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**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE
EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**RAPID ACCESS TO SPECTRUM FOR WIRELESS ELECTRONIC
COMMUNICATIONS SERVICES THROUGH MORE FLEXIBILITY**

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(Text with EEA relevance)

TABLE OF CONTENTS

1.	Introduction	5
2.	The proposed approach	5
3.	Justification	6
3.1.	Political and economic context	6
3.2.	The need for change: current issues challenging the status quo	7
4.	How to pave the way	7
4.1.	Identifying sufficient spectrum for flexible use	7
4.2.	Towards a consistent authorisation scheme	8
4.3.	More cooperation amongst industry players	9
5.	Actions	9
6.	Conclusion.....	10

SUMMARY

The deployment of innovative wireless services and technologies is increasingly hampered by the reservation of certain spectrum bands for narrowly defined services coupled with rigid usage conditions that are unduly constraining spectrum use. Making spectrum use more flexible empowers the spectrum user to make timely commercial choices close to the market.

The current EU regulatory framework for electronic communications already recognises the importance of convergence of technologies and services in the market place and highlights the need for a competitive and innovative environment. However, there is growing agreement that further improvements of spectrum policy are needed and work needs to start without delay. The Commission is currently conducting a review of the regulatory framework in which implementing a new spectrum management approach is a central issue¹. However, the updated regulatory framework following this review would only enter into force by 2010.

The aim of this Communication is therefore to set out the practical steps necessary from now until 2010 in order to pave the way towards more flexible spectrum management in bands with individual rights of use, for which the review of the electronic communications framework will ultimately offer the regulatory basis. At the same time, the actions proposed in this Communication will address, on the basis of the present regulatory framework, cases where a more flexible approach to spectrum usage is urgently required. The Communication does not address the introduction of flexibility through an increase of license-exempt bands, which will be addressed in later communications.

Avoiding interference remains a key element of spectrum management, but the way it can be achieved has evolved due to technological progress. This progress means that the traditional spectrum management approach should be replaced by a more flexible one, which not only facilitates technical efficiency, but also economic efficiency in spectrum use. Making sure radio spectrum is readily available and ensuring it is used efficiently are key means of stimulating competitiveness, sustaining innovation and growth, and ultimately creating jobs. By freeing up the power of radio spectrum to stimulate investment in innovation and to increase productivity, the contribution of information and communication technologies (ICT) to the EU's renewed Lisbon Strategy for promoting growth and jobs can be made all the more effective.

An important and dynamic segment of European industry is dependent on spectrum for electronic communications services. Extrapolating the available data to 2006 the total turnover of this sector would be between €240-260 billion. Market-based spectrum management combined with flexible spectrum usage rights are estimated to bring a net gain of €8-9 billion per year across Europe. Flexible spectrum use does not mean fragmented national approaches, but empowering industry to achieve voluntary harmonisation where possible. Community coordination to achieve the aims of the internal market and avoid radio interference is essential and the EU dimension safeguards joint identification of spectrum bands in which flexibility as well as commonly agreed minimally necessary conditions apply. Moreover, coordinated action to allow more flexible use of spectrum would reduce the costs of gaining access to spectrum by eliminating unnecessary regulatory barriers and reducing

¹ Communication on "Review of the EU Regulatory Framework for electronic communications networks and services", COM(2006) 334.

spectrum scarcity. This is in line not only with the principles of better regulation but also allows the savings to be spent on innovation.

To prepare for the new approach, a step-by-step introduction of more flexible spectrum management entails:

- identifying particular spectrum bands in which regulatory restrictions can be lifted, thereby introducing more competition - including competition between different radio infrastructures. It is crucial to consider a sufficient amount of spectrum for this purpose in order to allow tradeoffs and access opportunities for all market participants. The Communication proposes as a first step a set of bands, 1350 MHz in total, in which current legal restrictions should be re-examined in due course with a view to permitting more flexible usage. These bands are today used by the broadcasting, mobile and information technology (IT) sectors, and
- agreeing a Community-wide set of proportionate rights and authorisation conditions which should apply in the selected spectrum bands. These would be the minimum necessary to allow flexible and efficient usage, while avoiding harmful interference. These authorisation conditions will also be used as a reference to facilitate the gradual adjustment of existing rights in the bands concerned, which were acquired by operators under previous national rules (so called "legacy" rights).

