Notice of Ofcom's proposal to make (Ultra-Wideband Equipment) (Exemption) Regulations

Statutory Notice

Consultation

Publication date:	5 June 2007
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Section 1

Summary

Introduction

1.1 This document gives notice of Ofcom's proposal to make Regulations exempting the use of spectrum by equipment using ultra-wide band (UWB) technologies. UWB is a generic term for technologies typically characterised by the emission of very low power radiation spread over a very large radio bandwidth. Ofcom is required to comply with a European Commission Decision[1] (the "Decision"), the implementation of which is mandatory on all European Union (EU) Member States by 21 August 2007.

1.2 In order to implement the required changes Ofcom proposes to make a new Statutory Instrument, The Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) Regulations 2007 (the "Proposed Regulations").

1.3 A draft of the Proposed Regulations is included in Annex 5 of this document. Further hard copies of these regulations are available from Ofcom at 2a Southwark Bridge Road, London SE1 9HA from the contact specified in Annex 1 for responding to this Notice. Comments on the proposed regulations are invited by **5pm** on **6 July 2007**. Subject to consideration of responses Ofcom intends to make the new Regulations so they are in force to meet the 21 August implementation date.

1.4 In accordance with the requirements of section 122(4) of the Wireless Telegraphy Act 2006 ("the Act") this document enables stakeholders to comment on the drafting of the Proposed Regulations. Ofcom does not consider it appropriate to first conduct a policy consultation for the following reasons:

- Ofcom previously consulted on policy considerations with respect to UWB technology in January 2005[2] (the "Ofcom consultation"); and
- Implementing the Proposed Regulations is mandatory to ensure that Ofcom complies with the Decision addressed to Member States to authorise the use of UWB equipment on a licence-exempt basis.

Background

1.5 In the United Kingdom, Ofcom is responsible for the authorisation of civil use of the radio spectrum and achieves this by granting Wireless Telegraphy licences under the Act and by making Regulations exempting users of particular equipment from the requirement to hold such a licence. Under section 8(1) of the Act, it is an offence to install or use equipment to transmit without holding a licence granted by Ofcom, unless the use of such equipment is exempted.

1.6 Globalisation of the marketplace and increased interest from businesses in the potential of UWB technology has led to a growing need for more international solutions which utilise spectrum in a harmonised manner for UWB technology. UWB

[1] Commission Decision of 21 February 2007 on harmonisation of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community (2007/131/EC), reproduced in Annex 6.
[2] http://www.ofcom.org.uk/consult/condocs/uwb/uwb2/

solutions now have the advanced technical characteristics necessary, for example, to allow for the co-location of multiple devices in a small area which is a requirement of the Short Range Device, consumer electronics, retail and logistics industries. Implementation of the Decision on UWB will go some way towards addressing these requirements and enable the benefits of this new technology to be realised.

1.7 Ofcom consulted on policy considerations with respect to UWB technology in January 2005. On review of the responses to the Ofcom consultation the overriding view of stakeholders appeared to indicate that in order to maximise the benefits available to UK citizens from the implementation of UWB technology that Ofcom should work with the relevant European bodies to achieve a harmonised approach throughout Europe for generic UWB devices.

1.8 After further stakeholder meetings Ofcom published a paper in September 2005 which set out the UK's strategy for the implementation of UWB technology in Europe. For more details see http://www.ofcom.org.uk/consult/condocs/uwb/uwb_statement/

1.9 After lengthy negotiations and discussions between Member States, the Decision to allow the use of the radio spectrum for equipment using UWB technology in a harmonised manner in the Community was published on 21 February 2007. The Decision requires that Member States make available the use of radio spectrum for UWB technology on a non-interference and non-protected basis. The full text of the Decision is reproduced at Annex 6 of this document.

1.10 The Decision was addressed to all Member States to implement as early as possible, but no later than 21 August, six months following the entry into force of the Decision.

1.11 Ofcom is responsible for implementing European Community legislation – usually in the form of European Commission Decisions – relating to radio spectrum. Such measures are binding on the UK and must be reflected in UK legislation. This document sets out plans for implementing the new Commission Decision,

1.12 Wherever possible Ofcom seeks to reduce the regulatory burden on its stakeholders. One way in which it can do this is to remove the need for spectrum users to apply for individual licences to authorise the use of radio equipment.

1.13 Ofcom aims to support the development of innovative radio technologies and applications. This document contains proposals to enable new technologies to be introduced into the UK and to operate on a licence-exempt basis.

1.14 To implement the new Decision, Ofcom proposes to make spectrum available by a Statutory Instrument (Regulations) which permits the use of UWB equipment without the need to hold a licence under the 2006 Act

1.15 Section 2 of this document discusses the background to Ofcom's proposal in more detail.

1.16 Section 3 of this document sets out the extent of application, scope and intended effect of the Proposed Regulations.

1.17 Details on how to respond to this Notice are set out in Annexes 1 through 3.

1.18 A Regulatory Impact Assessment (RIA) for the Proposed Regulations is available at Annex 4 to this document.

1.19 A draft of the Proposed Regulations is provided at Annex 5 and a copy of the Decision is at Annex 6.

Section 2

Notice of Proposals

2.1 One of Ofcom's key statutory duties is to ensure the optimal use of the radio spectrum under its management. Radio spectrum is a major asset to the UK, contributing some £24bn to the economy each year and underlying many aspects of our lives. Radio communication is critical to areas such as air travel, emergency services, cellular telephony, sound and television broadcasting, defence and our utilities.

