

Commission Implementing Decision 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 (notified under document C(2013) 8776) (Text with EEA relevance) (2013/752/EU)

COMMISSION IMPLEMENTING DECISION

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

(notified under document C(2013) 8776)

(Text with EEA relevance)

(2013/752/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) Decision No 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme<sup>(3)</sup> (RSPP) requires Member States, in cooperation with the Commission, and where appropriate, to foster the collective use of spectrum as well as shared use of spectrum in order to enhance efficiency and flexibility.
- (3) Due to the growing importance of short-range devices for the economy and the rapid changes in technology and societal demands, new applications for short-range devices can emerge. These require regular updates of spectrum harmonisation conditions.
- (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<sup>(4)</sup>, 2009/381/EC<sup>(5)</sup>, 2010/368/EU<sup>(6)</sup> and Commission Implementing Decision 2011/829/EU<sup>(7)</sup> already amended the harmonised technical conditions for short-range devices contained in Decision 2006/771/EC by replacing its Annex.
- (6) In its March 2013 report<sup>(8)</sup> submitted in response to the above-mentioned mandate, the CEPT informed the Commission of the results of the requested examination of the ‘type of short-range device’ and the ‘other usage restrictions’ categories 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 mandate show that short-range devices operating on a non-exclusive and shared basis need, on the one hand, legal certainty regarding the possibility to use spectrum on a shared basis, which can be achieved through predictable technical shared usage conditions of harmonised bands which ensure reliable and efficient use of harmonised bands. These short-range devices also need, on the other hand, sufficient flexibility to allow for a large 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 for as much flexibility as possible while fostering reliable and efficient use of frequency bands by short-range devices.
- (8) The suppression of the notion of ‘type’ of short-range devices and the harmonisation of short-range devices categories achieves such purpose. Two kinds of categories would each establish predictable sharing environments for a whole group of short-range devices. The short-range devices in these categories are grouped either on the basis of similar technical spectrum access mechanisms or based on common usage scenarios that determine the expected deployment density.
- (9) The scope of the categories as defined in the technical annex provides users with predictability in regard to other short-range devices that are allowed to use the same frequency band on a non-exclusive and shared basis. Pursuant to 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>(9)</sup> (the R&TTE Directive) within such categories manufacturers should ensure that short-range devices effectively avoid harmful interference to other short-range devices.
- (10) In the specific frequency bands covered by this Decision, the combination of the harmonised short-range devices category and the technical usage conditions (frequency band, transmit power limit/field strength limit/power density limit, additional parameters and other usage restrictions) establishes a harmonised sharing environment in such a way as to allow short-range devices to share the use of spectrum with each other on a non-exclusive basis, regardless of the purpose of such use.

- (11) 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 would only be allowed to the extent that the relevant sharing environment is not compromised.
- (12) On 6 July 2011, the Commission issued a further mandate to the CEPT, pursuant to Article 4(2) of Decision No 676/2002/EC, to undertake the necessary technical studies in support of a possible review of Commission Decision 2005/928/EC of 20 December 2005 on the harmonisation of the 169,4-169,8125 MHz frequency band in the Community<sup>(10)</sup>, to ensure the efficient use of the harmonised frequency range in accordance with Article 5 of that Decision.
- (13) In its June 2012 report<sup>(11)</sup> submitted in response to the above mentioned second mandate, the CEPT advised the Commission to incorporate existing and additional harmonisation measures for low power/short-range devices in the 169 MHz band in the forthcoming amendment of the Annex to Decision 2006/771/EC to provide better visibility and transparency of the harmonised frequency range (169,4-169,8125 MHz).
- (14) Based on results of the CEPT's work it is possible to streamline the regulatory conditions for short-range devices. The harmonisation of spectrum access conditions would achieve the objective set by the RSPD to foster the collective use of spectrum in the internal market for categories of short-range devices.
- (15) The Annex to Decision 2006/771/EC should therefore be amended and Decision 2005/928/EC should be repealed accordingly.
- (16) Equipment operating within the conditions set in this Decision should also comply with the R&TTE Directive 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.
- (17) The measures provided for in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

HAS ADOPTED THIS DECISION:

*Article 1*

In Article 2 of Decision 2006/771/EC, the following point is added:

3. "category of short-range devices" means a group of short-range devices that use spectrum with similar technical spectrum access mechanisms or based on common usage scenarios

*Article 2*

Article 3 of Decision 2006/771/EC is replaced by the following.

