DECISIONS

COMMISSION IMPLEMENTING DECISION (EU) 2017/1483

of 8 August 2017

amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2006/804/EC

(notified under document C(2017) 5464)

(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 Decision 2006/771/EC ([2]) harmonises the technical conditions for use of spectrum for a wide variety of short-range devices, including applications such as alarms, local communications equipment, door openers, medical implants and intelligent transport systems. Short-range devices are typically mass-market and/or portable products which can easily be taken and used across borders; differences in spectrum access conditions therefore prevent their free movement, increase their production costs and create risks of harmful interference with other radio applications and services. A regulatory framework for short-range devices supports innovation for a wide range of applications.

(2) Decision No 243/2012/EU of the European Parliament and of the Council ([3]) requires Member States, in cooperation with the Commission, where appropriate, to foster the collective use of spectrum as well as shared use of spectrum in order to enhance efficiency and flexibility, and to seek to ensure spectrum availability for radio-frequency identification (RFID) and the 'Internet of Things' (IoT).

(3) Due to the growing importance of short-range devices for the economy, and in view of rapid changes in technology and societal demands, new applications for short-range devices may emerge. Such applications will require regular updates of harmonised technical conditions for spectrum use.

(4) On 5 July 2006, the Commission issued a permanent mandate to the European Conference of Postal and Telecommunications Administrations (CEPT), pursuant to Article 4(2) of Decision No 676/2002/EC, to update the Annex to Decision 2006/771/EC in response to technological and market developments in the area of short-range devices.

(5) Commission Decisions 2008/432/EC ([4]), 2009/381/EC ([5]) and 2010/368/EU ([6]) and Commission Implementing Decisions 2011/829/EU ([7]) and 2013/752/EU ([8]) already amended the harmonised technical conditions for short-range devices laid down in Decision 2006/771/EC by replacing its Annex.

(6) In its July 2016 report ([9]), submitted in response to the above-mentioned mandate, the CEPT informed the Commission of the results of the requested examination of the 'other usage restrictions' in the Annex to Decision 2006/771/EC and advised the Commission to amend a number of technical aspects in that Annex.

(7) The results of the CEPT analysis show that short-range devices operating on a non-exclusive and shared basis need, on the one hand, legal certainty regarding the possibility of using spectrum on a shared basis, which can be achieved through predictable technical conditions for the shared use of harmonised bands which ensure reliable and efficient use of those bands. These short-range devices also need, on the other hand, sufficient flexibility to

allow for a wide variety of applications, in order to maximise the benefits of wireless innovation in the Union. It is therefore necessary to harmonise defined technical usage conditions to prevent harmful interference and to ensure as much flexibility as possible, while fostering reliable and efficient use of frequency bands by short-range devices.

(8) The scope of the categories as defined in the Annex should give users predictability as regards other short-range devices that are allowed to use the same frequency band on a non-exclusive and shared basis. Consequently manufacturers should ensure that short-range devices effectively avoid harmful interference with other short-range devices. Equipment operating within the conditions set out in this Decision should also comply with Directive 2014/53/EU of the European Parliament and of the Council ([10]).

(9) In the specific frequency bands covered by this Decision, the combination of the categorisation of short-range devices and the identification of the technical usage conditions (frequency band, transmit power limit/field strength limit/power density limit, additional parameters and other usage restrictions) applicable to such categories establishes a predictable harmonised sharing environment allowing short-range devices to share the use of spectrum with each other on a non-exclusive basis, regardless of the purpose of such use.

(10) In order to safeguard the legal certainty and the predictability of such harmonised sharing environments, the use of harmonised bands either by short-range devices which are not part of a harmonised category or under less restrictive technical parameters should only be allowed to the extent that the relevant sharing environment is not compromised.

(11) On 2 July 2014, in the document 'Timeframe and guidance to CEPT for the sixth update of the SRD Decision' (RSCOM 13-78rev2), the Commission called on the CEPT to consider merging other existing Decisions pertaining to short-range devices into Decision 2006/771/EC. In its July 2016 report ([9]), the CEPT revised the technical parameters for RFID devices and recommended that the Commission repeal Decision 2006/804/EC ([11]) and include the revised parameters for RFID within this Decision.

(12) In an addendum to its July 2016 report ([12]), submitted in March 2017 in response to the above-mentioned mandate, the CEPT informed the Commission of further possibilities for an approach to technical harmonisation of radio spectrum for use by short-range devices in the 870-876 MHz and 915-921 MHz bands also taking into account new opportunities in the 863-868 MHz band already harmonised for short-range devices. These possibilities apply mainly to new types of machine-to-machine (M2M)/IoT applications in short-range device networks which can benefit from economies of scale as a result of harmonisation at Union level.