UWB technology

2.2 UWB is a relatively new technology although its concept dates back many decades. It was only in the late 1990s that UWB technology had advanced sufficiently for it to have practical application in consumer electronics. UWB typically operates with very low power that allows a high data rate to be achieved with relatively simple equipment but its transmissions are spread across large parts of the spectrum used by other radio users.

2.3 UWB can transfer large amounts of data wirelessly over short distances, typically less than ten metres but unlike other wireless systems, which use spectrum in discrete narrow frequency bands, UWB operates by transmitting signals over a very wide band of spectrum.

2.4 UWB has a variety of possible applications including communications, measurement, location, medical, surveillance and imaging applications all of which will provide large benefit to the UK. The most economically significant are likely to be in the Personal Area Networking (PAN) environment, which includes homes and offices. Other potential applications for UWB include ground-probing radar, positioning location systems, wireless sensors, asset tracking and automotive systems. It is generally recognised that the majority of UWB applications will fall into the category of consumer communications and high speed networking within PAN environments[3].

2.5 Until recently, almost all data connections between electronic devices in the home and office environments were made using cables (both wire and fibre), with limited deployment of Infra Red (IR). However, in recent years, there has been increasing interest in replacing cable and IR connections by 'wireless' links that transmit signals using radio spectrum. Prominent wireless technologies deployed to date include Bluetooth[4], the 802.11 series of Wireless Local Area Networking (WLAN) and 802.15 Wireless PAN (WPAN) technologies.

2.6 These wireless links offer a number of benefits to the consumer, including greater flexibility in positioning devices, ease of making occasional connections and the aesthetic advantage of cable replacement. They also provide much higher data rates, flexibility and greater range than IR and wired connections. UWB is a potential alternative to other local area wireless technologies, such as Bluetooth, WiFi and other WLAN technologies, which themselves replace cable links and complement these. A key difference between UWB and existing wireless alternatives is that it

[3] Up to 90% the UWB market is expected to be indoor applications in PAN environments (source: Mason Communications study for the Radiocommunications Agency, October 2003)

[4] Bluetooth is a wireless standard for short-range radio communication s between a variety of devices such as PCs, headsets, printers, mobile phones and PDAs.

offers data transfer rates of 100 Mbps or greater. Other characteristics of UWB include extended battery life for consumer goods (owing to the low duty cycle and bursty nature of UWB connections leading to power savings) and potentially low prices.

Previous UK Studies on the use of UWB devices

2.7 Ofcom published a consultation on UWB devices operating in the 3.1 to 10.6 GHz in January 2005. The consultation contained a detailed discussion of the relevant issues surrounding the possible implementation of UWB in the UK. The key points in the consultation that Ofcom wished to obtain stakeholders' views on were:

1. Whether it was appropriate for Ofcom to take a regulatory view on UWB.
2. Whether Ofcom had considered all the appropriate evidence and analysed it correctly.
3. Assuming allowing UWB devices on the market is in line with Ofcom's statutory duties, what should Ofcom's preference be for possible UWB regulations.
4. What Ofcom's strategy should be towards influencing and co-operating with international bodies.

A summary with a link to the full text of the consultation document can be found at http://www.ofcom.org.uk/consult/condocs/uwb/.

2.8 In order to better understand the value of UWB to the UK and to feed into the first consultation process, in May 2004, Ofcom commissioned Mason Communications and DotEcon to conduct a study on the Value of UWB Personal Area Networking Services to the United Kingdom. A link to a summary with the full text of this study be found at http://www.ofcom.org.uk/research/technology/archive/cet/uwb/uwbpans/.

2.9 On review of the responses to the Ofcom consultation, the overriding view of stakeholders appeared to indicate that in order to maximise the benefits available to UK citizens from the implementation of UWB technology, Ofcom should work with the relevant European bodies to achieve a harmonised approach throughout Europe for generic UWB devices. It was also apparent that although stakeholders generally agreed with Ofcom's evaluation of the cost and benefits that UWB may bring to the UK and European markets there were some differences of opinion on how these would be affected by the regulatory approaches being put forward. Ofcom's summary and responses to the issues raised in consultation submissions was published in June 2005 and can be found at http://www.ofcom.org.uk/consult/condocs/uwb/summary/.

2.10 In addition to considering these responses, Ofcom consulted further with stakeholders as part of the UK preparations for Conference of European Post and Telecommunications Administrations ("CEPT") discussions on the possible European harmonisation of UWB parameters. In representing the UK at these European bodies, Ofcom has tried to ensure that it has developed a strategy towards UWB that meets Ofcom's statutory duties, whilst also allowing it to negotiate effectively at an international level and to optimise the benefits that UWB might deliver to the UK. Part of this process was to collate and present UK positions on the various debates about possible UWB regulations within the International Telecommunications Union (ITU), the CEPT and EU. These positions were discussed and concluded upon in consultation with many UK stakeholders who were involved in the UK preparation committee for the Electronic Communications Committee Task Group 3 ("ECC TG3") of the CEPT on UWB.

2.11 As a result of discussions within the UK TG3 group Ofcom published a paper which highlighted its proposals for CEPT to adopt in its deliberations. The paper was published in September 2005 as a formal Input Document submitted to the ECC TG3. For more details see http://www.ofcom.org.uk/consult/condocs/uwb/uwb_statement/.

