

**EUROPEAN COMMISSION**

Directorate-General for Communications Networks, Content and Technology

Director-General

Brussels,
DG CNECT/B4**MANDATE TO CEPT****TO STUDY FEASIBILITY AND IDENTIFY HARMONISED TECHNICAL CONDITIONS
FOR WIRELESS ACCESS SYSTEMS INCLUDING RADIO LOCAL AREA NETWORKS
IN THE 5925-6425 MHz BAND FOR THE PROVISION OF WIRELESS BROADBAND SERVICES****1. PURPOSE**

The objective of the Mandate is to study feasibility and identify harmonised technical conditions for a sustainable and efficient use on a coexistence basis of the 5925-6425 MHz band for wireless access systems including radio local area networks (WAS/RLANs). Based on the results of the compatibility and coexistence studies covering the 5925-6425 MHz band to be carried out under this Mandate, the relevant harmonised technical conditions should enable the coexistence with other systems in this and adjacent frequency bands.

2. BACKGROUND

Regarding the frequency band 5925-6425 MHz, the European Table of frequency allocations and applications in the frequency range 8.3 kHz to 3 000 GHz (ERC Report 25 (ECA Table))¹ includes primary allocations to the Fixed Service and to the Fixed-Satellite Service (Earth-to-space). According to the ECA Table, radio applications in this band include Satellite Earth Stations on board Vessels, Fixed Satellite Service Earth Stations, Fixed Service systems (point-to-point), Passive Sensors (satellite), SRD (Radiodetermination) and UWB applications. The band 5925-6425 MHz is allocated by ITU Radio Regulations (RR) to the Mobile service on a primary basis.

The frequency band 5925-6425 MHz is used by medium/high capacity, long distance fixed terrestrial links (point-to-point) for backhauling of mobile broadband networks². Some Member States have also authorised urban rail systems (such as CBTC) in parts of this band. The band 5925-6425 MHz is also part of the so-called "standard C band".

A considerable amount of WAS/RLAN devices currently in use are operated in the 2.4 GHz band (2400-2483.5 MHz) where, based on the Commission Implementing Decision (EU) 2017/1483 amending Decision 2006/771/EC on short-range devices, 83.5 MHz of

¹ ERC Report 25 available at <http://www.erodocdb.dk/Docs/doc98/official/pdf/ERCREP025.PDF>, EFIS database at www.efis.dk

² See ERC Recommendation 14-01 "Radio-frequency channel arrangements for high capacity analogue and digital radio-relay systems operating in the band 5925 to 6425 MHz" at <http://www.erodocdb.dk/Docs/doc98/official/pdf/ERCREC1401.PDF>

spectrum is available for such usage on a non-exclusive, non-interference and non-protected basis to a large number of RLANs and non-specific short-range devices.

Commission Decision 2007/90/EC amending Decision 2005/513/EC harmonises the use of radio spectrum in the 5 GHz band (5150-5350 MHz and 5470-5725 MHz) for wireless access systems including radio local area networks (WAS/RLANs). The use of the 5 GHz band for the operation of WAS/RLAN systems is subject to general authorisation only (Commission Recommendation 2003/203/EC)³. Currently 455 MHz of harmonised spectrum is available on a non-exclusive, non-interference and non-protected basis.

The existing regulatory framework for WAS/RLAN systems using the 2.4 GHz and 5 GHz bands has led to a rapid take-up of WAS/RLAN usage which is based on the availability in the internal market of a nearly-globally harmonised spectrum resource that fosters large economies of scale for equipment manufacturers. The low spectrum access barrier has led to a large-scale deployment of interoperable WAS/RLAN-capable devices and access points. In addition to the private use of WAS/RLANs, wireless broadband access through publicly accessible WAS/RLAN access points is now recognised as important connectivity infrastructure that is largely complementary to mobile internet services provided by mobile network operators.

Moreover, large-scale public networks for WAS/RLAN are today a significant driver of 5 GHz band use, especially where outdoor coverage is being provided. This type of WAS/RLAN usage is nevertheless not always compliant with the national authorisation framework and is an ongoing source of interference e.g. to meteorological radars without resolution.

Making available additional spectrum resources on a coexistence basis without refarming existing usage would provide additional socioeconomic benefits under the condition that spectrum coexistence with incumbent services is feasible and robust. In this context, harmonised standards being developed by ETSI should ensure operational conditions for WAS/RLANs in order to enable the coexistence with other systems in the 5925-6425 MHz band and in the adjacent bands.

