

**RSPG OPINION ON “STREAMLINING THE REGULATORY ENVIRONMENT
FOR THE USE OF SPECTRUM”**

19 NOVEMBER 2008

1 INTRODUCTION

This RSPG Opinion has been requested to assist the Commission in identifying solutions to ensure consistency between various regulations affecting spectrum and to improve the cooperation between bodies involved in spectrum policies, in order to facilitate making spectrum available for new applications and improve the efficient use of radio spectrum and the avoidance of harmful interference.

Demand for services which are dependent upon access to the radio spectrum is rapidly increasing and certain parts of the radio spectrum are becoming more and more congested. In addition, innovation is driving the development of radio technologies which are increasingly using more sophisticated mitigation techniques in order to be able to share spectrum in various different ways amongst themselves and/or with other spectrum users. The European regulatory environment should be able to facilitate the introduction of such innovative technologies and sharing solutions in a way that derives the maximum benefits from the usage of the spectrum.

Several EU regulations are addressing the availability and the efficient use of radio spectrum. Where it concerns the use for electronic communications services, the rights to use spectrum are granted on the basis of the set of Directives on electronic communications networks and services (ECN&S), mainly the Framework Directive (2002/21/EC) and the Authorisation Directive (2002/20/EC). The coordination of policy approaches with regard to the availability and efficient use of the radio spectrum is carried out through the process defined in the Radio Spectrum Decision (676/2002/EC). Furthermore, equipment regulation such as the R&TTE Directive (1999/5/EC) or the EMC Directive (2004/108/EC) have a direct impact on the efficient use of the spectrum since they regulate the requirements that products must meet in order to be placed on the market and be used. They harmonise, in particular, the requirements for radio equipment to effectively use the radio spectrum so as to avoid harmful interference with the objective of ensuring the good functioning of the internal market. The R&TTE Directive also addresses the putting into service of apparatus in its Article 7.1 and 7.2.

This results in regulations applying to the authorisation to use spectrum (ECN&S) and to the placing of radio equipment on the market (R&TTE Directive). The R&TTE Directive introduced a more fast track and liberal approach to placing products on the market which is currently unique at worldwide level. In addition the future ECN&S regulatory framework will introduce more flexibility in terms of spectrum use. The revision of the ECN&S regulatory framework currently proposed by the Commission does not significantly change the division between the different instruments covering spectrum regulation (the only change is the inclusion of terminal equipment in the scope of the Framework Directive in line with changes in the Universal Service Directive to improve eAccessibility for disabled end-users).

However, the changes proposed related to spectrum management which will imply more technology and service neutrality, general authorisations whenever possible, are taken into account as an important element for the development of the Opinion. The current and future process involves three organisations: the European Commission with TCAM (Telecommunication Conformity Assessment and Market Surveillance Committee) and RSC (Radio Spectrum Committee), the RSPG, CEPT and ETSI.

Due to the different roles and functions of the various involved entities which are not questioned, these liberal approaches in R&TTE, in ECN&S regulatory framework and in spectrum management will bring benefits to all stakeholders and to public interest only if this complex structure (Commission, ETSI, CEPT) can work properly. This means that the role of each organisation and the tasks to be completed need to be clear, well understood, accepted, recognised so as to reduce and avoid conflict of responsibilities.

Overall, the European spectrum management framework should ensure that spectrum use and conditions will continuously meet the various requirements of stakeholders and in particular that innovative applications that are beneficial will have access to spectrum.

In the development of this Opinion, the RSPG has discussed the regulatory environment for spectrum use both in case of general authorisations and individual authorisations in the context of increasing flexibility in spectrum use (unlicensed bands, WAPECS¹, flexible bands...). The elements of this Opinion are mainly focusing on the general authorisation case but also address the framework for introducing more flexibility into individual authorisations.

2 ANALYSIS OF THE RESPECTIVE ROLE OF ECS REGULATORY FRAMEWORK, R&TTE DIRECTIVE AND SPECTRUM DECISION

Directive 1999/5/EC on radio equipment and telecommunications terminal equipment (R&TTE Directive)

Scope: The R&TTE Directive covers the placing on the market and the putting into service of all the radio equipment and telecommunications terminal equipment, with the exception of apparatus used for public safety and State safety (Art. 1.5), as well as radio amateur equipment unless the equipment is available commercially, maritime equipment falling within the scope of Council Directive 96/98/EC of 20 December 1996 on marine equipment, cabling and wiring, radio and TV receivers and products, appliances and components within the meaning of Article 2 of Council Regulation (EEC) No 3922/91 of 16 December 1991 on the harmonisation of technical requirements and administrative procedures in the field of civil aviation, as described in Annex I of the Directive.

Comment: The R&TTE Directive is the legal basis for the creation of the single market for radio and telecommunications terminal products in the EU. It determines the procedures manufacturers must apply to place such products on the EU market based on the fulfilment of essential requirements. The essential requirement relevant for spectrum management is drafted in general terms: “radio equipment shall be so constructed that it effectively uses the

¹ Wireless Access Policy for Electronic Communications Services, see RSPG Opinion (RSPG05-102) and Communication from the Commission COM(2007)50.

spectrum allocated to terrestrial/space radio communication and orbital resources so as to avoid harmful interference”. As a New Approach Directive it delegates the definition of accepted means of meeting such requirements to standardisation (i.e. ETSI), through the development of harmonised standards but also allows for another “route” for demonstrating compliance with the essential requirements through a technical file for which the opinion from a notified body is to be sought. Market surveillance is key to ensure that equipment will effectively comply with essential requirements. The revised New Approach framework intends to provide consistency to market surveillance by setting out the requirements for market surveillance.