Certain specific cases appear to require an immediate solution and will be addressed as a priority. Some examples already visible today are:

- reviewing the validity of the GSM Directive² with the aim of allowing operators to implement new, more efficient and innovative technologies within the 900 MHz band, such as UMTS; this band will be looked at in conjunction with other bands³ to arrive at a consistent and balanced solution, and
- applying the new approach to the frequencies that are freed up as a result of the technically more efficient usage of spectrum through the introduction of digital broadcasting (the so-called "digital dividend").

Giving more power to spectrum right holders to determine how they use their spectrum rights will require an active role by market players. This entails:

- recognising their greater responsibilities, in a flexible environment, to avoid interference and to deliver seamless services for the consumer, and
- ensuring dialogue between market players of hitherto separate industrial sectors, i.e. between broadcasting, mobile and IT industries, facilitated by the European Commission.

² Council Directive 1987/372/EEC reserving the 900 MHz band for GSM mobile services.

³ Such as the 1800 MHz and 2.6 GHz bands.

1. INTRODUCTION

Over the last two years, the Commission has worked closely with Member States at the strategic level in order to ensure that developments related to the growing and evolving variety of wireless electronic communications technologies are in line with the overall policy goal of developing the EU internal market and European competitiveness. Ensuring 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 has been identified as a key aim.

An important milestone was reached in November 2005 with the adoption of a consensus opinion in the Radio Spectrum Policy Group (RSPG) on the direction of future policy in this area⁴. This opinion advocates a more flexible spectrum management approach, including long-term policy goals, which will be taken into account in the ongoing review of the electronic communications framework expected to enter into force by 2010.

This Communication takes into account the RSPG Opinion and examines how its policy recommendations can be put into practice gradually, but without delay. It outlines the practical steps needed from now until 2010 in order to pave the way to more flexible spectrum management, for which the review of the EU electronic communications framework will ultimately offer the regulatory basis, and a methodology for dealing with individual cases that require urgent action.

2. THE PROPOSED APPROACH

It is proposed that a flexible, non-restrictive approach to the use of radio resources for electronic communications services, which allows the spectrum user to choose services and technology, should from now on be the rule, as opposed to the restrictive approach which is often still used today. Measures which deviate from the new approach may still be taken, but must be duly justified (e.g. for public safety and security) and take into account their impact on innovation, competition, investment and social value. Furthermore, within the scope of “electronic communications services” as defined in the Framework Directive, exclusive use by a particular service, such as mobile or broadcasting, should be removed. This does not preclude the obligation to provide a specific service within a particular frequency band.

The flexible approach must take full account of the need to avoid harmful interference to protect existing and future applications and must not effectively lead to a fragmentation of the EU market for products. This should be achieved through “generic” constraints on usage⁵, but not through the designation of one or a set of technologies with exclusive rights to use specific spectrum bands since this would violate the technology neutrality principle. Besides helping to avoid harmful interference, measures such as spectrum plans and spectrum masks agreed at the Community level contribute to the establishment of the single market and facilitate cross-border coordination. Common conditions across Europe will continue to apply, and when formulated in a less restrictive manner, their coordination and coherent application at EU level becomes increasingly important.

⁴ Document RSPG05-102: Final Opinion on “Wireless Access Policy for Electronic Communications Services (WAPECS)”.

⁵ I.e., those which identify channels, power limits and guard bands (so-called spectrum plans and spectrum masks).

Common, less restrictive conditions open up more commercial opportunities across the Community. Facilitating economic efficiency through enhanced flexibility can be reconciled with single market rules, provided that Member States are committed to Community-wide coordination of authorisation schemes⁶ (see section 4.2) and industry players are committed to cooperating in order to achieve interoperability of services and economies of scale (see section 4.3).

