

RSPG05-102final

RSPG Opinion #3

**RADIO SPECTRUM POLICY GROUP
OPINION ON**

**Wireless Access Policy
for
Electronic Communications Services
(WAPECS)**

(A more flexible spectrum management approach)

FINAL – NOVEMBER 23, 2005

Note: please note that, unless specifically stated, information included in the annexes to this Opinion provide supporting material and is therefore not integral part of the body of the Opinion.

1. Introduction

This paper represents the Radio Spectrum Policy Group's (RSPG) response to the European Commission's Request for an Opinion on the spectrum implications of Wireless Access Platforms for Electronic Communications Services (document RSPG04-26, RSPG04-44 and RSPG04-45).

In May 2004, the European Commission requested the RSPG to develop and adopt an Opinion 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 that spectrum is available for a wide variety of services and applications to meet the requirements of the Lisbon agenda, and to comply with the overall policy goal of developing the EU internal market and European competitiveness. This project has become known as WAPECS (Wireless Access Policy¹ for Electronic Communications Services).

Matching market demand to service delineation has always been a challenge to spectrum managers. In today's environment, electronic communications services are offered over a variety of electronic communications networks (e.g. different types of mobile, fixed and broadcasting networks) using a variety of terminals. Demand for certain services (such as mobile and Internet) has grown far beyond earlier predictions, and developments in radio technology have resulted in more efficient methods of sharing spectrum among different systems and users. Innovation requires rapid access to spectrum for individuals and service providers. This points to the need for greater flexibility in the use of spectrum resources for wireless electronic communications, while maintaining harmonisation where necessary, thereby strengthening market forces and helping to fulfil the needs of consumers by quicker access to a broader variety of innovative services. At the same time, convergence means that spectrum originally intended for distinct electronic communication services is now being used for services which compete against each other. This requires authorisation² and regulation for a variety of frequency bands to be coherent. The level of constraints attached to the usage of specific frequency bands need to be reviewed in order to ensure that they are not impeding the rapid development of new markets and services.

2. WAPECS Concept

With these objectives in mind, the definition of WAPECS is as follows:

WAPECS is a framework for the provision of electronic communications services within a set of frequency bands to be identified and agreed between European Union Member

¹ The RSPG decided at the time of adoption of the Opinion (RSPG#8) that the designation of WAPECS, which initially referred to "**Platforms**", should be modified into "**Policy**".

² Use of the term 'authorisation' or 'licensing' in this Opinion refers to spectrum rights of use as described in the Authorisation Directive.

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States in which a range of electronic communications networks and electronic communications services may be offered on a technology and service neutral basis, provided that certain technical requirements to avoid interference are met, to ensure the effective and efficient use of the spectrum, and the authorisation conditions do not distort competition³.

Therefore different networks can provide mobile, portable, or fixed access, for a range of electronic communications services, using the term “electronic communications services” in the sense of the Framework Directive 2002/21⁴ (e.g., IP access, multimedia, multicasting, interactive broadcasting, datacasting), under one or more frequency allocations (mobile, broadcasting, fixed), deployed via terrestrial and/or satellite platforms using a variety of technologies to seamlessly deliver these services to users. WAPECS is expected to play a direct role in the information society development.

Particularly for converged applications, WAPECS may cover frequencies from various allocations (using the term “allocation” in the sense of the ITU Radio Regulations). For instance, spectrum under a broadcasting allocation can support a down-link of a mobile network (either without a return channel, or with a return channel in another frequency band allocated to mobile) and vice-versa (e.g. datacasting, multimedia, interactive broadcasting within the mobile allocation). WAPECS could apply to both licensed and unlicensed bands.

In broadcasting networks a number of constraints on the use of spectrum are currently imposed by national policies in order to ensure media pluralism and cultural diversity. In addition international agreements are in place to prevent harmful interference and to promote equitable sharing.

The term “WAPECS” is used to signal a move away from too narrowly specified allocations and applications⁵, for which specific spectrum is designated. Under this definition of WAPECS, digital technologies are stimulated to deliver all electronic communications services within their capabilities, making use of any frequency band and networks. However, this is subject to technical coexistence requirements which are tailored to each specific band.

The WAPECS concept can thus be illustrated as shown in Figure 1:

³ This is without prejudice to the services pursuing identified general interest objectives. See for example recital 6 of the Framework Directive.

