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**RADIO SPECTRUM COMMITTEE**

**Working Document**

**Opinion of the RSC  
pursuant to Advisory Procedure under Article 4 of Regulation  
182/2011/EU and Article 4.2 of Radio Spectrum Decision 676/2002/EC**

**Subject: Draft Mandate to CEPT to develop harmonised technical conditions  
for the 694-790 MHz ('700 MHz') frequency band in the EU for the  
provision of wireless broadband**

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## 1. INTRODUCTION

The agreement at the 2012 World Radiocommunication Conference (WRC-12) to allocate the 700 MHz band to wireless broadband (WBB) alongside broadcast services in ITU Region 1 with immediate effect after WRC-15 creates a number of challenges for EU spectrum policy. While it represents an early opportunity to add high quality spectrum to the total amount potentially available for wireless broadband, in support of EU spectrum and broadband targets, at the same time it would impose significant constraints on the spectrum available for terrestrial broadcasting at a time of transition to advanced and more bandwidth-hungry television formats such as high definition or 3D.

The 700 MHz band is already available for wireless broadband use in large parts of the world<sup>1</sup>, but in the EU it is primarily used for terrestrial television. In addition, the white spaces (locally unused broadcast channels) are a viable spectrum resource for current and potential new uses such as PMSE, machine-to-machine communication, emergency services or wireless broadband access.

Therefore, a future political decision on the future use of the 700 MHz band in the EU must take the interests of both incumbent and potential new spectrum users into account and ensure that EU policy objectives are supported towards a sustainable EU internal market. Finding a balance between these different interests would imply a strategic shift in thinking that acknowledges the implications of technological change and the likelihood of convergence in correlation with the trends of user demand and consumer behaviour.

At the RSPG#28 meeting of 6 June 2012, the Commission services presented a discussion paper on the future use of the 700 MHz band in the EU<sup>2</sup>, which outlined four scenarios:

- (1) Maintenance of the exclusive use for terrestrial television.
- (2) Reallocation for exclusive spectrum use for wireless broadband.
- (3) Shared spectrum use: incumbent broadcasting and WBB operators would share the spectrum according to pre-defined harmonised technical conditions and – certainly in the early years after 2015 – according to strict geographical separation.
- (4) Convergence and spectrum pooling: broadcasting and WBB would converge to a single platform to give rise to converged terrestrial operators which could ultimately utilise the whole UHF broadcasting spectrum (470-862 MHz) to carry both wireless broadband traffic and broadcast media content.

The Commission is committed to a constructive regulatory approach, which leads to a solution for the sustainable co-existence of both major stakeholders – broadcast and mobile operators – in the long term while ensuring a smooth transition for all other incumbent users such as the PMSE sector. On the other hand, the timing of deliverables should be aligned with urgent international developments such as the ITU-level negotiations on the technical conditions in the 700 MHz band for wireless broadband. To

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<sup>1</sup> Albeit with differences in the exact frequency range and band plan, 700 MHz allocations exist in the USA, Canada, some African countries, Latin America, Japan, South-East Asia, Australia and New Zealand.

<sup>2</sup> Document RSPG12-425

this end and in pursuit of a long-term strategy, the European Commission seeks with this mandate the development of technical conditions for the 700 MHz band which serve the internal market and maximise socio-economic benefits **without prejudice to any future political decision at EU level** on the future use of the 700 MHz band between broadcasting and wireless broadband.

The development of technical conditions for the potential use of the 700 MHz band for WBB inevitably serves **a short-term goal** triggered by the urgent need to develop a common EU position in the ongoing negotiations at ITU level<sup>3</sup> on the development of technical and regulatory conditions for this band and on precisely fixing its lower edge. The deliverables of this Mandate should put in place common technical specifications for the introduction of WBB, which would form the basis for the EU position in the international technical harmonisation process. At the same time these specifications would be the basis for any Member State that may decide to proceed with WBB in the 700 MHz band, at an early stage so as to avoid fragmentation in the internal market. The technical specifications should hence serve as a basis for any EU level decision taken at an appropriate time regarding the future use of the 700 MHz band. Any such decision on the *actual* usage is not linked to the schedule of the ongoing ITU process on defining the technical and regulatory conditions to use the 700 MHz band for WBB and would have to be based on the findings of the RSPP inventory process and the outcome of EU-level political discussions and, if necessary, related studies on appropriate usage scenarios including the timeframe of their potential introduction.