3. JUSTIFICATION

The move to more flexibility would serve market needs in the wireless electronic communications sector, where an increasing number of wireless technologies serve a growing number of convergent services. Flexible spectrum management is therefore a key enabling factor for investment in innovation as well as for facilitating market entry for new businesses in a competitive environment. Flexibility and facilitating market entry are in turn key requirements for ensuring that ICT help to deliver growth and jobs, in line with the renewed Lisbon Strategy.

3.1. Political and economic context

Over 2 billion consumers worldwide already use wireless electronic communications services and are therefore likely to be attracted by the new offerings that bring together video, voice and data. In this established global market place, consumer demand and competition drive investment and innovation. The Electronic Communications Framework⁷ and the i2010 initiative⁸ encourage competition, including at infrastructure level. In the case of wireless electronic communications, market entry is closely linked to easy access to spectrum for network operators and their preferred technologies.

Wireless technologies are an important means to bring broadband into the remote rural areas of Europe, thus overcoming the digital divide⁹. Depending on local circumstances, there may be differing technological solutions for bridging the broadband gap. Consumers and local authorities will need to make choices based on economic principles and needs; such choices should not be constrained a priori through regulatory restrictions that would favour one wireless technology over another.

The ability to change the use of spectrum, which is facilitated through a flexible spectrum management approach, is a necessary condition for market-based spectrum management to

⁶ RSPG Opinion on WAPECS, Section 5.5.2: “WAPECS will facilitate the development of a set of coherent authorisation conditions which can be applied across all relevant frequency bands in accordance with the criteria set out in the Framework Directive. These conditions should be limited to the minimum necessary to enable efficient use of spectrum, thus permitting greater flexibility in the way in which each frequency band can be used. WAPECS is intended to facilitate the evolution of spectrum management in Europe towards an environment with similar and minimal set of conditions across all Member States. However, this shall not preclude the application of additional conditions in a specific frequency band, either at a Member State or EU wide basis, provided that any such additional conditions are justifiable, proportionate and non-discriminatory.”

⁷ Directives 2002/19/EC, 2002/20/EC, 2002/21/EC, 2002/22/EC and Decision 676/2002/EC of the European Parliament and of the Council.

⁸ See Communication on “i2010-a European Information Society for growth and employment”, COM(2005)229.

⁹ See Communication on “Bridging the Broadband Gap”, COM(2006) 129.

unleash its full growth potential. Studies¹⁰ have estimated a net gain of €8-9 billion per year across Europe if flexible spectrum usage rights were incorporated into a common spectrum trading regime. Extrapolating the available data to 2006 the total turnover of European industry dependent on spectrum for electronic communications services would be between €240-260 billion.

3.2. The need for change: current issues challenging the status quo

The convergence of services being offered to the consumer affects the use of spectrum for broadcasting, mobile and broadband wireless services. Spectrum used for these purposes is still largely fragmented into separate bands, mainly for historical reasons. The ability to provide a combination of broadcasting, mobile and broadband offerings to the consumer (so-called “triple play”), in a wireless environment could be hampered if network operators are not treated equally with regard to their access to a specific spectrum band and to the authorisation conditions to which it is subject.

Real-world problems, that urgently need solving, have highlighted the need for a change towards a more flexible spectrum management:

- Existing and new operators wishing to implement different technologies (e.g. UMTS and WiMAX) want to make use of the 2.6 GHz band (will become available in 2008), which is of prime interest for mobile communications and accessing the Internet through wireless means. This band currently lacks a coordinated Community approach, which must be clear, proportionate and future proof,
- Existing 2nd generation mobile operators wanting to enhance their current use of the 900 MHz band currently covered by the GSM Directive. The Directive has served everyone well over the past two decades, but its usefulness is now being called into question, as the deployment of new services using 3rd generation mobile technologies is now technically feasible, and
- Existing and new operators interested in the use of the 470-862 MHz band currently used for broadcasting, in particular the “digital dividend” freed up by the transition from analogue to digital broadcasting (which uses less spectrum). These frequencies are of high interest for new services such as mobile TV as well as for extending the reach of all types of wireless electronic communication services into rural areas.

