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COMMISSION IMPLEMENTING DECISION

of XXX

on the harmonisation of the 3 800-4 200 MHz frequency band for the shared use by terrestrial wireless broadband systems capable of providing local-area network connectivity in the Union

(Text with EEA relevance)

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Decision No 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 (Radio Spectrum Decision)[1], and in particular Article 4(3) thereof,

Whereas:

(1) The 3 800-4 200 MHz frequency band can enable the deployment of terrestrial wireless broadband systems to provide local-area network connectivity for a variety of services and applications, on the basis of technology neutrality. The wide range of local use cases across different industrial and non-industrial environments, both indoors and outdoors, will benefit from harmonised technical conditions.

(2) The Commission Communication '5G for Europe: An Action Plan' ('5G action plan') ([2]) sets out a coordinated Union approach to the deployment of 5G services as of 2020. The 5G action plan highlights 5G as a key enabler of the digitalisation of "vertical industries" ('verticals') ([3]). It also states that coordinated action is needed at Union level, including to identify and harmonise spectrum for 5G, to serve innovative business models and solutions for locally licensed access to spectrum.

(3) The Radio Spectrum Policy Group (RSPG) in its 'Opinion on 5G implementation challenges (RSPG 3rd opinion on 5G) ([4])', concludes that connectivity for 'verticals' could be provided by mobile operator's solutions, third-party providers and directly by verticals themselves in the Union-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 that may not be adequately met by mobile operators.

(4) In its 'Opinion on additional spectrum needs and guidance on the fast rollout of future wireless broadband networks' ([5]), the RSPG further recognises that there is a specific demand for mid-band spectrum and recommends that Member States investigate the

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1 OJ L [108], [24.4.2002], p. [1].

2 COM(2016) 588 final.

3 Such as transport, logistics, automotive, health, energy, smart factories, media and entertainment

4 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)*

5 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*.

possible use of the 3 800 - 4 200 MHz frequency band for local applications (namely low/medium power), including vertical applications while protecting satellite and other existing applications and services.

(5) The 3 800 - 4 200 MHz frequency band is used across the Union for satellite services comprising space-to-Earth communications to satellite Earth stations in the Fixed Satellite Service (FSS). It is also used for terrestrial communications in the Fixed Service (FS) including both military and civil uses.

(6) The 3 400 - 3 800 MHz frequency band has been harmonised in the Union for terrestrial wireless broadband systems providing electronic communications services pursuant to Commission Decision 2008/411/EC ([6]) and represents the primary band for 5G deployment in the Union. It is crucial that those systems are adequately protected.

(7) The 4 200 - 4 400 MHz frequency band is globally allocated to the Aeronautical Radio Navigation Service (ARNS) and is used by radio altimeters installed on board aircraft. Radio altimeters are used on different types of aircraft, including passenger and cargo airplanes, and helicopters. They provide precise height measurements critical for various safety functions in aviation, including automated landing, Ground Proximity Warning Systems, Terrain Awareness Warning Systems and collision avoidance, and should be protected.

(8) Furthermore, some Very-long-baseline Interferometry (VLBI) Global Observing System (VGOS) stations are installed in some Member States as part of the European Critical Infrastructure Project Galileo, and have highly sensitive passive receivers. At present, these observatory operations do not benefit from a radio astronomy allocation in the 3 800 - 4 200 MHz frequency band. Nevertheless, Member States should take all practicable steps to protect them from harmful interference.

(9) Under Article 4(2) of Decision No 676/2002/EC, the Commission issued to the European Conference of Postal and Telecommunications Administrations (CEPT) a mandate to develop harmonised technical conditions for the shared use of the 3 800 - 4 200 MHz frequency band for terrestrial wireless broadband systems providing local-area network connectivity in the Union.

(10) In response to that mandate, on 8 November 2024, the CEPT issued Report 88 ([7]) ('CEPT Report'). It specifies the least restrictive harmonised technical conditions for the shared use of the 3 800 - 4 200 MHz frequency band for low- and medium-power terrestrial wireless broadband ('WBB LMP systems') systems for the provision of local-area network connectivity. Those conditions are based on the results of the ECC Reports 358[8] and 362[9].

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6 Decision (EU) 2019/235: "Commission Implementing Decision (EU) 2019/235 of 24 January 2019 on amending Decision 2008/411/EC as regards an update of relevant technical conditions applicable to the 3400-3800 MHz frequency band"

7 CEPT Report 88: 'Report from CEPT to the European Commission in response to the Mandate on shared use of the 3800-4200 MHz frequency band by low/medium power terrestrial wireless broadband systems (WBB LMP) providing local-area network connectivity'.