⁴ The Framework Directive defines “electronic communications service” as “a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals on electronic communications networks, including telecommunications services and transmission services in networks used for broadcasting ...”

⁵ Today Member States use terms to describe mobile, fixed and broadcasting applications as detailed in Annex 2 of the ECC Decision on EFIS (ECC DEC(01)03).

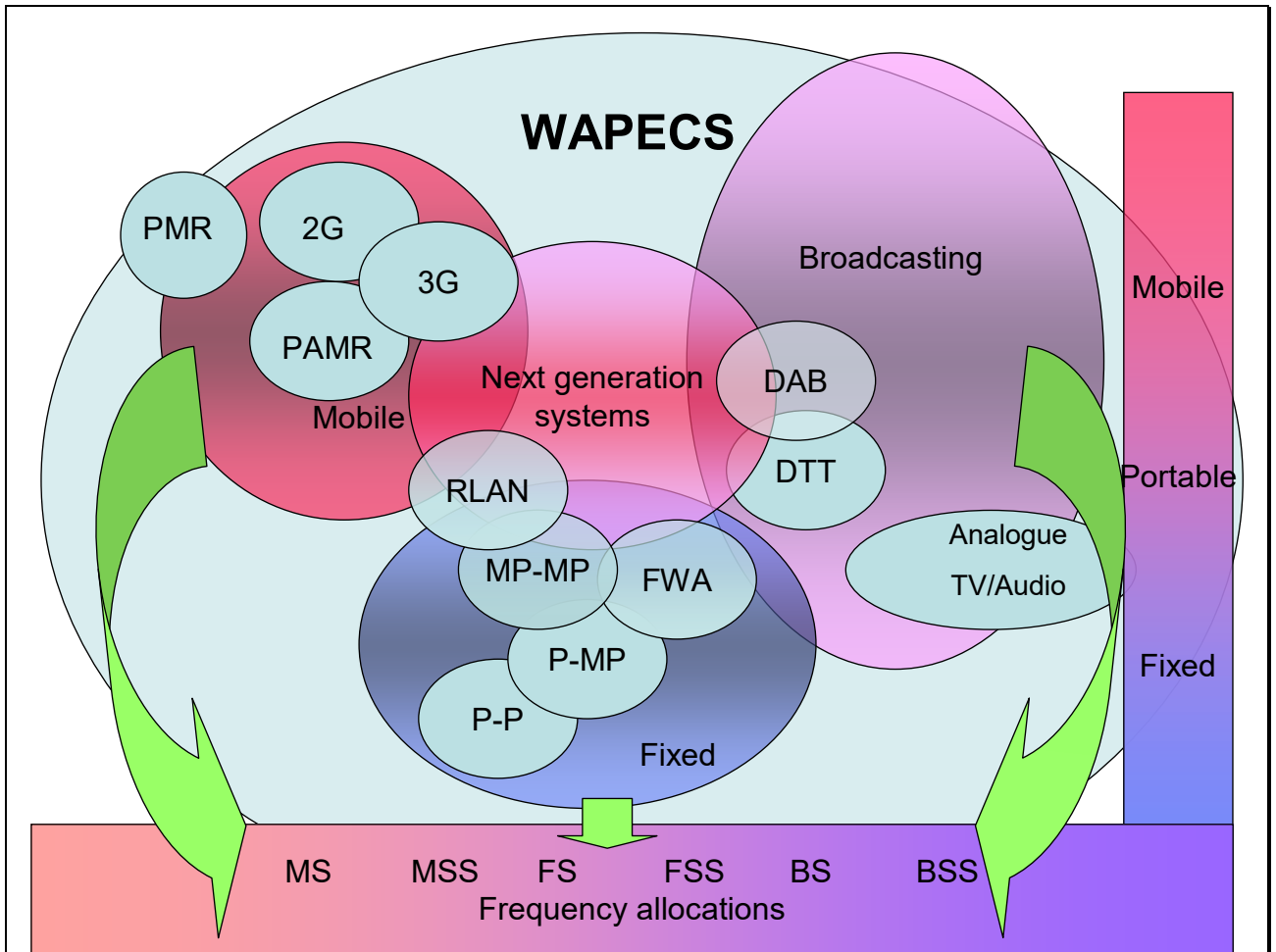


Figure 1. WAPECS Concept

Abbreviations in Figure 1			
2G	Second generation mobile	MP-MP	Multipoint to Multipoint fixed links
3G	Third generation mobile	MS	Mobile Service
BS	Broadcasting Service	MSS	Mobile Satellite Service
BSS	Broadcasting Satellite Service	P-MP	Point to Multipoint fixed links
DAB	Digital Audio Broadcasting	P-P	Point to Point fixed links
DTT	Digital Terrestrial Television	PAMR	Public Access Mobile Radio
FS	Fixed Service	PMR	Professional (Private) Mobile Radio
FSS	Fixed Satellite Service	WAPECS	Wireless Access Policy for Electronic Communications Services
FWA	Fixed Wireless Access	RLAN	Radio Local Area Networks

3. Survey of Member States on WAPECS frequency bands

During February – April 2005 the RSPG consulted Member States via a questionnaire seeking information on current and intended usage on a proposed list of wireless platforms, which fall under the definition of WAPECS, and which was formulated to identify:

- the relevant frequency bands for WAPECS;
- the range of licensing⁶ approaches which have or could be used
- the rights that have been applied
- the obligations that have been applied
- some spectrum related challenges

Member States were also requested to describe the challenges, constraints and possible solutions they expect in meeting the requirement for greater flexibility in spectrum use and technologically neutral regulation during the next 5 years.

The results of the questionnaire indicate that there is a wide range of frequency bands which could be used for WAPECS. While there is a relatively high degree of commonality among Member States, there are also applications and allocations which are specific to one or a small number of Member States. The identification of frequency bands in this Opinion as being actually or potentially suitable for WAPECS is not intended to be exclusive, or to imply that other bands cannot or should not also be used for WAPECS. There are also a number of frequency bands which a minority of Member States indicated could be suitable for WAPECS, but which were not supported by a majority of questionnaire respondents. It is also to be noticed that part of certain bands that were identified in the responses might not be suitable for WAPECS (e.g. governmental use).