In accordance with Article 5.1 of the R&TTE Directive any radio equipment which meets the harmonised standards is presumed to comply with the essential requirements identified in Article 3 of the Directive. Such radio equipment can be placed on the market (Article 6.1) and also meets one of the preconditions for putting into service (Article 7.1).

Article 9.1-4 of the R&TTE Directive describes the safeguard clause that can be applied by Member States to withdraw radio equipment from their national market in case of:

1. incorrect application of the harmonised standards;
2. shortcomings in the harmonised standards;
3. failure to satisfy the essential requirements where the apparatus does not meet the harmonised standards.

A Member State that applies the safeguard clause shall notify the Commission of its decision. The Commission shall consult TCAM on the matter and issue an opinion on whether the safeguard measure is justified or not.

Article 9.5 also gives Member States the right to restrict the placing on the market of equipment that may be designed and produced in accordance with harmonised standards and comply with the essential requirements of the Directive, when Member States consider that the equipment has caused or will cause harmful interference, including harmful interference with existing or planned services on nationally allocated frequency bands. Member States shall notify such measures to the Commission. As of today, no measure under Article 9.5 has been notified to the Commission.

Electronic Communication Networks and Services (ECN&S) Framework

Scope: The ECN&S Directives cover the electronic communication networks and services, which are defined in Article 2 of the Framework Directive. They contain provisions on the use of radio frequencies for electronic communications services and the rights of use of frequencies for such services.

Comment: The ECN&S Regulatory Framework, on the other hand, is based on granting rights to use frequencies through general or individual authorisations. Conditions which may be attached to such authorisations are listed in the Annex of the Authorisation Directive, with a cross reference to Article 7.2 of the R&TTE Directive in the case of general authorisation (Member States may restrict the putting into service of radio equipment only for reasons related to the effective and appropriate use of the radio spectrum and avoidance of harmful interference) and a more general condition relating to the “technical and operational conditions necessary for the avoidance of harmful interference” in the case of individual authorisation.

Decision 676/2002/EC (Radio Spectrum Decision)

Scope: The Radio Spectrum Decision aims at coordinating policy approaches regarding radio spectrum within “Community policy areas such as electronic communications, transport and research and development (R&D)” (Article 1). The scope of the Decision remains wide but it is to be inferred that any use of radio spectrum may fall within the scope of this Decision, as soon as it is of interest for the European Community (internal market and sector policies).

Comment: The coordination of policy approaches with regard to the availability and efficient use of the radio spectrum is carried out through the process defined in the Radio Spectrum Decision (676/2002/EC). The Spectrum Decision forms the basis, among others objectives, to handle the technical conditions which are attached to the efficient use of spectrum independent of the authorisation regime which is defined under the rules of the Authorisation Directive of the ECN&S regulatory framework. A Memorandum of Understanding (MoU) between the Commission and CEPT is in force since 2004. CEPT has already provided various CEPT reports in accordance to objectives of the relevant Commission mandates.

3 A SUITABLE COOPERATIVE FRAMEWORK BASED ON COMMISSION, ETSI, CEPT/ECC RELATIONSHIP

The Commission, ETSI and the Electronic Communications Committee (ECC) of CEPT are involved in the cooperation process dealing with spectrum management decisions by setting standards, the application of which is voluntary, and regulatory decisions.

The Commission is supported by some consultative committees:

- TCAM (R&TTE Directive),
- Cocom (ECN&S Directives),
- RSC (Spectrum Decision),
- Directive 98/34 committee (standardisation mandates).

The Commission adopts policy measures, as mandates to European Standardisation Organisations (ESO) and/or CEPT in accordance to the opinion of consultative Committees: TCAM and 98/34 in case of mandates to ETSI under the R&TTE, RSC in case of mandates to CEPT under the Radio Spectrum Decision.

ETSI, as an ESO that is formally recognised by the EU, drafts standards according to Commission mandates objectives. Those standards once cited in the Official Journal of the European Union (OJEU) become harmonised standards and then give presumption of conformity to the requirements of the R&TTE Directive.

Further to Commission mandates drafted according to RSC opinion, CEPT/ECC undertakes compatibility studies and establishes under which conditions and parameters the sharing between the different users of the spectrum may take place. ECC deliverables (Decisions, Recommendations or Reports) and CEPT reports serve as the basis for the drafting of Commission Decisions on spectrum use. Once a Commission Decision applies to a specific frequency band and application, any modification of the Decision will have to be proposed by

the European Commission, with a requirement for a new mandate to the ECC in case of substantial modification.

The MoU between CEPT and ETSI describes the cooperative process applying to the development of harmonised standards and of ECC decision (or other ECC deliverables). This process aims to facilitate access to appropriate spectrum for new applications envisaged by ETSI. According to the MoU between CEPT and ETSI, any modification of the harmonised standard which would require a modification of ECC deliverables should lead to a coordination process between the two bodies. The same would apply if ECC envisages a change in its regulation which would require a modification of harmonised standards.

Harmonised standards are agreed by a consensus between administrations and industry, and are adopted by a public vote managed via National Standards Organisations. Once adopted the Commission cites them in the OJEU without further intervention, except in exceptional cases.

CEPT/ECC deliverables may be adopted voluntarily by CEPT member Administrations after public consultation, and, when the harmonisation measure is covered by a Commission mandate are submitted to the European Commission which proposes harmonisation measures based on the Spectrum Decision process. The implementation of harmonisation measures based on Decisions of the European Commission is mandatory for EU Member States.

