

## COMMISSION IMPLEMENTING DECISION

of 8 December 2011

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

(notified under document C(2011) 9030)

(Text with EEA relevance)

(2011/829/EU)

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) <sup>(1)</sup>, and in particular Article 4(3) thereof,

Whereas:

- (1) Commission Decision 2006/771/EC <sup>(2)</sup> 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 for 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.
- (2) However, due to rapid changes in technology and societal demands, new applications for short-range devices can emerge. These require regular updates of spectrum harmonisation conditions.
- (3) 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.
- (4) Commission Decisions 2008/432/EC <sup>(3)</sup>, 2009/381/EC <sup>(4)</sup> and 2010/368/EU <sup>(5)</sup> already amended the harmonised technical conditions for short-range devices contained in Decision 2006/771/EC by replacing its Annex.

(5) In its March 2011 report <sup>(6)</sup> submitted in response to the abovementioned mandate, the CEPT advised the Commission to amend a number of technical aspects in the Annex to Decision 2006/771/EC.

(6) The Annex to Decision 2006/771/EC should therefore be amended accordingly.

(7) Equipment operating within the conditions set in this Decision should also comply with Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity <sup>(7)</sup> in order to use the spectrum effectively so as to avoid harmful interference, demonstrated either by meeting harmonised standards or by fulfilling alternative conformity assessment procedures.

(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*

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

*Article 2*

This Decision is addressed to the Member States.

Done at Brussels, 8 December 2011.

For the Commission  
Neelie KROES  
Vice-President

<sup>(1)</sup> OJ L 108, 24.4.2002, p. 1.

<sup>(2)</sup> OJ L 312, 11.11.2006, p. 66.

<sup>(3)</sup> OJ L 151, 11.6.2008, p. 49.

<sup>(4)</sup> OJ L 119, 14.5.2009, p. 32.

<sup>(5)</sup> OJ L 166, 1.7.2010, p. 33.

<sup>(6)</sup> CEPT Report 38, RSCOM 11-17.

<sup>(7)</sup> OJ L 91, 7.4.1999, p. 10.

## ANNEX

## 'ANNEX

## Harmonised frequency bands and technical parameters for short-range devices

Type of short-range device	Frequency band <sup>(1)</sup>	Transmit power limit/field strength limit/power density limit <sup>(2)</sup>	Additional parameters (channelling and/or channel access and occupation rules) <sup>(3)</sup>	Other usage restrictions <sup>(4)</sup>	Implementation deadline
Non-specific short-range devices <sup>(5)</sup>	6 765–6 795 kHz	42 dBµA/m at 10 metres			1 October 2008
	13,553–13,567 MHz	42 dBµA/m at 10 metres			1 October 2008
	26,957–27,283 MHz	10 mW effective radiated power (e.r.p.), which corresponds to 42 dBµA/m at 10 metres		Video applications are excluded	1 June 2007
	40,660–40,700 MHz	10 mW e.r.p.		Video applications are excluded	1 June 2007
	433,050–434,040 <sup>(6)</sup> MHz	1 mW e.r.p. and - 13dBm/10 kHz power density for bandwidth modulation larger than 250 kHz	Voice applications allowed with advanced mitigation techniques	Audio and video applications are excluded	1 November 2010
		10 mW e.r.p.	Duty cycle limit <sup>(7)</sup> : 10 %	Analogue audio applications other than voice are excluded. Analogue video applications are excluded	1 November 2010
	434,040–434,790 <sup>(6)</sup> MHz	1 mW e.r.p. and - 13dBm/10 kHz power density for bandwidth modulation larger than 250 kHz	Voice applications allowed with advanced mitigation techniques	Audio and video applications are excluded	1 November 2010
		10 mW e.r.p.	Duty cycle limit <sup>(7)</sup> : 10 %	Analogue audio applications other than voice are excluded. Analogue video applications are excluded	1 November 2010
			Duty cycle limit <sup>(7)</sup> : 100 % subject to channel spacing up to 25 kHz Voice applications allowed with advanced mitigation techniques	Audio and video applications are excluded	1 November 2010