A short summary of the results of the survey follows and a more detailed summary of the survey is available in annex 1 of the public consultation document (RSPG05-87-rev⁷). The following bands are listed according to currently used terms for allocations and applications, noting that over time there is likely to be a convergence of use.

3.1 Broadcasting bands

Of the spectrum currently allocated to broadcasting, three bands are initially considered suitable for WAPECS, these bands having been identified for T-DAB (i and iii), DVB-T (i and ii):

- i) 174 – 230 MHz
- ii) 470 – 862 MHz
- iii) 1452 – 1479.5 MHz.

⁶ Use of the term ‘authorisation’ or ‘licensing’ in this Opinion refers to spectrum rights of use as described in the Authorisation Directive.

⁷ Document RSPG05-87-rev is available at http://rspg.groups.eu.int/doc/consultations/comments_wapecs/rspg05_87rev_consult_wapecs.doc

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The primary approach to licensing in these bands is through beauty competitions or direct award to public broadcasters. The single common licensee right is geographic coverage and the licensee obligations that have been applied across Europe are geographic and population coverage, rollout requirements and technology to be used.

Spectrum challenges and constraints

Spectrum challenges are seen to be problems of congestion, the introduction of digital broadcasting and the use of the digital dividend to accommodate new broadcasting applications (e.g. HDTV or mobile TV and radios) or other applications. Constraints on the use of broadcasting spectrum are universally seen to be imposed by national policies and international agreements and to ensure freedom of information and cultural diversity.

One additional band, 40.5 – 43.5 GHz was mentioned by a number of Member States, some treating it as a broadcast band and others as a fixed service band. This is a fairly newly opened band and the majority of Member States have not licensed services in this band. No common constraints could be identified.

3.2 Fixed bands

Concerning spectrum currently allocated to fixed services⁸ the bands initially identified for WAPECS included

Fixed Point-to-point below 6 GHz

1375 – 1400 MHz, 1492 – 1517 MHz, 1427 – 1452 MHz, 1350 – 1375 MHz and 3600 – 4200 MHz,

Point-to-multipoint

3400 – 3800 MHz, 24.5 – 26.5 GHz

The main approaches used to award the rights of use of frequencies are beauty contests and first-come-first-served basis through spectrum blocks or individual link assignment. For point to multipoint systems, licensee obligations that have been applied across Europe are coverage and rollout requirements. A few Member States allow tradable rights.

