

MANDATE TO CEPT
ON TECHNICAL CONDITIONS REGARDING THE SHARED USE OF THE 3.8-4.2 GHz
FREQUENCY BAND FOR TERRESTRIAL WIRELESS BROADBAND SYSTEMS PROVIDING
LOCAL-AREA NETWORK CONNECTIVITY IN THE UNION

1. PURPOSE

The Commission Communication on Connectivity¹ for a competitive digital single market, towards a European gigabit society updated with the Commission Communication “2030 Digital Compass: the European way for the Digital Decade”², set out ambitious connectivity objectives for the Union to be achieved through the widespread deployment and take-up of very high capacity networks, including 5G. The Commission Communication ‘5G for Europe: an Action Plan’³ highlighted 5G as a key enabler of the digitalisation of “vertical industries” (such as transport, logistics, automotive, health, energy, smart factories, media and entertainment). It also identified a need for coordinated action at Union level, including the identification and harmonisation of spectrum for 5G to serve innovative business models and solutions for locally licensed access to spectrum. The RSPG recognised that there is a specific demand for mid-band spectrum and recommended that Member States investigate the possible use of the band 3.8-4.2 GHz for local vertical applications (i.e. low/medium power) while protecting receiving satellite earth stations and other existing applications and services.

In addition, the Commission Communication on ‘A New Industrial Strategy for Europe’⁴, which lays out the vision for the industrial transformation in the Union for the next 10 years stresses the importance of strengthening the digital single market to underpin the Union’s digital transition. It calls on the Union to speed up investments in 5G as a major enabler for future digital services, thus setting it at the heart of the industrial data wave.

This mandate invites CEPT to assess the technical feasibility of the shared use of the 3.8-4.2 GHz frequency band by terrestrial wireless broadband systems providing local-area network connectivity with focus on vertical users and other terrestrial wireless use cases and, on that basis, deliver harmonised technical conditions for the shared use of the band. Those harmonised technical conditions should in particular ensure the protection and the possibility of future evolution and development of incumbent spectrum users in this band (notably receiving satellite earth stations in the fixed satellite service and terrestrial fixed links) and the coexistence with spectrum users in adjacent bands (such as radio altimeters on board aircraft operating in the 4.2-4.4 GHz frequency band).

¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions ‘Connectivity for a Competitive Digital Single Market - Towards a European Gigabit Society’ COM(2016) 587 final.

² COM(2021) 118 final.

³ Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions ‘5G for Europe: An Action Plan’, COM(2016) 588 final.

⁴ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions ‘A New Industrial Strategy for Europe’, COM(2020) 102 final.

2. POLICY CONTEXT AND INPUTS

The RSPG has developed three Opinions (November 2016⁵, January 2018⁶ and January 2019⁷) on a strategic spectrum roadmap towards 5G for Europe, in which it had identified 5G pioneer bands and addressed implementation challenges for 5G. In particular in its third opinion, the RSPG concludes that connectivity for vertical industries ('verticals') could be provided by mobile operator's solutions, third-party providers and directly by verticals themselves in EU-harmonised bands for electronic communications services or in dedicated spectrum for verticals. The RSPG recommends that Member States also consider other spectrum solutions including dedicated or shared spectrum for the business/sectoral needs ('verticals needs') that may not be met by mobile operators. This is also confirmed by the RSPG's Opinion of 16 June 2021⁸ 'on a radio spectrum policy programme'.

In its recent Opinion of 16 June 2021⁹ 'the RSPG recommends to study the possible use of the 3.8-4.2 GHz frequency band for local vertical applications (i.e. low /medium power), while protecting receiving satellite earth stations, as well as other existing radio applications and services.

Furthermore, in its Opinion of 16 June 2021¹⁰ 'on spectrum sharing – pioneer initiatives and bands', the RSPG *inter alia* urges Member States to promote studies on sharing approaches and technologies that would lead to increased possibilities of sharing or co-existence solutions and to encourage CEPT and ETSI¹¹ to cooperate in support of this policy.

At present, a number of industrial sectors are looking at 5G as an enabler of the fourth industrial revolution (Industry 4.0). The deployment of reliable and resilient wireless local-area connectivity is increasingly becoming a necessity for business-critical industrial processes, such as related to automated manufacturing in smart factories, which has also been highlighted by ICT companies¹². Due to different national circumstances e.g. priorities for efficient spectrum use, Member States have addressed demand for locally licensed access to spectrum in mid-bands in a dissimilar way.

The potential deployment of terrestrial wireless broadband systems providing local-area network connectivity (with base stations operating at low/medium power) for vertical and possibly other terrestrial wireless use cases¹³ within the 3.8-4.2 GHz frequency band in the Union, subject to an authorisation decision at Member State level, requires harmonised technical conditions. This promotes ecosystem development and efficient spectrum use. It would also foster the development of innovative sharing conditions in the 3.8-4.2 GHz frequency band between terrestrial wireless broadband systems providing local-area network connectivity and the incumbent users in need of protection and the possibility of future evolution and development.

⁵ Document RSPG16-032 final of 9 November 2016, *Strategic roadmap towards 5G for Europe: RSPG opinion on spectrum-related aspects for next-generation wireless systems (5G) (RSPG 1st opinion on 5G)*.

⁶ Document RSPG18-005 final of 30 January 2018, *Strategic spectrum roadmap towards 5G for Europe: RSPG opinion on 5G networks (RSPG 2nd opinion on 5G)*.

