



Notice of Ofcom's proposal to
make the Wireless Telegraphy
(Ultra-Wideband Equipment)
(Exemption) (Amendment)
Regulations 2010

Consultation

Publication date: 14 September 2010

Closing Date for Responses: 18 October 2010

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Section 1

Executive Summary

- 1.1 This document consults on draft regulations to make the Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) (Amendment) Regulations 2010 (the “Proposed Regulations”). The Proposed Regulations will amend the Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) Regulations 2009 (the “Principal Regulations”).¹
- 1.2 Ultra-wideband (UWB) is a generic term for technologies typically characterised by the emission of very low power radiation spread over a very large radio bandwidth. This is unlike other wireless systems, which use spectrum in discrete narrow frequency bands. UWB can transfer large amounts of data wirelessly over short distances, typically less than ten metres. Using mitigation techniques multiple pieces of UWB equipment are able to operate in the same area.
- 1.3 The Proposed Regulations will implement necessary changes to comply with the European Commission Decision of 21 April 2009 (2009/343/EC) (the “UWB Amendment Decision”).² The UWB Amendment Decision amended Decision 2007/131/EC on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community (the “UWB Decision”).³
- 1.4 The Proposed Regulations will replace the existing technical parameters for the establishment, installation or use of UWB equipment in the 4.2 to 4.8 GHz band. For the purpose of this notice the word “use” in the context of UWB equipment also includes establishing or installing such equipment. The Proposed Regulations will:
 - 1.4.1 Reduce the permitted general transmission limits from a maximum mean e.i.r.p. density of no greater than -41.3 dBm/MHz to a maximum mean e.i.r.p. density of no greater than -70 dBm/MHz and from a maximum peak e.i.r.p. density of no greater than 0.0 dBm/50 MHz to a maximum peak e.i.r.p. density of no greater than -30.0 dBm/50MHz. However, the transmission limit of a maximum mean e.i.r.p. density of no greater than -41.3 dBm/MHz will continue to apply in circumstances where appropriate mitigation techniques are used.
 - 1.4.2 In relation to the use of UWB equipment in automotive and railway vehicles, reduce the permitted transmission limit from a maximum mean e.i.r.p. density of -53.3 dBm/MHz to a maximum mean e.i.r.p. density of no greater than -70 dBm/MHz in circumstances where appropriate mitigation techniques are not used.
- 1.5 An impact assessment for the Proposed Regulations is available at Annex 5 to this document. The Proposed Regulations are included in this document at Annex 6. Further copies may be obtained from www.ofcom.org.uk or from Ofcom at Riverside House, 2a Southwark Bridge Road, London SE1 9HA. Comments on the Proposed

¹ http://www.opsi.gov.uk/si/si2009/pdf/uksi_20092517_en.pdf

² <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:105:0009:0013:EN:PDF>

³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:055:0033:0036:EN:PDF>

Regulations are invited by **5pm** on **18 October 2010**. Subject to consideration of responses we intend to bring the new regulations into force by 31 December 2010.

Section 2

Background

- 2.1 We are responsible for authorising civil use of the radio spectrum and achieve this by granting wireless telegraphy licences under the Wireless Telegraphy Act 2006 (“the WT Act”) and by making regulations exempting users of particular equipment from the requirement to hold such a licence. Under section 8(1) of the WT Act, it is an offence to establish, install or use equipment to transmit without holding a licence granted by us unless the use of such equipment is exempted. Ofcom can exempt the establishment, installation or use of wireless telegraphy equipment by making Regulations under section 8(3) of the WT Act. Under section 8(4) of the WT Act, we must make regulations to exempt equipment if its installation or use is unlikely to cause undue interference.
- 2.2 In accordance with the requirements of section 122(4) and (5) of the WT Act this document gives notice of our intention to make the Proposed Regulations.

European Commission Decision on UWB

- 2.3 In February 2007 the European Commission adopted the UWB Decision This harmonised across the European Union (EU) the technical conditions for UWB equipment in order to eliminate barriers to the uptake of UWB equipment and created a single market that would allow manufacturers to benefit from economies of scale and allow consumers and citizens to benefit from new technologies and cheaper prices. Due to changes in technologies since the UWB Decision was first adopted the European Commission amended the UWB Decision in April 2009.⁴
- 2.4 The UK implemented the UWB Amendment Decision following a consultation by making the Principal Regulations that came into force on 15 October 2009. These revoked the previous Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) Regulations 2007 and the Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) (Amendment) Regulations 2007.