⁸ Note that some frequencies assigned for use by the core network will not be available for WAPECS in the short term.

Spectrum challenges and constraints

In the case of fixed services the spectrum challenges faced are congestion and the potential of demand for spectrum exceeding supply in the next few years in certain bands. The spectrum constraint identified is cross-border compatibility issues (addressed in regional or multi-lateral agreements).

3.3 Mobile bands

In spectrum currently allocated to land mobile there is a considerable degree of commonality and a wide range of bands considered suitable for WAPECS including:

- | | |
|---------------------------------|--------------------------|
| i) 380 - 400 MHz ⁹ ; | vii) 1710 - 1785 MHz; |
| ii) 410 - 430 MHz; | viii) 1805 - 1880 MHz; |
| iii) 450 - 470 MHz; | ix) 1900 - 1980 MHz; |
| iv) 870 - 876 MHz; | x) 2010 - 2025 MHz; |
| v) 880 - 921 MHz; | xi) 2110 - 2170 MHz, and |
| vi) 925 - 960 MHz; | xii) 2500-2690 MHz |

A number of different approaches have been taken to licensing these bands and these range from straightforward assignment to specific parties (e.g. digital trunked radio (band (i)) to Government services), first-come-first-served, auctions and beauty competitions. The most common licensee right is coverage with three or four Member States permitting tradable rights. Licensee obligations reflect the current services in the spectrum and include EIRP limits, technology use, rollout and coverage obligations.

Spectrum challenges and constraints

Spectrum challenges experienced in these bands include congestion, demand exceeding supply in some cases and in some areas. Spectrum constraints are cross-border compatibility issues (addressed in regional or multi-lateral agreements), lack of equipment standards in some bands and safety of life requirements in some cases.

3.4 Short Range Devices (SRD)

Among all the frequency bands allocated to SRDs, many of which were considered suitable in some Member States, four bands in particular had a good degree of commonality across Europe:

- i) 1880 - 1900 MHz (DECT)
- ii) 2400 – 2483.5 MHz (RLANs)

- iii) 5150 - 5350 MHz (RLANs)
- iv) 5470 - 5725 MHz (RLANs)

The common licensee right is coverage. Licensee obligations include EIRP limits, technology use and equipment standardization.

Spectrum challenges and constraints

The spectrum challenges identified is congestion in some bands, and in others lack of equipment standards and service convergence, although some Member States did not identify any constraints. Sharing conditions in the 5 GHz RLAN bands (e.g. with government services) are identified as a specific constraint

4. The Public Consultation

Acknowledging the importance of radio spectrum for significant industrial and economic activities and part of the process of preparing the Opinion, the RSPG undertook a public consultation, in parallel with the ongoing discussion in the RSPG, to seek the views from all interested parties on the spectrum implications of WAPECS. The consultation was conducted according to Article 5 of the Radio Spectrum Policy Group Decision¹⁰, via the RSPG website, on 24 June 2005, with a closing date for comment of 15 September 2005.

4.1 Scope

The public consultation on WAPECS aimed at collecting views in order to prepare an opinion of the RSPG in response to the European Commission's Request for an Opinion on the spectrum implications of WAPECS¹¹. Views were sought on the following issues:

- (i) The proposed definition of WAPECS
- (ii) The inclusion of spectrum intended for private, as well as public, applications within the WAPECS concept.
- (iii) The proposed definition of the term "platform"
- (iv) If any constraints should be placed on the provision of services using spectrum primarily in the broadcast domain.

⁹ Note that the usage of this band relies on the fact that, for NATO countries, there was an agreement between the military and the civil authorities to accommodate the emergency services in military frequency bands subject to certain conditions such as sharing.

¹⁰ 2002/622/EC

¹¹ RSPG04-45 and RSPG04-44.

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- (v) The introduction of specific rules that could be introduced or maintained to safeguard the delivery of Services of General Economic Interest in the future and the most appropriate methods to implement these specific rules.
- (vi) How the WAPECS concept will impact on the requirement for standardisation and what types of policy would best ensure the timely availability of standards?
- (vii) The challenges that the RSPG should consider in implementing the WAPECS concept, how to achieve the right balance between “minimising and harmonising constraints” and other long term policy goals that the RSPG should consider.
- (viii) Were the proposed steps to achieve the European objectives for WAPECS adequate?