European and International developments for UWB

2.12 The United States of America (US) was the first country to make regulations to allow the operation of UWB technologies. In these regulations, the Federal Communications Commission (FCC) of the US defined a radio system to be a UWB system if it has a spectrum that occupies a bandwidth greater than 20% of the central frequency or an absolute bandwidth greater than 500 MHz. Under these regulations UWB devices were permitted to operate in the 3.1 to 10.6 GHz frequency band.

2.13 Following the US regulations various studies were initiated by the ITU. These studies were carried out by Task Group 1/8 of the ITU and resulted in various ITU Recommendations being published which highlighted that there were different approaches to UWB regulations being followed by regulators around the world.

2.14 In Europe the European Commission (EC) have given three mandates to CEPT to undertake the necessary work to identify the most appropriate technical and operational criteria for the harmonised introduction of UWB-based applications in the EU.

2.15 As mentioned previously ECC TG3 was the committee within CEPT who were tasked by the ECC to prepare the response to the various EC mandates on UWB that were issued to CEPT.

2.16 As a result of this work the ECC also produced a Decision for public consultation in October 2005. See http://www.ofcom.org.uk/consult/condocs/uwb/ecc/ for more information. On review of the responses to this consultation, it became apparent that there was still a difference in the views of a number of CEPT countries on the final parameters applied to UWB use in Europe. As a result of this, TG3 and the Regulatory Affairs Working Group (WGRA) of the ECC were asked to carry out further studies. The results of this further analysis was discussed in the July 2006 meeting of ECC and sent to the EC for further consideration.

2.17 Following these deliberations, Member States voted to approve the text of the Decision on UWB at the December 2006 meeting of the Radio Spectrum Committee. The Decision is therefore based on the results of the technical studies undertaken by the CEPT under EC mandate. More information on these studies can be obtained from the previous meeting documentation for the ECC TG3 at www.ero.dk.

Technical requirements and appropriate mitigation techniques

2.18 The Decision sets out the maximum mean e.i.r.p. densities and maximum peak e.i.r.p. density parameters (power levels) that are permissible for the operation of UWB equipment. The final technical requirements approved in the Decision are very similar to the UWB regulations that have been approved in some Asian countries notably Japan and Korea below 5 GHz. Above 6 GHz and below 8.5 GHz the technical requirements are similar to those adopted by the US.

2.19 The technical arrangements adopted in this Decision will allow for the short-term use of the bands below 5 GHz by UWB devices. In order to facilitate this, there is a time

limited dispensation included in the Decision for UWB devices placed on the market before 31 December 2010, which allows these products to transmit at a higher level in the band 4.2 – 4.8 GHz without the need for any additional mitigation techniques (to -41.3dBm/MHz).

2.20 In the long term, use below 5 GHz band will only be allowed by UWB devices that employ suitable mitigation techniques for the protection of other co-channel users in the 3.4 to 4.8 GHz band.

2.21 The Decision provides for a higher level of emissions on a time-limited basis in relation to UWB equipment operating in the 4.2 – 4.8 GHz band. Until 31 December 2010 the permitted emission levels are -41.3dBm/MHz (maximum mean density) and 0 dBm/ 50MHz (maximum peak e.i.r.p. density). After 31 December 2010, the exemption will be more restrictive and a lower emission level of -70.0dBm/MHz (maximum mean density) and -30.0 dBm/50 MHz (maximum peak e.i.r.p. density) will be permitted. Recital 18 of the Decision explains that the time-limited higher emission limits are temporary as there is an expectation that equipment using UWB technology should operate exclusively above 6 GHz in the long term. In line with that, Ofcom will amend the Proposed Regulations in 2010 to recognise the more restrictive emission levels that will apply from the end of 2010.

2.22 As an alternative to the limits set out in the table in the Annex of the Decision, UWB equipment operating in the 3.4 to 4.8 GHz frequency bands is permitted to operate with higher emission levels than those referred to in the table where low duty cycle mechanisms are employed.

2.23 The Decision also provides discretion for Member States to allow UWB equipment to operate with e.i.r.p. limits different to the specified emission levels and low duty cycle options, provided that appropriate mitigation techniques are employed such that the equivalent level of protection is obtained. An example of a possible alternative mitigation technique is the use of Detect and Avoid mechanisms, however the technical parameters for Detect and Avoid mechanisms and their effectiveness are still subject to further study in ECC TG3. Ofcom therefore proposes not to include other appropriate mitigation techniques within the scope of the Proposed Regulations. Ofcom will monitor ongoing studies, including the progress of ETSI on incorporating alternative mitigation techniques into the appropriate Harmonised Standard for UWB equipment (EN 302 065) and consider whether changes are required.

2.24 Other studies are also underway within ECC TG3 under mandate from the EC to assess possible relaxations in the Decision on UWB. However Ofcom considers that any changes to the Decision are very unlikely to take place until at least a year from the publication date of the current Decision.

Next steps

2.25 This consultation document provides an opportunity to make representations about the Proposed Regulations as the means by which Ofcom intend to transpose the EC Decision on UWB into UK legislation rather than seeking views on the content of the Decision itself. The full text of the Decision is set out at Annex 6 of this document and the Proposed Regulations giving effect to the Decision are included at Annex 5.

2.26 Responses should be sent to Ofcom in accordance with the instructions set out in Annex 1 and should reach Ofcom no later than **5pm** on **6 July 2007**. Following

finalisation of the Proposed Regulations Ofcom intends to make the Regulations so that they are in force to meet the 21 August 2007 implementation date.