Change to licence exemption parameters for UWB equipment

- 2.5 Both the UWB Decision and the UWB Amendment Decision prescribed that, in the absence of appropriate mitigation techniques, the general transmission limit for the use of UWB equipment in the 4.2 to 4.8 GHz band would be a maximum mean e.i.r.p density of no greater than -41.3 dBm/MHz and a maximum e.i.r.p. peak density of no greater than – 0.0 dBm/50Mhz. These limits would apply until 31 December 2010, beyond which the more restrictive transmission limits of a maximum mean e.i.r.p density of no greater than -70.0 dBm/MHz and a maximum peak e.i.r.p. density of no greater than -30 dBm/50MHz would apply.
- 2.6 In addition, the UWB Amendment Decision permits UWB equipment to be used in automotive and railway vehicles. In relation to the 4.2 – 4.8 GHz band, UWB equipment may be used at transmission limits where the maximum mean e.i.r.p. density is either no greater than -53.3 dBm/MHz or, where appropriate mitigation techniques are applied, the maximum mean e.i.r.p. density is no greater than -41.3 dBm/50MHz. The Decision stipulates that, beyond 31 December 2010, UWB equipment may only be permitted to be used in the 4.2 – 4.8 GHz band in the

4

absence of appropriate mitigation techniques where the transmission limit is a maximum mean e.i.r.p. density of no greater than 70.0 dBm/MHz.

- 2.7 In line with the UWB Amendment Decision, the Proposed Regulations will reduce the transmission limits for the general use of UWB equipment in the 4.2 to 4.8 GHz band to -70.0dBm/MHz (maximum mean density) and -30.0 dBm/50 MHz (maximum peak e.i.r.p. density). However, where appropriate mitigation techniques are applied, UWB equipment may continue to be used in this band where the maximum mean e.i.r.p. density is no greater than 41.3 dBm/MHz.
- 2.8 In line with the UWB Amendment Decision, the Proposed Regulations also reduce the transmission limit in relation to the 4.2 to 4.8 GHz band when UWB equipment is used in automotive and railway vehicles without appropriate mitigation techniques. In particular, the limit will be reduced from a maximum mean e.i.r.p. density of -53.3 dBm/MHz to a maximum mean e.i.r.p. density of -70.0 dBm/MHz.

Next steps

- 2.9 Following the publication of this consultation document, stakeholders are welcome to provide their feedback. The deadline to submit responses to us is 5pm 18 October 2010. We expect to release a statement on this consultation in December 2010, having taken into account the stakeholder responses to our proposals and to make, and bring into force, the regulations by 31 December 2010.

Section 3

General effect of the Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) (Amendment) Regulations 2010

The legislative framework

- 3.1 Ofcom can exempt the establishment, installation and use of wireless telegraphy equipment by making Regulations under section 8(3) of the WT Act. We propose to implement the changes proposed in this document by making the Proposed Regulations. The Proposed Regulations will amend the Principal Regulations.
- 3.2 A draft of the Proposed Regulations is included in Annex 6 of this document.

Extent of application

- 3.3 The Proposed Regulations will apply in the United Kingdom, the Channel Islands and the Isle of Man, subject to formal agreement of the Island Authorities.

The Proposed Regulations

- 3.4 Regulation 2 advises that we are proposing to amend the Principal Regulations.
- 3.5 The effect of regulation 3 reduce the permitted general power limit in the 4.2 to 4.8 GHz band from a maximum mean e.i.r.p. density no greater than -41.3 dBm/MHz to -70 dBm/MHz in circumstances where appropriate mitigation techniques are not used. The maximum peak e.i.r.p. density of no greater than 0.0 dBm is reduced to -30.0 dBm.
- 3.6 Regulation 4 applies similar restrictions for automotive and railway vehicles in the 4.2 to 4.8 GHz band. A maximum mean e.i.r.p. density no greater than -70 dBm/MHz will be introduced to replace the current -53.3 dBm/MHz limit in circumstances where appropriate mitigation techniques are not used.

Do you have any comments on the Proposed Regulations that we have drafted in order to comply with the UWB Amendment Decision?