4.2 Responses

The RSPG received a total of 35 non-confidential responses and 2 confidential replies from a wide range of respondents including trade bodies, operators, broadcasters, vendors, Governmental bodies and Member States. The non-confidential responders are listed in alphabetical order as follows:

1. Abertis
2. Alcatel
3. ARD
4. Austria
5. BT
6. Canal +
7. Denmark
8. Deutsche Telecom
9. EICTA
10. Ericsson
11. ETNO
12. Europe Broadcasting Union (EBU)
13. France
14. France Telecom
15. Future Pace Solutions
16. GSME
17. Intellect - UK
18. IPDC Forum
19. Marconi

20. Metil – Greece
21. Microsoft
22. Motorola
23. Nokia
24. OFCOM – UK
25. Polish Republic - Ministry of National Defence
26. RNA
27. RSGB Spectrum Forum - UK
28. RTE - Ireland
29. Siemens
30. T-Mobile
31. Telecom S.G.P.S. - Portugal
32. Telefonica
33. UMTS Forum
34. Vodafone
35. Wimax Forum

The RSPG has taken into account the results of the public consultation in formulating the Opinion given in Section 5. An overview of the consultation responses is given in Annex 1.

5. The Opinion of the RSPG

5.1 *The EU Context*

The RSPG considers that the availability of radio frequency spectrum has an important role to play in ensuring the achievement of the Lisbon agenda. The *i2010* initiative is part of the renewed Lisbon strategy to make the European Union the most competitive and dynamic knowledge-based economy with improved employment and social cohesion by 2010. This depends on the widespread availability and take-up of broadband, for both business and citizen-consumers. The *i2010* initiative identifies spectrum as an important area.

5.2 *The Influence of Convergence*

The RSPG considers that the convergence trend and the increasing use of digital technologies are putting pressure on spectrum management policies as radio access networks increasingly compete with each other. For those bands used to deliver electronic communications services to the consumer, it is important that spectrum regulation also keeps pace with this trend and provides coherent authorisation conditions, whilst ensuring the effective and efficient use and allowing the operation of radio systems free from harmful interference.

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In response to these developments the RSPG proposes the use of the WAPECS concept in order to facilitate the provision of converged services and to foster innovation and growth.

5.3 Identified Constraints

The RSPG notes that Member States have identified a number of constraints, which have the potential to limit the use of particular bands for WAPECS. These constraints include:

- (i) Legacy issues arising from the initial assignment of individual rights to use frequencies. The most important of these is the differing economic values of different frequency bands and categories of networks, where both are used to deliver electronic communications services. In some cases the fee for authorising the use of spectrum has been decided by the State, where the spectrum was assigned by a beauty contest or on a first-come, first served basis with a pre-determined licence fee. In other cases, the fee for authorising the use of spectrum was determined by an auction;
- (ii) Lack of flexibility in some existing licences, particularly arising from regional and international agreements. Spectrum rights of use may require spectrum to be used for a particular electronic communications network or service, even though demand may be higher if used for another electronic communications network or service. The problem can be compounded by long licence durations, which make it difficult to change the rules quickly. Also the current EU legislation framework requires that where radio frequency use has been harmonized, any transfer of rights of use of radio frequencies shall not result in change of use of that radio frequency.
- (iii) Excess of technological prescriptions in some licences. Licences or rights of use may prescribe too specific technology or technical conditions to be used in a particular band, thereby hampering innovation. This can result in the inefficient use of spectrum if the above mentioned licence conditions cannot be broadened or made more flexible in order to accommodate other technologies.
- (iv) The use of the bands by services pursuing particular general interest objectives (e.g. Services of General Economic Interest, safety-of-life services, etc.). Member States may have to fulfil some obligations relating to such services, even when they fall under the WAPECS scope, and to safeguard some spectrum for them.
- (v) The use of the bands by other applications which are not electronic communications services (e.g. governmental). Technical conditions are

required to ensure the protection of such services and applications using the same or adjacent bands.