Section 3

General effect of the draft Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) Regulations 2007

3.1 Under section 8(1) of the Act it is an offence to install or use equipment to transmit without holding a licence granted by Ofcom, unless the installation or use of such equipment is exempted. Ofcom can exempt the establishment, installation and use of wireless telegraphy equipment by making regulations under section 8(3) of the Act.

3.2 The Decision requires Member States to enact legislation giving effect to the Decision no later than six months after its entry into force. Ofcom intends to make the Proposed Regulations giving effect to this Decision in mid to late July to meet the 21 August 2007 implementation date.

3.3 A draft of the Proposed Regulations is set out at Annex 5 of this document.

Extent of application

3.4 Ofcom anticipates that the Proposed Regulations will not apply to the Channel Islands and the Isle of Man, subject to further consultation with the Island Authorities.

The Proposed Regulations

3.5 The Proposed Regulations have enacted the Decision as closely as possible.

3.6 Definitions are set out in Article 2 of the Decision and in regulation 2 of the Proposed Regulations. The Decision references "automotive vehicles" and "railway vehicles" as defined in two European Commission decisions[5], and these definitions have been adopted in the Proposed Regulations. UWB equipment is specifically defined.

3.7 Article 3 of the Decision is implemented in regulations 3 and 4 of the Proposed Regulations. Regulation 3 provides that UWB equipment will be exempted from the need to be licensed under the Act, provided the UWB equipment operates within the criteria set out in regulation 4 of the Proposed Regulations. These are:

a) Where the UWB equipment is used indoors (paragraph 2(a)). "Indoors" is specifically defined in the Decision as being a location inside buildings or places where the shielding will typically have the necessary attenuation to protect wireless telegraphy against harmful interference (defined in regulation 2);

b) Where UWB equipment is not used indoors it will still benefit from the exemption if the equipment is not attached to any infrastructure, installation or outdoor antenna that is fixed, or to any motor vehicle or railway vehicle (paragraph 2(b));

c) The exemption is granted on the condition that the UWB equipment does not cause harmful interference to any wireless telegraphy (paragraph (3));

[5] Automotive vehicles – Directive 70/156 as amended by Council Directive 92/53/EEC and Railway vehicles - Regulation (EC) No 91/2003 as amended by Commission Regulation (EC) No 1192/2003

d) The Decision sets out the characteristics of the UWB equipment and the permissible transmission limits at different frequencies by way of a table in the Annex 1 to the Decision. These requirements are set out in paragraphs (4) and (5) of regulation 4 of the Proposed Regulations;

e) The maximum peak emission levels stated in paragraphs (4) and (5) of regulation 4 apply to measurements taken in 50 MHz bandwidths. The Decision recognises that measurements to determine the peak emission level of UWB equipment may be done using apparatus with measurement bandwidths other than 50 MHz. In order to make a valid comparison of peak emissions measured using bandwidths other than 50MHz a scaling factor of 20log(50/x)dB is required, where x is the other measurement bandwidth. The Proposed Regulations include a definition, "equivalent transmission level", which takes account of measurements of the maximum peak level e.i.r.p. density when measured using a bandwidth other than 50 MHz. (regulation 2);

f) Paragraph (4) sets out the maximum mean and maximum peak emission levels for equipment operating in the frequency bands up to and including 3.4 GHz or in bands greater than 4.8 GHz as set out in the table in the Annex to the Decision;

g) Paragraph (5)(a) sets out the mean and peak emission levels for the frequency bands above 3.4 GHz and up to and including 4.8 GHz as set out in the table in the Annex to the Decision;

h) Paragraph (5)(b) specifies the alternative emission levels (appropriate mitigation techniques as set out in the first paragraph of Section 2 of Annex 1 of the Decision), which can be applied instead of the levels in the table in the Annex 1 to the Decision for UWB equipment operating in frequency bands above 3.4 GHz and up to and including 4.8 GHz. This provides that the maximum mean emission levels for equipment operating in these frequency bands of -41.3dBm/MHz (which corresponds to a maximum peak e.i.r.p. density of 0 dB/50 MHz) is permitted provided a low duty cycle is applied in accordance with the parameters set out in the first paragraph of Section 2 of Annex 1 of the Decision (paragraph (5)(i) to (iii)); and

i) The table in Annex 1 of the Decision specifies a time-limited restriction for a maximum mean emission level in the frequency bands from 4.2 and up to and including 4.8 GHz of -41.3dBm/MHz (regulation 4(d)(i)(cc)). As noted in paragraph 2.21, for the time being Ofcom has specified the limit that will apply up to 31 December 2010 and will amend the Proposed Regulations in 2010 to align with the requirements.

Alternative Appropriate Mitigation Techniques

3.8 In addition to the alternative emission levels mentioned in paragraph 3.7 (h) above, the second paragraph of Section 2 of Annex 1 to the Decision provides an option for regulators to allow equipment with alternative mitigation techniques to transmit at emission levels higher than those set out in the table in the Annex 1 to the Decision. As explained in paragraphs 2.23, at this time, Ofcom does not propose to extend the exemption to cover UWB equipment that emits e.i.r.p. limits other than those specified in the table in the Annex 1 to the Decision (see above paragraphs 3.7 (f) and (g) above) or the alternative mentioned in paragraph 3.7 (h) above.