These cases need to be addressed as soon as possible in order to secure innovation, investment and a dynamic electronic communications sector. They also offer the opportunity to gradually introduce the new flexible spectrum usage approach.

4. HOW TO PAVE THE WAY

4.1. Identifying sufficient spectrum for flexible use

Discussions on single, individual frequency bands linked to specific uses, such as for broadcasting, mobile or broadband wireless access, increasingly lead to problems, because

¹⁰ See Study “Conditions and options in introducing secondary trading of radio spectrum in the European Community”, May 2004.

opportunities arising in alternative frequency bands are not addressed. A collective identification or bundling of frequency bands in the form of a package can ensure that the spectrum resources of all sectors are considered as a common resource, opening up new opportunities on a competitive basis for all sectors through the increased flexibility. Europe must break out of the spectrum gridlock created by legacy rules and rights and instead aim for collective win-win solutions for all sectors. Furthermore, a "package" solution can ensure that all sectors are treated proportionately.

In principle, the concept of flexibility can be applied to a wide range of frequency bands and Member States are encouraged to do so. However, there is a need to focus on an initial set of bands so as to achieve practical results during the next few years and to tackle current challenges. In 2007, the Commission, with the assistance of the Radio Spectrum Committee (RSC) and the Communications Committee (COCOM), will thoroughly investigate a package of frequency bands currently used by the broadcasting, mobile and IT sectors (see Annex) for an entire or partial implementation of flexibility.

4.2. Towards a consistent authorisation scheme

The single market, convergence and globalisation are making it increasingly important for Member States to agree on mutually consistent or common radio spectrum authorisation schemes, including the timing, methodology and conditions attached to spectrum rights.

Existing differences in the authorisation conditions for specific bands at annex are increasingly distorting competition. Constraints attached to rights of use should be limited to what is necessary and sufficient for effective use with consistent implementation across all the bands listed in the Annex throughout the Community. The main question is: what differences are still justified in a converging environment, where competition is increasing between broadcasting, mobile and broadband wireless access networks?

The Commission and the RSC with the assistance of COCOM and CEPT are investigating current conditions which apply to the rights of use of spectrum within the above package of bands. The aim is to agree on common and least restrictive conditions attached to the rights of use¹¹.

Based on the present regulatory framework for e-communications, agreed guidelines for consistently applied authorisation conditions should be established through a Commission Recommendation¹² which should be finalised in 2007. This recommendation will seek to introduce flexibility into spectrum management as a way towards applying the new approach to spectrum management proposed by the Commission in the context of the review of the framework. Minimal technical usage conditions for the bands are to be established through technical implementation measures adopted under the Radio Spectrum Decision¹³ and harmonised standards adopted under the R&TTE Directive in order to facilitate the single market, the avoidance of interference, cross-border coordination and protection of health.

¹¹ Annex B of the Authorisation Directive (2002/20/EC) contains an exhaustive list of conditions that can be attached to spectrum rights of use.

¹² The Recommendation would be adopted under Article 19 of the Framework Directive 2002/21/EC.

¹³ Decision 676/2002/EC.

4.3. More cooperation amongst industry players

Making spectrum use more flexible empowers the spectrum user to make choices. At the same time it calls upon market players to take the responsibility for achieving a seamless service environment for the consumer. Cooperation among all players is vital to finding a consistent solution for the frequency bands affected by digital convergence.

As a starting point in a flexible environment, interoperability of services as well as spectrum harmonisation for the sake of economies of scale should be driven by industry against a backdrop of "light touch" regulatory guidance. The Commission is monitoring developments and notes that for the time being there seems to be no need to impose specific technologies¹⁴, as the standardization process¹⁵ is driven by industry, in line with spectrum management prerogatives which are discussed in CEPT under mandates from the Commission.

The Commission supports the development of open standards for wireless technologies in order to facilitate interoperability and seamless services. It considers that the market is best served at the present time by continuing to rely on industry-led voluntary standardisation initiatives.

5. ACTIONS

With reference to the package of frequency bands mentioned in the Annex the following actions will ensure a step by step introduction of the new approach.