The relationship between these various organisations and the flow of exchanges between them are summarized on figure 1.

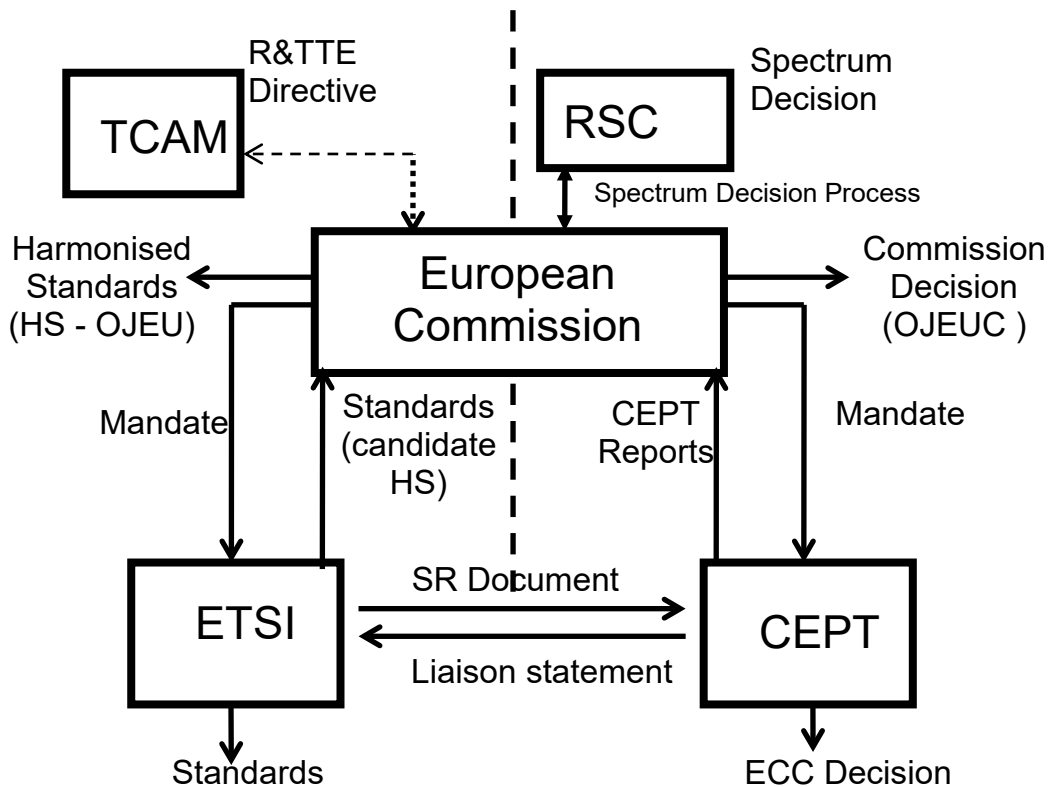


FIGURE 1: Relationship between EC, ETSI and CEPT

Under the R&TTE Directive, compliance with the essential requirements can be demonstrated using other means than a harmonised standard. Concerning radio equipment, the manufacturer, in this case, may ask for the opinion of one or more notified bodies about the conformity of the equipment with the essential requirements before placing it on the market.

The Radio and Telecommunications Terminal Equipment Compliance Association (RTTE-CA), a group which has been established on a voluntary basis by notified bodies, enables cooperation between notified bodies on the application of standards and on the issue of conformity assessment. This association has established contact with CEPT/ECC. However, today, notified bodies are not participating to the activities in ETSI or CEPT.

For the market surveillance and enforcement, which are keys in the ex post regulation which is the basis of R&TTE, coordination of actions of Member States is done in a group named ADCO R&TTE. This group has been established by the market surveillance authorities of the Member States on a voluntary basis and carries among others Pan European market surveillance campaigns. It also liaises with TCAM and R&TTE-CA.

This is illustrated on figure 2.