(13) The results of CEPT's work on the Addendum show that the new opportunities in the 863-868 MHz band are fully in line with the harmonised sharing environments established by Decision 2006/771/EC and its updates and should therefore be included in its Annex. The 870-876 MHz and 915-921 MHz bands should not be included in the Annex to that Decision, owing to the need for greater flexibility in implementation.

(14) On the basis of the overall results of the CEPT's work, the regulatory conditions for short-range devices can be streamlined, e.g., by merging two Decisions pertaining to short-range devices and by improving technical conditions. The updating of harmonised spectrum access conditions for short-range devices should help to achieve the objective set by Decision No 243/2012/EU to foster the collective use of spectrum in the internal market by given categories of short-range devices.

(15) The Annex to Decision 2006/771/EC should therefore be amended, and Decision 2006/804/EC should be repealed accordingly.

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

HAS ADOPTED THIS DECISION:

Article 1

The Annex to Decision 2006/771/EC is replaced by the text in the Annex to this Decision.

Article 2

Decision 2006/804/EC is repealed with effect from 1 January 2018.

Article 3

Member States shall report to the Commission on the implementation of this Decision by 2 May 2018 at the latest.

Article 4

This Decision is addressed to the Member States.

Done at Brussels, 8 August 2017.

For the Commission
Mariya GABRIEL
Member of the Commission

(1) OJ L 108, 24.4.2002, p. 1.
(2) Commission Decision 2006/771/EC of 9 November 2006 on harmonisation of the radio spectrum for use by short-range devices (OJ L 312, 11.11.2006, p. 66).
(3) Decision No 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme (OJ L 81, 21.3.2012, p. 7).
(4) Commission Decision 2008/432/EC of 23 May 2008 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices (OJ L 151, 11.6.2008, p. 49).
(5) Commission Decision 2009/381/EC of 13 May 2009 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices (OJ L 119, 14.5.2009, p. 32).
(6) Commission Decision 2010/368/EU of 30 June 2010 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices (OJ L 166, 1.7.2010, p. 33).
(7) Commission Implementing Decision 2011/829/EU of 8 December 2011 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices (OJ L 329, 13.12.2011, p. 10).
(8) Commission Implementing Decision 2013/752/EU of 11 December 2013 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2005/928/EC (OJ L 334, 13.12.2013, p. 17).
(9) CEPT Report 59, RSCOM 16-24.
(10) 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).
(11) Commission Decision 2006/804/EC of 23 November 2006 on harmonisation of the radio spectrum for radio frequency identification (RFID) devices operating in the ultra high frequency (UHF) band (OJ L 329, 25.11.2006, p. 64).
(12) Addendum to CEPT Report 59, RSCOM 17-07.