Annex 1

Responding to this Notice

How to respond

A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made by **5pm** on **6 July 2007**.

A1.2 Ofcom strongly prefers to receive responses using the online web form at http://www.ofcom.org.uk/consult/condocs/uwb_exemption/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 (see Annex 3), 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
03.83
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.

Further information

A1.6 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Anirban Roy on 020 7783 4677.

Confidentiality

A1.7 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 (when respondents confirm on their response coversheet that this is acceptable).

A1.8 All comments will be treated as non-confidential unless respondents specify that part or all of the response is confidential and should not be disclosed. Please place any confidential parts of a response in a separate annex so that non-confidential parts may be published along with the respondent's identity.

A1.9 Ofcom reserves its power to disclose any information it receives where this is required to facilitate the carrying out of its statutory functions.

A1.10 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use in order to meet its legal requirements. Ofcom's approach on intellectual property rights is explained further on its website at http://www.ofcom.org.uk/about/accoun/disclaimer/

Next steps

A1.11 After considering any representations made to Ofcom before the end of the notification period, Ofcom intends to finalise the Proposed Regulations and will publish a statement as soon as possible. The UK is required to implement the Decision before 21 August 2007

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 Ofcom seeks 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 Ofcom conducts its 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:

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

Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it 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 who 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 with a summary of no more than two pages. 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 version for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will normally allow ten weeks for responses to consultations on issues of general interest. As a statutory consultation this consultation is for the statutory consultation period of one month.

A2.6 There will be a person within Ofcom who will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organizations interested in the outcome of our decisions. This individual (who we call the 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. This may be because a particular issue is urgent. If we need to reduce the amount of time we have set aside for a consultation, we will let those concerned know beforehand that this is a 'red flag consultation' which needs their urgent attention.

After the consultation

A2.8 We will look at each response carefully and with an open mind. We will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

A3.1 In the interests of transparency, we will publish all consultation responses in full on our website, www.ofcom.org.uk, unless a respondent specifies that all or part of their response is confidential. We will also refer to the contents of a response when explaining our decision, without disclosing the specific information that you wish to remain confidential.

A3.2 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 by allowing you to state very clearly what you don't want to be published. We will keep your completed coversheets confidential.

A3.3 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.

A3.4 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/.

A3.5 Please put any confidential parts of your response in a separate annex to your response, so that they are clearly identified. 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 coversheet 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

What do you want Ofcom to keep confidential?

Nothing	☐	Name/contact details/job title	☐
Whole response	☐	Organisation	☐
Part of the response	☐	If there is no separate annex, which parts?	

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response. It can be published in full on Ofcom's website, unless otherwise specified on this cover sheet, and I authorise Ofcom to make use of the information in this response to meet its legal requirements. 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 4

Impact Assessment

Introduction

A4.1 In accordance with government practice, where a statutory regulation is proposed, a Regulatory Impact Assessment (RIA) must be undertaken. The analysis presented in this Annex represents a Regulatory Impact assessment, as defined in section 7 of the Communications Act 2003 (the "2003 Act") for making (Ultra-Wideband Equipment) (Exemption) Regulations 2007.

A4.2 You should send any comments on this RIA to Ofcom by **5pm** on **6 July 2007**. We will consider all comments received before this date in deciding whether to implement our proposals.

A4.3 RIAs provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policymaking. This is reflected in section 7 of the 2003 Act, which means that generally Ofcom will carry out impact assessments where proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. In accordance with section 7 of the 2003 Act, in producing this RIA, Ofcom has had regard to such general guidance as it considers appropriate including related to Cabinet Office guidance. 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: http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

Background

A4.4 In the UK, Ofcom is responsible for the authorisation of civil use of the radio spectrum and achieves this by granting Wireless Telegraphy licences under the Wireless Telegraphy Act 2006 (the "2006 Act") and by making Regulations exempting users of particular equipment from the requirement to hold such a licence. Under section 8(1) of the 2006 Act, it is an offence to install or use equipment to transmit without holding a licence granted by Ofcom, unless the use of such equipment is exempted.

A4.5 A Decision to allow the use of the radio spectrum for equipment using UWB technology in a harmonised manner in the Community was published on 21 February 2007. The full text of the Decision is reproduced at Annex 6 of this document.

A4.6 The Decision was addressed to all Member States to implement as early as possible but no later than 21 August 2007, six months following the entry into force of the Decision. As a consequence, in order to comply with the Decision, Ofcom intends to do this through making a new statutory instrument, the (Ultra-Wideband Equipment) (Exemption) Regulations 2007.

Proposal

A4.7 This RIA relates to the proposal to make new regulations in order to comply with the Decision.

The citizen and/or consumer interest

A4.8 Ofcom takes account of the impact of its decisions upon both citizen and consumer interests in the markets it regulates. As a Member State, the UK is bound by the terms of the Decision and the requirement to implement them by 21 August 2007. However in addition:

- the measures proposed will allow the use of UWB equipment on a licence exempt basis which reduces the regulatory and administrative burden on Ofcom's stakeholders;
- the likely uses include products that benefit consumers particularly consumer communications and high speed networking within Personal Area Networking environments.
- UWB is a potential alternative to other local area wireless technologies, such as Bluetooth, WiFi and other WLAN technologies, which themselves replace cable links and complement these. In general wireless links offer a number of benefits to the consumer, including greater flexibility in positioning devices, ease of making occasional connections and the aesthetic advantage of cable replacement. They also provide much higher data rates, flexibility and greater range than IR and wired connections
- A key difference between UWB and existing wireless alternatives is that it offers data transfer rates of 100 Mbps or greater. Other characteristics of UWB include extended battery life for consumer goods (owing to the low duty cycle and bursty nature of UWB connections leading to power savings) and potentially low prices.

