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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: Mandate to CEPT to develop harmonised technical conditions for the 694¹-790 MHz ('700 MHz') frequency band in the EU for the provision of wireless broadband and other uses in support of EU spectrum policy objectives

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¹ Provisional lower band edge subject to precise definition within the scope of this Mandate

MANDATE TO CEPT
TO DEVELOP HARMONISED TECHNICAL CONDITIONS FOR THE 694²-790 MHz ('700 MHz')
FREQUENCY BAND IN THE EU FOR THE PROVISION OF WIRELESS BROADBAND
ELECTRONIC COMMUNICATIONS SERVICES AND OTHER USES IN SUPPORT OF EU
SPECTRUM POLICY PRIORITIES

1. PURPOSE

The 2012 ITU World Radiocommunication Conference (WRC-12) agreed on an allocation of the 694²-790 MHz ('700 MHz') band to the mobile service³ in ITU Region 1 with immediate effect after WRC-15, alongside broadcasting services. This created the challenge for EU spectrum policy to define a roadmap for a political decision-making process supported by technical specifications for the future use of the 700 MHz band in a coordinated way, in order to shape the ongoing process of international harmonisation of this band⁴ 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 deal with this challenge in an efficient and forward-looking manner, EU spectrum policy should establish a long-term view of the future use of the whole UHF band currently allocated to terrestrial TV broadcasting in the EU (470-790 MHz⁵) taking into account the long-term developments of digital terrestrial television and their societal value, as well as the possibility of long-term convergence in broadcasting and wireless broadband to deliver voice, data and audio-visual services via a converged platform.

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 incumbent uses, primarily broadcasting services and PMSE, below the 700 MHz band. Appropriate protection of PMSE applications (such as wireless microphones) below the 700 MHz band should take into account the regulatory status of those applications.

The results of this mandate should constitute a **technical input to the EU-level political process** through a timely provision of the technical parameters for any strategic scenarios. The results of this mandate should also complement on high level deliverables of the

² This provisional lower band edge is subject to a precise definition within the scope of this Mandate. It is identical with the provisional lower limit stipulated in WRC-12 Resolution 232 which is subject to additional refinement at the WRC-15

³ In ITU terminology

⁴ 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

⁵ Subject to the release of the 800 MHz band from broadcasting services in all EU Member States in the future

Radio Spectrum Policy Group (RSPG), in particular the RSPG Opinions on wireless broadband⁶ and the definition of common policy objectives for WRC-15⁷.

The exploitation of the results of this mandate does not necessarily 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. In particular, the results of this mandate **do not prejudice the outcome of the inventory process** set up by the Radio Spectrum Policy Programme (RSPP)⁸, 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 WAPECS⁹ and other relevant frequency bands and may justify an implementation measure for re-organising the 700 MHz band at an early stage also in view of international developments.

The deliverables on this mandate should contribute to consolidating Member States' positions 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 services¹⁰. In addition, they should provide a basis for any Member State that may decide to proceed with WBB in the 700 MHz band at an early stage after WRC-15, so as to avoid fragmentation in the internal market. Therefore, the scope and schedule of the mandate reflect the need for a timely and coordinated EU position on harmonised technical conditions in time for WRC-15.

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, civil protection and disaster relief as well as programme making and special events (PMSE)¹¹.

In its discussion paper on the future use of the 700 MHz band presented to the RSPG¹², 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

⁶ RSPG12-415 "Request for an Opinion on Strategic Challenges facing Europe in addressing the Growing Spectrum Demand for Wireless Broadband"

⁷ RSPG12-422 "Request for an Opinion on the preparation of Common Policy Objectives for WRC-15"

⁸ Decision 243/2012/EU of the European Parliament and of the Council of 14 March 2012

⁹ Wireless Access Policy for Electronic Communications Services (see COM/2007/0050 final)

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

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

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

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 designate 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;
- 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, civil protection and disaster relief, and PMSE;
- 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 2 of the Radio Spectrum Decision, activities under the Decision must facilitate policy making with regard to the strategic planning and harmonisation of radio spectrum use as well as ensure the effective implementation of radio spectrum policy in the EU. Furthermore, they shall take due account of the work of international organisations related to spectrum management such as the ITU.

Pursuant to Article 4(2) of the Radio Spectrum Decision¹³ 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 694²-790 MHz band to the mobile service³ in ITU Region 1 (including all EU Member States) from 2015, and mandated the development of technical and regulatory conditions in time for WRC-15, subject to ongoing studies at ITU level. These studies have the objective to evaluate spectrum

¹³ 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

requirements, refine the lower edge of the band and define channelling arrangements. They must also take into account the existing EU harmonisation in the 800 MHz band ('digital dividend')¹⁴. The importance of shaping the international negotiations 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 coherent EU position in support of the single market should be developed when developing and promoting relevant proposals in international negotiations.

Currently, the 700 MHz band is licensed for terrestrial TV broadcasting in Member States. The Geneva 2006 (GE-06) agreement has laid the framework for cross-border frequency coordination within the broadcasting services as well as between the broadcasting and other services. There is a need to assess the compatibility of any re-allocation of the 700 MHz band affecting broadcasting. While the technical conditions developed through this Mandate *inter alia* shall ensure coexistence between radio applications, the Mandate shall also indicate the potential impact on non-radio end-user equipment for fixed broadcasting and broadband electronic communications services in support of standardisation work relating to interference mitigation.

