

COMMISSION IMPLEMENTING DECISION (EU) 2022/2307**of 23 November 2022****amending Implementing Decision (EU) 2022/179 as regards designating and making available the 5 150-5 250 MHz, 5 250-5 350 MHz and 5 470-5 725 MHz frequency bands in accordance with the technical conditions set out in the Annex***(notified under document C(2022) 8313)***(Text with EEA relevance)**

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) Commission Implementing Decision (EU) 2022/179 ⁽²⁾ harmonised the use of radio spectrum in the 5 GHz band (5 150-5 350 MHz and 5 470-5 725 MHz) for wireless access systems including radio local area networks. The technical basis for this Decision was Report 79 of the European Conference of Postal and Telecommunications Administrations' (CEPT).
- (2) In February 2022, the European automotive industry asked the Commission to confirm its interpretation of certain provisions of Implementing Decision (EU) 2022/179 with regard to WAS/RLAN use cases in the 5 GHz frequency band in road vehicles. By letter of 29 March 2022, the Commission mandated the CEPT to study the 5 GHz WAS/RLAN use cases in road vehicles identified by the automotive industry in the context of Implementing Decision (EU) 2022/179.
- (3) In accordance with that mandate letter, CEPT provided on 29 June 2022 a response complementing Report 79 by proposing changes in the technical conditions for the 5 470-5 725 MHz band in order to enable limited usage of WAS/RLAN devices in road vehicles, namely when such devices are operating in slave mode and are controlled by a fixed device operating in master mode and detecting radar signals by Dynamic Frequency Selection (DFS) mitigation technique. In the light of that response, the Commission takes the view that the operation of installed WAS/RLAN devices in slave mode should be allowed in road vehicles provided that they only transmit when they are under the control of a fixed WAS/RLAN device with DFS functionality operating in master mode.
- (4) No change was proposed by CEPT in its response as regards the technical conditions for WAS/RLANs in the 5 250-5 350 MHz band. According to CEPT, the operation of WAS/RLAN installations in road vehicles should not be allowed in that band, as there is no practical means in force to ensure that road vehicles are effectively located indoors and that the operation of WAS/RLAN installations in road vehicles is, as a consequence, limited to indoor use. The use of the 5 250-5 350 MHz band should therefore remain 'indoor only' so as to avoid the risk of harmful interference to incumbent services in this band. Specialised vehicles intended to operate indoor only are not considered road vehicles.

⁽¹⁾ OJ L 108, 24.4.2002, p. 1.

⁽²⁾ Commission Implementing Decision (EU) 2022/179 of 8 February 2022 on the harmonised use of radio spectrum in the 5 GHz frequency band for the implementation of wireless access systems including radio local area networks and repealing Decision 2005/513/EC (OJ L 29, 10.2.2022, p. 10).

- (5) The 5 150-5 250 MHz band is already available for indoor use by WAS/RLAN devices including the operation of WAS/RLAN installations inside road vehicles on the basis of Implementing Decision (EU) 2022/179.
- (6) The elements contained in the response of CEPT to the Commission mandate letter can be used as a basis for this Decision.
- (7) This Decision should build upon and develop the principles and provisions set out in Implementing Decision (EU) 2022/179.
- (8) The measures provided for in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

HAS ADOPTED THIS DECISION:

Article 1

Implementing Decision (EU) 2022/179 is amended as follows:

- (1) Article 3 is replaced by the following:

'Article 3

By 30 June 2023, Member States shall designate and make available the 5 150-5 250 MHz, 5 250-5 350 MHz and 5 470-5 725 MHz frequency bands, on a non-exclusive basis, for the implementation of WAS/RLANs in accordance with the technical conditions set out in the Annex.;

- (2) the Annex is replaced by the text in the Annex to this Decision.

Article 2

This Decision is addressed to the Member States.

Done at Brussels, 23 November 2022.

For the Commission
Thierry BRETON
Member of the Commission

ANNEX

ANNEX

Harmonised technical conditions for WAS/RLANs in the 5 150-5 250 MHz, 5 250-5 350 MHz and 5 470-5 725 MHz frequency bands

Table 1

WAS/RLANs in the 5 150-5 250 MHz frequency band

Parameter	Technical conditions
Frequency band	5 150-5 250 MHz
Permissible operation	Indoor use, including installations inside road vehicles, trains and aircraft, and limited outdoor use (note 1). Use by unmanned aircraft systems ("UAS") is limited to within the 5 170-5 250 MHz band.
Maximum mean equivalent isotropically radiated power (e.i.r.p.) for in-band emissions	200 mW Exceptions: — 40 mW maximum mean e.i.r.p. applies for installations inside train carriages with an attenuation loss on average of less than 12 dB; — 40 mW maximum mean e.i.r.p. applies for installations inside road vehicles.
Maximum mean e.i.r.p. density for in-band emissions	10 mW/MHz in any 1 MHz band

Note 1: If used outdoors, equipment shall not be attached to a fixed outdoor antenna, fixed infrastructure or to the external body of road vehicles.

Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of Directive 2014/53/EU of the European Parliament and of the Council ⁽¹⁾ shall be used. Where relevant techniques are described in harmonised 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.