Type of short-range device	Frequency band <sup>(1)</sup>	Transmit power limit/field strength limit/power density limit <sup>(2)</sup>	Additional parameters (channelling and/or channel access and occupation rules) <sup>(3)</sup>	Other usage restrictions <sup>(4)</sup>	Implementation deadline
Non-specific short-range devices (cont.)	863,000–865,000 MHz	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 1999/5/EC must be used. Alternatively a duty cycle limit <sup>(7)</sup> of 0,1 % may also be used	Analogue audio applications other than voice are excluded. Analogue video applications are excluded	1 November 2010
	865,000–868,000 MHz	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 1999/5/EC must be used. Alternatively a duty cycle limit <sup>(7)</sup> of 1 % may also be used	Analogue audio applications other than voice are excluded. Analogue video applications are excluded	1 November 2010
	868,000–868,600 MHz	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 1999/5/EC must be used. Alternatively a duty cycle limit <sup>(7)</sup> of 1 % may also be used	Analogue video applications are excluded	1 November 2010
	868,700–869,200 MHz	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 1999/5/EC must be used. Alternatively a duty cycle limit <sup>(7)</sup> of 0,1 % may also be used	Analogue video applications are excluded	1 November 2010
	869,400–869,650 <sup>(6)</sup> MHz	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 1999/5/EC must be used. Alternatively a duty cycle limit <sup>(7)</sup> of 10 % may also be used  Channel spacing must be 25 kHz, except that the whole band may also be used as a single channel for high-speed data transmission	Analogue video applications are excluded	1 November 2010
		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 1999/5/EC must be used. Alternatively a duty cycle limit <sup>(7)</sup> of 0,1 % may also be used	Analogue audio applications other than voice are excluded. Analogue video applications are excluded	1 November 2010

Type of short-range device	Frequency band <sup>(1)</sup>	Transmit power limit/field strength limit/power density limit <sup>(2)</sup>	Additional parameters (channelling and/or channel access and occupation rules) <sup>(3)</sup>	Other usage restrictions <sup>(4)</sup>	Implementation deadline
Non-specific short-range devices (cont.)	869,700–870,000 <sup>(6)</sup> MHz	5 mW e.r.p.	Voice applications allowed with advanced mitigation techniques	Audio and video applications are excluded	1 June 2007
		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 1999/5/EC must be used. Alternatively a duty cycle limit <sup>(7)</sup> of 1 % may also be used	Analogue audio applications other than voice are excluded. Analogue video applications are excluded	1 November 2010
	2 400–2 483,5 MHz	10 mW equivalent isotropic radiated power (e.i.r.p.)			1 June 2007
	5 725–5 875 MHz	25 mW e.i.r.p.			1 June 2007
	24,150–24,250 GHz	100 mW e.i.r.p.			1 October 2008
	61,0–61,5 GHz	100 mW e.i.r.p.			1 October 2008
	122–123 GHz	100 mW e.i.r.p.			1 June 2012
	244–246 GHz	100 mW e.i.r.p.			1 June 2012
Wideband data transmission systems	2 400–2 483,5 MHz	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 1999/5/EC must be used		1 November 2009
	57,0–66,0 GHz	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 1999/5/EC must be used	Fixed outdoor installations are excluded	1 November 2010
Alarm systems	868,600–868,700 MHz	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 <sup>(7)</sup> : 1,0 %		1 October 2008
	869,250–869,300 MHz	10 mW e.r.p.	Channel spacing: 25 kHz Duty cycle limit <sup>(7)</sup> : 0,1 %		1 June 2007