Annex 1

Responding to this consultation

How to respond

- A1.1 We invite written views and comments on the issues raised in this document, to be made **by 5pm on 18 October 2010**.
- A1.2 We strongly prefer to receive responses using the online web form at <http://www.ofcom.org.uk/consult/condocs/uwb-regs-2010/howtorespond/form>, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 4), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.
- A1.3 For larger consultation responses - particularly those with supporting charts, tables or other data - please email paul.chapman@ofcom.org.uk attaching your response in Microsoft Word format, together with a consultation response coversheet.
- A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.
- Paul Chapman
Floor 3
Spectrum Policy Group
Riverside House
2A Southwark Bridge Road
London SE1 9HA
- Fax: 020 7981 3921
- A1.5 Note that we do not need a hard copy in addition to an electronic version. Ofcom will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.
- A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together in annex 3. It would also help if you can explain why you hold your views and how our proposals would impact on you.

Further information

- A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Paul Chapman on 020 7981 3069.

Confidentiality

- A1.8 We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt. If you think your response should be kept confidential, can you please specify what part or whether

all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

- A1.9 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.
- A1.10 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Our approach on intellectual property rights is explained further on its website at <http://www.ofcom.org.uk/about/accoun/disclaimer/>

Next steps

- A1.11 Following the end of the consultation period, we intend to publish a statement in September 2009.
- A1.12 Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details please see: http://www.ofcom.org.uk/static/subscribe/select_list.htm

Ofcom's consultation processes

- A1.13 We seek to ensure that responding to a consultation is easy as possible. For more information please see our consultation principles in Annex 2.
- A1.14 If you have any comments or suggestions on how we conduct our consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk. We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.
- A1.15 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Vicki Nash, Director Scotland, who is Ofcom's consultation champion:

A1.16 Vicki Nash
Ofcom
Sutherland House
149 St. Vincent Street
Glasgow G2 5NW

Tel: 0141 229 7401
Fax: 0141 229 7433

Email vicki.nash@ofcom.org.uk

Annex 2

Our consultation principles

A2.1 We have published the following seven principles that we will follow for each public written consultation.

Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

A2.3 We will be clear about whom we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened Plain English Guide for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will consult for up to 10 weeks depending on the potential impact of our proposals.

A2.6 A person within Ofcom will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. Our consultation champion will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why.

After the consultation

A2.8 We think it is important for everyone interested in an issue to see the views of others during a consultation. We will usually publish all the responses we have received on our website. In our statement, we will give reasons for our decisions and will give an account of how the views of those concerned helped shape them.

Annex 3

Questions

Do you have any comments on the Proposed Regulations that we have drafted in order to implement the UWB Amendment Decision?

Annex 4

Consultation response cover sheet

- A4.1 In the interests of transparency and good regulatory practice, we will publish all consultation responses in full on our website, www.ofcom.org.uk.
- A4.2 We have produced a coversheet for responses (see below) and would be very grateful if you could send one with your response (this is incorporated into the online web form if you respond in this way). This will speed up our processing of responses, and help to maintain confidentiality where appropriate.
- A4.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their coversheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.
- A4.4 We strongly prefer to receive responses via the online web form which incorporates the coversheet. If you are responding via email, post or fax you can download an electronic copy of this coversheet in Word or RTF format from the 'Consultations' section of our website at www.ofcom.org.uk/consult/.
- A4.5 Please put any parts of your response you consider should be kept confidential in a separate annex to your response and include your reasons why this part of your response should not be published. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only, so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing

Name/contact details/job title

Whole response

Organisation

Part of the response

If there is no separate annex, which parts?

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

Name

Signed (if hard copy)

Annex 5

Impact Assessment

Introduction

- A5.1 The analysis presented in this annex represents an impact assessment, as defined in section 7 of the Communications Act 2003,⁵ for the Wireless Telegraphy (Ultra-wideband Equipment) (Exemption) (Amendment) Regulations 2010 (the “Proposed Regulations”).
- A5.2 You should send us any comments on this impact assessment by the closing date for this consultation. We will consider all comments before deciding whether to implement our proposals.
- A5.3 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best-practice policy-making. This is reflected in section 7 of the Communications Act, which means that generally we have to carry out impact assessments where our proposals would be likely to have a significant effect on businesses or the general public or when there is a major change in our activities. However, as a matter of policy, we are committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines “Better policy-making: Ofcom’s approach to impact assessment,” which are on our website at www.ofcom.org.uk/consult/policy_making/guidelines.pdf.

