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RADIO SPECTRUM COMMITTEE

Working Document

Subject: Mandate to CEPT to develop harmonised technical conditions in additional frequency bands in the 1.5 GHz range for their use for terrestrial wireless broadband electronic communications services in the Union

**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**

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MANDATE TO THE CEPT

**TO DEVELOP HARMONISED TECHNICAL CONDITIONS IN ADDITIONAL
FREQUENCY BANDS IN THE 1.5 GHz RANGE FOR THEIR USE FOR
TERRESTRIAL WIRELESS BROADBAND ELECTRONIC COMMUNICATIONS
SERVICES IN THE UNION**

PURPOSE

This Mandate aims at enhancing spectrum capacity in the 1.5 GHz frequency range by studying the potential extension of the EU-harmonised 1452-1492MHz frequency band in adjacent bands for use by terrestrial wireless broadband (WBB) electronic communications services in the Union. Its deliverables should provide harmonised technical conditions for use of the 1427-1452 MHz and 1492-1518 MHz frequency bands for downlink-only wireless broadband (WBB) electronic communications services (ECS) including next-generation (5G) terrestrial wireless systems, which ensure flexible and efficient spectrum use. They should thus facilitate economies of scale of equipment across a wider tuning range and benefit from international harmonisation.

The deliverables of this Mandate should contribute to the EU spectrum target for wireless broadband of at least 1200 MHz laid down in the Radio Spectrum Policy Programme¹ (RSPP).

POLICY CONTEXT AND INPUTS

The 1427-1452 MHz and 1492-1518 MHz frequency bands (hereinafter "1.5 GHz extension bands") were globally identified at the WRC-15 for International Mobile Telecommunications (IMT). In this regard, CEPT has already launched technical studies to develop a channelling arrangement and technical conditions for wireless broadband use of these bands in conjunction with the availability of the 1452-1492 MHz 'core' frequency band (hereinafter "1.5 GHz core band"). Such studies would contribute to synergies in delivering results under this Mandate within a short timeframe.

The Opinion of the Radio Spectrum Policy Group (RSPG) on "Strategic challenges facing Europe in addressing the growing spectrum demand for wireless broadband" (RSPG13-521 rev1) identifies the 1427-1452 MHz frequency band for wireless broadband use in the mid-term (> 2015) and also indicates the need to assess the 1492-1518 MHz frequency band for such use following WRC-15.

Furthermore, the related RSPG Report on "Spectrum for wireless broadband and broadcasting in the frequency range 400 MHz to 6 GHz" (RSPG13-522) examines the potential of frequency bands in the 1350-1518 MHz frequency range for wireless broadband. It concludes that the 1.5 GHz extension bands are covered by 3GPP standards facilitating the availability of wireless broadband equipment (e.g. LTE or LTE-A). It also highlights existing (fixed-

¹ Decision No 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme, OJ L 81, 21.3.2012, p. 7

service or military) and points to prospective (wireless PMSE) use in this range and the resulting potential constraints for introducing wireless broadband use.

Taking into account the RSPG opinion and the Union policy objectives on high-quality connectivity in the single market², Member States could take steps such as promoting shared spectrum use or re-farming, in order to ensure availability of the 1.5 GHz extension bands for wireless broadband electronic communication services, on the path to 5G. The 1.5 GHz extension bands are currently used in the Union for *low capacity fixed links*, and in some Member States, the lower extension band is also used for *wireless camera applications whereas in some other Member States the upper extension band is used for wireless audio PMSE equipment* (wireless microphones).

Given that, on the one hand, according to the NATO Joint Civil/Military Frequency Agreement (NJFA) of 2014, the extension frequency bands (1427-1452 MHz and 1492-1518 MHz) are earmarked for land military systems and maritime military systems; and, on the other, pursuant to EU law, the use of the 1.5 GHz extension bands for military applications is subject to the sovereign decision of Member States, the amount of spectrum which could be made available in these frequency bands for terrestrial WBB electronic communications services may vary across Member States. Therefore, the need for national flexibility to introduce downlink-only terrestrial WBB electronic communications services in all parts of the extension bands should be considered.

Compatibility of wireless broadband use within the 1.5 GHz extension bands with incumbent services in the adjacent bands below 1427 MHz and above 1518 GHz should be ensured according to their regulatory status. In particular, the *protection* of earth exploration satellite, space research and radio astronomy services must be safeguarded within the 1400-1427 MHz 'passive' frequency band³. Furthermore, applicable technical conditions to wireless broadband use below 1518 MHz should ensure *compatibility with mobile satellite service* in the 1518-1525 MHz frequency band. In this regard, the improvement of MSS receiver parameters, including to ensure continuing consistency with the Radio Equipment Directive (RED), and mitigation techniques should be studied in cooperation with ETSI to facilitate compatibility especially for mobile earth stations in particular locations such as airports or seaports.

In its "Strategic Roadmap towards 5G for Europe: Opinion on spectrum related aspects for next-generation wireless systems (5G)" (RSPG16-032 final), the RSPG sets out spectrum priorities and recommendations for the introduction of 5G terrestrial wireless systems in Europe. In this regard, the RSPG also recognises the need to ensure that technical and regulatory conditions for all EU-harmonised frequency bands for wireless broadband electronic communications services *are fit for 5G use* – including the 1.5 GHz core band.