Type of short-range device	Frequency band <sup>(1)</sup>	Transmit power limit/field strength limit/power density limit <sup>(2)</sup>	Additional parameters (channelling and/or channel access and occupation rules) <sup>(3)</sup>	Other usage restrictions <sup>(4)</sup>	Implementation deadline
	869,300–869,400 MHz	10 mW e.r.p.	Channel spacing: 25 kHz Duty cycle limit <sup>(7)</sup> : 1,0 %		1 October 2008
	869,650–869,700 MHz	25 mW e.r.p.	Channel spacing: 25 kHz Duty cycle limit <sup>(7)</sup> : 10 %		1 June 2007
Social alarms <sup>(8)</sup>	869,200–869,250 MHz	10 mW e.r.p.	Channel spacing: 25 kHz Duty cycle limit <sup>(7)</sup> : 0,1 %		1 June 2007
Inductive applications <sup>(9)</sup>	9,000–59,750 kHz	72 dB $\mu$ A/m at 10 metres			1 November 2010
	59,750–60,250 kHz	42 dB $\mu$ A/m at 10 metres			1 June 2007
	60,250–74,750 kHz	72 dB $\mu$ A/m at 10 metres			1 June 2012
	74,750–75,250 kHz	42 dB $\mu$ A/m at 10 metres			1 June 2012
	75,250–77,250 kHz	72 dB $\mu$ A/m at 10 metres			1 June 2012
	77,250–77,750 kHz	42 dB $\mu$ A/m at 10 metres			1 June 2012
	77,750–90 kHz	72 dB $\mu$ A/m at 10 metres			1 June 2012
	90–119 kHz	42 dB $\mu$ A/m at 10 metres			1 June 2012
	119–128,6 kHz	66 dB $\mu$ A/m at 10 metres			1 June 2012
	128,6–129,6 kHz	42 dB $\mu$ A/m at 10 metres			1 June 2012
	129,6–135 kHz	66 dB $\mu$ A/m at 10 metres			1 June 2012
	135–140 kHz	42 dB $\mu$ A/m at 10 metres			1 June 2012
	140–148,5 kHz	37,7 dB $\mu$ A/m at 10 metres			1 October 2008
148,5–5 000 kHz	– 15 dB $\mu$ A/m at 10 metres in any bandwidth of 10 kHz	Furthermore the total field strength is – 5 dB $\mu$ A/m at 10 m for systems operating at bandwidths larger than 10 kHz			1 October 2008
	In the specific bands mentioned below, higher field strengths and additional usage restrictions apply:				

Type of short-range device	Frequency band <sup>(1)</sup>	Transmit power limit/field strength limit/power density limit <sup>(2)</sup>	Additional parameters (channelling and/or channel access and occupation rules) <sup>(3)</sup>	Other usage restrictions <sup>(4)</sup>	Implementation deadline
Inductive applications (cont.)	400–600 kHz	– 8 dB $\mu$ A/m at 10 metres		This set of usage conditions applies to RFID <sup>(10)</sup> only	1 October 2008
	3 155–3 400 kHz	13,5 dB $\mu$ A/m at 10 metres			1 October 2008
	5 000–30 000 kHz In the specific bands mentioned below, higher field strengths and additional usage restrictions apply:	– 20 dB $\mu$ A/m at 10 metres in any bandwidth of 10 kHz Furthermore the total field strength is – 5 dB $\mu$ A/m at 10 m for systems operating at bandwidths larger than 10 kHz			1 October 2008
	6 765–6 795 kHz	42 dB $\mu$ A/m at 10 metres			1 June 2007
	7 400–8 800 kHz	9 dB $\mu$ A/m at 10 metres			1 October 2008
	10 200–11 000 kHz	9 dB $\mu$ A/m at 10 metres			1 October 2008
	13 553–13 567 kHz	42 dB $\mu$ A/m at 10 metres			1 June 2007
		60 dB $\mu$ A/m at 10 metres		This set of usage conditions applies to RFID <sup>(10)</sup> and EAS <sup>(11)</sup> only	1 October 2008
26 957–27 283 kHz	42 dB $\mu$ A/m at 10 metres			1 October 2008	
Active medical implants <sup>(12)</sup>	9–315 kHz	30 dB $\mu$ A/m at 10m	Duty cycle limit <sup>(7)</sup> : 10 %		1 October 2008
	30,0–37,5 MHz	1 mW e.r.p.	Duty cycle limit <sup>(7)</sup> : 10 %	This set of usage conditions applies to ultra low power medical membrane implants for blood pressure measurements only	1 November 2010
	402–405 MHz	25 $\mu$ W e.r.p.	Channel spacing: 25 kHz Individual transmitters may combine adjacent channels for increased bandwidth up to 300 kHz.		1 November 2009