*Article 3*

- 1 Member States shall designate and make available, on a non-exclusive, non-interference and non-protected basis, the frequency bands for the categories of short-range

devices, subject to the specific conditions and by the implementation deadline, as laid down in the Annex to this Decision.

2 Notwithstanding paragraph 1, Member States may request the benefit of Article 4(5) of the Radio Spectrum Decision.

3 This Decision is without prejudice to the right of Member States to allow the use of the frequency bands under less restrictive conditions or for short-range devices which are not part of the harmonised category provided that this does not prevent or reduce the possibility for short-range devices of such a category to rely on the appropriate set of harmonised technical and operational conditions, as specified in the Annex to this Decision, which allow the shared use of a specific part of the spectrum on a non-exclusive basis and for different purposes by short range devices of the same category.

*Article 3*

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

*Article 4*

Decision 2005/928/EC is repealed.

*Article 5*

Member States shall report to the Commission on the implementation of this Decision no later than 1 September 2014.

*Article 6*

This Decision is addressed to the Member States.

Done at Brussels, 11 December 2013.

*For the Commission*

Neelie KROES

*Vice-President*

## ANNEX

‘ANNEX Harmonised frequency bands and technical parameters for short-range devices 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. As defined in Article 2(3). 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. 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. 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. “Duty cycle” means the ratio of time during any one-hour period when a single device is actively transmitting. Less restrictive conditions within the meaning of Article 3(3) mean that Member States may allow a higher value for “duty cycle”. 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. “Animal implantable devices” are transmitting devices which are placed inside the body of an animal for the purpose of performing diagnostic functions and/or delivery of therapeutic treatment. 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. The assistive listening device (ALD) category covers radio communications systems that allow persons suffering from hearing disability to increase their listening capability. Typical systems include one or more radio transmitters and one or more radio receivers. 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. “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. “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). 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, 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). 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. Typical uses are various kinds of measurement applications. "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. "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. 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. 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. 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. 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. 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). In band 20 higher field strengths and additional usage restrictions apply for inductive applications. In bands 22a, 24, 25, 27a, and 28a higher field strengths and additional usage restrictions apply for inductive applications. 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.

Band	Frequency band	Category of short-range devices	Transmit power limit/field strength limit/power density limit	Additional parameters (channelling and/or channel access and occupation rules)	Other usage restrictions	Implementation deadline
19-59,750 kHz	Inductive devices	72 dB $\mu$ A/m at 10 metres	1 July 2014			
29-315 kHz	Active medical implant devices	30 dB $\mu$ A/m at 10 metres	Duty cycle limit: 10 %	This set of usage conditions is only available to active implantable medical devices.	1 July 2014	
359,750-60,250 kHz	Inductive devices	42 dB $\mu$ A/m at 10 metres	1 July 2014			
460,250-74,750 kHz	Inductive devices	72 dB $\mu$ A/m at 10 metres	1 July 2014			
574,750-75,250 kHz	Inductive devices	42 dB $\mu$ A/m at 10 metres	1 July 2014			
675,250-77,250 kHz	Inductive devices	72 dB $\mu$ A/m at 10 metres	1 July 2014			
777,250-77,750 kHz	Inductive devices	72 dB $\mu$ A/m at 10 metres	1 July 2014			