This Mandate represents a follow-up to the Commission mandate to the CEPT of March 2014 (RSCOM13-67rev3) to study harmonised technical conditions for wireless broadband electronic communications services in the 1.5 GHz core band. The results of the latter were incorporated in the Commission Implementing Decision (EU) 2015/750 (May 2015) on the harmonisation of the 1452-1492 MHz frequency band for terrestrial systems capable of providing downlink-only electronic communications services in the Union⁴. Therefore, it is

² Connectivity for a Competitive Digital Single Market - Towards a European Gigabit Society COM (2016) 587 final, and 5G for Europe: An Action Plan COM (2016) 306 final.

³ The ITU Radio Regulations provide relevant limits of unwanted emissions for the band 1400-1427 MHz as to wireless broadband use in the band 1427- 1452MHz.

⁴ http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1431416821549&uri=OJ:JOL_2015_119_R_0006

paramount that deliverables under this Mandate ensure availability of *contiguous spectrum* for WBB in the 1427-1518 MHz frequency range *under uniform harmonised technical conditions*, including any review in the 1.5 GHz core band, in support of future 5G use. Such approach would incentivise investment, reduce equipment cost and capital expenditure through economies of scale, and render benefits for end users. To this end, the studies should focus on *downlink-only use* within the whole frequency range and also address spectrum use with other relevant services in order to provide flexibility for national implementations.

JUSTIFICATION

Pursuant to Article 4(2) of the Radio Spectrum Decision 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. Pursuant to Article 1 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 while serving the aim of coordination of policy approaches. Furthermore, they shall take due account of the work of international organisations related to spectrum management such as the ITU and the CEPT.

The RSPP requires Member States, in cooperation with the Commission, to take all steps necessary to ensure that sufficient wireless broadband spectrum for coverage and capacity purposes is available in order to achieve the target for all citizens to have access to broadband speeds of not less than 30 Mbps by 2020. In particular, the RSPP sets the objective of identifying at least 1200 MHz of suitable spectrum for wireless broadband by 2015⁵. Furthermore, the RSPP stipulates that Member States, in cooperation with the Commission, shall, where appropriate, foster shared use of spectrum.

Advances in international standardisation as well as rapid international developments regarding 5G trials and spectrum use until 2020 call for a swift and coordinated Union-level process on delivering sufficient and appropriate spectrum for 5G use according to anticipated deployment of 5G usage scenarios.

Therefore, the availability of harmonised technical (including any sharing) conditions for the wireless broadband use of the 1.5 GHz extension bands as far as possible including in support of 5G take-up, are conducive to the Union spectrum policy objectives linked to high-quality wireless connectivity on the path to 5G.

TASK ORDER AND SCHEDULE

CEPT is herewith mandated to develop harmonised technical conditions for spectrum use in the 1.5 GHz extension bands which are suitable for the provision of terrestrial wireless broadband electronic communications services and, in particular, support next-generation (5G) wireless systems. These conditions should include, if necessary, sharing arrangements and conditions, which take into account needs of existing or prospective incumbent uses in adjacent bands. CEPT should give utmost consideration to overarching Union-level spectrum policy objectives⁶ such as efficient spectrum use and take utmost account of applicable

⁵ That figure includes spectrum already in use.

⁶ Enshrined in the RSPP and the Radio Spectrum Decision

principles of Union law such as technological and service neutrality, non-discrimination and proportionality insofar as technically possible.

CEPT is requested to collaborate actively with the European Telecommunications Standardisation Institute (ETSI) which develops harmonised standards for conformity under the Radio Equipment Directive. In particular, CEPT should take into consideration emerging technologies and ETSI (harmonised) standards, which define 5G systems and facilitate shared spectrum use or foster economies of scale.

In particular, CEPT is tasked to:

1. Study and assess the **1427-1518 MHz** frequency range for *downlink-only* use by terrestrial wireless broadband electronic communications services; in this regard, review the harmonised technical conditions applicable to the **1452-1492 MHz** frequency band;
2. Develop channelling arrangements as well as common and minimal (least restrictive) technical conditions for spectrum use in the **1427-1452 MHz** and **1492-1518 MHz** frequency bands for the provision of downlink-only terrestrial wireless broadband electronic communications services, which are also suitable for 5G terrestrial wireless systems; when doing so, ensure *consistency* in the whole 1427-1518 MHz frequency range with view to suitability for 5G terrestrial wireless systems;
3. In conjunction with Task 2, develop harmonised technical conditions in the **1427-1452 MHz** and **1492-1518 MHz** frequency bands to enable national flexibility, including protection conditions where necessary, in close cooperation with all concerned stakeholders.

The *technical conditions* developed under Tasks 2 and 3 should be sufficient to mitigate interference and address, where possible, co-existence with incumbent radio services and applications in the 1427-1518 MHz frequency range and in adjacent bands, in line with their regulatory status, including at the EU outer borders. In particular, they should safeguard the protection of radio services in the 1400-1427 MHz frequency band from harmful interference in accordance with the ITU Radio Regulations.

CEPT should provide deliverables according to the following schedule:

Delivery Date	Deliverable	Subject
July 2017 ⁷	Draft Report from the CEPT to the Commission	Description of the work undertaken and the results.
November 2017	Final Report from the CEPT to the Commission taking into account the outcome of the public consultation	Description of the work undertaken and the results.

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.

⁷ Subject to a public consultation

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 spectrum inventory and relevant guidance of the RSPG.