Member States are asked to clarify existing authorisation conditions (technical and non-technical) as a matter of urgency and to remove restrictive conditions wherever possible in order to facilitate flexibility, rapid access to spectrum and competition, including in the area of radio infrastructure. In the bands that are identified for flexible use, common and minimally necessary conditions attached to the rights of use should be set out by the end of 2007 in a Commission Recommendation.

The European Commission will make use of current mechanisms to thoroughly investigate and propose practical implementation measures within the package of bands, in particular, concerning those cases awaiting urgent solutions and with a view to implementing a more flexible spectrum management approach consistently across Europe. In this context the Commission will review the validity of the GSM Directive and push for a common European approach to the 2.6 GHz band, in order to find a proportionate and consistent solution for these two bands, while taking account of the need for new innovative technologies and services to prosper in urban as well as rural areas.

Standardisation organisations, notably ETSI, will be mandated to develop adequate harmonised standards for equipment operating in flexible bands so as to ensure avoidance of interference.

¹⁴ If adequate interoperability has not been achieved, Article 18(3) of the Framework Directive would allow the Commission, to invoke the procedure in Article 17 of that Directive, by which certain standards can be made mandatory.

¹⁵ For example within the standardization body ETSI.

Industry is invited to exchange views and identify best practices on spectrum issues, on the basis of a flexible framework for spectrum use that continues to ensure avoidance of interference and interoperability for the consumer. The starting point in terms of relevant spectrum bands is the Annex. These bands cut across all three sectors, which are called upon to actively engage in the proposed dialogue. The Commission is ready to facilitate this process.

6. CONCLUSION

Flexibility in the use of spectrum, implemented through an approach to issuing spectrum rights of use which is technology and service neutral, is a pre-requisite for harnessing the wireless electronic communications sector's ability to innovate and provide new and diversified services. It can do a great deal to boost Europe's economic growth and competitiveness.

Implementing this approach will require introducing regulatory provisions to make technology- and service neutrality the basic approach. Technical constraints of a generic nature will continue to apply as a means of safeguarding against harmful interference and appropriate Community measures will be used to define these essential technical parameters. The more flexible approach to spectrum management forms part of the review of the EU regulatory framework for electronic communications, which would only enter into force by 2010.

In the meantime the new approach to spectrum management will be introduced gradually, on the basis of the existing regulatory provisions. The Commission intends to propose in 2007 a Recommendation to give guidance on authorisation conditions for a first set of bands for which flexible usage is to be applied. This will allow all parties to address specific issues which call for a solution already at this stage.

Flexible spectrum usage empowers market players to make their own choices, but it also entails more responsibility for them to ensure seamless and interoperable communication systems. The Commission is committed to proactively facilitating cooperation amongst market players to this end.

**Initial set of frequency bands under investigation
for the implementation of more flexibility
(1350 MHz in total)**

- **470-862 MHz:** the band is used for broadcasting today, but issues arising from the digital dividend as well as convergence of broadcasting and mobile services call for action;
- **880-915 MHz / 925-960 MHz as well as 1710-1785 MHz / 1805-1880 MHz:** these bands are used for GSM mobile services today, but issues surrounding the introduction of 3rd generation mobile services and the continuing restrictions in the GSM Directive call for action;
- **1900-1980 MHz / 2010-2025 MHz / 2110-2170 MHz;** these bands are used for 3rd generation mobile services (IMT-2000/UMTS) today, but market developments point towards the introduction of broadcasting type services as well as broadband connections in residential and rural areas in the light of convergence;
- **2500-2690 MHz (the 2.6 GHz band);** this band (still to be licensed) is intended for use by 3rd generation mobile services (IMT-2000/UMTS), but it is of equal interest for the provision of broadband using other technologies¹⁶;
- **3.4-3.8 GHz:** this band is used for broadband connections to the customer's premises, but there is of equal interest for the provision of mobile services within the EU. However, it is also intensively used for satellite communications within Russia and a number of African countries.

¹⁶ E.g. WiMAX.