devices 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 877,750-90 kHz | Inductive devices | 72 dB $\mu$ A/m at 10 metres | 1 July 2014 | 990-119 kHz | Inductive devices | 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 10119-128,6 kHz | Inductive devices | 66 dB $\mu$ A/m at 10 metres | 1 July 2014 | 11128,6-129,6 kHz | Inductive devices | 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 12129,6-135 kHz | Inductive devices | 66 dB $\mu$ A/m at 10 metres | 1 July 2014 | 13135-140 kHz | Inductive devices | 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 14140-148,5 kHz | Inductive devices | 37,7 dB $\mu$ A/m at 10 metres | 1 July 2014 | 15148,5-5 000 kHz | Inductive devices | – 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 July 2014 | 16315-600 kHz | Active medical implant devices | – 5 dB $\mu$ A/m at 10 m | Duty cycle limit: 10 % | This set of usage conditions is only available to animal implantable devices. | 1 July 2014 | 17400-600 kHz | Radio Frequency Identification (RFID) devices | – 8 dB $\mu$ A/m at 10 metres | 1 July 2014 | 18456,9-457,1 kHz | Non-specific short-range devices | 7 dB $\mu$ A/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 | 19984-7 484 kHz | Transport and Traffic Telematics devices | 9 dB $\mu$ A/m at 10 m | Duty cycle limit: 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 | 203 155-3 400 kHz | Inductive devices | 13,5 dB $\mu$ A/m at 10 metres | 1 July 2014 | 215 000-30 000 kHz | Inductive devices | – 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 July 2014 | 22a6 765-6 795 kHz | Inductive devices | 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 22b6 765-6 795 kHz | Non-specific short-range devices | 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 237 300-23 000 kHz | Transport and Traffic Telematics devices | – 7 dB $\mu$ A/m at 10 m | Antenna restrictions apply as specified in the harmonised standards adopted under Directive 1999/5/EC. 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 | 247 400-8 800 kHz | Inductive devices | 9 dB $\mu$ A/m at 10 metres | 1 July 2014 | 2510 200-11 000 kHz | Inductive devices | 9 dB $\mu$ A/m at 10 metres | 1 July 2014 | 2612 500-20 000 kHz | Active medical implant devices | – 7 dB $\mu$ A/m at 10 m in a bandwidth of 10 kHz | Duty cycle limit: 10 % | This set of usage conditions is only available to indoor use by animal implantable devices. | 1 July 2014 | 27a13 553-13 567 kHz | Inductive devices | 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 27b13 553-13 567 kHz | Radio Frequency Identification (RFID) devices | 60 dB $\mu$ A/m at 10 metres | 1 July 2014 | 27c13 553-13 567 kHz | Non-specific short-range devices | 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 28a26 957-27 283 kHz | Inductive devices | 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 28b26 957-27 283 kHz | Non-specific short-range devices | 10 mW effective radiated power (e.r.p.), which corresponds to 42 dB $\mu$ A/m at 10 metres | 1 July 2014 | 2926 990-27 000 kHz | Non-specific short-range devices | 100 mW e.r.p. | Duty cycle limit: 0,1 % | Model control devices may operate without duty cycle restrictions. | 1 July 2014 | 3027 040-27 050 kHz | Non-specific short-range devices | 100 mW e.r.p. | Duty cycle limit: 0,1 % | Model control devices may operate without duty cycle restrictions. | 1 July 2014 | 3127 090-27 100 kHz | Non-specific short-range devices | 100 mW e.r.p. | Duty cycle limit: 0,1 % | Model control devices may operate without duty cycle restrictions. | 1 July 2014 | 3227 140-27 150 kHz | Non-specific short-range devices | 100 mW e.r.p. | Duty cycle limit: 0,1 % | Model control devices may operate without duty cycle restrictions. | 1 July 2014 | 3327 190-27 200 kHz | Non-specific short-range devices | 100 mW e.r.p. | Duty cycle limit: 0,1 % | Model control devices may operate without duty cycle restrictions. | 1 July 2014 | 3430-37,5 MHz | Active medical implant devices | 1 mW e.r.p. | Duty cycle limit: 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 in Directive

