►**B**

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

(notified under document C(2022) 628)

(Text with EEA relevance)

(OJ L 29, 10.2.2022, p. 10)

Amended by:

		Official Journal		
		No	page	date
►**M1**	Commission Implementing Decision (EU) 2022/2307 of 23 November 2022	L 305	63	25.11.2022

▼B

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

(notified under document C(2022) 628)

(Text with EEA relevance)

Article 1

This Decision harmonises the conditions for the availability and efficient use of the 5 150-5 250 MHz, 5 250-5 350 MHz and 5 470-5 725 MHz frequency bands for wireless access systems including radio local area networks (WAS/RLANs).

Article 2

For the purposes of this Decision, the following definitions shall apply:

(a) ‘wireless access systems including radio local area networks (WAS/RLANs)’ are broadband radio systems that allow wireless access for public and private applications regardless of the underlying network topology;

(b) ‘indoor use’ is defined as use inside a closed space which will provide the necessary attenuation to facilitate sharing with other services. Indoor use can be classified in four use cases, as identified in the technical conditions of the Annex to this Decision that represent specific scenarios: inside buildings, inside road vehicles, inside trains and inside aircraft;

(c) ‘equivalent isotropically radiated power (“e.i.r.p.”)’ means the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain);

(d) ‘mean equivalent isotropically radiated power (“e.i.r.p.”)’ means e.i.r.p. during the transmission burst which corresponds to the highest power, if power control is implemented.

▼M1

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.

▼B

Article 4

Member States shall monitor the evolution of standards and technology in relation to the use of the 5 150-5 250 MHz, 5 250-5 350 MHz and 5 470-5 725 MHz frequency bands for WAS/RLANs and report their findings to the Commission at the latter's request or on their own initiative in order to allow for a timely review of this Decision.

Article 5

Decision 2005/513/EC is repealed.

Article 6

This Decision is addressed to the Member States.

▼M1

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).

([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).*

▼M1

	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
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.

([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’.

▼M1

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).
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.

([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.

▼M1

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.