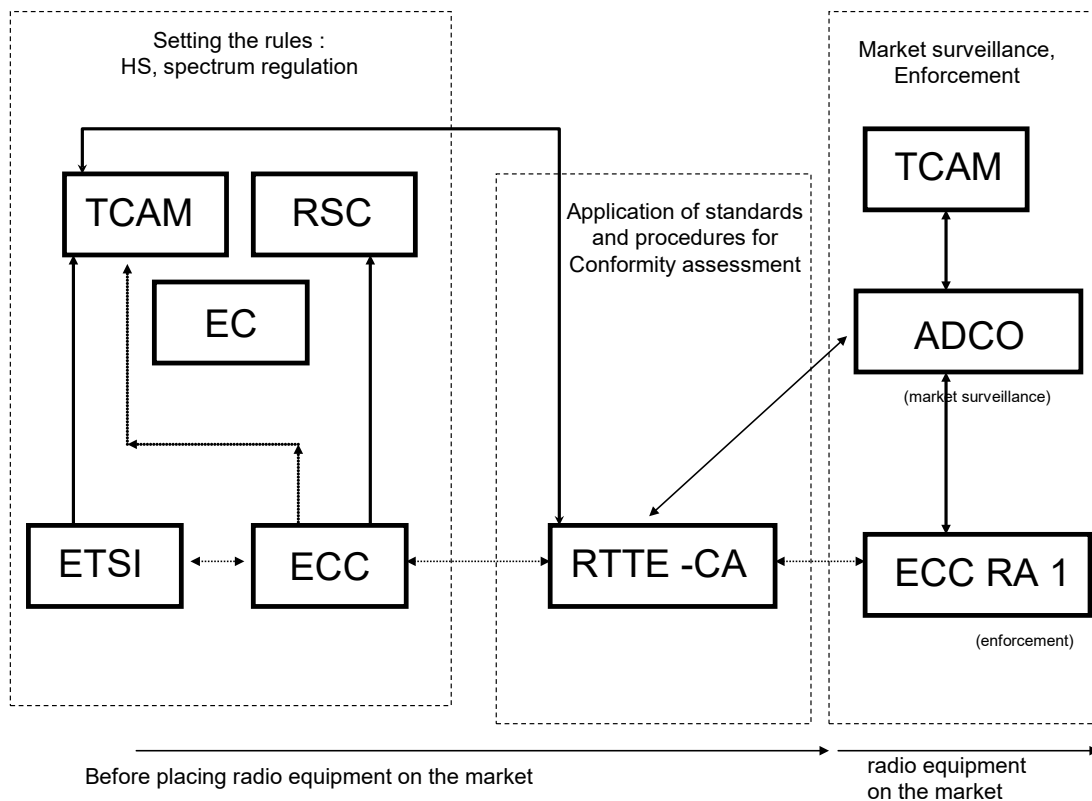


FIGURE 2: Role of various bodies in market surveillance and enforcement

4 IDENTIFICATION OF AREAS WHERE THE CURRENT REGULATORY MECHANISMS SHOULD BE ENHANCED

4.1 Maintaining confidence and ensuring clarity and certainty in spectrum management

In order for the regulatory process to maintain confidence and to ensure clarity and certainty, it is essential that:

- Existing spectrum rights holders have a secure basis to maintain existing and develop new services, in particular when asked to share with new spectrum users (possibly with innovative technical sharing solutions).
- Technical regulations for new services are defined at a level appropriate for the protection of existing services (i.e. not made too conservative).
- Technical regulations for new services can be defined and adapted as quickly as possible, to minimise the barriers for new and evolved applications to access spectrum while taking into account the existing use of spectrum.

Confidence, clarity and certainty regarding the regulatory environment are needed in order to avoid impairment of flexibility and innovation, causing confusion, misunderstanding and delay.

Furthermore, as shown in section 3, the regulatory process is complex, with discussions taking place in various organisations, various meetings and on various regulatory elements. It is particularly important for stakeholders who can not participate to the whole process (small industry, governmental stakeholders ...), that they have a full visibility on how and where decisions are taken and that their positions will be treated in an equitable way. Sharing conditions are developed as a result of detailed negotiations, studies and investigations which have to balance between the protection requirement of existing users and the requirement to facilitate the access to spectrum for new users. In order to maintain the necessary confidence, it is important that all relevant users of spectrum, i.e. governmental and non governmental and all other stakeholders (industry, operators, users ...) are involved and take an active role in finding solutions to enable sharing where possible. All stakeholders should provide the required information on their spectrum usage and participate in the establishment of sharing solutions in order to maintain confidence that the sharing solution will work effectively and will be effectively implemented.

Two main elements are important to maintain confidence, clarity and certainty in the current regulatory process, the first one relates to the technical regulations applying to the use of spectrum, the second relates to the regulation applying to the placing on the market of radio equipment:

- 1) **Technical regulations applying to the use of spectrum:** The current process between the EU, CEPT and ETSI works well for the initial designation of the spectrum for certain applications and under certain technical conditions but the application of the process for modifying such technical conditions is less clear.

The designation is normally based on the results of sharing and/or compatibility studies (generally reported in ECC Reports). These studies establish under which conditions and parameters the sharing between the different users of the spectrum may take place. These studies are based on selected representative technologies(y) for both the existing and

proposed new services with an appropriate deployment forecast and their required protection levels.

The Decisions on spectrum use may be considered to be a “one shot” option. There are some doubts whether the feedback mechanism in the regulatory process would make possible rapid adjustment of the technical conditions if the evolution of market (applications, density of use, environment etc.) and technologies is not in line with the assumptions made in the studies. In other words, when a frequency band is open to a new application, in particular in the case of mass market devices operating under general authorisation, it is felt that it would be extremely difficult to place more stringent requirements on the conditions of use at a later date, even in the case of interference or well identified risk of interference or to stop access to the frequency band for such devices. These concerns have been reflected in the ongoing debate about the need to allow “large scale experimentation” which has never resulted in any satisfying solutions being proposed. This is mainly because of the difficulty in ensuring a process of ongoing feedback and any resultant adaptation of the original conditions related to enabling use of the spectrum.

In cases covered by Commission Mandates, it is assumed that the relevant technical conditions in ECC deliverables will then be included or referred to in the appropriate EU regulatory instrument. The technical conditions are assumed to be consistent in EU and in CEPT deliverables but some discussions during the EU regulatory process on where these requirements should be stated (e.g. Commission spectrum Decisions, national regulatory interfaces and/or the harmonised standards) have led to confusion. To facilitate the introduction of flexibility and new technologies, it should be made clear where in the EU regulatory instruments the elements proposed by the ECC in their deliverables should be included and how to ensure their consistency. This is related to the development of the table for national regulatory interface (see section 4.2) by the joint group between RSC and TCAM RIG-2.