⁷ Document RSPG19-007 final of 30 January 2019, *Strategic spectrum roadmap towards 5G for Europe: RSPG opinion on 5G implementation challenges (RSPG 3rd opinion on 5G)*.

⁸ Document RSPG21-033 final of 16 June 2021, *RSPG Opinion on a Radio Spectrum Policy Programme (RSPP)*.

⁹ Document RSPG21-024 final of 16 June 2021, *RSPG opinion on additional spectrum needs and guidance on the fast rollout of future wireless broadband networks*.

¹⁰ Document RSPG21-022 final of 16 June 2021, *RSPG opinion on spectrum sharing – pioneer initiatives and bands*.

¹¹ European Telecommunications Standardisation Institute

¹² <https://5g-ppp.eu/wp-content/uploads/2020/09/5GPPP-VerticalsWhitePaper-2020-Final.pdf>

¹³ Wireless local-area connectivity could serve both private (e.g. enterprise) and public (e.g. community-type) networks, which could be subject to an authorisation decision at Member State level.

In addition, any possible usage of the frequency band 3.8-4.2 GHz in combination with spectrum resources in other bands may be further assessed in a second stage taken into account the results of this mandate.

3. JUSTIFICATION

Pursuant to Article 4(2) of the Radio Spectrum Decision¹⁴, the Commission may issue mandates to the CEPT for the development of technical implementing measures with a view to ensuring harmonised technical conditions for the availability and efficient use of radio spectrum necessary for the functioning of the internal market. Such mandates shall set the task to be performed and their timetable.

The results of this Mandate should facilitate the deployment of terrestrial wireless broadband systems providing local-area network connectivity. These should support innovation and digital industrial transformation. In recognition of existing services within the 3.8-4.2 GHz frequency band other than terrestrial wireless broadband, particular attention should be paid to ensuring the protection and the possibility of future evolution and development of receiving earth satellite stations and terrestrial fixed links. Furthermore, the coexistence with terrestrial systems providing wireless broadband electronic communications services and radio altimeters operating in adjacent bands should also be duly addressed.

4. TASK ORDER AND SCHEDULE

The CEPT is herewith mandated to study the feasibility of using the 3.8-4.2 GHz frequency band by terrestrial wireless broadband systems providing local-area network connectivity in a shared manner and to develop, if feasible, relevant harmonised technical conditions therefor, which are suitable for 5G technology and protect as well as ensure the possibility of future evolution and development of incumbent spectrum users within the band and in adjacent bands.

The CEPT shall, where relevant, take full account of EU law applicable and support the principles of service and technological neutrality, non-discrimination and proportionality insofar as technically possible.

The CEPT is requested to collaborate actively with all concerned stakeholders and ETSI, which develops harmonised standards for the presumption of conformity under the Radio Equipment Directive 2014/53/EU. In particular, the CEPT should take into consideration ETSI standards, which define 5G systems and facilitate shared spectrum use¹⁵.

Specifically, CEPT is mandated to perform the following tasks:

1. Study and assess the technical feasibility of the **shared use** of the 3.8-4.2 GHz frequency band by terrestrial wireless broadband systems providing local-area (i.e. low/medium power) network connectivity. In this regard, consider sharing solutions, including innovative features, which ensure:
 - i. protection and the future evolution and development of incumbent users sharing this band, in particular receiving satellite earth stations and terrestrial fixed links;

¹⁴ 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.

¹⁵ Such as on Licensed Shared Access.

- ii. co-existence of terrestrial wireless broadband systems providing local-area network connectivity and uses operating in adjacent bands such as terrestrial systems providing wireless broadband electronic communications services in the 3.4-3.8 GHz frequency band¹⁶ and radio altimeters on board aircraft in the 4.2-4.4 GHz frequency band.
2. Subject to the sharing solutions and the results of Task 1, as appropriate, develop a harmonised frequency arrangement as well as the least restrictive harmonised technical conditions for the **shared** use of the 3.8-4.2 GHz frequency band by terrestrial wireless broadband systems providing local-area connectivity. These harmonised technical conditions shall avoid interference, protect relevant incumbent uses within the band and in adjacent bands, and facilitate cross-border coordination.

Based on the results of sharing studies within the 3.8-4.2 GHz frequency band and co-existence studies with uses in adjacent bands, the CEPT may include, where necessary, guidance on appropriate receiver characteristics for radio equipment as part of the harmonised technical conditions or/and recommend to ETSI to consider the results of those studies when developing relevant harmonised standards.

In performing the aforementioned tasks, the CEPT shall allow to the greatest extent possible channelling arrangements and effective coordination with other existing systems and services to accommodate national circumstances and market demand, and the guidance provided by the Commission in consultation with the Radio Spectrum Committee.

CEPT should provide deliverables according to the following schedule:

Delivery date	Deliverable	Subject
November 2022	Interim Report from CEPT to the Commission	Description of work undertaken and interim results under this Mandate.
July 2023 ¹⁷	Final Draft Report from CEPT to the Commission	Description of work undertaken and final results under this Mandate
March 2024	Final Report from CEPT to the Commission, taking into account the outcome of the public consultation	Description of work undertaken and final results under this Mandate, taking into account the results of the public consultation

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

The Commission, with the assistance of the Radio Spectrum Committee may consider applying the results of this mandate in the Union, pursuant to Article 4 of the Radio Spectrum Decision.

¹⁶ In particular as a primary (pioneer) 5G frequency band in the European Union.

¹⁷ Subject to subsequent public consultation