90/385/EEC.1 July 20143540,66-40,7 MHz Non-specific short-range devices 10 mW e.r.p. Video applications are excluded.1 July 20143687,5-108 MHz High duty cycle/continuous transmission devices 50 nW e.r.p. Channel spacing up to 200 kHz. This set of usage conditions is only available to transmitters with analogue frequency modulation (FM).1 July 201437a169,4-169,475 MHz Assistive Listening Devices (ALD) 500 mW e.r.p. Channel spacing: max 50 kHz.1 July 201437b169,4-169,475 MHz Metering devices 500 mW e.r.p. Channel spacing: max 50 kHz. Duty cycle limit: 10,0 %.1 July 201437c169,4-169,475 MHz Non-specific short-range devices 500 mW e.r.p. Channel spacing: max 50 kHz. Duty cycle limit: 1,0 %.1 July 201438169,4-169,4875 MHz Non-specific short-range devices 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 1999/5/EC must be used. Duty cycle limit: 0,1 %.1 July 201439a169,4875-169,5875 MHz Assistive Listening Devices (ALD) 500 mW e.r.p. Channel spacing: max 50 kHz.1 July 201439b169,4875-169,5875 MHz Non-specific short-range devices 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 1999/5/EC must be used. Duty cycle limit: 0,001 %. Between 00.00 and 06.00 local time a duty cycle limit of 0,1 % may be used.1 July 201440169,5875-169,8125 MHz Non-specific short-range devices 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 1999/5/EC must be used. Duty cycle limit: 0,1 %.1 July 201441401-402 MHz Active medical implant devices 25  $\mu$ W 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 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 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 201442402-405 MHz Active medical implant devices 25  $\mu$ W 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 1999/5/EC 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.1 July 201443405-406 MHz Active medical implant devices 25  $\mu$ W 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 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 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 201444a433,05-434,04 MHz Non-specific short-range devices 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 201444b433,05-434,04 MHz Non-specific short-range devices 10 mW e.r.p. Duty cycle limit: 10 % Analogue audio applications other than voice are excluded. Analogue video applications are excluded. 1 July 201445a434,04-434,79 MHz Non-specific short-range devices 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 201445b434,04-434,79 MHz Non-specific short-range devices 10 mW e.r.p. Duty cycle limit: 10 % Analogue audio applications other than voice are excluded. Analogue video applications are excluded. 1 July 201445c434,04-434,79 MHz Non-specific short-range devices 10 mW e.r.p. Duty cycle limit: 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 201446a863-865 MHz Non-specific short-range devices 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 of 0,1 % may also be used. Analogue audio applications other than voice are excluded. Analogue video applications are excluded. 1 July 201446b863-865 MHz High duty cycle/continuous transmission devices 10 mW e.r.p. This set of usage conditions is only available to wireless audio and multimedia streaming devices. 1 July 201447865-868 MHz Non-specific short-range devices 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 of 1 % may also be used. Analogue audio applications other than voice are excluded. Analogue video applications are excluded. 1 July 201448868-868,6 MHz Non-specific short-range devices 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 of 1 % may also be used. Analogue video applications are excluded. 1 July 201449868,6-868,7 MHz Low duty cycle/high reliability devices 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: 1,0 % This set of usage conditions is only available to alarm systems. 1 July 201450868,7-869,2 MHz Non-specific short-range devices 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 of 0,1 % may also be used. Analogue video applications are excluded. 1 July 201451869,2-869,25 MHz Low duty cycle/high reliability devices 10 mW e.r.p. Channel spacing: 25 kHz. Duty cycle limit: 0,1 % This set of usage conditions is only available to social alarm devices. 1 July 201452869,25-869,3 MHz Low duty cycle/high reliability devices 10 mW e.r.p. Channel spacing: 25 kHz Duty cycle limit: 0,1 % This set of usage conditions is only available to alarm systems. 1 July 201453869,3-869,4 MHz Low duty cycle/high reliability devices 10 mW e.r.p. Channel spacing: 25 kHz Duty cycle limit: 1,0 % This set of usage conditions is only available to alarm systems. 1 July 201454a869,4-869,65 MHz Non-specific short-range devices 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 of 0,1 % may also be used. Analogue audio applications other than voice are excluded. Analogue video applications are excluded. 1 July 201454b869,4-869,65 MHz Non-specific short-range devices 500 mW e.r.p. Techniques to access spectrum and

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*Status: This is the original version (as it was originally adopted).*