When looking at these issues it should be remembered that the conditions and parameters reflecting the balance resulting from the spectrum management process have to be enforced in a way which would ensure at the same time:

- Confidence for all users of the spectrum (i.e. including governmental) that conditions and parameters required to ensure compatibility will be effectively met and enforced.
- The possibility for technological and market evolution of both new and incumbent applications.
- The possibility for adapting in a timely manner the regulatory parameters to a change in the interference environment.

2) Technical regulation applying to the placing on the market of radio equipment:

The question is whether the current mechanisms under the R&TTE Directive are sufficient by themselves to ensure confidence in regulatory decisions, in particular when dealing with new technologies that enable devices to share the spectrum with existing users under general authorisations:

Conformity assessment

- Harmonised standards are just one way to demonstrate compliance. In theory a manufacturer may market equipment without referring to a harmonised standard, provided that an opinion has been sought from a notified body. In practice, notified bodies are reluctant to take the risk of giving a positive opinion on conformity with essential requirements when a harmonised standard has not been applied. This is likely to be even truer in the case of complex sharing solutions based on cognitive radio.

Market surveillance

- Due to the different resources available, efforts from national administrations on market surveillance differ widely within the Community. This could lead to different approaches and priorities when dealing with market surveillance. Consequently, some equipment may be widely placed on the market while not complying with the essential requirements.

Enforcement against non-compliant equipment (safeguard clause)

- There has been one example of a cognitive radio system where it appeared that there were shortcomings in the harmonised standard which led to harmful interference. Concerns were raised due to the fact that consensus to implement the safeguard clause could only be reached when interference occurred. In case of mass-market equipment, this could be too late resulting in the risk for the incumbent user not to be able to continue to operate in the band.
- In case a national market surveillance authority withdraws equipment from its national market, this does not automatically affect other Member States, unless these administrations are taking the same measure. However, other administrations may not face the same interference situation (e.g., the interfered system may not have the same characteristics throughout Europe). In a common European market national measures for mass-market equipment may not be adequate to control the situation in all Member States.

Examples of introduction of new technologies (e.g. UWB and 5 GHz RLAN cases) showed how detailed negotiations, studies and investigations, involving all relevant users of spectrum (i.e. governmental and non governmental) and any other stakeholders can address the various concerns. These discussions took place at national level, at European level (CEPT and ETSI under Commission mandate) and at worldwide level (ITU). It has to be noted that the difficulty of such negotiation or investigation increases with the trend to increase sharing of spectrum in response to spectrum scarcity. It is also sometimes necessary to ensure discussions at global level, given the requirement from industry for international harmonisation, which requires a more proactive role from the industry at the earlier stage of the spectrum management process. The results of these discussions have enabled regulators to open a large amount of spectrum for new applications at the European level.

4.2 Coherence between the activities of the organisations European Commission, CEPT and ETSI

The current flow of information between the European Commission, ETSI and CEPT is described in Annex 1. It should be noted that there are still many situations where Commission Decisions are not considered necessary, e.g. where an EU Member State can voluntarily harmonise with other CEPT members by signing up to an ECC decision.

When the Commission is considering introducing a binding spectrum Commission Decision they may issue two separate mandates to ETSI and CEPT. In order to minimise the timescales and duplication of effort in these investigations, it is essential that the coherence between each mandate is ensured both in terms of scope and timing. This will enable the work between ETSI and CEPT on defining sharing conditions to remain well coordinated. The lack of coherence in the relevant scope of the Commission mandates can destabilize the work of each of these organisations and may introduce a delay in the process or create misunderstanding for stakeholders. This does not mean that the scope of each mandate should be strictly the same, but only that they enable ETSI and CEPT to produce their separate deliverables with relevant scopes in a coordinated time-frame. In particular with new technologies, there is a need for all spectrum stakeholders to discuss and find sharing solutions in a cooperative manner. This may include measurement campaigns to determine the effect of interference.

In order to coordinate these mandates there has to be some commonality between the work of TCAM and RSC who sometimes address the same issues from either the viewpoint of R&TTE Directive or spectrum management activities respectively.

One important difference between the Commission mandates to ETSI and the Commission mandates to CEPT is that the main ETSI deliverables (harmonised standards) are directly cited in OJEU, whereas the result of a mandate to CEPT is generally to be left with separate ECC and Commission Decisions with different levels of technical detail. This has led to recurrent debates between the Commission and Member States who wish to implement ECC Decisions but are concerned with the need to ensure the consistency between the content of ECC and Commission Decisions. In this respect, some administrations believe that it would be useful to investigate further if an ECC decision can be cited in a similar way to harmonised standards.

In this respect, a recent difficulty has been identified due to the fact that CEPT reports are now submitted to a public consultation in order to increase transparency. Such CEPT reports are sent to Commission services after CEPT approval for public consultation. As a result of such consultation, it may be necessary to consider the review of the CEPT report. Therefore, Commission services should avoid finalizing a Commission Decision before the end of CEPT report public consultation.

It is important to highlight the need for consistency between ETSI and ECC activities as both involve the recognised technical experts in their respective duties under the current European regulatory process when looking at technical limits related to spectrum sharing conditions. The objective of the MoU between CEPT and ETSI is precisely to ensure that the essential spectrum sharing conditions are defined, agreed and can be evolved in a consistent manner between the two organisations. This requires in particular that CEPT deliverables can include the appropriate level of technical detail when defining the spectrum sharing conditions. When mitigation solutions are identified, they should be described in CEPT deliverables by

specifying how the equipment or network should behave to avoid interference (e.g. detailing under which conditions the equipment should switch off).

