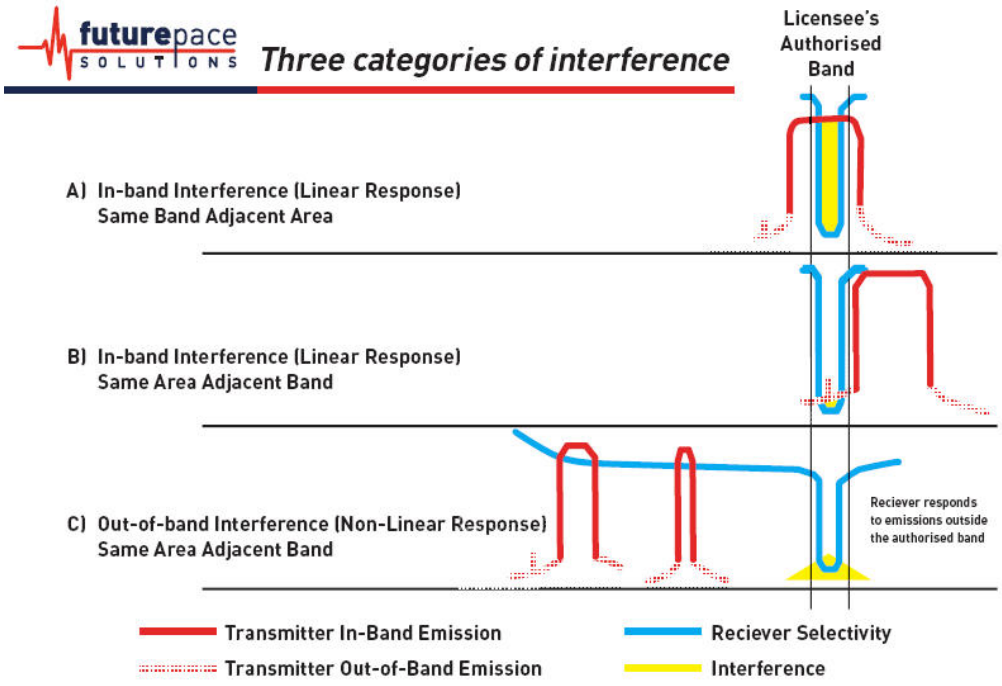
framework optimised for a particular general service type but which is capable of supporting the authorisation of all service types.

4.0 Optimum Solution for a Neutral Approach

There is no need to have a complex authorisation procedure for the operation of Short Range Devices (SRD) where the interference zone is often within a building where spectrum access is effectively controlled by the relevant property owner. Designing spectrum access for SRDs alone would obviously create an inflexible outcome because they are a small subset of all service types. A high powered and thus more flexible and useful device requires a more complex authorisation procedure to confirm that it is legally operating within the spectrum space administered by a Regulator. The excitement generated by the commercial success of WiFi led to assumptions in certain quarters that the same simplistic interference management scheme could be extended to high powered long range services. For high power (and even low power at very short range), spectrum availability is subject to simultaneous management of the three interference categories (see Figure). The formulation of the related interference benchmarks is explained in a companion paper[2].

This would represent the best solution for a neutral approach to both services and technologies, defining all necessary interference benchmarks and interference settlement responsibilities to facilitate flexible use of the spectrum within a single EU market where minimum constraints are required.

[2] See “Interference Management for Spectrum Liberalisation” at www.futurepace.com.au



5.0 Using Technical Standards for their Primary Purpose

While it is has been common, it is unnecessarily restrictive to limit spectrum access authorisation procedures to the central approval of equipment standards. Equipment standards have served a number of purposes in the past, however, their primary spectrum related purpose is to manage interference between similar equipment. Unfortunately, standards can become a focus for reasons other than that primary purpose. They are often used to authorise spectrum access with an eye to:

- achieving market dominance - increasing homeland manufacturing profit but also resulting in loss of micro-innovation;
- reducing equipment costs - often overkill;
- provision for roaming - can be left to occur naturally without Regulator intervention and as the attribute of a service that is becoming commercially successful by virtue of its level of innovation alone;
- simplifying coordination – unnecessary with software assistance; and
- interoperability.

Interoperability is the ability to exchange information and the level of interoperability relates to the number of functions and the extent and importance of functions supported by a particular system. Except for the case of public broadcast services, technical interoperability in the digital age is becoming more a case of patching one technology to another at the software interface of information gateways rather than regulating for identical radio interfaces.

With regard to the RSPG comment “facilitating standardisation to allow the relevant frequency bands to be exploited by allowing the single European market to benefit from economies of scale” it is interesting to note that Qualcomm is to acquire Flarion Technologies and its FLASH-OFDM intellectual property, for developing a mobile wireless broadband business, despite its faith in the future evolution of its CDMA technology. According to Alan Varghese, ABI Research's principal analyst of semiconductor research, the reasons Qualcomm just didn’t buy a WiMAX IC or equipment company, rather than a company creating proprietary solutions are: **“***Just as they forged their own trail for cellular telephony with CDMA technology, Qualcomm may want to avoid the industry standard path of WiMAX where* ***competition will be high, control limited, and price erosion rapid,*** *and instead build their own path*." - so much for economies of scale.

A policy of providing sufficient spectrum with fully defined and flexible spectrum access conditions will best ensure the timely availability of innovative and competitive standards - as the chicken follows the egg so the standard follows the availably of spectrum. As long as the spectrum access conditions are flexible as well as fully defined up front to provide investment certainty, innovative standards will be developed by industry whenever it is profitable for them to do so and without the imprimatur of a Regulator.

Excessive and unnecessary regulation can become the fourth type of interference for industry.