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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 undertake studies on the harmonised
technical conditions for the 1900-1920 MHz and 2010-2025 MHz
frequency bands in the EU**

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MANDATE TO CEPT
TO UNDERTAKE STUDIES ON THE HARMONISED TECHNICAL CONDITIONS FOR THE 1900-1920 MHz AND 2010-2025 MHz FREQUENCY BANDS ("UNPAIRED TERRESTRIAL 2 GHz BAND") IN THE EU

1. PURPOSE

The purpose of the UMTS Decision of 1999¹, which covered the frequency bands 1900-1980 MHz, 2010-2025 MHz and 2110-2170 MHz ('terrestrial 2 GHz band'), was to initiate the introduction of UMTS in the EU in a coherent manner. The UMTS Decision expired on 22 January 2003 and fulfilled its objectives. Any outstanding or related issues after 2003 such as on spectrum allocation, licensing or re-farming have been governed by the EU regulatory framework in electronic communications as well as the Radio Spectrum Decision 676/2002/EC since 2002.

Even if licences for the unpaired terrestrial 2 GHz band, comprising the TDD bands 1900-1920 MHz and 2010-2025 MHz, have been granted to mobile operators in the EU for many years, the proven lack of use of these bands (see document RSCOM12-05) necessitates new harmonisation measures in order to ensure effective and efficient spectrum use in line with the EU regulatory framework and the "use it or lose it" approach endorsed by the Commission to the extent possible under the existing regulatory framework.

Technical conditions for the provision of electronic communications services (ECS) in the unpaired terrestrial 2 GHz band have been developed under the initial Commission's Mandate to CEPT² in CEPT Report 39³. Unless demonstrated in the course of the work to be done under this Mandate that new technological developments in electronic communications should be taken into account, there is no need to revise those results. Therefore, this Mandate should cover as a priority uses not covered by CEPT Report 39, primarily non-ECS uses.

Therefore, the purpose of this Mandate is to assess and identify alternative uses of the unpaired terrestrial 2 GHz band other than for the provision of mobile electronic communications services (as introduced by the UMTS Decision) as well as develop relevant least restrictive technical conditions for spectrum use. The deliverables should aim at ensuring effective and efficient spectrum use by one or more applications while also exploiting the possibility of beneficial sharing arrangements between different applications.

¹ Decision 128/1999/EC of the European Parliament and of the Council of 14 December 1998 on the coordinated introduction of a third-generation mobile and wireless communications system (UMTS) in the Community

² Mandate to CEPT on the 2 GHz bands:
http://ec.europa.eu/information_society/policy/ecomm/radio_spectrum/document_storage/mandates/2009mandate_2ghz.pdf

³ Document RSCOM10-25

2. JUSTIFICATION

Pursuant to Article 4(2) of the Radio Spectrum Decision⁴ 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.

In response to the Mandate by the Commission², CEPT Report 39 lays down least restrictive harmonised technical conditions for use of the terrestrial 2 GHz band for the provision of two-way mobile electronic communications services. However, the technical conditions for the unpaired (TDD) bands impose significant restrictions regarding the amount of usable spectrum or the admissible transmit power levels in order to protect operations in adjacent frequency bands, mainly the FDD uplink band above 1920 MHz, from harmful interference.

Currently, the frequency band 1900-1920 MHz is licensed to mobile operators for the provision of electronic communications services in most EU Member States, whereby the licences are mainly limited to UMTS/IMT-2000 TDD technology⁵. On the other hand, the frequency band 2010-2025 MHz is licensed to mobile operators in just few Member States for the provision of electronic communications services, in some cases in a technology neutral way. Both bands are not used in the EU. Recently, the lack of interest of mobile operators for spectrum in the unpaired terrestrial 2 GHz band has been demonstrated during the auctions in Italy and Portugal in 2011, where the 2010-2025 MHz band was put on offer but remained unsold.

Therefore, the effective and efficient use of the 1900-1920 MHz and 2010-2025 MHz frequency bands is handicapped by the lack of business interest of current rights' holders or other potential stakeholders from the mobile domain. This may be explained with the limited overall bandwidth of each of these bands and the coexistence limitations between multiple mobile networks⁶, which reduce the number of independent mobile broadband operators in each band (operating on a channel of at least 10 MHz) to one or two. The lack of demand for unpaired 2 GHz spectrum has led to the absence of equipment and an ecosystem. Therefore, the Commission considers that there is no viable harmonisation option within the mobile broadband context for both bands so that it becomes necessary to focus on alternative scenarios for the harmonised use of the unpaired terrestrial 2 GHz band that can justify demand and demonstrate socio-economic benefits.

In this regard, the principles and objectives set out by the Radio Spectrum Policy Programme (RSPP) must be duly taken into account, as well as the spectrum needs of specific Union policies⁷ such as improving energy saving and efficiency, public protection and disaster relief (PPDR), the Internet of Things (IoT), programme making and special

⁴ 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

⁵ Only the licence conditions of operators in Austria (upon request), Germany, the Netherlands, and Sweden allow technology neutral use of the terrestrial 2 GHz band or parts thereof (see RSCOM12-05)

⁶ As recognised in CEPT Report 39

⁷ Article 8 of the RSPP

events (PMSE)⁸ as well as for innovative applications that may have a major socio-economic impact and/or potential for investment.