Type of short-range device	Frequency band <sup>(1)</sup>	Transmit power limit/field strength limit/power density limit <sup>(2)</sup>	Additional parameters (channelling and/or channel access and occupation rules) <sup>(3)</sup>	Other usage restrictions <sup>(4)</sup>	Implementation deadline
			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 1999/5/EC to ensure compatible operation with the other users and in particular with meteorological radiosondes		
Active medical implants and associated peripherals <sup>(13)</sup>	401–402 MHz	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 1999/5/EC must be used. Alternatively a duty cycle limit <sup>(7)</sup> of 0,1 % may also be used		1 November 2010
	405–406 MHz	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 1999/5/EC must be used. Alternatively a duty cycle limit <sup>(7)</sup> of 0,1 % may also be used		1 November 2010
Animal implantable devices <sup>(14)</sup>	315–600 kHz	– 5 dBµA/m at 10m	Duty cycle limit <sup>(7)</sup> : 10 %		1 November 2010
	12,5–20,0 MHz	– 7 dBµA/m at 10m in a bandwidth of 10 kHz	Duty cycle limit <sup>(7)</sup> : 10 %	This set of usage conditions applies to indoor applications only	1 November 2010
Low power FM transmitters <sup>(15)</sup>	87,5–108,0 MHz	50 nW e.r.p.	Channel spacing up to 200 kHz		1 November 2010
Wireless audio applications <sup>(16)</sup>	863–865 MHz	10 mW e.r.p.			1 November 2010
Radio determination applications <sup>(17)</sup>	2 400–2 483,5 MHz	25 mW e.i.r.p.			1 November 2009

Type of short-range device	Frequency band <sup>(1)</sup>	Transmit power limit/field strength limit/power density limit <sup>(2)</sup>	Additional parameters (channelling and/or channel access and occupation rules) <sup>(3)</sup>	Other usage restrictions <sup>(4)</sup>	Implementation deadline
	17,1–17,3 GHz	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 1999/5/EC must be used	This set of usage conditions applies to ground-based systems only	1 November 2009
Tank level probing radar <sup>(18)</sup>	4,5–7,0 GHz	24 dBm e.i.r.p. <sup>(19)</sup>			1 November 2009
	8,5–10,6 GHz	30 dBm e.i.r.p. <sup>(19)</sup>			1 November 2009
	24,05–27,0 GHz	43 dBm e.i.r.p. <sup>(19)</sup>			1 November 2009
	57,0–64,0 GHz	43 dBm e.i.r.p. <sup>(19)</sup>			1 November 2009
	75,0–85,0 GHz	43 dBm e.i.r.p. <sup>(19)</sup>			1 November 2009
Model control <sup>(20)</sup>	26 990–27 000 kHz	100 mW e.r.p.			1 November 2009
	27 040–27 050 kHz	100 mW e.r.p.			1 November 2009
	27 090–27 100 kHz	100 mW e.r.p.			1 November 2009
	27 140–27 150 kHz	100 mW e.r.p.			1 November 2009
	27 190–27 200 kHz	100 mW e.r.p.			1 November 2009
Radio frequency identification (RFID)	2 446–2 454 MHz	500 mW e.i.r.p.			1 June 2012
Road transport and traffic telematics	24,050–24,075 GHz	100 mW e.i.r.p.			1 June 2012
	24,075–24,150 GHz	0,1 mW e.i.r.p.			1 June 2012
	24,075–24,150 GHz	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 1999/5/EC must be used  Dwell time limits and frequency modulation range apply as specified in harmonised standards	This set of usage conditions applies to vehicle radars only	1 June 2012
	24,150–24,250 GHz	100 mW e.i.r.p.			1 June 2012
	63–64 GHz	40 dBm e.i.r.p.		This set of usage conditions applies to vehicle-to-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems only	1 June 2012