Background

- A5.4 In the UK, we are responsible for the authorising of civil use of the radio spectrum and achieve this by granting wireless telegraphy licences under the Wireless Telegraphy Act 2006 (the “WT Act”) and by making Regulations exempting users of particular equipment from the requirement to hold such a licence. Under section 8(1) of the WT Act, it is an offence to install or use equipment to transmit without holding a licence granted by us, unless the use of such equipment is exempted. Section 8(3) enables us to make regulations exempting equipment from the requirement to hold a licence subject to specified terms, provisions and limitations and under Section 8(4) of the WT Act we must make regulations to exempt equipment if it is unlikely to cause undue interference.

Proposal

- A5.5 This impact assessment relates to the proposal to make the Proposed Regulations by amending the Wireless Telegraphy (Ultra-wideband Equipment) (Exemption) Regulations 2009 (the “Principal Regulations”)⁶. The Proposed regulations will comply the European Commission Decision of 21 April 2009 amending Decision 2007/131/EC on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community (2009/343/EC) (the “UWB Amendment Decision”).⁷

⁵ www.opsi.gov.uk/acts/acts2003/pdf/ukpga_20030021_en.pdf.

⁶ http://www.opsi.gov.uk/si/si2009/pdf/uksi_20092517_en.pdf

⁷ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:105:0009:0013:EN:PDF>

The citizen and/or consumer interest

- A5.6 We take account of the impact of our decisions have upon both citizen and consumer interests in the markets we regulate. In proposing changes to the Principal Regulations we have considered the wider impact beyond immediate stakeholders in the radiocommunications community. We believe that the proposals will be of benefit to consumers for the following reasons:
- i) The measures proposed all concern the use of radio equipment on a licence-exempt basis which reduces the regulatory and administrative burden on our stakeholders;
 - ii) Licence-exemption is proposed only in areas where use of equipment is unlikely to cause harmful interference to other spectrum use;
 - iii) They support the introduction of new and innovative technologies which will be of benefit to consumers in general.
- A5.7 We are required by statute to assess the impact of all our functions, policies, projects and practices on race, disability and gender equality – an Equality Impact Assessment (EIA) is our way of fulfilling these obligations. The findings of our EIA initial screening showed that there is no relevance to equality in these proposals.

Our policy objective

- A5.8 In accordance with the WT Act, we must exempt from licensing the use of specified equipment where it is not likely that such use will cause interference to other legitimate users of the radio spectrum or is contrary to an international obligation.
- A5.9 As a Member State, the UK is bound by the terms of the UWB Amendment Decision and the requirement to implement it.

Options considered

- A5.10 The options open to us in relation to compliance with the UWB Amendment Decision are as follows:
- to make the Proposed Regulations that are in line with the UWB Amendment Decision; or
 - to do nothing.

Analysis of options

Make new regulations

- A5.11 The most efficient route to mandatory compliance is to make the Proposed Regulations that are consistent with the UWB Amendment Decision as closely as possible.

Do nothing

- A5.12 By doing nothing, we would be in breach of the UWB Amendment Decision and could be open to infraction proceedings initiated by the European Commission.

The preferred option

A5.13 The preferred option therefore is to make the Proposed Regulations as indicated in order to comply with the UWB Amendment Decision. The benefits of this option are that the UK remains compliant with European Community law.

Evaluation

A5.14 Article 4 of the UWB Decision requires that that the bands identified for UWB be kept under active scrutiny by Member States to ensure that the continued relevance of the technical conditions remain valid, and report their findings to the Commission to allow a timely review of this Decision.

A5.15 We will assist the Commission in carrying out these reviews as required.

Annex 6

Proposed Regulations

STATUTORY INSTRUMENTS

2010 No. 0000

ELECTRONIC COMMUNICATIONS

The Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) (Amendment) Regulations 2010

Made - - - - *xxx 2010*

Coming into force - - *1st January 2011*

The Office of Communications (“OFCOM”) make the following Regulations in exercise of the powers conferred by section 8(3) of the Wireless Telegraphy Act 2006 (the “Act”)⁽⁸⁾.

Before making these Regulations OFCOM have given notice of their proposal to do so in accordance with section 122(4)(a) of the Act, published notice of their proposal in accordance with 122(4)(b) of the Act and have considered the representations made to them before the time specified in that notice in accordance with section 122(4)(c) of the Act.

Citation and commencement

1. These Regulations may be cited as the Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) (Amendment) Regulations 2010 and shall come into force on 1 January 2011.