8 ECC Report 358: "In-band and adjacent bands sharing studies to assess the 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", approved June 2024.

9 ECC Report 362: "Compatibility between mobile or fixed communications networks (MFCN) operating in 3400-3800 MHz and wireless broadband systems in low/medium power (WBB LMP) operating in

(11) The harmonised technical conditions set out in CEPT Report 88 ensure technology neutrality for the operation of WBB LMP systems, including 3rd Generation Partnership Project (3GPP) and Digital Enhanced Cordless Communications (DECT)-2020 New Radio (NR) technologies. They allow for the unsynchronised operation of medium power base stations with both active antenna systems (AAS) and non-AAS, and low power base stations with non-AAS. Where necessary to manage coexistence between different WBB LMP systems within the 3 800 - 4 200 MHz frequency band, Member States should ensure national and, potentially, cross-border coordination.

(12) The band can be accessed if techniques to access spectrum and mitigate interference that provide an appropriate level of receiver performance to comply with the essential requirements of Directive 2014/53/EU of the European Parliament and the Council are used. Where relevant techniques are described in harmonized standards or parts thereof the references of which have been published in the Official Journal of the European Union in accordance with Directive 2014/53/EU, performance at least equivalent to the performance level associated with those techniques shall be ensured

(13) The harmonised technical conditions and the relevant guidance set out in CEPT Report 88 address the protection and the long-term development of incumbent users sharing the 3 800 - 4 200 MHz frequency band, in particular receiving satellite Earth stations and terrestrial fixed links. They also address the protection of terrestrial wireless broadband systems providing electronic communications services below 3 800 MHz and radio altimeters operating in the 4 200 – 4 400 MHz frequency band. The harmonised technical conditions are based on the assumption of a national authorisation regime, where the locations of WBB LMP networks or base stations, fixed links in the FS, and the receiving satellite earth stations in the FSS are known.

(14) Shared use between WBB LMP systems, on the one hand, and FSS or FS systems, on the other, within the 3 800 – 4 200 MHz band is feasible on a case-by-case basis. To ensure the protection of existing FSS systems below 3 800 MHz, and of existing and future FSS and FS systems within the 3 800 - 4 200 MHz band, Member States should ensure careful planning of WBB LMP systems and case-by-case analysis. Member States should also consider applying appropriate mitigation techniques, both at national level and - where necessary due to large separation distances - through bilateral or multilateral cross-border coordination agreements. The use of the band 3 800 - 4 200 MHz for FSS and FS systems currently authorised on the market in Member States remains subject to national decisions. This Decision is without prejudice to the way Member States authorise the use of this band for FSS and FS systems.

(15) Member States should ensure the protection of radio altimeters operating in the 4 200 – 4 400 MHz frequency band from WBB LMP systems operating in the 3 800 – 4 200 MHz frequency band, based on the results set out in ECC Report 362 and without prejudice to any aviation measure that could be taken by the European Aviation Safety Agency (EASA). Particular attention at national level should be given to the protection of radio altimeters, from medium power AAS base stations located in close proximity

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the frequency band 3800-4200 MHz with Radio Altimeters (RA) operating in 4200-4400 MHz", approved November 2024

to airports, including in border areas, and operating within the 4 100 – 4 200 MHz frequency sub-band.

(16) Member States should ensure the protection of terrestrial systems providing WBB electronic communications services (ECS) in the 3 400 - 3 800 MHz frequency band, including, as appropriate, through cross-border coordination, synchronised operation of networks, power flux density limits, separation distances and/or frequency separation requirements.

(17) Because CEPT Report 88 did not examine the use of WBB LMP systems in the 3 800 - 4 200 MHz frequency band for connectivity to aerial terminal stations, this Decision does not provide for harmonised technical and operational conditions for the use of aerial terminal stations. Member States may restrict the use of aerial terminal stations in this frequency band until EU-harmonised conditions may become available.

(18) It is essential to ensure coexistence between WBB LMP systems as well as between WBB LMP systems and other established services such as radio altimeters. In this regard, Member States may also refer to any ECC recommendations, for action at national or bilateral/multilateral levels ([10]).