Sub-1GHz spectrum is a valuable and scarce frequency resource suitable for ubiquitous wireless coverage. This could make the 700 MHz band suitable not only for electronic communications services or broadcasting delivery services but also for public safety services such as **public protection and disaster relief (PPDR)**¹⁵. In particular, broadband PPDR may in the future be deployed based on commercial WBB technology, which could result in synergies *inter alia* for spectrum designation and use. Different options for spectrum use are currently under consideration for broadband PPDR, including the 700 MHz band. This Mandate addresses potential PPDR services in the 700 MHz band. Member States should benefit in terms of cost savings and interoperability from harmonised technical conditions for WBB spectrum use, which may also allow the deployment of broadband PPDR applications in the same frequency band already dedicated to WBB. This is without prejudice to national competences regarding the designation and authorisation of spectrum for PPDR and should not limit WBB use in those Member States which make use of the full spectrum range already dedicated to WBB.

Furthermore, the 470-790 MHz band already accommodates other incumbent applications such as PMSE, in particular wireless microphones. It must be noted that finding enough available spectrum for PPDR and PMSE is also priority of the RSPP. Therefore, the exclusive designation of the 700 MHz band to a single application such as WBB may 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 uses, either based on traditional frequency separation or on innovative approaches. In this

¹⁴ Subject to Commission Decision 2010/267/EU

¹⁵ PPDR as a public service does not represent an electronic communications service in the meaning of the Framework Directive (2002/21/EC) as amended by Directive 2009/140/EC, and thus is not considered as a WBB service. However, it could nevertheless make use of harmonised conditions for WBB use, subject to national demand.

regard, a mandate has already been issued to CEPT¹⁶ to identify suitable frequency bands for wireless microphones and cordless cameras. Another mandate to CEPT to study alternative uses of the unpaired terrestrial 2 GHz band¹⁷ highlights PMSE as one priority application.

Therefore, the Commission considers that 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 suitable spectrum in the 700 MHz band for WBB and other specific EU policy areas and harmonised technical conditions of use, in support of the EU-level policy process relating to the future use of this band.

4. TASK ORDER AND SCHEDULE

CEPT is herewith mandated to undertake work to develop technical harmonisation conditions for the use of the 694²-790 MHz frequency band for the provision of wireless broadband electronic communications services and shared use with other services or applications in support of EU spectrum policy priorities.

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 Standards Institute (ETSI) which develops harmonised standards for conformity under Directive 1999/5/EC. In this regard, CEPT must indicate the potential impact of the deliverables on this Mandate on non-radio end-user equipment for fixed broadcasting and broadband electronic communications services in support of standardisation work relating to interference mitigation.

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) Develop a *preferred technical (including channelling) arrangement* and identify *common and minimal (least restrictive) technical conditions*¹⁸ for wireless broadband use in the 694²-790 MHz frequency band for the provision of electronic communications services, subject later to a precise definition of the lower band edge under task (3), as well as PPDR services that can make use of such technical conditions. These conditions should be sufficient:

¹⁶ RSCOM11-59 rev1 "Mandate to CEPT on technical conditions regarding spectrum harmonisation options for wireless radio microphones and cordless cameras (PMSE equipment)"

¹⁷ RSCOM12-17 rev3: "Mandate to CEPT to undertake studies on the harmonised technical conditions for the 1900-1920 MHz and 2010-2025 MHz frequency bands in the EU"

¹⁸ Such as the definition of appropriate BEMs (Block Edge Masks)

- (a) to avoid interference between wireless broadband use and other services in the 694²-790 MHz band and in adjacent bands, and in particular to ensure the appropriate protection of broadcasting and PMSE services below the lower band edge, as well as compliance with EU harmonised conditions for the 790-862 MHz band¹⁹;
 - (b) to facilitate cross-border coordination, including at the EU external borders;
- (2) In performing (1), study the possibility of identifying *suitable spectrum to accommodate* incumbent uses in the 694²-790 MHz band such as PMSE (in particular wireless microphones)²⁰, and develop *common technical conditions* for the coexistence of such uses with wireless broadband use in the band, taking into account spectrum sharing requirements and efficient spectrum use;
- (3) In addition to and based on (1) and taking utmost account of the possibility of international harmonisation²¹, assess the need to refine the conditions developed under (1), in particular *the common and minimal (least restrictive) technical conditions*, in order to ensure that they are sufficiently precise for the development of EU-wide equipment. 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.

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:

Delivery date	Deliverable	Subject
November 2013	Interim Report from CEPT to the Commission	Description of work undertaken and interim results on tasks (1) and (2)
July 2014 ²²	Final Draft Report A from CEPT to the Commission	Description of work undertaken and final results on tasks (1) and (2)
November 2014	Final Report A from CEPT to the Commission, taking	Description of work undertaken and final results taking into account the

¹⁹ Subject to Commission Decision 2010/267/EU

²⁰ For example in unused parts of the band such as a center gap of a potential FDD arrangement

²¹ Such as resolutions at the ITU WRC-15

²² Subject to subsequent public consultation

	into account the outcome of the public consultation	results of the public consultation on tasks (1) and (2)
March 2016 ²²	Final Draft Report B from CEPT to the Commission	Considering international developments such as outcomes of the ITU WRC-15 - description of work undertaken and final results of the Mandate on task (3) as well as review of the results of the Final Report on tasks (1) and (2)
July 2016	Final Report B from CEPT to the Commission	Considering international developments such as outcomes of the ITU WRC-15 - description of work undertaken and final results of the Mandate on task (3) as well as review of the results of the Final Report on tasks (1) and (2), 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 and the guidance of the RSPG.