Furthermore, unlike the digital dividend spectrum (800 MHz band), which became available and hence could be allocated for wireless broadband in the EU as a result of the increased efficiency of spectrum use for terrestrial broadcasting in the context of the digital switchover of terrestrial TV started earlier, changes in the use of the 700 MHz band in the EU may not be considered in isolation from the future development of incumbent services in the whole UHF band currently allocated to terrestrial TV (470-790 MHz). This is due to the fact that a spectrum re-organisation of this band would have major consequences for the available transmission capacity for incumbent uses as well as for the obligations of EU Member States resulting from international coordination agreements such as the Geneva 2006 broadcasting plan.

Therefore, the potential introduction of WBB in the 700 MHz band should be considered within a framework for the future (possibly shared) use of all available UHF spectrum for terrestrial broadcasting in the EU, which would comprise at least the frequencies below the 700 MHz frequency band. This **long-term perspective** in support of the strategic vision of the Commission that incumbent broadcasting and new wireless broadband use should follow a model of convergence based on innovative sharing of spectrum and/or infrastructure may be taken into account in a future Commission initiative regarding harmonised spectrum use. Such an initiative should be linked to an EU-level political process on the future delivery of broadband and audio-visual services priorities and aim at developing a framework of technical principles and recommendations to build a spectrum management concept for the available TV spectrum in the UHF band in the light of the likely convergence of both sectors.

In view of the above, the Commission services would aim at reaching an agreement and adopting this draft mandate already by the RSC#42 meeting in December 2012.

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<sup>3</sup> Within ITU JTG 4-5-6-7 on Agenda Items 1.1 and 1.2 for WRC-15

**MANDATE TO CEPT**  
**TO DEVELOP HARMONISED TECHNICAL CONDITIONS FOR THE 694-790 MHz ('700 MHz')**  
**FREQUENCY BAND IN THE EU FOR THE PROVISION OF WIRELESS BROADBAND**  
**ELECTRONIC COMMUNICATIONS SERVICES**

**1. PURPOSE**

The agreement at the 2012 World Radiocommunication Conference (WRC-12) to allocate the 694-790 MHz ('700 MHz') band<sup>4</sup> to wireless broadband (WBB) alongside broadcast services in ITU Region 1 with immediate effect after WRC-15 created the challenge for EU policy to define a roadmap and technical conditions for the future use of the 700 MHz band in a coordinated way, in order to shape up the ongoing process of international harmonisation of this band<sup>5</sup> while ensuring a balance of interests between incumbent and new users of spectrum and taking into account trends in technology and consumer behaviour.

In order to deliver on this task in a forward-looking way, EU spectrum policy should go further and examine the future use of the whole UHF band currently allocated to terrestrial TV broadcasting in the EU (470-790 MHz<sup>6</sup>) taking into account the long-term developments of digital terrestrial television and their societal value and the likelihood of long-term convergence of the broadcasting and wireless broadband domains to deliver voice, data and audio-visual services via a single platform operating at least in the frequency range below 700 MHz.

This mandate aims at developing **technical conditions** for the introduction of **wireless broadband** in the 700 MHz band by also studying the possibility of **shared spectrum use** with certain incumbent uses such as PMSE. The technical conditions should ensure the deployment of wireless broadband services while also taking into account **other priority areas of EU spectrum policy** such as public protection and disaster relief (PPDR) and should ensure appropriate protection for broadcasting services below the 700 MHz band.

The exploitation of the result of this mandate does not automatically entail the development of a technical implementation measure under the Radio Spectrum Decision. Any common regulatory action at EU-level should be guided by an EU-level political agreement on the long-term use of the 700 MHz band (and possibly the whole 470-790 MHz band). The results of this mandate should therefore constitute a technical input to the EU-level political process. In particular, they **do not prejudice the outcome of the inventory process** set up by the Radio Spectrum Policy Programme (RSPP)<sup>7</sup>, which has to assist identifying suitable frequency bands in support of specific EU policies. The inventory process, which involves assessment of spectrum supply and demand, will examine the efficiency of spectrum use in WAPECS and other relevant frequency bands and may earmark the 700 MHz band for a particular use at an early stage in view of international developments.

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<sup>4</sup> The lower limit of 694 MHz is subject to additional refinement at ITU level by 2015

<sup>5</sup> Within the ITU Joint Task Group JTG 4-5-6-7 working on Agenda Items 1.1 (spectrum requirements for wireless broadband) and 1.2 (use of the 700 MHz band for mobile services) for WRC-15

<sup>6</sup> Subject to the release of the 800 MHz band from broadcast services in all EU Member States in the future

<sup>7</sup> Decision 243/2012/EU of the European Parliament and of the Council of 14 March 2012

This mandate should also complement on technical level the ongoing policy discussions in the Radio Spectrum Policy Group in the context of the preparation of the RSPG Opinions on wireless broadband<sup>8</sup> and the common policy objectives for WRC-15<sup>9</sup>.