Furthermore, as a result of the public consultation of the Commission on the introduction of EU-wide technical harmonisation conditions for the terrestrial 2 GHz band (15 November 2011 - 28 January 2012)⁹, a number of respondents proposed alternative uses of the 1900-1920 MHz and 2010-2025 MHz frequency bands. These include broadband PPDR, DECT, Direct-Air-to-Ground Communications (DA2GC), PMSE (e.g. wireless cameras), short range devices (SRD), backhaul relay links of mobile networks, mobile IP services with quality-of-service management based on the IEEE 802.20 standard. Some of these proposals correspond to sectors or policies outside of wireless broadband, which have been identified by the RSPP as requiring special attention, and all are aligned with the RSPP's policies and objectives.

In view of the above, the Commission services have identified the following *shortlist* of potential harmonised uses of the 1900-1920 MHz and 2010-2025 MHz frequency bands to be given priority¹⁰ in this Mandate:

- (1) PPDR, most likely with preference to ad-hoc (non-permanent) PPDR networks.
- (2) PMSE, preferably for use by wireless cameras⁸.
- (3) Short-range devices (SRD), preferably for improving energy saving and/or energy efficiency.
- (4) DECT¹¹, preferably in the 1900-1920 MHz band.
- (5) Broadband Direct Air-to-Ground Communications (BDA2GC), preferably in a paired spectrum arrangement.

The Commission notes that also other frequency bands are currently under investigation in CEPT for some of the radio applications above.

It can be assumed that some of the applications above being temporary or local in nature would not utilise exclusively the total available spectrum in the unpaired terrestrial 2 GHz band. Therefore, *shared use* between the different applications should be studied in order to ensure efficient spectrum use. In this regard, appropriate least restrictive technical conditions should be developed both for the identified specific application and for any possible sharing arrangement.

The Commission notes that the CEPT/ECC has already launched studies on the alternative use of the 1900-1920 MHz and 2010-2025 MHz frequency bands¹², which may contribute to timely deliverables in response to this Mandate.

⁸ 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).

⁹ See http://ec.europa.eu/information_society/policy/ecomm/radio_spectrum/get_involved/activities/index_en.htm#ongoing_consultations

¹⁰ The order in this shortlist is chosen arbitrarily.

¹¹ Including innovative applications such as M2M

Given the proven long-term lack of use of the unpaired 2 GHz spectrum under the current assignments and the foregoing RSC work before the adoption of the RSPP, this Mandate may be issued in advance of the outcome of the inventory process set up by the RSPP. The deliverables of this Mandate should be reflected in the EU spectrum inventory process.

3. TASK ORDER AND SCHEDULE

CEPT is herewith mandated to undertake work to identify use(s) of the *unpaired terrestrial 2 GHz band* other than for the provision of mobile electronic communications services through terrestrial cellular networks pursuant to the UMTS Decision and the most appropriate technical criteria for spectrum use as well as, if appropriate, sharing arrangements between multiple applications, in order to meet EU spectrum policy objectives and foster economies of scale in the internal market.

In the work carried out under the Mandate, the overall 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, the 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.

CEPT is hereby mandated to undertake the following tasks:

- (1) Assess and identify uses other than mobile electronic communications services delivered through terrestrial cellular networks and define the common minimal (least restrictive) technical conditions. These conditions should be sufficient to avoid interference with services or radio applications in adjacent bands, ensure co-existence with other services or radio applications in the same band, and facilitate cross-border coordination, also at the EU outer borders.
- (2) In performing task (1), consider the following non-ECS uses in line with the priorities of the RSPP: broadband PPDR, PMSE, short-range devices and DECT¹³. This is without prejudice to the consideration of alternative uses for electronic communications services in line with EU spectrum policy objectives, such as Broadband Direct-Air-To-Ground Communications.
- (3) In performing task (1) as specified by task (2) and given the limited temporal or geographical scope of one or more of the radio application under consideration, assess and justify the possibility of spectrum sharing amongst the radio applications under consideration and, if necessary, develop common technical sharing conditions which may include *inter alia* spectrum access rules, channelling arrangements or power emission limits that are sufficiently precise for the development of EU-wide equipment.

CEPT should provide deliverables according to the following schedule:

¹² Reported in documents FM(12)084 Annex 58 and ECC PT1(12)048

¹³ DECT is considered to be an application with the potential to address the priority given to the Internet of Things set out in Article 8 of the RSPP.

Delivery date	Deliverable	Subject
June 2013	Interim Report from CEPT to the Commission	Description of work undertaken and interim results under this Mandate.
November 2013 ¹⁴	Final Draft Report from CEPT to the Commission on selected use(s).	Description of work undertaken and final results under tasks (1) and (2) of this Mandate.
March 2014	Final Report from CEPT to the Commission on selected use(s), taking into account the outcome of the public consultation	Description of work undertaken and final results under tasks (1) and (2) of this Mandate taking into account the results of the public consultation
June 2014 ¹³	Final Draft Report from CEPT to the Commission.	Description of work undertaken and final results under this Mandate.
November 2014	Final Report from CEPT to the Commission. taking into account the outcome of the public consultations	Description of work undertaken and final results under this Mandate taking into account the results of the public consultations

In addition, 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.

¹⁴ Subject to subsequent public consultation