(19) The notion of 'designating and making available' the 3 800 – 4 200 MHz frequency band in the context of this Decision refers to the following steps: (i) the adaptation of the national legal framework on frequency allocation to include the intended use of this band under the harmonised technical conditions set in this Decision; (ii) the initiation of all necessary measures in order to ensure coexistence with existing use in this band, to the extent necessary; and (iii) the initiation of the appropriate measures, supported by the launch of a stakeholder consultation process where appropriate, in order to allow the use of this band in accordance with the applicable legal framework at Union level, including the harmonised technical conditions of this Decision.

(20) Cross-border coordination agreements among Member States as well as between Member States and non-EU countries may be necessary, in order to avoid harmful interference and to improve spectrum efficiency and convergence in spectrum use. Without prejudice to potential aviation measures by EASA, Member States should take into account relevant ECC recommendations to ensure the coherent protection of radio altimeters operating in the 4 200 - 4 400 MHz frequency band across borders. The Commission, in cooperation with the Member States and EASA, has prepared a non-binding EU roadmap for ensuring safe coexistence between mobile networks and aircraft radio altimeters within the frequency range 3 400 - 4 400 MHz ([11]).

(21) Without prejudice to the right of Member States to authorise the use of spectrum in their territory, the future review of the spectrum use under this Decision would be facilitated through the convergent use of consistent portions of spectrum across the EU, such as starting from the upper part of the band. Any coordinated way of use of

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[10] This refers to the following coexistence scenarios: WBB LMP systems and FSS receiving earth stations, WBB LMP systems and FS links, WBB LMP systems and WBB ECS in the 3 400 - 3 800 MHz frequency band, WBB LMP systems and radio altimeters in the 4 200 - 4 400 MHz frequency band.

[11] European Commission, *EU Roadmap for ensuring safe coexistence between mobile networks and aircraft radio altimeters within the frequency range 3 400–4 400 MHz in the Union*, Version 2 of 8 April 2025

the spectrum across the EU could be further investigated. Depending on the authorisation regime applied to the 3 800 – 4 200 MHz frequency band, Member States should assess the need to impose additional technical conditions, in order to ensure appropriate co-existence between WBB LMP systems and between WBB LMP systems and other services in that frequency band and in adjacent bands.

(22) Member States should report to the Commission on the implementation of this Decision, in particular the gradual introduction and development of WBB LMP systems in the 3 800 – 4 200 MHz frequency band and any co-existence issues, to help assess its impact at Union level and the suitability of the harmonised technical conditions in ensuring adequate protection of incumbent services, as well as its timely review.

(23) The measures provided for in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

HAS ADOPTED THIS DECISION:

Article 1

This Decision establishes the harmonised technical conditions for the availability and efficient shared use of the 3 800 – 4 200 MHz frequency band, for low- and medium-power terrestrial wireless broadband (WBB LMP) systems capable of providing local-area network connectivity in the Union.

Article 2

For the purposes of this Decision:

'radio altimeter' means a downward-looking radar ranging system that measures the height of an aircraft above terrain and obstacles with a high degree of accuracy, integrity, and availability, during all phases of flight.

Article 3

By 30 September 2026, Member States shall designate and make available on a non-exclusive basis the 3 800 – 4 200 MHz frequency band for WBB LMP systems in compliance with the harmonised technical conditions set out in the Annex.

Article 4

Member States shall ensure, in compliance with the relevant harmonised technical conditions set out in the Annex, that the WBB LMP systems appropriately protect:

(a) earth stations in the Fixed Satellite Service (FSS) for space-to-Earth communications authorised to operate within the 3 800 - 4 200 MHz frequency band across the Union and below 3 800 MHz;

(b) systems in the Fixed Service (FS) operating within the 3 800 - 4 200 MHz frequency band;

(c) terrestrial systems providing wireless broadband electronic communications services (WBB ECS) within the 3 400 - 3 800 MHz frequency band;

(d) radio altimeters in the aeronautical navigation service (ARNS) operating within the 4 200 – 4 400 MHz frequency band;

(e) VLBI Global Observing System stations on the Union's territory, where necessary and taking due account of their regulatory status.

Member States may restrict the use of aerial terminal stations within the 3 800 - 4 200 MHz frequency band.

Article 5

Member States shall facilitate cross-border coordination agreements to enable operation of the WBB LMP, and also in accordance with Article 4, taking into account existing regulatory procedures and rights, and relevant international agreements.

Article 6

Member States shall facilitate cross-border coordination agreements to enable operation of the WBB LMP, and also in accordance with Article 4, taking into account existing regulatory procedures and rights, and relevant international agreements.

Article 7

This Decision is addressed to the Member States.

Done at Brussels,

For the Commission
Henna Virkkunen
Executive Vice-President