Table 2

WAS/RLANs in the 5 250-5 350 MHz frequency band

Parameter	Technical conditions
Frequency band	5 250-5 350 MHz
Permissible operation	Indoor use: inside buildings only. Installations in road vehicles, trains and aircraft are not permitted (note 2). Outdoor use is not permitted.
Maximum mean e.i.r.p. for in-band emissions	200 mW
Maximum mean e.i.r.p. density for in-band emissions	10 mW/MHz in any 1 MHz band

⁽¹⁾ Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC (OJ L 153, 22.5.2014, p. 62).

Mitigations techniques to be used	Transmitter power control (TPC) and dynamic frequency selection (DFS). Alternative mitigation techniques may be used if they ensure at least an equivalent performance and level of spectrum protection in order to comply with the corresponding essential requirements of Directive 2014/53/EU and if they respect the technical requirements of this Decision.
Transmitter power control (TPC)	TPC shall provide, on average, a mitigation factor of at least 3 dB on the maximum permitted output power of the systems; or, if transmitter power control is not in use, the maximum permitted mean e.i.r.p. and corresponding mean e.i.r.p. density limit shall be reduced by 3 dB.
Dynamic frequency selection (DFS)	DFS is described in Recommendation ITU-R M. 1652-1 ⁽²⁾ to ensure compatible operation with radiodetermination systems. The DFS mechanism shall ensure that the probability of selecting a given channel is the same for all available channels within the 5 250-5 350 MHz and 5 470-5 725 MHz bands. The DFS mechanism shall also ensure, on average, a near-uniform spread of the loading of the spectrum. WAS/RLANs shall implement a dynamic frequency selection providing a mitigation against interference to radar at least as efficient as DFS as described in ETSI Standard EN 301 893 V2.1.1. Settings (hardware and/or software) of WAS/RLANs related to DFS shall not be accessible to the user if changing those settings results in the WAS/RLANs no longer being compliant with the DFS requirements. This includes (a) not allowing the user to change the country of operation and/or the operating frequency band if that results in the equipment no longer being compliant with the DFS requirements and (b) not accepting software and/or firmware which results in the equipment no longer being compliant with the DFS requirements.

Note 2: Operation of WAS/RLANs installations in large aircraft ⁽³⁾ (excluding multi-engined helicopters) is permitted until 31 December 2028 with a maximum mean e.i.r.p. for in-band emissions of 100 mW.

Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of Directive 2014/53/EU shall be used. Where relevant techniques are described in harmonised 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.

Table 3

WAS/RLANs in the 5 470-5 725 MHz frequency band

Parameter	Technical conditions
Frequency band	5 470-5 725 MHz
Permissible operation	Indoor and outdoor use. Installations in road vehicles are permitted only for WAS/RLANs devices operating in slave ⁽⁴⁾ mode controlled by a fixed WAS/RLANs device with Dynamic Frequency Selection (DFS) functionality operating in master mode. Installations in trains and aircraft and use for UAS are not permitted (note 3).

⁽²⁾ Recommendation ITU-R M. 1652-1, "Dynamic frequency selection in wireless access systems including radio local area networks for the purpose of protecting the radiodetermination service in the 5 GHz band".

⁽³⁾ In line with the Commission Regulation (EU) No 1321/2014, a large aircraft means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5 700 kg, or a multi-engined helicopter. Multi-engined helicopters are excluded, however, from the scope of notes 2 and 3.

⁽⁴⁾ Slave and master modes are defined in EN 301 893 V2.1.1.

Maximum mean e.i.r.p. for in-band emissions	1 W Exceptions: — 200 mW maximum mean e.i.r.p. applies for installations in road vehicles.
Maximum mean e.i.r.p. density for in-band emissions	50 mW/MHz in any 1 MHz band
Mitigations techniques to be used	Transmitter power control (TPC) and dynamic frequency selection (DFS). Alternative mitigation techniques may be used if they ensure at least an equivalent performance and level of spectrum protection in order to comply with the corresponding essential requirements of Directive 2014/53/EU and if they respect the technical requirements of this Decision.
Transmitter power control (TPC)	TPC shall provide, on average, a mitigation factor of at least 3 dB on the maximum permitted output power of the systems; or, if transmitter power control is not in use, the maximum permitted mean e.i.r.p. and the corresponding mean e.i.r.p. density limit shall be reduced by 3 dB.
Dynamic frequency selection (DFS)	DFS is described in Recommendation ITU-R M. 1652-1 to ensure compatible operation with radiodetermination systems. The DFS mechanism shall ensure that the probability of selecting a given channel is the same for all available channels within the 5 250-5 350 MHz and 5 470-5 725 MHz bands. The DFS mechanism shall also ensure, on average, a near-uniform spread of the loading of the spectrum. WAS/RLANs shall implement a dynamic frequency selection providing a mitigation against interference to radar at least as efficient as DFS described in ETSI Standard EN 301 893 V2.1.1. Settings (hardware and/or software) of WAS/RLANs related to DFS shall not be accessible to the user if changing those settings results in the WAS/RLANs no longer being compliant with the DFS requirements. This includes (a) not allowing the user to change the country of operation and/or the operating frequency band if that results in the equipment no longer being compliant with the DFS requirements and (b) not accepting software and/or firmware which results in the equipment no longer being compliant with the DFS requirements.

Note 3: Operation of WAS/RLANs installations in large aircraft (excluding multi-engined helicopters), except in the frequency band 5 600 – 5 650 MHz, is permitted until 31 December 2028 with a maximum mean e.i.r.p. for in-band emissions of 100 mW.

Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of Directive 2014/53/EU shall be used. Where relevant techniques are described in harmonised 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.'