5.4 Challenges for Member States

The RSPG has identified the following challenges to be addressed by Member States:

- i) Ensuring access to adequate amounts of spectrum to meet the needs of consumers and business in the future environment without disadvantaging services of general interest (such as public-sector broadcasting) and without picking technology winners. This may involve removing exclusivity from current uses of particular bands in order to prevent congestion in others, thereby respecting the principle of non-discrimination;
- ii) Increasing flexibility and enhancing harmonisation: removing regulatory constraints on the electronic communications services to be offered and unless otherwise justified on the technologies to be used, identifying what appropriate minimal technical co-existence requirements to avoid the risk of interference must be met and maintaining the protection of other services and applications (e.g. governmental services);
- iii) Maintaining a stable and predictable regulatory framework;
- iv) Avoiding spectrum fragmentation where it could lead to inefficient use of spectrum, by carefully considering the effects of the reduction of the regulatory constraints on harmonised bands;
- v) Facilitating standardisation through at least the establishment of a harmonised set of technical requirements for the usage of certain frequency bands to allow the single European market to benefit from economies of scale;
- vi) Identifying transition arrangements which ensure that legacy issues are dealt with smoothly and that equitable burden sharing takes place between incumbents and newcomers in order to promote innovation (see also Section 5.6).

5.5 Long Term Policy Goals

The RSPG considers that the long term policy goal should be to develop approaches ensuring that spectrum issues related to the growing and evolving variety of radio systems comply with the overall policy goal to develop the European Union internal market and European competitiveness, by ensuring an innovation-friendly and coherent regulatory environment which facilitates rapid access to spectrum for new technologies and leads to the provision of a wide variety of wireless electronic communications services and networks.

5.5.1 To facilitate rapid access to spectrum for new technologies in order to promote competitiveness and innovation

Spectrum management should ensure that spectrum scarcity is not in fact increased by non justified regulatory constraints. A new approach could be to introduce more flexibility in the conditions of use of spectrum resources for wireless electronic communications, while maintaining harmonisation where necessary within a coherent and spectrally efficient frequency management scheme. Wherever possible and appropriate, constraints attached to the usage of specific radio spectrum bands should be removed and spectrum management made more responsive to the rapid development of new markets and services.

Delineation of applications are blurring and can not stand for ever in a changing and converging radio communication world and should be dynamically adapted. There is a large variety of services and a large number of wireless access platforms potentially operating in various frequency bands, but which target similar mass markets. More and more, the same electronic communications service will be accommodated through different technologies. However, there are still reasons which would prevent and will continue to prevent considering the same access conditions to all networks.

5.5.2 To ensure a coherent authorisation scheme

More and more radio access networks convey the same or similar content and are increasingly competing with each other. Therefore, each time a Member State analyses the competitive situation, the market to be analysed encompasses more and more technologies and systems than in the past. A method of regulation that can meet the long-term functional convergence of technologies and services is becoming essential.

In accordance with the European Regulatory Framework, the main objectives of Member States are to ensure a coherent authorisation scheme, in spite of differences in applications and spectrum conditions of use. This coherent authorisation scheme should avoid distortion of competition in the electronic communications sectors, while ensuring the effective management of spectrum. A long term objective may be the establishment of a set of principles for WAPECS which should ensure equitable competition conditions between wireless access platforms offering similar services and addressing similar markets.

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. It is envisaged that there may be more need for additional conditions during the transitional period but that, as Member States move towards a more flexible spectrum regime, the need for such additional conditions will diminish.

5.5.3 Technological neutrality

For each WAPECS frequency band, provided that the associated electronic communications network complies with the relevant spectrum technical requirements, technological neutrality and flexibility in future use of the spectrum should be ensured. For justified reasons, in line with recital 18 of the Framework Directive, certain technological requirements may be imposed by Member States or at the EU level.

5.5.4 Service neutrality

Any electronic communications service (ECS) may be provided in any WAPECS band over any type of electronic communications network. No frequency band should be reserved for the exclusive use of a particular ECS. This is without prejudice to any obligation to provide some specific service in a specific band or sub-band, e.g. broadcasting and emergency services.