In parallel, the results of this mandate should provide guidance to Member States in the ongoing activities at CEPT and ITU on defining the technical and regulatory conditions for use of the 700 MHz band for wireless broadband alongside broadcasting services<sup>10</sup>. In addition they should serve as a basis for any Member State that may decide to proceed with WBB in the 700 MHz band at an early stage, so as to avoid fragmentation in the internal market. Therefore, the scope and schedule of the mandate also reflect the need for a timely and coordinated EU position on harmonised technical parameters still in 2013.

## 2. EU POLICY OBJECTIVES

The Digital Agenda for Europe (DAE) has set ambitious **broadband targets** by 2020, namely ubiquitous fast broadband coverage in the EU of at least 30 Mb/s as well subscriptions to super-fast broadband of at least 100 Mb/s for 50% of the EU households. WBB is expected to play an important role in achieving these objectives.

Pursuant to the adoption of the revised regulatory framework in electronic communications in 2009, the RSPP gives priority to ensuring sufficient spectrum for the implementation of **specific Union policies**, in particular wireless broadband access, the provision of innovative audio-visual media services (subject to clearly substantiated demand), public safety and protection as well as programme making and special events (PMSE)<sup>11</sup>.

In its RSPG discussion paper<sup>12</sup> on the future use of the 700 MHz band, the Commission services set out some of the policy considerations and possible options from an EU perspective in order to launch a strategic discussion with Member States on a long-term vision on the future use of this band, including the scenario of **broadband-broadcasting convergence**.

Furthermore, in the course of the **inventory process** established by the RSPP and in light of the objective to identify at least 1200 MHz for wireless broadband by 2015, opportunities are being studied to allocate additional spectrum for WBB based on balancing spectrum supply and demand and an evaluation of whether efficiency gains can be envisaged (e.g. via re-allocation, re-farming or sharing).

Therefore, within the tasks of this mandate as specified in the Section "Task order and schedule", the Commission requests CEPT to take into account that use of the 700 MHz band should contribute to several **important EU policy objectives**, namely:

- strengthen the Internal Market for potential mass market services and equipment which will operate in the band both for legacy uses and potential new uses;

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<sup>8</sup> RSPG12-415 "Request for an Opinion on Strategic Challenges facing Europe in addressing the Growing Spectrum Demand for Wireless Broadband"

<sup>9</sup> RSPG12-422 "Request for an Opinion on the preparation of Common Policy Objectives for WRC-15"

<sup>10</sup> In support of the studies at ITU level mandated by ITU Resolutions 232 and 233 (WRC-12)

<sup>11</sup> See Articles 3(b) and 6-8 of the RSPP (Decision 243/2012/EU)

<sup>12</sup> RSPG12-425 "Commission services' discussion paper on the future use of the 700 MHz band in the EU"

- contribute to the DAE broadband targets, which rely on a mix of technologies, including wireless broadband;
- support the development of the audio-visual media sector in developing innovative and converging services also by ensuring an appropriate level of protection of media services against interference from other spectrum uses;
- meet spectrum demand in support of specific Union policies, in particular wireless broadband, public safety and protection, and PMSE<sup>13</sup>;
- promote innovation and investment through enhanced flexibility in spectrum use;
- foster shared use of spectrum as well as encourage passive infrastructure sharing.

### 3. JUSTIFICATION

Pursuant to Article 4(2) of the Radio Spectrum Decision<sup>14</sup> the Commission may issue mandates to the CEPT for the development of technical implementing measures with a view to ensuring harmonised conditions for the availability and efficient use of radio spectrum necessary for the functioning of the internal market. Such mandates shall set the tasks to be performed and their timetable.

WRC-12 allocated on a co-primary basis the 694-790 MHz band to wireless broadband in ITU Region 1 (including all EU Member States) from 2015, and mandated the development of technical and regulatory conditions before 2015, subject to ongoing studies at ITU level. These studies have the objective to evaluate spectrum requirements, refine the lower edge of the band and define channelling arrangements taking also into account the existing EU harmonisation in the 800 MHz band ('digital dividend')<sup>15</sup>. The importance of influencing and shaping at EU level the international negotiations, in which Member States coordinate their positions through CEPT, arises from the unique opportunity offered by the ITU process to promote global technical alignment in a particular spectrum band which potentially translates into economies of scale, lower cost of investment and improved conditions for roaming, thus bringing benefits to EU economy and citizens. Therefore, a coordinated EU position must be developed in support of coherent action of EU Member States, e.g. within CEPT, when developing and promoting relevant proposals.