Ofcom's policy objective

A4.9 As a Member State, the UK is bound by the terms of the Decision and the requirement to implement them by 21 August 2007.

Options considered

A4.10 The options open to Ofcom in relation to the implementation of the Decision are as follows:

- to make Regulations that are compliant with the Decision; or
- to do nothing.

Analysis of the different options

Make new regulations

A4.11 The most efficient route to mandatory compliance is make Regulations that enact the Decision as closely as possible.

Do nothing

A4.12 By doing nothing, Ofcom would be in breach of the Decision and could be open to infraction proceedings initiated by the European Commission.

The preferred option

A4.13 The preferred option therefore is to make the Proposed Regulations as indicated in order to comply with the Decision. The benefits of this option are the removal of technical restrictions and compliance with European Community law.

Annex 5

Proposed Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) Regulations 2007

2007 No. [ ]

ELECTRONIC COMMUNICATIONS

The Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) Regulations 2007

Made - - - -	*[ ] 2007*
Coming into force - -	*[ ] 2007*

The Office of Communications ("OFCOM") make the following Regulations in exercise of the power conferred by section 8(3) of the Wireless Telegraphy Act 2006(**a**) ("the Act").

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, commencement and extent

1.—(1) These Regulations may be cited as the Wireless Telegraphy (Ultra-Wideband Equipment) (Exemption) Regulations 2007 and shall come into force on [ ] 2007.

(2) These Regulations do not extend to the Channel Islands and the Isle of Man.

Interpretation

2. In these Regulations—

"automotive vehicle" has the meaning given for "vehicle" by Article 2 of Council Directive 70/156/EEC on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers(**b**), as amended(**c**);

"dB" means decibel;

"dBm" means decibel milliWatt;

"dBm/MHz" means decibel milliWatt per megahertz;

"e.i.r.p." means equivalent isotropic radiated power;

"equivalent transmission level" means the peak level of transmission, centred on the frequency at which the highest mean radiated power occurs, measured in a bandwidth other than 50 MHz and which is the peak e.i.r.p. density scaled down by a factor of 20log(50/x)dB, where "x" is the other bandwidth expressed in MHz;

"GHz" means gigahertz;

(**a**) 2006 c.36.
(**b**) OJ No. L 42, 23.2.1970, p. 1.
(**c**) Article 2 was amended by Council Directive No 92/53/EEC amending Directive 70/156 on the approximation of laws of the Member States relating to the type-approval of motor vehicles and their trailers, OJ No. L 225, 10.8.1992, p. 1. There are other amendments to Article 2 and to other parts of Directive 70/156 not relevant to these Regulations.

"indoors" means inside buildings or places in which the shielding will typically provide the necessary attenuation to protect wireless telegraphy against harmful interference;

"mean e.i.r.p. density" means the mean power measured with a 1 MHz resolution bandwidth, a root-mean-square detector and an averaging time of one millisecond or less;

"MHz" means megahertz;

"peak e.i.r.p. density" means the peak level of transmission contained within a 50 MHz bandwidth measurement centred on the frequency at which the highest mean radiated power occurs;

"railway vehicle" has the meaning given by Article 3 of EC Regulation 91/2003 of the European Parliament and of the Council on 16 December 2002 on rail transport statistics(**a**), as amended(**b**);

"ultra-wideband equipment" means a wireless telegraphy station or wireless telegraphy apparatus incorporating, as an integral part or as an accessory, technology for short-range radiocommunication involving the intentional generation and transmission of radio-frequency energy that spreads over a frequency range wider than 50 MHz, which may overlap several frequency bands allocated to wireless telegraphy.

Exemption

3. The installation, use or establishment of ultra-wideband equipment complying with the terms, provisions and limitations set out in regulation 4 is hereby exempt from the provisions of section 8(1) of the Act.

Terms, provisions and limitations

4.—(1) The exemption provided for in regulation 3 shall be limited to ultra-wideband equipment which satisfies the conditions set out in paragraphs (2) and (3) and, as the case may be, paragraph (4) or (5) of this regulation.

(2) The equipment is used—

(a) indoors; or

(b) other than indoors provided it is not attached to:

(i) a fixed installation;

(ii) a fixed infrastructure;

(iii) a fixed outdoor antenna; or

(iv) an automotive or railway vehicle.

(3) The equipment does not cause or contribute to undue interference to any wireless telegraphy.

(4) The equipment emits transmissions at frequencies up to and including 3.4 GHz or at frequencies above 4.8 GHz which:

(a) at frequencies below and up to and including 1.6 GHz when measured in any direction have:

(i) a maximum mean e.i.r.p. density no greater than -90.0 dBm/MHz; and

(ii) a maximum peak e.i.r.p. density no greater than -50.0 dBm/50 MHz or the equivalent transmission level;

(b) at frequencies between 1.6 GHz and up to and including 3.4 GHz when measured in any direction have:

(i) a maximum mean e.i.r.p. density no greater than -85.0 dBm/MHz; and

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(**a**) OJ No. L 14, 21.1.2003, p. 1.