Type of short-range device	Frequency band <sup>(1)</sup>	Transmit power limit/field strength limit/power density limit <sup>(2)</sup>	Additional parameters (channelling and/or channel access and occupation rules) <sup>(3)</sup>	Other usage restrictions <sup>(4)</sup>	Implementation deadline
	76,0–77,0 GHz	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 applies to terrestrial vehicle and infrastructure systems only	1 November 2010

<sup>(1)</sup> Member States must allow the usage of adjacent frequency bands within this table as a single frequency band provided the specific conditions of each of these adjacent frequency bands are met.

<sup>(2)</sup> Member States must allow the usage of spectrum up to the transmit power, field strength or power density given in this table. In conformity with Article 3(3) of Decision 2006/771/EC, they may impose less restrictive conditions, i.e. allow the use of spectrum with higher transmit power, field strength or power density.

<sup>(3)</sup> Member States may only impose these “additional parameters (channelling and/or channel access and occupation rules)”, and may not add other parameters or spectrum access and mitigation requirements. Less restrictive conditions within the meaning of Article 3(3) of Decision 2006/771/EC 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.

<sup>(4)</sup> Member States may only impose these “other usage restrictions”, and may not add additional usage restrictions. As less restrictive conditions may be introduced within the meaning of Article 3(3) of Decision 2006/771/EC, Member States may omit one or all of these restrictions.

<sup>(5)</sup> This category is available for any type of application which fulfils the technical conditions (typical uses are telemetry, telecommand, alarms, data in general and other similar applications).

<sup>(6)</sup> For this frequency band Member States must make all the alternative sets of usage conditions possible.

<sup>(7)</sup> “Duty cycle” means the ratio of time during any one-hour period when equipment is actively transmitting. Less restrictive conditions within the meaning of Article 3(3) of Decision 2006/771/EC mean that Member States may allow a higher value for “Duty cycle”.

<sup>(8)</sup> Social alarm devices are used to assist elderly or disabled people when they are in distress.

<sup>(9)</sup> This category covers, for example, 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 handheld devices, automatic article identification, wireless control systems and automatic road tolling.

<sup>(10)</sup> This category covers inductive applications used for radio frequency identification (RFID).

<sup>(11)</sup> This category covers inductive applications used for electronic article surveillance (EAS).

<sup>(12)</sup> This category covers the radio part of 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).

<sup>(13)</sup> This category covers systems specifically designed for the purpose of providing non-voice digital communications between active medical implants, as defined in footnote 19, and/or body-worn devices and other devices external to the human body used for transferring non-time critical individual patient-related physiological information.

<sup>(14)</sup> This category covers transmitting devices which are placed inside the body of an animal for the purpose of performing diagnostic functions and/or delivery of therapeutic treatment.

<sup>(15)</sup> This category includes applications which connect personal audio devices, including mobile phones, and the automotive or home entertainment system.

<sup>(16)</sup> Applications for wireless audio systems, including: wireless microphones; cordless loudspeakers; cordless headphones; cordless headphones for portable use, e.g. portable CD, cassette or radio devices carried on a person; cordless headphones for use in a vehicle, for example for use with a radio or mobile telephone, etc.; in-ear monitoring and wireless microphones for use at concerts or other stage productions.

<sup>(17)</sup> This category covers applications used for determining the position, velocity and/or other characteristics of an object, or for obtaining information relating to these parameters.

<sup>(18)</sup> Tank level probing radars (TLPR) are a specific type of radio-determination application, which are used for tank level measurements and are 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.

<sup>(19)</sup> 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.

<sup>(20)</sup> This category covers applications used to control the movement of models (principally miniature representations of vehicles) in the air, on land or over or under the water surface.