ANNEX

'ANNEX

Harmonised frequency bands and technical parameters for short-range devices

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
1	9-59,750 kHz	Inductive devices [14]	72 dBµA/m at 10 metres			1 July 2014
2	9-315 kHz	Active medical implant devices [1]	30 dBµA/m at 10 metres	Duty cycle limit [vi]: 10 %	This set of usage conditions is only available to active implantable medical devices [7].	1 July 2014
3	59,750-60,250 kHz	Inductive devices [14]	42 dBµA/m at 10 metres			1 July 2014
4	60,250-74,750 kHz	Inductive devices [14]	72 dBµA/m at 10 metres			1 July 2014
5	74,750-75,250 kHz	Inductive devices [14]	42 dBµA/m at 10 metres			1 July 2014
6	75,250-77,250 kHz	Inductive devices [14]	72 dBµA/m at 10 metres			1 July 2014
7	77,250-77,750 kHz	Inductive devices [14]	42 dBµA/m at 10 metres			1 July 2014
8	77,750-90 kHz	Inductive devices [14]	72 dBµA/m at 10 metres			1 July 2014
9	90-119 kHz	Inductive devices [14]	42 dBµA/m at 10 metres			1 July 2014
10	119-128,6 kHz	Inductive devices [14]	66 dBµA/m at 10 metres			1 July 2014
11	128,6-129,6 kHz	Inductive devices [14]	42 dBµA/m at 10 metres			1 July 2014
12	129,6-135 kHz	Inductive devices [14]	66 dBµA/m at 10 metres			1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
13	135-140 kHz	Inductive devices [14]	42 dBµA/m at 10 metres			1 July 2014
14	140-148,5 kHz	Inductive devices [14]	37,7 dBµA/m at 10 metres			1 July 2014
15	148,5-5 000 kHz [17]	Inductive devices [14]	– 15 dBµA/m at 10 metres in any bandwidth of 10 kHz. Furthermore the total field strength is – 5 dBµA/m at 10 m for systems operating at bandwidths larger than 10 kHz			1 July 2014
17	400-600 kHz	Radio Frequency Identification (RFID) devices [12]	– 8 dBµA/m at 10 metres			1 July 2014
18	456,9-457,1 kHz	Non-specific short-range devices [3]	7 dBµA/m at 10 m		This set of usage conditions is only available for emergency detections of buried victims and valuable items devices.	1 July 2014
19	984-7 484 kHz	Transport and Traffic Telematics devices [13]	9 dBµA/m at 10 m	Duty cycle limit [vi]: 1 %	This set of usage conditions is only available for Eurobalise transmissions in the presence of trains and using the 27 MHz band for telepowering.	1 July 2014
20	3 155-3 400 kHz	Inductive devices [14]	13,5 dBµA/m at 10 metres			1 July 2014
21	5 000-30 000 kHz [18]	Inductive devices [14]	– 20 dBµA/m at 10 metres in any bandwidth of 10 kHz. Furthermore the total field strength is – 5 dBµA/m at 10 m for systems operating at bandwidths larger than 10 kHz			1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
22	6 765-6 795 kHz	Inductive devices [14]	42 dBµA/m at 10 metres			1 July 2014
23	7 300-23 000 kHz	Transport and Traffic Telematics devices [13]	– 7 dBµA/m at 10 m	Antenna restrictions apply that provide at least equivalent performance to the techniques described in the harmonised standards adopted under Directive 2014/53/EU.	This set of usage conditions is only available for Euroloop transmissions in the presence of trains and using the 27 MHz band for telepowering.	1 July 2014
24	7 400-8 800 kHz	Inductive devices [14]	9 dBµA/m at 10 metres			1 July 2014
25	10 200-11 000 kHz	Inductive devices [14]	9 dBµA/m at 10 metres			1 July 2014
27a	13 553-13 567 kHz	Inductive devices [14]	42 dBµA/m at 10 metres			1 July 2014
27b	13 553-13 567 kHz	Radio Frequency Identification (RFID) devices [12]	60 dBµA/m at 10 metres	The transmission mask and antenna requirements for all combined frequency segments have to provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU.		1 July 2014
27c	13 553-13 567 kHz	Non-specific short-range devices [3]	42 dBµA/m at 10 metres			1 July 2014
28	26 957-27 283 kHz	Non-specific short-range devices [3]	10 mW effective radiated power (e.r.p.)			1 July 2014
29	26 990-27 000 kHz	Non-specific short-range devices [3]	100 mW e.r.p.	Duty cycle limit [vi]: 0,1 %. Model control devices may operate without duty cycle restrictions [11].		1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
30	27 040-27 050 kHz	Non-specific short-range devices [3]	100 mW e.r.p.	Duty cycle limit [vi]: 0,1 %. Model control devices may operate without duty cycle restrictions [11].		1 July 2014
31	27 090-27 100 kHz	Non-specific short-range devices [3]	100 mW e.r.p.	Duty cycle limit [vi]: 0,1 %. Model control devices may operate without duty cycle restrictions [11].		1 July 2014
32	27 140-27 150 kHz	Non-specific short-range devices [3]	100 mW e.r.p.	Duty cycle limit [vi]: 0,1 %. Model control devices may operate without duty cycle restrictions [11].		1 July 2014
33	27 190-27 200 kHz	Non-specific short-range devices [3]	100 mW e.r.p.	Duty cycle limit [vi]: 0,1 %. Model control devices may operate without duty cycle restrictions [11].		1 July 2014
34	30-37,5 MHz	Active medical implant devices [1]	1 mW e.r.p.	Duty cycle limit [vi]: 10 %	This set of usage conditions is only available to ultra-low power medical membrane implants for blood pressure measurements within the definition of active implantable medical devices [7] in Directive 90/385/EEC.	1 July 2014
35	40,66-40,7 MHz	Non-specific short-range devices [3]	10 mW e.r.p.			1 January 2018

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
36	87,5-108 MHz	High duty cycle/continuous transmission devices [8]	50 nW e.r.p.	Channel spacing up to 200 kHz.	This set of usage conditions is only available to wireless audio and multimedia streaming transmitters with analogue frequency modulation (FM).	1 July 2014
37a	169,4-169,475 MHz	Assistive Listening Devices (ALD) [4]	500 mW e.r.p.	Channel spacing: max 50 kHz.		1 July 2014
37c	169,4-169,475 MHz	Non-specific short-range devices [3]	500 mW e.r.p.	Channel spacing: max 50 kHz. Duty cycle limit [vi]: 1,0 %. For metering devices [5], the duty cycle limit [vi] is 10,0 %		1 July 2014
38	169,4-169,4875 MHz	Non-specific short-range devices [3]	10 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Duty cycle limit [vi]: 0,1 %.		1 July 2014
39a	169,4875-169,5875 MHz	Assistive Listening Devices (ALD) [4]	500 mW e.r.p.	Channel spacing: max 50 kHz.		1 July 2014
39b	169,4875-169,5875 MHz	Non-specific short-range devices [3]	10 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Duty cycle limit [vi]: 0,001 %.		1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
				Between 00:00h and 06:00h local time a duty cycle limit [vi] of 0,1 % may be used.		
40	169,5875-169,8125 MHz	Non-specific short-range devices [3]	10 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Duty cycle limit [vi]: 0,1 %.		1 July 2014
82	173,965-216 MHz	Assistive Listening Devices (ALD) [4]	10 mW e.r.p.	On a tuning range basis [25]. Channel spacing: max 50 kHz. A threshold of 35 dBµV/m is required to ensure the protection of a DAB receiver located at 1,5 m from the ALD device, subject to DAB signal strength measurements taken around the ALD operating site. The ALD device should operate under all circumstances at least 300 kHz away from the channel edge of an occupied DAB channel. Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.		1 January 2018