(**b**) Article 3 was amended by Commission Regulation (EC) No 1192/2003, OJ No. L 167, 4.7.2003, p. 13. There are other amendments to Article 3 and to other parts of Regulation (EC) No 91/2003 not relevant to these Regulations.

(ii) a maximum peak e.i.r.p. density no greater than -45.0 dBm/50 MHz or the equivalent transmission level;

(c) at frequencies between 4.8 GHz and up to and including 6.0 GHz when measured in any direction have:

(i) a maximum mean e.i.r.p. density no greater than -70.0 dBm/MHz; and

(ii) a maximum peak e.i.r.p. density no greater than -30.0 dBm/50 MHz or the equivalent transmission level;

(d) at frequencies between 6.0 GHz and up to and including 8.5 GHz when measured in any direction have:

(i) a maximum mean e.i.r.p. density no greater than -41.3 dBm/MHz; and

(ii) a maximum peak e.i.r.p. density no greater than 0.0 dBm/50 MHz or the equivalent transmission level;

(e) at frequencies between 8.5 GHz and up to and including 10.6 GHz when measured in any direction have:

(i) a maximum mean e.i.r.p. density no greater than -65.0 dBm/MHz; and

(ii) a maximum peak e.i.r.p. density no greater than -25.0 dBm/50 MHz or the equivalent transmission level;

(f) at frequencies above 10.6 GHz when measured in any direction have:

(i) a maximum mean e.i.r.p. density no greater than -85.0 dBm/MHz; and

(ii) a maximum peak e.i.r.p. density no greater than -45.0 dBm/50 MHz or the equivalent transmission level.

(5) The equipment emits transmissions at frequencies between 3.4 GHz and up to and including 4.8 GHz which:

(a) at frequencies between:

(i) 3.4 GHz and up to and including 3.8 GHz when measured in any direction have:

(aa) a maximum mean e.i.r.p. density no greater than -85.0 dBm/MHz; and

(bb) a maximum peak e.i.r.p. density no greater than -45.0 dBm/50 MHz or the equivalent transmission level;

(ii) 3.8 GHz and up to and including 4.2 GHz when measured in any direction have:

(aa) a maximum mean e.i.r.p. density no greater than -70.0 dBm/MHz; and

(bb) a maximum peak e.i.r.p. density no greater than -30.0 dBm/50 MHz or the equivalent transmission level;

(iii) 4.2 GHz and up to and including 4.8 GHz when measured in any direction have:

(aa) a maximum mean e.i.r.p. density no greater than -41.3 dBm/MHz; and

(bb) a maximum peak e.i.r.p. density no greater than 0.0 dBm/50 MHz or the equivalent transmission level; or

(b) at frequencies between 3.4 GHz and up to and including 4.8 GHz when measured in any direction have a maximum mean e.i.r.p. density no greater than -41.3 dBm/MHz provided a low duty cycle applies such that:

(i) the duration of each transmission does not exceed five milliseconds;

(ii) the sum of all transmitted signals in any second is less than 5% of that second;

(iii) the sum of all transmitted signals in any hour is less than 0.5% of that hour; and

(iv) the maximum peak e.i.r.p. density is no greater than 0.0 dBm/50 MHz or the equivalent transmission level.

Chief Executive of the Office of Communications

[2007] For and by authority of the Office of Communications

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations give effect to the European Commission Decision 2007/131/EC(**a**) on allowing the use of radio spectrum equipment using ultra-wideband technology in a harmonised manner in the Community. These Regulations exempt the establishment or installation of equipment using ultra-wideband technology from the requirement to be licensed under section 8(1) of the Wireless Telegraphy Act 2006 (c.36) (the "Act").

Regulation 3 exempts the installation, use or establishment of equipment complying with the specifications in regulation 4 from the need to be licensed under the Act. Under regulation 4, the exemption is limited to equipment which will be operated indoors (paragraph (2)(a)), or where it is not used indoors, is not attached to a fixed installation, fixed infrastructure, outdoor antenna, or an automotive or railway vehicle (paragraph (2)(b)), does not cause or contribute to undue interference (paragraph (3)), and which emits transmissions at the specified frequency bands with the maximum power levels set out in paragraph (4) or, as the case may be, paragraph (5).

A full regulatory impact assessment and report of the effect of the Regulations will have on the costs to business is available from OFCOM at Riverside House, 2a Southwark Bridge Road, London SE1 9HA (tel: 020 7981 3000) or on the OFCOM internet web site at www.ofcom.org.uk. Copies of the report have also been placed in the libraries of both Houses of Parliament.

(**a**) OJ No L55, 23.2.07, p33.

Annex 6

European Commission Decision of 21 February 2007

COMMISSION DECISION

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

(notified under document number C(2007) 522)

(Text with EEA relevance)

(2007/131/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) The European Council has recognised the significant contribution to growth and jobs by building a fully inclusive information society, based on widespread use of information and communication technologies (ICTs) in public services, SMEs and households [2]. With the i2010 initiative, the Commission emphasised ICT as a major driver of competitiveness, growth and jobs [3].

(2) The creation of an open and competitive single market for information society equipment and media services within the Community is critical to ICT uptake. The Community regulatory framework for electronic communications services and equipment can enhance competitiveness and foster competition in the ICT sector, *inter alia* by ensuring the timely introduction of new technologies.