It should be noted that harmonised standards, CEPT/ECC deliverables and Commission Decisions are adopted by different mechanisms and have different objectives. This leads to different decisions on the level of technical detail that should be contained in these respective deliverables. The Commission spectrum Decisions would often contain less technical details than either ETSI or CEPT/ECC deliverables. Overlaps between these various regulatory deliverables tend to be limited to the technical parameters that are considered to be an essential part of the spectrum management decision. Detailed coordination is necessary to ensure that the deliverables of ETSI, CEPT/ECC and the Commission contain consistent technical provisions and are implemented in a coordinated manner.

Defining the demarcation between what should be presented as essential (or mandatory) requirements in national radio interface requirements, harmonised standards, ECC and Commission Decisions is still subject to considerable debate. Some of the most contentious arguments in the past have been over the technical details that should be presented in a Commission Decision and the corresponding national radio interface as mandatory requirements. These arguments tend to revolve around what should be covered under the responsibilities of the R&TTE Directive. Going forward especially when dealing with flexible (WAPECS) allocations and new technologies (e.g. cognitive devices) there is a need to ensure that there is a consistent and sensible approach to defining where we consider these demarcations to be in order to improve the confidence of industry stakeholders. It is proposed to limit as far as possible the technical conditions to be included in Commission spectrum Decisions while emphasizing the role of CEPT in defining sharing conditions. These sharing conditions will have to be respected in ETSI harmonised standards. Furthermore, ECC decisions would contain more technical details than Commission Decisions.

A fundamental step forward in order to improve the consistency between the regulatory deliverables was the adoption by TCAM and RSC in April 2008 of an adaptation of the set of normative and informative technical parameters for radio interface specifications. This RSC TCAM RIG-2 model for specifying the radio interface is proposed to be implemented by the Commission, Member States, CEPT and ETSI for their deliverables such as national radio interface specifications, equipment class 1 specifications, TCAM decisions, Commission and ECC decisions.

Recently, the development of the WAPECS concept in certain specific frequency bands has highlighted a new issue where individual authorizations will look at alternative ways of expressing these technical conditions. The most recent development here is the use of the block edge mask (BEM) principle to determine suitable boundary conditions that can be used in national licensing. It is important to note that the BEM is the regulatory requirement for operators whilst equipment manufacturers will apply the relevant harmonised standards which contain equipment spectrum masks. There is a relationship between the BEM and the equipment spectrum mask but they do not have to be identical because of the possibility for an operator to use other means to meet the BEM requirements. Therefore, consistency does not mean in this case alignment of the requirement in the harmonised standard with those stated in the Commission Decision or national radio interface specification.

In this respect, it is felt essential that the RSC TCAM RIG-2 model should not prevent the inclusion of new parameters not envisaged when the model was developed.

More generally, it is important to remind that the participation of administrations in ETSI activities is important.

4.3 Increasing sharing of spectrum and receiver parameters

The growing demand for spectrum will increase scarcity of spectrum and this will lead to the development of new sharing situations which will have to be addressed by spectrum managers.

In particular, the importance of receiver parameters in the assumptions behind the spectrum management decisions were overlooked too often in the past, leading to situations where the introduction of new application can be hindered by the need to protect badly designed receivers of existing users of the spectrum. From a spectrum management point of view, it is essential to base work on an agreed set of reference receiver parameters in order to identify receivers which can be afforded protection, to plan the spectrum and to make sharing studies to introduce new services and applications in spectrum. In case of receivers not covered by a standard, spectrum managers have to take into account in compatibility studies the performance of equipment already on the market, thus creating a legacy issue until a standard applies to receivers on the market.

It has to be noted that receiver parameters play a fundamental role in the policy framework aiming to make spectrum use more flexible. It is recognized that consideration of these receiver parameters are even more important in this context than in frequency bands used in a more traditional way.

ETSI harmonised standards include in some cases mandatory receiver parameters (see ETSI guide 201 399 “guide to the production of candidate harmonised standards for application under R&TTE Directive”). In some other cases, the receiver parameters are included in the product standards. However, there are still too many cases where neither harmonised standards nor product standards contain adequate receiver parameters. Moreover, some CENELEC EMC standards also include immunity requirements applicable to broadcasting receiver which are not covered by the R&TTE Directive.

5. THE OPINION OF THE RSPG: SOLUTIONS TO STREAMLINE DECISION MECHANISMS, COOPERATION OR LEGISLATION

The purpose of this Opinion is to propose solutions to improve decision mechanisms, cooperation or legislation so as to ensure consistency in the different part of the regulatory environment for the spectrum use. Taking into account the scope and focus of this Opinion, the RSPG also addresses some recommendations to CEPT and ETSI due to their major role in spectrum and equipment regulation. It is expected that these organisations which were involved in the development of this Opinion will consider how to implement these recommendations.

General principles

5.1 The R&TTE Directive has been successful in introducing a liberal approach to placing equipment on the market compared to the type-approval approach that it replaced. This is currently unique at worldwide level and the future ECN&S regulatory framework will introduce more flexibility in terms of spectrum use.

5.2 The RSPG considers that the interplay of spectrum and equipment regulation is a key element in achieving the policy objective that the societal and economic value of spectrum use should be maximised. Furthermore, smooth functioning of spectrum management and standardisation encourages innovation and technological development, and enhances the competitiveness of European industry.

5.3 The RSPG considers that spectrum regulation should be limited to the minimum necessary to avoid harmful interference and to maximize the benefits to society of the use of spectrum, including economic, social and cultural benefits. Radio interfaces specifications should be adopted in accordance with these principles of common, minimal and least restrictive conditions for spectrum use.