Amendment of the Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) Regulations 2009

2. The Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) Regulations 2009⁽⁹⁾ are amended in accordance with the following provisions of these Regulations.

Amendment of Regulation 6

3. In regulation 6 (transmission limits)—
- (1) in paragraph 6(e), for “4.2” substitute “4.8”.
 - (2) omit paragraph 6(f).

⁽⁸⁾ 2006 c. 36. Section 8(3) was extended to the Bailiwick of Guernsey by article 2 of the Wireless Telegraphy (Guernsey) Order 2006 (S.I. 2006/3325); and to the Bailiwick of Jersey by article 2 of the Wireless Telegraphy (Jersey) Order 2006 (S.I. 2006/3324); and to the Isle of Man by article 2 of the Wireless Telegraphy (Isle of Man) Order 2007 (S.I. 2007/278).

⁽⁹⁾ S.I. 2009/2517

Amendment of Regulation 10

4. In regulation 10 (transmission limits)—

- (1) in paragraph 10(a)(i), for “4.2” substitute “6.0” and after “GHz,” insert “and”.
- (2) omit paragraph 10(a)(ii).
- (3) in paragraph 10(b), omit “4.2 GHz to 4.8 GHz and in the frequency band”.

Ed Richards

Chief Executive of the Office of Communications
For and by authority by the Office of Communications

xxx 2010

Annex 7

UWB Amendment Decision

25.4.2009

EN

Official Journal of the European Union

L 105/9

II

(Acts adopted under the EC Treaty/Euratom Treaty whose publication is not obligatory)

DECISIONS

COMMISSION

COMMISSION DECISION

of 21 April 2009

amending Decision 2007/131/EC on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community

*(notified under document number C(2009) 2787)**(Text with EEA relevance)*

(2009/343/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

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 2007/131/EC of 21 February 2007 on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community⁽²⁾ harmonises the technical conditions for radio equipment using ultra-wideband technology in the Community, ensuring that the radio spectrum is available across the European Community pursuant to harmonised conditions, eliminating barriers to the uptake of ultra-wideband technology and creating an effective single market for such systems with consequent economies of scale and benefits to the consumer.
- (2) Rapid changes in technology and in the use of the radio spectrum need to be adequately reflected in the regulation of ultra-wide band technology, in order for European society to benefit from the introduction of

innovative applications based on this technology, whilst ensuring that other spectrum users are not adversely affected. Decision 2007/131/EC should therefore be amended accordingly.

- (3) For this reason, the Commission issued additional mandates pursuant to Decision No 676/2002/EC to the European Conference of Postal and Telecommunications Administrations (CEPT), to undertake further compatibility studies of ultra-wideband technology with radio-communication services.
- (4) In its reports submitted in response to these mandates, the CEPT advised the Commission to amend a number of technical aspects in Decision 2007/131/EC.
- (5) The additional studies by CEPT clarified the technical conditions under which specific mitigation techniques, notably detect and avoid (DAA) and low duty cycle (LDC), enable ultra-wide band equipment to be operated with higher transmission powers while offering equivalent protection comparable to the existing ultra-wide band generic limits.
- (6) The CEPT studies also demonstrated that ultra-wide band equipment may be used under more stringent conditions than the generic limits in automotive and railway vehicles. Such conditions may be relaxed as long as mitigation techniques, such as those mentioned above, are used in these vehicles.

⁽¹⁾ OJ L 108, 24.4.2002, p. 1.⁽²⁾ OJ L 55, 23.2.2007, p. 33.

- (7) Building material analysis (BMA) imaging systems can provide a host of innovative applications in detecting or taking images of pipes, wires and of other in-wall structures in residential or commercial constructions. A common set of spectrum-access conditions for BMA equipment should assist those undertakings which want to provide related professional services using these applications across borders in the Community.
- (8) CEPT has advised the Commission that more relaxed conditions of use than the generic limits are to be feasible for BMA systems, given that their modes of operation, combined with their very low deployment densities and activity factors, further mitigate the possibility of harmful interference to radio-communication services.
- (9) The CEPT technical studies under the Commission mandates on BMA applications assume use in structures that are dense and thick enough to absorb most signals transmitted by the imaging system. These compatibility studies include, *inter alia*, the presumption that BMA equipment should cease transmission within ten seconds of the interruption of normal operation. Furthermore, although BMA devices may be sold as a consumer product, a maximum density of 6,7 BMA units/km² are assumed to be used in the aggregate interference studies.
- (10) 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⁽¹⁾ (the R & TTE Directive), the Commission has given mandates (M/329 and M/407) to the European standardisation organisations to establish a set of harmonised standards covering ultra-wideband applications to be recognised under this Directive, and resulting in a presumption of conformity with its requirements. In response to mandates M/329 and M/407 from the EC, the ETSI has developed harmonised standard EN 302 065 on generic UWB equipment, harmonised standard EN 302 500 for UWB location tracking equipment and harmonised standard EN 302 435 on BMA equipment.
- (11) These respective harmonised standards describe in detail how equipment operating in frequency bands allocated by this Decision should operate and how this equipment can be tested for compliance with the limits stated in the harmonised standards.
- (12) The measures provided for in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