In order to identify additional spectrum resources for WAS/RLAN on a shared basis, the Commission submitted a Mandate⁴ to CEPT in 2013 to study and identify harmonised compatibility and sharing conditions for WAS/RLANs in the “5 GHz extension bands” 5350-5470 MHz and 5725-5925 MHz.

CEPT Report 64⁵ of November 2016 concluded that considering the results of the studies, it is not currently possible to specify any appropriate mitigation techniques and/or operational compatibility and sharing conditions that would allow WAS/RLANs to be operated in the 5350-5470 MHz and 5725-5925 MHz while ensuring relevant protection of incumbent services in these bands. However, studies are ongoing into mitigation techniques in these bands, and in addition, the studies done in CEPT Report 57 and 64 are being updated by further work that is currently taking place under the WRC-19 Agenda Item 1.16.

³ Commission Recommendation of 20 March 2003 on the harmonisation of the provision of public R-LAN access to public electronic communications networks and services in the Community at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:078:0012:0013:EN:PDF>

⁴ document RSCOM13-32rev3 at <https://ec.europa.eu/digital-single-market/en/news/radio-spectrum-cept-mandates-0>

⁵ <http://www.erodocdb.dk/Docs/doc98/official/pdf/CEPTREP064.PDF>

The outcome of the Mandate submitted to CEPT in 2013 does not allow the Commission to proceed with a harmonisation measure on WAS/RLANs in the bands 5350-5470 MHz and 5725-5925 MHz. However, there is an interest⁶ to explore new opportunities for making available additional spectrum in the 5925-6425 MHz band for WAS/RLANs while protecting other radio services / applications currently using the 5925-6425 MHz band.

Relevant coexistence solutions for possible usage of the band 5925-6425 MHz by WAS/RLAN systems still need to be identified, defined and developed. They may imply operational developments enabling the implementation of a coexistence framework. An innovative coexistence solution increases the complexity and needs time before the practical implementation, in particular due to the need to validate and to implement solutions.

3. JUSTIFICATION

Pursuant to Article 4(2) of the Radio Spectrum Decision⁷, 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 6 of the Radio Spectrum Policy Programme (RSPP)⁸, the Commission shall, in cooperation with Member States, assess the justification and feasibility of extending the allocations of spectrum for wireless access systems, including radio local area networks operating under general authorisations regime. In addition, Article 3(c) of the RSPP requires Member States, in cooperation with the Commission, to take all steps necessary to ensure that sufficient spectrum for coverage and capacity purposes is available for achieving the target for all citizens to have access to broadband speeds of not less than 30 Mbps by 2020. In order to meet future broadband connectivity needs, the Commission proposes that by 2025 all schools, transport hubs and main providers of public services as well as digitally intensive enterprises should have access to internet connections with download/upload speeds of 1 Gigabit of data per second⁹. In addition, all European households, rural or urban, should have access to networks offering a download speed of at least 100 Mbps, which can be upgraded to 1 Gigabit.

In view of the above broadband connectivity objectives as part of the Digital Single Market Strategy and Digital Agenda for Europe and considering the steadily increasing amount of data traffic delivered through fixed broadband networks, the Commission

⁶ ETSI ERM is developing a System Reference document (SRdoc) TR 103 524 on Wireless access systems including radio local area networks (WAS/RLANs) in the band 5925 MHz to 6725 MHz,
https://portal.etsi.org/webapp/workprogram/Frame_WorkItemList.asp?SearchPage=TRUE&qSORT=HIGHVERSION&qINCLUDE_SUB_TB=True&butSimple=++Search++&qETSI_STANDARD_TYPE=&qETSI_NUMBER=103+524&qMILESTONE=&qACHIEVED_DAY=&qACHIEVED_MONTH=&qACHIEVED_YEAR=&qREPORT_TYPE=SUMMARY&optDisplay=10&qTB_ID=&includeNonActiveTB=FALSE.

⁷ 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, OJ L 108 of 24.4.2002

⁸ Decision 243/2012/EU of 14 March 2012, OJ L 81 of 21.3.2012

⁹ See the Communication Connectivity for a Competitive Digital Single Market - Towards a European Gigabit Society (COM(2016) 587 final)

considers WAS/RLAN frequency bands as part of the solutions for the provision of internet-based services. It is therefore necessary to ensure that sufficient spectrum resources are made available on a harmonised basis to support a long-term future for new generations of WAS/RLAN technologies that will provide increasing data capacity and speed.