5.4 The RSPG considers that there is a need to continuously review the use of spectrum. The conditions for the use of spectrum should provide sufficient confidence, clarity and certainty to the market and spectrum stakeholders. However, they should also adapt to the evolution of radio systems characteristics and sharing situations.

5.5 The RSPG considers that European harmonisation is one of the main objectives of spectrum management and that global spectrum harmonisation is also important for European interests. The international framework should also be taken into account in the development of European spectrum regulation.

5.6 The RSPG considers that the requirements and views of all stakeholders should be taken into account in a fair and transparent manner when defining sharing conditions. Once agreed in response to a Commission mandate, the sharing conditions are normally the basis for the development of a Commission spectrum Decision. In this respect, increasing transparency in the adoption process of Commission spectrum Decisions will help in maintaining confidence and ensuring clarity and certainty to spectrum stakeholders.

5.7 The RSPG notes that the development of wireless applications will increase the demand and therefore the requirement for regulators to review new and innovative methods of sharing between applications. However, the possibility to introduce new innovative applications and to increase spectrum sharing relies on the confidence of all spectrum users that the conditions and parameters required to ensure compatibility will be effectively considered, met and enforced.

Short term recommendations

5.8 The RSPG notes that CEPT undertakes compatibility studies to establish conditions and parameters for sharing between the different users of the spectrum. ETSI respects these spectrum sharing conditions and parameters in the harmonised standards. The MoU between ETSI and CEPT is key to ensuring that spectrum sharing conditions are defined, agreed and can evolve in a consistent manner between the two organisations. The RSPG recommends that these spectrum sharing conditions should continue to be clearly identified in appropriate CEPT deliverable(s) and respected in ETSI harmonised standard(s).

5.9 The RSPG recommends to continue to include these sharing conditions or refer to them in Commission Decisions and national radio interfaces specifications, taking into account the objective of minimal and least restrictive conditions for spectrum use (see 5.3). For example, mitigation solutions can be referred to in the Commission spectrum Decision rather than specified with detailed technical elements.

5.10 The RSPG recommends that every effort be made to ensure the consistency of ECC and Commission decisions, recognizing that ECC decisions also contain sharing conditions which are respected in ETSI harmonised standards rather than specified in Commission spectrum Decisions.

5.11 The RSPG recommends that a stronger relationship is established between ETSI/CEPT and notified bodies in order to ensure that notified bodies are familiar with the sharing conditions and the objectives for which they are or have been developed.

5.12 The RSPG recommends that CEPT and ETSI should consider how to quickly adapt sharing conditions and parameters in response to new market developments or interference situations while taking into account the existing use of spectrum.

5.13 The RSPG notes that TCAM and RSC are often addressing similar issues of interference from the different viewpoints of the R&TTE Directive and spectrum management. Therefore, the activity of these committees should be even more closely coordinated. In addition, mandates to ETSI and CEPT should complement each other both in content and timing.

5.14 The RSPG recommends that in order to ensure transparency and consistency in spectrum management decisions, the Commission Decisions should normally not be adopted before the final adoption of CEPT reports after the public consultation process.

5.15 Receiver parameters are important for spectrum management and for facilitating the introduction of new applications in spectrum. Therefore, the RSPG considers that the receiver parameters should be included in harmonised and/or product standards for all equipment and

that administrations should encourage the development of good performance receiver specifications. The RSPG further considers that receiver parameters should be used consistently by CEPT in sharing studies as part of the assumptions for the intended use of the band, taking into account equipment already in use before the adoption of standards including receiver parameters.

5.16 The RSPG urges spectrum managers to specify radio interfaces in accordance with the model laid down by the joint working group RIG-2 of TCAM and RSC. However, taking into account new concepts such as WAPECS and cognitive radio, the RSPG recommends that this model should not prevent the inclusion of new parameters not envisaged when the model was developed.

5.17 The RSPG considers that when a certain frequency band is designated for a specific application, this should not prevent the same frequency band to be designated later for another application.

Long term recommendations

5.18 The RSPG considers that market surveillance and enforcement are key components of the spectrum management process in developing confidence amongst users sharing spectrum and in ensuring a level-playing field for industry. They should not be seen as safety nets for shortcomings in other parts of the regulatory chain. The RSPG recommends that administrations ensure that sufficient resources are afforded to market surveillance and enforcement. The RSPG further recommends an increase in the coordination and cooperation between Member States.

5.19 The RSPG recommends that solutions or procedures be identified to increase the effectiveness of the safeguard clause of the R&TTE Directive in particular for interference situations that need to be addressed urgently. It is also recommended in the context of the revision of the R&TTE Directive to investigate the possibility for an extension of a national safeguard clause to the whole of the EU market, if necessary, due to harmful interference.

5.20 The RSPG notes that stakeholders (notified bodies, manufacturers...) seem unable to establish, with any certainty, the conformity of radio equipment with the essential requirements of the R&TTE Directive where a harmonised standard has not been applied or does not exist. This can have a negative effect on the confidence of incumbent spectrum users in the respect of sharing conditions or on the introduction of new innovative applications. The RSPG recommends that the effectiveness of the system underpinning the “notified body” route to conformity is assessed in the process of reviewing the R&TTE Directive.

5.21 The RSPG considers that the possibility for the Commission to cite ECC decision in a way similar to what is done with harmonised standards in the R&TTE process should be investigated.