HAS ADOPTED THIS DECISION:

Article 1

Decision 2007/131/EC is amended as follows:

1. The Annex to Decision 2007/131/EC is replaced by the Annex to this Decision.
2. In Article 2, the following points 10 and 11 are added:
 10. "building material analysis" (BMA) means a field disturbance sensor that is designed to detect the location of objects within a building structure or to determine the physical properties of a building material;
 11. "radiated into the air" means those parts of the signal emitted by specific applications of ultra-wideband technology which are not absorbed by their shielding or by the material under investigation.

Article 2

This Decision shall apply from 30 June 2009.

Article 3

This Decision is addressed to the Member States.

Done at Brussels, 21 April 2009.

For the Commission

Viviane REDING

Member of the Commission

⁽¹⁾ OJ L 91, 7.4.1999, p. 10.

ANNEX

ANNEX

Maximum e.i.r.p. densities and appropriate mitigation techniques

1. GENERIC UWB USAGE

1.1. Maximum e.i.r.p. densities

Frequency range (GHz)	Maximum mean e.i.r.p. density (dBm/MHz)	Maximum peak e.i.r.p. density (dBm/50MHz)
Below 1,6	- 90,0	- 50,0
1,6 to 2,7	- 85,0	- 45,0
2,7 to 3,4	- 70,0	- 36,0
3,4 to 3,8	- 80,0	- 40,0
3,8 to 4,2	- 70,0	- 30,0
4,2 to 4,8	- 41,3 (until 31 December 2010) - 70,0 (beyond 31 December 2010)	0,0 (until 31 December 2010) - 30,0 (beyond 31 December 2010)
4,8 to 6,0	- 70,0	- 30,0
6,0 to 8,5	- 41,3	0,0
8,5 to 10,6	- 65,0	- 25,0
Above 10,6	- 85,0	- 45,0

1.2. Appropriate mitigation techniques

Equipment using ultra-wideband technology shall also be allowed to use the radio spectrum with higher e.i.r.p. limits than mentioned in the table in section 1.1 when applying additional mitigation techniques as described in the relevant harmonised standards adopted under Directive 1999/5/EC or other mitigation techniques on condition that it achieves at least an equivalent level of protection as provided by the limits in the table in section 1.1. The following mitigation techniques are presumed to provide such protection:

1.2.1. "Low duty cycle" (LDC) mitigation

A maximum mean e.i.r.p. density of - 41,3 dBm/MHz and a maximum peak e.i.r.p. of 0 dBm measured in 50 MHz shall be allowed in the 3,1-4,8 GHz bands provided that a low duty cycle restriction is applied in which the sum of all transmitted signals is less than 5 % of the time each second and less than 0,5 % of the time each hour, and provided that each transmitted signal does not exceed 5 ms.

1.2.2. "Detect and avoid" (DAA) mitigation

A maximum mean e.i.r.p. density of - 41,3 dBm/MHz and a maximum peak e.i.r.p. of 0 dBm measured in 50 MHz shall be allowed in the 3,1-4,8 GHz and 8,5-9,0 GHz bands provided that a detect and avoid (DAA) mitigation technique as described in the relevant harmonised standards adopted under Directive 1999/5/EC is used.

1.3. Operation of equipment using ultra-wideband technology in automotive and railway vehicles

In derogation to Article 3 of this Decision, use of ultra-wideband equipment shall also be allowed in automotive and railway vehicles when in accordance with the following parameters.