Currently, the 700 MHz frequency band is licensed for terrestrial TV broadcasting in Member States. The Geneva 2006 (GE-06) agreement has laid the framework for frequency coordination between broadcasting services at EU internal borders and between broadcasting and other services at EU outer borders. There is a need to assess the compatibility of any re-allocation of the 700 MHz band affecting broadcasting.

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<sup>13</sup> In this regard, the Commission issued on 15 December 2011 a mandate to CEPT (RSCOM11-59) to identify suitable frequency bands for PMSE (still ongoing)

<sup>14</sup> Decision 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community, OJL 108 of 24.4.2002

<sup>15</sup> Subject to Commission Decision 2010/267/EU

Sub-1GHz spectrum is a valuable and scarce frequency resource suitable for ubiquitous wireless coverage. This makes the 700 MHz band suitable not only for electronic communications services or broadcasting but also for critical applications serving **public protection and disaster relief**. Furthermore, the 470-790 MHz band accommodates other incumbent applications such as **PMSE**. Finding enough available spectrum for PPDR and PMSE are priorities of the RSPP. Therefore, the exclusive allocation of the 700 MHz band to a single application such as WBB does not appear to be a sustainable approach. It is the high socio-economic value of this spectrum that calls for studying sharing opportunities between certain incumbent and potential new users, either based on traditional frequency separation or on innovative approaches.

Therefore, the Commission considers that urgent international developments set in the context of consistent implementation of the RSPP objectives through the inventory process justify the need for technical studies to identify sufficient and suitable spectrum in the 700 MHz band for WBB and other specific EU policy areas.

#### 4. TASK ORDER AND SCHEDULE

CEPT is herewith mandated to undertake work to develop technical harmonisation conditions for the use of the 694-790 MHz frequency band for the provision of wireless broadband electronic communications services.

In the work carried out under the Mandate, the general and specific policy objectives of the RSPP, such as effective and efficient spectrum use and the support for specific Union policies shall be given utmost consideration. In implementing this mandate, CEPT shall, where relevant, take utmost account of EU law applicable and support the principles of service and technological neutrality, non-discrimination and proportionality insofar as technically possible. CEPT is also requested to collaborate actively with the European Telecommunications Standardisation Institute (ETSI) which develops harmonised standards for conformity under Directive 1999/5/EC.

In particular, CEPT is mandated to carry out technical studies intended to support the policy objectives presented above, in fulfilment of the following tasks:

- (1) Identify *common and minimal (least restrictive) technical conditions* for the introduction of wireless broadband use in the 694-790 MHz band for the provision of electronic communications services as well as PPDR services. These conditions should be sufficient to avoid interference and facilitate cross-border coordination, in particular the protection of broadcasting services below the 700 MHz band.
- (2) In addition to (1), develop *channelling arrangements* that are sufficiently precise for the development of EU-wide equipment and take into consideration the possibility of international harmonisation. The overall aim of a coordinated European approach should be considered, as implemented through detailed national decisions on frequency rearrangements in line with international frequency coordination obligations.
- (3) In performing (1), identify suitable spectrum to accommodate certain *incumbent applications* such as PMSE and develop protection criteria for the operation of existing (legacy) equipment taking into account spectrum requirements and availability.

The Commission may provide CEPT with further guidance on this mandate depending on future agreements at EU level (which may involve the European Parliament and the Council) concerning spectrum resources to be made available in the context of specific EU policies, as well as relevant impact assessments the Commission may undertake in this context. Also, the impact of spectrum demand assessments for different uses at national level may require to be taken into account during the work on the Mandate.

CEPT should provide deliverables under this Mandate according to the following schedule<sup>16</sup>:

<b>Delivery date</b>	<b>Deliverable</b>	<b>Subject</b>
May 2013	Interim Report from CEPT to the Commission	Description of work undertaken and interim results
July 2013 <sup>17</sup>	Final Draft Report from CEPT to the Commission	Description of work undertaken and final results
November 2013	<b>Final</b> Report from CEPT to the Commission, taking into account the outcome of the public consultation	Description of work undertaken and final results taking into account the results of the public consultation

CEPT is requested to report on the progress of its work pursuant to this Mandate to all meetings of the Radio Spectrum Committee taking place during the course of the Mandate.

The Commission, with the assistance of the Radio Spectrum Committee and pursuant to the Radio Spectrum Decision, may consider applying the results of this mandate in the EU, pursuant to Article 4 of the Radio Spectrum Decision and subject to the results of the inventory process.

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<sup>16</sup> The schedule of the deliverables should be consistent with the current work plan of ITU JTG 4-5-6-7

<sup>17</sup> Subject to subsequent public consultation