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
41	401-402 MHz	Active medical implant devices [1]	25 µW e.r.p.	Channel spacing: 25 kHz. Individual transmitters may combine adjacent channels for increased bandwidth up to 100 kHz. Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Alternatively a duty cycle limit [vi] of 0,1 % may also be used.	This set of usage conditions is only available for systems specifically designed for the purpose of providing non-voice digital communications between active implantable medical devices [7] and/or body-worn devices and other devices external to the human body used for transferring non-time-critical individual patient-related physiological information.	1 July 2014
42	402-405 MHz	Active medical implant devices [1]	25 µW e.r.p.	Channel spacing: 25 kHz. Individual transmitters may combine adjacent channels for increased bandwidth up to 300 kHz. Other techniques to access spectrum or mitigate interference, including bandwidths greater than 300 kHz, can be used provided they result at least in an equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU to ensure compatible operation with the other users and in particular with meteorological radiosondes.	This set of usage conditions is only available to active implantable medical devices [7].	1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
43	405-406 MHz	Active medical implant devices [1]	25 µW e.r.p.	Channel spacing: 25 kHz Individual transmitters may combine adjacent channels for increased bandwidth up to 100 kHz. Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Alternatively a duty cycle limit [vi] of 0,1 % may also be used.	This set of usage conditions is only available for systems specifically designed for the purpose of providing non-voice digital communications between active implantable medical devices [7] and/or body-worn devices and other devices external to the human body used for transferring non-time-critical individual patient-related physiological information.	1 July 2014
44a	433,05-434,04 MHz	Non-specific short-range devices [3]	1 mW e.r.p. and – 13 dBm/10 kHz power density for bandwidth modulation larger than 250 kHz	Voice applications are allowed with advanced mitigation techniques.	Audio and video applications are excluded.	1 July 2014
44b	433,05-434,04 MHz	Non-specific short-range devices [3]	10 mW e.r.p.	Duty cycle limit [vi]: 10 %	Analogue audio applications other than voice are excluded. Analogue video applications are excluded.	1 July 2014
45a	434,04-434,79 MHz	Non-specific short-range devices [3]	1 mW e.r.p. and – 13 dBm/10 kHz power density for bandwidth modulation larger than 250 kHz	Voice applications are allowed with advanced mitigation techniques.	Audio and video applications are excluded.	1 July 2014
45b	434,04-434,79 MHz	Non-specific short-range devices [3]	10 mW e.r.p.	Duty cycle limit [vi]: 10 %	Analogue audio applications other than voice are excluded. Analogue video applications are excluded.	1 July 2014
45c	434,04-434,79 MHz	Non-specific short-range devices [3]	10 mW e.r.p.	Duty cycle limit [vi]: 100 % subject to channel spacing up to 25 kHz. Voice applications are allowed with advanced mitigation techniques.	Audio and video applications are excluded.	1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
83	446,0-446,2 MHz	PMR446 [21]	500 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.		1 January 2018
46a	863-865 MHz	Non-specific short-range devices [3]	25 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Alternatively a duty cycle limit [vi] of 0,1 % may also be used.		1 January 2018
46b	863-865 MHz	High duty cycle/continuous transmission devices [8]	10 mW e.r.p.		This set of usage conditions is only available to wireless audio and multimedia streaming devices.	1 July 2014
84	863-868 MHz	Wideband data transmission devices [16]	25 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Bandwidth: ≤ 1 MHz.	This set of usage conditions is only available for wideband SRDs in data networks [26].	1 January 2018

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
				Duty cycle [vi]: ≤ 10 % for network access points [26] Duty cycle [vi]: ≤ 2,8 % otherwise		
47	865-868 MHz	Non-specific short-range devices [3]	25 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Alternatively a duty cycle limit [vi] of 1 % may also be used.	Analogue audio applications other than voice are excluded. Analogue video applications are excluded.	1 July 2014
47a	865-868 MHz	Radio Frequency Identification (RFID) devices [12]	2 W e.r.p. Interrogator transmissions at 2 W e.r.p. are only permitted within the four channels centred at 865,7 MHz, 866,3 MHz, 866,9 MHz and 867,5 MHz; each with a maximum bandwidth of 200 kHz. RFID interrogator devices placed on the market before the repeal date of EC Decision 2006/804/EC are “grandfathered”, i.e. they are continuously permitted to be used in line with the provisions set out in EC Decision 2006/804/EC before the repeal date.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.		1 January 2018