1.3.1. Maximum e.i.r.p. densities for operation of ultra-wideband technology in automotive and railway vehicles

Equipment using ultra-wideband technology in automotive and railway vehicles shall be allowed to use the radio spectrum with the e.i.r.p. limits given in section 1.1 provided that for the bands 4,2–4,8 GHz and 6,0–8,5 GHz the following parameters are applied:

Frequency range (GHz)		Maximum mean e.i.r.p. density (dBm/MHz)
4,2 to 4,8	until 31 December 2010	– 41,3 provided that techniques to mitigate aggregate interference are applied that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 1999/5/EC must be used. These require a transmitter power control (TPC) range of at least 12 dB. – 53,3 (otherwise)
	beyond 31 December 2010	– 70,0
6,0 to 8,5		– 41,3 provided that techniques to mitigate aggregate interference are applied that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 1999/5/EC must be used. These require a transmitter power control (TPC) range of at least 12 dB. – 53,3 (otherwise)

1.3.2. Appropriate mitigation techniques in automotive and railway vehicles

Operation of equipment using ultra-wideband technology in automotive and railway vehicles shall also be allowed with other e.i.r.p. limits than mentioned in section 1.3.1 when applying additional mitigation techniques as described in the relevant harmonised standards adopted under Directive 1999/5/EC or other mitigation techniques on condition that it achieves at least an equivalent level of protection as provided by the limits in the previous tables. The following mitigation techniques are presumed to provide such protection:

1.3.2.1. "Low duty cycle" (LDC) mitigation

The operation of equipment using ultra-wideband technology in automotive and railway vehicles which applies the LDC mitigation technique in the 3,1–4,8 GHz band as described in section 1.2.1, shall be allowed with the same e.i.r.p. limits as described in that section 1.2.1. The e.i.r.p. limits mentioned in section 1.1 shall apply for the other frequency ranges.

1.3.2.2. "Detect and avoid" (DAA) mitigation

The operation of equipment using ultra-wideband technology in automotive and railway vehicles which applies the DAA mitigation technique in the 3,1–4,8 GHz and 8,5–9,0 GHz bands shall be allowed with an e.i.r.p. limit of – 41,3 dBm/MHz provided that techniques to mitigate interference are applied that provide at least equivalent performance to the techniques described in harmonised standards adopted under Directive 1999/5/EC. These require a transmitter power control (TPC) range of at least 12 dB. In other cases an e.i.r.p. limit of – 53,3 dBm/MHz applies.

2. SPECIFIC UWV USAGE

Signals that are radiated into the air that do not exceed the limits in the table below shall be allowed.

2.1. Building material analysis (BMA)

Frequency range (MHz)	Maximum mean e.i.r.p. density (dBm/MHz)	Maximum peak e.i.r.p. density (dBm/50 MHz)
Below 1 730	– 85	– 45
1 730 to 2 200	– 65	– 25

Frequency range (MHz)	Maximum mean e.i.r.p. density (dBm/MHz)	Maximum peak e.i.r.p. density (dBm/50 MHz)
2 200 to 2 500	- 50	- 10
2 500 to 2 690	- 65	- 25
2 690 to 2 700	- 55	- 15
2 700 to 3 400	- 82	- 42
3 400 to 4 800	- 50	- 10
4 800 to 5 000	- 55	- 15
5 000 to 8 000	- 50	- 10
8 000 to 8 500	- 70	- 30
Above 8 500	- 85	- 45

BMA equipment using mitigation techniques that provide at least equivalent performance to the techniques described in the relevant harmonised standards adopted under Directive 1999/5/EC, is permitted to operate in frequency ranges 1,215 to 1,73 GHz, with a maximum mean e.i.r.p. density of - 70 dBm/MHz, and in the frequency ranges 2,5 to 2,69 GHz and 2,7 to 3,4 GHz, with a maximum mean e.i.r.p. density of - 50 dBm/MHz on condition that at least an equivalent level of protection as provided by the limits in the above table is achieved.

In order to protect Radio Astronomy Services, in the frequency range 2,69 GHz to 2,70 GHz and in the frequency range 4,8 to 5 GHz, the total radiated power density has to be below - 65 dBm/MHz as described in the relevant harmonised standards adopted under Directive 1999/5/EC.

Annex 8

Glossary

CEPT	European Conference of Postal and Telecommunications Administrations
DAA	Detect and Avoid
e.i.r.p.	equivalent isotropic radiated power
ETSI	European Telecommunications Standards Institute
EU	European Union
GHz	Gigahertz
LDC	Low Duty Cycle
TPC	Transmitter Power Control
UWB	Ultra-wideband
WT Act	Wireless Telegraphy Act 2006