5.6 Transition to a WAPECS Framework

The RSPG considers that, if implemented overnight in a “big-bang” approach, the move towards WAPECS-style spectrum management has the potential to cause disruption in the market and possibly discourage investment in the short term. On the other hand, simply allowing existing licences to run their course, and changing them to more flexible rights of use as they expire, would delay the benefits of innovation and unduly penalize consumers. The RSPG considers that implementation packages, detailing specific actions to be taken as part of the transition, will be necessary to ensure that sufficient spectrum is made available at the same time to avoid congestion, hoarding and allegations of unequal treatment. The setting of implementation dates for specific actions could act as a guideline and indication to regulators and interested parties, thus facilitating the adjustment of business plans and national transition. Such implementation dates should not prevent Member States from implementing earlier if they see fit and taking account of local circumstances.

5.7 Action Points

The RSPG considers the following as possible areas for action at EU level:

The Commission and Member States are invited through the Radio Spectrum Committee to take the most appropriate actions to:

- i) identify a list of frequency bands where the WAPECS concept could be applied, irrespective of the time-frame (taking into account the frequencies listed in Section 3 of this opinion);

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- ii) in each frequency band identify all constraints (technical and other) including those stemming from national licensing conditions;
- iii) identify measures for improving coherence of authorisation conditions and specifying the technical requirements for WAPECS to be implemented within these frequency bands and report back to RSPG;
- iv) define implementation packages, as discussed in Section 5.6, detailing specific actions to be taken as part of the transition .

It is expected that this will result in a first implementation phase in which:

- i) a sub-set of those bands should be identified within which there is consensus that concrete steps could be taken to apply the WAPECS concept in a fairly short timeframe and a schedule should be agreed for the implementation of WAPECS in those bands;
- ii) any issues that might hinder the development of WAPECS should be reported to RSPG ; and,
- iii) RSPG should revisit any issues hindering the implementation of WAPECS.

OVERVIEW OF WAPECS CONSULTATION RESPONSES

The RSPG has taken into account the results of the public consultation in formulating the Opinion given in Section 5. There were a number of issues that were raised in the responses which are briefly mentioned below:

- The WAPECS definition used in the public consultation¹² is acceptable because it is sufficiently broad (slightly less than half of the replies).
- The WAPECS definition used in the public consultation does not clearly indicate the scope of WAPECS and what it is intended to address (just over half the replies).
- A majority felt that WAPECS should include both public and private applications as it is becoming increasingly difficult to differentiate between the two from a market and services perspective.
- The definition of “platform” had limited support and other proposals were “systems” or refer to technology.
- There were a significant number of responses that considered account should be taken of constraints placed on the use of spectrum for broadcasting when considering whether the spectrum could be used for other services. This included obligations to provide service, requirement for high powers and the need for harmonised frequency bands (RRC-06). Only five responses considered there should be no constraints placed on services using broadcast domain spectrum.
- To safeguard the delivery of Services of General Economic Interest the majority of the respondents proposed a mix of approaches. In general there were as many responses in favour of a specific approach, e.g. regulation of the spectrum, market based approaches, competition law, than against. In the case of State Aid Policy concerns were raised that it could be an expensive solution. It was also proposed that SGEI should be defined so there is a common understanding.
- The issue of harmonised use of spectrum was raised by a number of respondents against several of the questions. It was considered important for broadcasting and also for other services where there is a need for economies of scale, roaming and interoperability. It was proposed that the use of

¹² This has been revised in the final opinion, see Section 2.

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spectrum freed up as a result of the transition from analogue to digital broadcasting should be harmonised.

- Policies for ensuring availability of standards included availability of harmonised spectrum, lightweight and flexible approach to regulation, efficient relations between CEPT and other standards bodies. The need for credible sharing studies, not worst case, was raised.
- A number of responses identified there was still insufficient spectrum to meet the requirements of i2010 and some proposed that there should be further investigation into the potential for sharing or returning spectrum currently allocated to Governmental Bodies.
- The transition to the WAPECS regulatory regime was identified as an important challenge and the need for an evolutionary approach not revolutionary. It was suggested that there needs to be an alignment of national procedures as national regulation should not cause regulatory barriers. There is a need for some NRAs to catch up with new initiatives and so provide a common approach. There were proposals that a sub-set of bands should be identified to apply the principles of WAPECS in the shorter term.
- The relationship to spectrum trading and liberalisation issues was also raised as a key point and also the need for a comprehensive spectrum information system such as an enhancement to EFIS was mentioned by a number of respondents.