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
47b	865-868 MHz	Non-specific short-range devices [3]	500 mW e.r.p. Transmissions only permitted within the bands 865,6-865,8 MHz, 866,2-866,4 MHz, 866,8-867,0 MHz and 867,4-867,6 MHz. Adaptive Power Control (APC) required. Alternatively other mitigation technique with at least an equivalent level of spectrum compatibility.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Bandwidth: ≤ 200 kHz Duty cycle [vi]: ≤ 10 % for network access points [26] Duty cycle [vi]: ≤ 2,5 % otherwise	This set of usage conditions is only available for data networks [26].	1 January 2018
48	868-868,6 MHz	Non-specific short-range devices [3]	25 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Alternatively a duty cycle limit [vi] of 1 % may also be used.	Analogue video applications are excluded.	1 July 2014
49	868,6-868,7 MHz	Low duty cycle/high reliability devices [15]	10 mW e.r.p.	Channel spacing: 25 kHz The whole frequency band may also be used as a single channel for high-speed data transmission. Duty cycle limit [vi]: 1,0 %	This set of usage conditions is only available to alarm systems [22].	1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
50	868,7-869,2 MHz	Non-specific short-range devices [3]	25 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Alternatively a duty cycle limit [vi] of 0,1 % may also be used.	Analogue video applications are excluded.	1 July 2014
51	869,2-869,25 MHz	Low duty cycle/high reliability devices [15]	10 mW e.r.p.	Channel spacing: 25 kHz. Duty cycle limit [vi]: 0,1 %	This set of usage conditions is only available to social alarm devices [6].	1 July 2014
52	869,25-869,3 MHz	Low duty cycle/high reliability devices [15]	10 mW e.r.p.	Channel spacing: 25 kHz Duty cycle limit [vi]: 0,1 %	This set of usage conditions is only available to alarm systems [22].	1 July 2014
53	869,3-869,4 MHz	Low duty cycle/high reliability devices [15]	10 mW e.r.p.	Channel spacing: 25 kHz Duty cycle limit [vi]: 1,0 %	This set of usage conditions is only available to alarm systems [22].	1 July 2014
54	869,4-869,65 MHz	Non-specific short-range devices [3]	500 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Alternatively a Duty cycle limit [vi] of 10 % may also be used.	Analogue video applications are excluded.	1 July 2014
55	869,65-869,7 MHz	Low duty cycle/high reliability devices [15]	25 mW e.r.p.	Channel spacing: 25 kHz Duty cycle limit [vi]: 10 %	This set of usage conditions is only available to alarm systems [22].	1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
56a	869,7-870 MHz	Non-specific short-range devices [3]	5 mW e.r.p.	Voice applications allowed with advanced mitigation techniques.	Audio and video applications are excluded.	1 July 2014
56b	869,7-870 MHz	Non-specific short-range devices [3]	25 mW e.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Alternatively a duty cycle limit [vi] of 1 % may also be used.	Analogue audio applications other than voice are excluded. Analogue video applications are excluded.	1 July 2014
57a	2 400-2 483,5 MHz	Non-specific short-range devices [3]	10 mW equivalent isotropic radiated power (e.i.r.p.)			1 July 2014
57b	2 400-2 483,5 MHz	Radio determination devices [9]	25 mW e.i.r.p.			1 July 2014
57c	2 400-2 483,5 MHz	Wideband data transmission devices [16]	100 mW e.i.r.p. and 100 mW/100 kHz e.i.r.p. density applies when frequency hopping modulation is used, 10 mW/MHz e.i.r.p. density applies when other types of modulation are used	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.		1 July 2014
58	2 446-2 454 MHz	Radio Frequency Identification (RFID) devices [12]	500 mW e.i.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.		1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
59	2 483,5-2 500 MHz	Active medical implant devices [1]	10 mW e.i.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Channel spacing: 1 MHz. The whole frequency band may also be used dynamically as a single channel for high-speed data transmissions. In addition, a duty cycle limit [vi] of 10 % applies.	This set of usage conditions is only available to active implantable medical devices [7]. Peripheral master units are for indoor use only.	1 July 2014
59a	2 483,5-2 500 MHz	Medical data acquisition [20]	1 mW e.i.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Modulation Bandwidth: ≤ 3 MHz. In addition, aduty cycle [vi]: ≤ 10 % applies.	The set of usage conditions is only available for medical body area network system (MBANS) [23] for indoor use within healthcare facilities	1 January 2018
59b	2 483,5-2 500 MHz	Medical data acquisition [20]	10 mW e.i.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Modulation Bandwidth: ≤ 3 MHz. In addition, a duty cycle [vi]: ≤ 2 % applies.	The set of usage conditions is only available for medical body area network system (MBANS) [23] for indoor use within the patient's home	1 January 2018