Recent studies carried out by WAS/RLAN industry point to the ever growing number and diversity of devices for WAS/RLAN along with increased connection speeds and data traffic volumes will exceed the capacity of spectrum currently available in the 5 GHz band by 2020. Between 500 MHz and 1 GHz of additional spectrum in various world regions may be needed to support expected growth in WAS/RLAN usage by 2020. Additional spectrum identified for WAS/RLAN should support wide channels which are required for a growing number of applications which need a large bandwidth to achieve Gigabit speeds.

The Commission focuses on the 5925-6425 MHz band as a promising alternative to 5 GHz where spectrum currently available for WAS/RLAN cannot be extended given the outcome of the previous Mandate (2013).

However, such an opportunity can only be realised if appropriate coexistence conditions between WAS/RLAN and radio applications in the band 5925-6425 MHz are identified and able to provide confidence to all spectrum users. It will therefore be necessary to carry out the appropriate technical studies and identify suitable compatibility and coexistence conditions to fully safeguard the operation of all radio services / applications currently using the band 5925-6425 MHz as well as the bands adjacent to this band.

CEPT should work in cooperation with ETSI and take into account international harmonisation, as appropriate, in order that any opportunities for even greater economies of scale for manufacturers of WAS/RLAN equipment can be realised.

4. TASK ORDER AND SCHEDULE

The objective of this Mandate is to (1) study regulatory and technical feasibility of the introduction of WAS/RLANs in the band 5925-6425 MHz, including an assessment of coexistence scenarios for WAS/RLANs to operate on a coexistence basis to (2) develop harmonised compatibility and coexistence conditions and propose relevant harmonised technical conditions for WAS/RLAN usage subject only to general authorisations, if technically feasible.

The CEPT is thereby mandated to carry out the following tasks:

Task 1 – Assessment and study of compatibility and coexistence scenarios in the band 5925-6425 MHz

To study and assess compatibility and coexistence scenarios for WAS/RLANs in the 5925-6425 MHz band and identify relevant parameters and coexistence conditions to be implemented in the regulatory framework in order to enable coexistence between existing usages and WAS/RLAN systems without constraining incumbent uses in various Member States in and adjacent to the band 5925-6425 MHz including at the outer EU border.

For each compatibility/coexistence scenario, the risk of interference, the deployment assumptions of all applications, the geographical extent of usage and

consequential restrictions in WAS/RLAN deployment should be identified as well as requirements for implementing such scenarios, e.g. in terms of harmonised technical parameters or in terms of other regulatory and operational aspects which support the implementation of a coexistence framework.

Task 2 – Development of harmonised technical conditions

Taking into account the results of task 1, for the band 5925-6425 MHz develop appropriate mitigation techniques and/or operational compatibility/coexistence conditions. In the light of experience, these conditions should in particular identify the harmonised technical parameters that would be needed to ensure in the internal market consistent harmonised conditions for WAS/RLANs operating on a coexistence basis, if technically feasible. This should be developed in close cooperation with ETSI which is working on harmonised standards which include operational coexistence conditions for WAS/RLANs with other systems in the band and in adjacent bands.

It is assumed in this Mandate that WAS/RLANs could operate on the basis of a general authorisation only. With a view to achieving a scope for worldwide harmonisation of additional spectrum for WAS/RLAN that would strengthen the economies of scale for manufacturers of RLAN equipment and thereby benefit all end-users, the work carried out under this task should take into account developments in other ITU Regions, e.g. through the organisation of a workshop.

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, whenever 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 all concerned stakeholders, as for instance, (i) the European Telecommunications Standardisation Institute (ETSI), which develops relevant voluntary harmonised standards for the presumption of conformity under Directive 2014/53/EU and (ii) the Coordination of the Notified Bodies under the same Directive (REDCA), which ensures a harmonised approach in the certification of equipment when manufacturers do not use harmonised standards.

CEPT should provide deliverables according to the following schedule:

Delivery date	Deliverable	Subject
November 2018	Interim Report from CEPT to the Commission	Description of work undertaken and interim results of task (1)
March 2019	Final Draft Report A ¹⁰ from CEPT to the Commission	Draft results under task (1)
March 2020	Final Report A from CEPT to the Commission taking into account the outcome of the public consultation Final Draft Report B ¹⁰ from CEPT to the Commission	Final results under task (1) Draft results under task (2)
July 2020	Final Report B from CEPT to the Commission taking into account the outcome of the public consultation	Final results under task (2)

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.

¹⁰ subject to a public consultation