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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 of 10 % may also be used. Analogue video applications are excluded. 1 July 201455869,65-869,7 MHz Low duty cycle/high reliability devices 25 mW e.i.r.p. Channel spacing: 25 kHz Duty cycle limit: 10 % This set of usage conditions is only available to alarm systems. 1 July 201456a869,7-870 MHz Non-specific short-range devices 5 mW e.i.r.p. Voice applications allowed with advanced mitigation techniques. Audio and video applications are excluded. 1 July 201456b869,7-870 MHz Non-specific short-range devices 25 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. Alternatively a duty cycle limit of 1 % may also be used. Analogue audio applications other than voice are excluded. Analogue video applications are excluded. 1 July 201457a2 400-2 483,5 MHz Non-specific short-range devices 10 mW equivalent isotropic radiated power (e.i.r.p.) 1 July 201457b2 400-2 483,5 MHz Radio determination devices 25 mW e.i.r.p. 1 July 201457c2 400-2 483,5 MHz Wideband data transmission devices 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 July 2014582 446-2 454 MHz Radio Frequency Identification (RFID) devices 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 1999/5/EC must be used. 1 July 2014592 483,5-2 500 MHz Active medical implant devices 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 1999/5/EC 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. Duty cycle limit of 10 %. This set of usage conditions is only available to active implantable medical devices. Peripheral master units are for indoor use only. 1 July 2014604 500-7 000 MHz Radio determination devices 24 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 is only available to Tank Level Probing Radar. 1 July 2014615 725-5 875 MHz Non-specific short-range devices 25 mW e.i.r.p. 1 July 2014625 795-5 805 MHz Transport and Traffic Telematics devices 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 1999/5/EC must be used. This set of usage conditions applies only to road tolling applications. 1 July 2014636 000-8 500 MHz Radio determination devices 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 1999/5/EC 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 2014648 500-10 600 MHz Radio determination devices 30 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 is only available to Tank Level

Probing Radar.1 July 20146517,1-17,3 GHzRadio determination devices26 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 is only available to ground-based systems.1 July 20146624,05-24,075 GHzTransport and Traffic Telematics devices100 mW e.i.r.p.1 July 20146724,05-26,5 GHzRadio determination devices26 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 1999/5/EC 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 20146824,05-27 GHzRadio determination devices43 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 is only available to Tank Level Probing Radar.1 July 201469a24,075-24,15 GHzTransport and Traffic Telematics devices100 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 is only available to ground-based vehicle radars.1 July 201469b24,075-24,15 GHzTransport and Traffic Telematics devices0,1 mW e.i.r.p.1 July 201470a24,15-24,25 GHzNon-specific short-range devices100 mW e.i.r.p.1 July 201470b24,15-24,25 GHzTransport and Traffic Telematics devices100 mW e.i.r.p.1 July 20147124,25-24,495 GHzTransport and Traffic Telematics devices– 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 1999/5/EC must be used. Duty cycle limits 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 20147224,25-24,5 GHzTransport and Traffic Telematics devices20 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 1999/5/EC must be used. Duty cycle limits 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 20147324,495-24,5 GHzTransport and Traffic Telematics devices– 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 1999/5/EC must be used. Duty cycle limits 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 201474a57-64 GHzNon-specific short-range devices100 mW e.i.r.p., a maximum transmit power of 10 dBm and a maximum e.i.r.p. power spectral density of 13 dBm/MHz1 July 201474b57-64 GHzRadio determination devices43 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 is only available to Tank Level Probing Radar.1 July 201474c57-64 GHzRadio determination devices35 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 1999/5/EC must be used. This set of usage conditions is only available to Level Probing Radar. 1 July 2014 7557-66 GHz Wideband data transmission devices 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 July 2014 7661-61,5 GHz Non-specific short-range devices 100 mW e.i.r.p. 1 July 2014 7763-64 GHz Transport and Traffic Telematics devices 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 78a75-85 GHz Radio determination devices 34 dBm/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 1999/5/EC 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 78b75-85 GHz Radio determination devices 43 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 is only available to Tank Level Probing Radar. 1 July 2014 7976-77 GHz Transport and Traffic Telematics devices 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 80122-123 GHz Non-specific short-range devices 100 mW e.i.r.p. 1 July 2014 81244-246 GHz Non-specific short-range devices 100 mW e.i.r.p. 1 July 2014

- (1) OJ L 108, 24.4.2002, p. 1.
- (2) OJ L 312, 11.11.2006, p. 66.
- (3) OJ L 81, 21.3.2012, p. 7.
- (4) OJ L 151, 11.6.2008, p. 49.
- (5) OJ L 119, 14.5.2009, p. 32.
- (6) OJ L 166, 1.7.2010, p. 33.
- (7) OJ L 329, 13.12.2011, p. 10.
- (8) CEPT Report 44, RSCOM 13-25
- (9) OJ L 91, 7.4.1999, p. 10.
- (10) OJ L 344, 27.12.2005, p. 47.
- (11) CEPT Report 43, RSCOM 12-25.