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
60	4 500-7 000 MHz	Radio determination devices [9]	24 dBm e.i.r.p. [19]	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to Tank Level Probing Radar [10].	1 July 2014
61	5 725-5 875 MHz	Non-specific short-range devices [3]	25 mW e.i.r.p.			1 July 2014
62	5 795-5 815 MHz	Transport and Traffic Telematics devices [13]	2 W e.i.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions applies only to road tolling applications.	1 January 2018
63	6 000-8 500 MHz	Radio determination devices [9]	7 dBm/50 MHz peak e.i.r.p. and – 33 dBm/MHz mean e.i.r.p.	Automatic power control and antenna requirements as well as equivalent techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to Level Probing Radar. Established exclusion zones around radio astronomy sites must be obeyed.	1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
64	8 500-10 600 MHz	Radio determination devices [9]	30 dBm e.i.r.p. [19]	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to Tank Level Probing Radar [10].	1 July 2014
65	17,1-17,3 GHz	Radio determination devices [9]	26 dBm e.i.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to ground-based systems.	1 July 2014
66	24,05-24,075 GHz	Transport and Traffic Telematics devices [13]	100 mW e.i.r.p.			1 July 2014
67	24,05-26,5 GHz	Radio determination devices [9]	26 dBm/50 MHz peak e.i.r.p. and – 14 dBm/MHz mean e.i.r.p.	Automatic power control and antenna requirements as well as equivalent techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to Level Probing Radar. Established exclusion zones around radio astronomy sites must be obeyed.	1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
68	24,05-27 GHz	Radio determination devices [9]	43 dBm e.i.r.p. [19]	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to Tank Level Probing Radar [10].	1 July 2014
69a	24,075-24,15 GHz	Transport and Traffic Telematics devices [13]	100 mW e.i.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Dwell time limits and frequency modulation range apply as specified in harmonised standards.	This set of usage conditions is only available to ground-based vehicle radars.	1 July 2014
69b	24,075-24,15 GHz	Transport and Traffic Telematics devices [13]	0,1 mW e.i.r.p.			1 July 2014
70a	24,15-24,25 GHz	Non-specific short-range devices [3]	100 mW e.i.r.p.			1 July 2014
70b	24,15-24,25 GHz	Transport and Traffic Telematics devices [13]	100 mW e.i.r.p.			1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
71	24,25-24,495 GHz	Transport and Traffic Telematics devices [13]	– 11 dBm e.i.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Duty cycle limits [vi] and frequency modulation ranges apply as specified in harmonised standards.	This set of usage conditions is only available to ground-based vehicle radars operating in the harmonised 24 GHz frequency range.	1 July 2014
72	24,25-24,5 GHz	Transport and Traffic Telematics devices [13]	20 dBm e.i.r.p. (forward-facing radars) 16 dBm e.i.r.p. (rear-facing radars)	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Duty cycle limits [vi] and frequency modulation range apply as specified in harmonised standards.	This set of usage conditions is only available to ground-based vehicle radars operating in the harmonised 24 GHz frequency range.	1 July 2014
73	24,495-24,5 GHz	Transport and Traffic Telematics devices [13]	– 8 dBm e.i.r.p.	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used. Duty cycle limits [vi] and frequency modulation range apply as specified in harmonised standards.	This set of usage conditions is only available to ground-based vehicle radars operating in the harmonised 24 GHz frequency range.	1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
74a	57-64 GHz	Non-specific short-range devices [3]	100 mW e.i.r.p., a maximum transmit power of 10dBm and a maximum e.i.r.p. power spectral density of 13dBm/MHz			1 July 2014
74b	57-64 GHz	Radio determination devices [9]	43 dBm e.i.r.p. [19]	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to Tank Level Probing Radar [10].	1 July 2014
74c	57-64 GHz	Radio determination devices [9]	35 dBm/50 MHz peak e.i.r.p. and – 2 dBm/MHz mean e.i.r.p.	Automatic power control and antenna requirements as well as equivalent techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to Level Probing Radar.	1 July 2014
75	57-66 GHz	Wideband data transmission devices [16]	40 dBm e.i.r.p. and 13 dBm/MHz e.i.r.p. density	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	Fixed outdoor installations are excluded.	1 July 2014
76	61-61,5 GHz	Non-specific short-range devices [3]	100 mW e.i.r.p.			1 July 2014