Annex

Current flows of information between Commission, ETSI and CEPT

Due to the different roles and functions of the three organisations, Commission (with TCAM and RSC committees), CEPT and ETSI involved in spectrum management decisions and in placing radio equipment on the market, the tasks to be completed by each organisation and the role of each organisation shall be clear, well understood and accepted so as to avoid conflict of responsibilities and to benefit to all stakeholders and public interest.

Three flows of information need to be carefully studied to ensure their consistency:

- to ESOs (ETSI as a leader),
- between Commission services and CEPT,
- between ETSI and CEPT.

1. Flows of information between Commission services and ESOs and between Commission services and CEPT

The two flows of information originating from the Commission services and ESOs are linked to mandates from Commission services and relevant deliverables provided by ESOs and CEPT.

- Commission mandates

Currently, mandates are developed by the Commission services based on opinion of the relevant consultative committees:

- 98/34 committee (advised by the sector-specific committee, e.g. TCAM) on harmonised standards,
- RSC on technical radio requirements.

Further to this consultation process in accordance to the opinion of above consultative committees, the Commission services adopt policy measures, as mandates to ESOs and/or CEPT. Objectives of such mandates differ:

- Mandates sent to ESOs (ETSI as leader) : production of harmonised standards
 - o M/284 : general mandate to reduce bureaucracy;
 - o M/313, M/329: example of mandates for specific items;
 - o M/406 to establish a set of harmonised standards for equipment operating in flexible bands
- Mandates sent to CEPT on technical conditions to spectrum use, among others:²
 - o Short Range Devices harmonisation,

² See CEPT reports provided according to Commission mandates
<http://www.erodocdb.dk/doks/doccategory.aspx?mid=443ABEEC-3A40-4B24-89BE-B0D27760D286&docatid=16>

- conditions relative to harmonised introduction of radio applications based on Ultra Wide Bands technology,
- harmonised radio spectrum use for safety critical applications of Intelligent transport systems (ITS) in the European Union,
- development of least restrictive technical conditions for frequency bands addressed in the context of WAPECS.

It is essential that the coherence between the two types of mandate is ensured in order that the work of ETSI and CEPT remain well coordinated. The lack of coherence in the relevant scope and timing of the Commission mandates may destabilize the work of the relevant organisations in charge of developing report and may introduce delay and misunderstanding from various stakeholders. It does not mean that the scope of the mandate should be strictly the same, but only that they enable ETSI and CEPT to produce deliverables with consistent scopes in a coordinated time-frame.

There was one example of such situation is the mandate on flexible bands (M/406). In the case of WAPECS bands, there was in parallel the mandate to CEPT so that the work of ETSI and CEPT was well coordinated. But other bands were also mentioned in the mandate M/406, which originated from internal CEPT documents not corresponding to a Commission mandate, nor to ETSI SRDoc nor to CEPT deliverables concerning these frequency bands. Therefore, ETSI did not have real directions in the development of harmonised standards for these bands (What for? Which regulation on spectrum use would be applicable? etc.).

- **Deliverables in response to Commission mandates**

One important difference between the Commission mandates to ETSI and the Commission mandates to CEPT is that the main ETSI deliverables (harmonised standards) are directly cited in OJEU, while the result of a mandate to CEPT is generally to be left with separate ECC and Commission Decisions with different levels of technical detail. This has led to recurrent debates between the Commission and Member States who wish to implement ECC Decisions but are concerned with the need to ensure the consistency between the content of ECC and Commission Decisions. In this respect, some administrations believe that it would be useful to investigate further how the technical elements in an ECC decision can be enshrined into community law or if an ECC decision can be cited in a similar way to harmonised standards.

In this respect, a recent difficulty has been identified due to the fact that CEPT reports are now submitted to a public consultation in order to increase transparency. Such CEPT reports are sent to Commission services after CEPT approval for public consultation. As a result of such consultation, it may be necessary to consider the review of the CEPT report. Therefore, Commission services should avoid finalizing a Commission Decision before the end of CEPT report public consultation.

2. Flow of information between ETSI and CEPT

A 'System Reference Document' (SRDoc) is an ETSI Technical Report created and approved according to the ETSI Technical Working Procedures and which is based on ETSI Guide EG 201 788 'Guidance for drafting an ETSI System Reference Document'. A 'System Reference Document' is usually produced for a new system, service or application requiring a

change of the present frequency designation / utilisation within CEPT or a change in the present regulatory framework for the proposed band(s) regarding either intended or unwanted emissions.

Such ETSI deliverables are sent to CEPT further to an internal ETSI approval process. In order to speed up the process, a draft SRDoc is often sent to CEPT in order to launch a first round of discussion concerning the regulatory parameters before the final approval at ETSI.

CEPT/ECC systematically undertakes compatibility and frequency management studies and to establish under which conditions and parameters the sharing between the different users of the spectrum may take place. These studies are based on the technologies(y) of the proposed new service and the deployment forecast (based on the ETSI SRDoc), the technology of the service(s) to be protected and their required protection level. The results of these studies (generally reported in ECC Reports) serve as the basis for the drafting of Commission/ECC Decision on spectrum use and the ETSI harmonised standard.

However, independently from whether the ECC activity was initiated through a Commission mandate or an ETSI SRDoc in accordance with the CEPT/ETSI MoU, ETSI normally starts the development of harmonised standards in parallel with the development of regulation on spectrum use and is the relevant organisation to define parameters and testing method which will ensure the avoidance of harmful interference, in particular to ensure compliance with sharing conditions and parameters.

Today, the result of the compatibility studies from CEPT is sent back to ETSI through a simple liaison statement.