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
77	63-64 GHz	Transport and Traffic Telematics devices [13]	40 dBm e.i.r.p.		This set of usage conditions is only available to vehicle-to-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems.	1 July 2014
78a	75-85 GHz	Radio determination devices [9]	34dBm/50 MHz peak e.i.r.p. and – 3 dBm/MHz mean e.i.r.p.	Automatic power control and antenna requirements as well as equivalent techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to Level Probing Radar. Established exclusion zones around radio astronomy sites must be obeyed.	1 July 2014
78b	75-85 GHz	Radio determination devices [9]	43 dBm e.i.r.p. [19]	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 2014/53/EU must be used.	This set of usage conditions is only available to Tank Level Probing Radar [10].	1 July 2014
79a	76-77 GHz	Transport and Traffic Telematics devices [13]	55 dBm peak e.i.r.p. and 50 dBm mean e.i.r.p. and 23,5 dBm mean e.i.r.p. for pulse radars		This set of usage conditions is only available to ground-based vehicle and infrastructure systems.	1 July 2014
79b	76-77 GHz	Transport and Traffic Telematics devices [13]	30 dBm peak e.i.r.p. and 3 dBm/MHz average power spectral density	Duty cycle limit [vi]: ≤ 56 %/s	This set of usage conditions is only available to obstacle detection systems for rotorcraft use [24].	1 January 2018
80a	122-122,25 GHz	Non-specific short-range devices [3]	10 dBm e.i.r.p/250 MHz and – 48 dBm/MHz at 30° elevation			1 January 2018

Band no	Frequency band [i]	Category of short-range devices [ii]	Transmit power limit/field strength limit/power density limit [iii]	Additional parameters (channelling and/or channel access and occupation rules) [iv]	Other usage restrictions [v]	Implementation deadline
80b	122,25-123 GHz	Non-specific short-range devices [3]	100 mW e.i.r.p.			1 January 2018
81	244-246 GHz	Non-specific short-range devices [3]	100 mW e.i.r.p.			1 July 2014

[i] Member States must allow adjacent frequency bands within this table to be used as a single frequency band provided the specific conditions of each of these adjacent frequency bands are met.

[ii] As defined in Article 2(3)

[iii] Member States must allow the usage of spectrum up to the transmit power, field strength or power density given in this table. In accordance with Article 3(3), they may impose less restrictive conditions, i.e. allow the use of spectrum with higher transmit power, field strength or power density, provided that this does not reduce or compromise the appropriate coexistence between short-range devices in bands harmonised by this Decision.

[iv] Member States may only impose these "additional parameters (channelling and/or channel access and occupation rules)", and shall not add other parameters or spectrum access and mitigation requirements. Less restrictive conditions within the meaning of Article 3(3), mean that Member States may completely omit the "additional parameters (channelling and/or channel access and occupation rules)" in a given cell or allow higher values, provided that the appropriate sharing environment in the harmonised band is not compromised.

[v] Member States may only impose these "other usage restrictions" and shall not add additional usage restrictions. As less restrictive conditions may be introduced within the meaning of Article 3(3), Member States may omit one or all of these restrictions, provided that the appropriate sharing environment in the harmonised band is not compromised.

[vi] "Duty cycle" is defined as the ratio, expressed as a percentage, of Σ(Ton)/(Tobs) where Ton is the "on" time of a single transmitter device and Tobs is the observation period. Ton is measured in an observation frequency band (Fobs). Unless otherwise specified in this technical annex, Tobs is a continuous one hour period and Fobs is the applicable frequency band in this technical annex. Less restrictive conditions within the meaning of Article 3(3), mean that Member States may allow a higher value for "duty cycle".

[1] The active medical implant device category covers the radio part of active implantable medical devices that are intended to be totally or partially introduced, surgically or medically, into the human body or that of an animal, and where applicable their peripherals.

[3] The non-specific short-range device category covers all kinds of radio devices, regardless of the application or the purpose, which fulfil the technical conditions as specified for a given frequency band. Typical uses include telemetry, telecommand, alarms, data transmissions in general and other applications.

[4] The assistive listening device (ALD) category covers radio communications systems that allow persons suffering from hearing disability to increase their listening capability. Typical system installations include one or more radio transmitters and one or more radio receivers.

[5] The metering device category covers radio devices that are part of bidirectional radio communications systems which allow remote monitoring, measuring and transmission of data in smart grid infrastructures, such as electricity, gas and water.

[6] "Social alarm devices" are radio communications systems that allow reliable communication for a person in distress in a confined area to initiate a call for assistance. Typical uses of social alarm are to assist elderly or disabled people.

[7] "Active implantable medical devices" as defined in Council Directive 90/385/EEC of 20 June 1990 on the approximation of the laws of the Member States relating to active implantable medical devices (OJ L 189, 20.7.1990, p. 17).

[8] The high duty cycle/continuous transmission device category covers radio devices that rely on low latency and high duty cycle transmissions. Typical uses are for personal wireless audio and multimedia streaming systems used for combined audio/video transmissions and audio/video sync signals, mobile phones, automotive or home entertainment system, wireless microphones, cordless loudspeakers, cordless headphones, radio devices carried on a person, assistive listening devices, in-ear monitoring, wireless microphones for use at concerts or other stage productions, and low power analogue FM transmitters (band 36).

[9] The radio determination device category covers radio devices that are used for determining the position, velocity and/or other characteristics of an object, or for obtaining information relating to these parameters. Radiodetermination equipment typically conducts measurements to obtain such characteristics. Any kind of point-to-point or point-to-multipoint radio communications is outside of this definition.

[10] "Tank Level Probing Radar" (TLPR) is a specific type of radiodetermination application, which is used for tank level measurements and is installed in metallic or reinforced concrete tanks, or similar structures made of material with comparable attenuation characteristics. The purpose of the tank is to contain a substance.

[11] "Model control devices" are a specific kind of telecommand and telemetry radio equipment that is used to remotely control the movement of models (principally miniature representations of vehicles) in the air, on land or over or under the water surface.

[12] The radio frequency identification (RFID) device category covers tag/interrogator based radio communications systems, consisting of radio devices (tags) attached to animate or inanimate items and of transmitter/receiver units (interrogators) which activate the tags and receive data back. Typical uses include the tracking and identification of items, such as for electronic article surveillance (EAS), and collecting and transmitting data relating to the items to which tags are attached, which may be either battery-less, battery assisted or battery powered. The responses from a tag are validated by its interrogator and passed to its host system.

[13] The transport and traffic telematics device category covers radio devices that are used in the fields of transport (road, rail, water or air, depending on the relevant technical restrictions), traffic management, navigation, mobility management and in intelligent transport systems (ITS). Typical applications are used for interfaces between different modes of transport, communication between vehicles (e.g. car to car), between vehicles and fixed locations (e.g. car to infrastructure) as well as communication from and to users.

[14] The inductive device category covers radio devices that use magnetic fields with inductive loop systems for near field communications. Typical uses include devices for car immobilisation, animal identification, alarm systems, cable detection, waste management, personal identification, wireless voice links, access control, proximity sensors, anti-theft systems, including RF anti-theft induction systems, data transfer to hand-held devices, automatic article identification, wireless control systems and automatic road tolling.

[15] The low duty cycle/high reliability device category covers radio devices that rely on low overall spectrum utilisation and low duty cycle spectrum access rules to ensure highly reliable spectrum access and transmissions in shared bands. Typical uses include alarm systems that use radio communication for indicating an alert condition at a distant location and social alarms systems that allow reliable communication for a person in distress.

[16] The wideband data transmission device category covers radio devices that use wideband modulation techniques to access the spectrum. Typical uses include wireless access systems such as radio local area networks (WAS/RLANs) or wideband SRDs in data networks.

[17] In band 20 higher field strengths and additional usage restrictions apply for inductive applications.

[18] In bands 22, 24, 25, 27a, and 28 higher field strengths and additional usage restrictions apply for inductive applications.

[19] The power limit applies inside a closed tank and corresponds to a spectral density of – 41,3 dBm/MHz e.i.r.p. outside a 500 litre test tank.

[20] The medical data acquisition category covers the transmission of non-voice data to and from non-implantable medical devices for the purpose of monitoring, diagnosing and treating patients in healthcare facilities or patient's home.

[21] PMR446 equipment is hand portable (no base station or repeater use) and uses integral antennas only in order to maximise sharing and minimise interference. PMR 446 equipment operates in short range peer-to-peer mode and shall be used neither as a part of infrastructure network nor as a repeater;

[22] An alarm system is a device which uses radio communication support for indicating an alert to a system or a person, as a main functionnality, at a distant location when a problem or a specific situation occurs. Radio alarms include social alarms and alarms for security and safety.

[23] Medical Body Area Network Systems (MBANSs), used for medical data acquisition, are intended to be used in healthcare facilities and patients' homes. They are low power radio systems used for the transmission of non-voice data to and from medical devices for the purposes of monitoring, diagnosing and treating patients as prescribed by duly authorised healthcare professionals and are defined in the context of medical applications only;

[24] Member States can specify exclusion zones or equivalent measures in which the obstacle detection application for rotorcraft use shall not be used for the protection of the radioastronomy service or other national use. Rotorcraft is defined as EASA CS-27 and CS-29 (resp. JAR-27 and JAR-29 for former certifications);

[25] Devices shall implement the whole frequency range on a tuning range basis.

[26] A network access point in a data network is a fixed terrestrial short range device that acts as a connection point for the other short range devices in the data network to service platforms located outside of that data network. The term data network refers to several short range devices, including the network access point, as network components and to the wireless connections between them.'