(3) Ultra-wideband technology, typically characterised by very low power radiation over a very large radio bandwidth, could provide a host of communications, measurement, location, medical, surveillance and imaging applications of benefit to various Community policies, including the information society and the internal market. In this context, it is important to establish regulatory conditions which will encourage the development of economically viable markets for applications of ultra-wideband technology as commercial opportunities arise.

(4) The timely deployment and uptake of applications using ultra-wideband technology within the Community will be assisted by harmonising radio spectrum use rules across the Community, thus establishing an effective single market for these applications, with consequent economies of scale and benefits to the consumer.

(5) Although ultra-wideband signals are typically of extremely low power, the possibility of harmful interference with existing radiocommunication services exists and needs to be managed. Therefore, the regulatory framework for use of the radio spectrum for ultra-wideband technology must respect the rights to protection against harmful interference (including access to the radio spectrum by radio astronomy, earth exploration satellite and space research systems) and balance the incumbent services' interests against the overall policy objective of providing favourable conditions for the introduction of innovative technologies for the benefit of society.

(6) The use of spectrum is subject to the requirements of Community law for public health protection in particular Directive 2004/40/EC of the European Parliament and of the Council of 29 April 2004 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields), [4] and Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) [5]. Health protection for radio equipment is ensured by conformity of such equipment to the essential requirements 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 (the R&TTE Directive) [6].

[1] OJ L 108, 24.4.2002, p. 1.
[2] European Council Conclusions 7619/1/05 Rev. 1 of 23.3.2005.
[3] COM(2005) 229.
[4] OJ L 159, 30.4.2004, p. 1, as amended by OJ L 184, 24.5.2004, p. 1.
[5] OJ L 199, 30.7.1999, p. 59.
[6] OJ L 91, 7.4.1999, p. 10. Directive amended by Regulation (EC) No 1882/2003 (OJ L 284, 31.10.2003, p. 1).

(7) Pursuant to Article 4(2) of the Radio Spectrum Decision, the Commission has given three mandates [7] to the European Conference of Postal and Telecommunications Administrations (hereinafter referred to as the CEPT) to undertake all necessary work to identify the most appropriate technical and operational criteria for the harmonised introduction of ultra-wideband-based applications in the European Union.

(8) This Decision is based on the technical studies undertaken by the CEPT under EC mandate. These compatibility studies include, *inter alia*, the presumption that equipment using ultra-wideband technology will be operated predominantly indoors and that it will cease transmission within 10 seconds unless it receives an acknowledgement from an associated receiver that its transmission is being received. Furthermore, video signals will be transmitted using predominantly high-efficiency coding.

(9) Outdoor use of equipment using ultra-wideband technology covered by this Decision should not include use at a fixed outdoor location or connected to a fixed outdoor antenna or in vehicles. The potential interference caused by such uses requires further study.

(10) Equipment using ultra-wideband technology covered by this Decision falls within the scope of the R&TTE Directive. Nevertheless, the use of frequency bands by equipment using ultra-wideband technology for air traffic management communications in aircraft and safety-of-life applications in ships does not fall under the R&TTE Directive and any use of such equipment in these safety-of-life environments should be determined by appropriate sector-specific regulation.

(11) Pursuant to the R&TTE Directive, the European Commission has given a mandate (M/329) 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.

(12) In response to mandate M/329 from the EC, the ETSI is developing European standards such as Harmonised Standard EN 302 065 for ultra-wideband technology which will take account of potential aggregate effects, if such effects could lead to harmful interference, and of the compatibility studies of the CEPT. Harmonised Standards should be maintained and evolve over time to ensure protection of emerging services for which bands as yet have not been designated.

(13) Furthermore, when a Member State considers that equipment using ultra-wideband technology within the scope of the R&TTE Directive and of any Harmonised Standards adopted pursuant thereto does not comply with the requirements of the abovementioned Directive, safeguard measures may be applied in accordance with Articles 9 and 5 of the Directive respectively.

(14) The use of radio spectrum by equipment using ultra-wideband technology under this Decision is to be allowed on a non-interference and non-protected basis and therefore should be subject to Article 5(1) of Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services [8].

(15) For the purpose of ensuring the continued relevance of the conditions specified in this Decision and given the rapid changes in the radio spectrum environment, national administrations ought to monitor, where possible, use of the radio spectrum by equipment using ultra-wideband technology, so as to subject this Decision to active review. Such review should take into account technological development and changes in the market situation and verify that the initial assumptions concerning the operation of equipment using ultra-wideband technology in the frequency range specified in this Decision are still relevant.

(16) In order to ensure adequate protection of existing services, this Decision should lay down conditions that are deemed adequate to protect currently operating services.

(17) Appropriate mitigation techniques (including detect-and-avoid or low-duty-cycle approaches) studied and specified by CEPT and ETSI under the respective EC Mandates, should be included in Harmonised Standards under the R&TTE Directive once stable and proven to provide equivalent protection to the emission levels identified in this Decision.

[7] Mandate to the CEPT to harmonise radio spectrum use for ultra-wideband systems in the European Union (Mandate 1); mandate to the CEPT to identify the conditions necessary for harmonising radio spectrum use for ultra-wideband systems in the European Union (Mandate 2); mandate to CEPT to identify the conditions relating to the harmonised introduction in the European Union of radio spectrum applications based on Ultra-Wideband (UWB) technology (Mandate 3).

[8] OJ L 108, 24.4.2002, p. 21.

(18) The conditions in the 4,2 to 4,8 GHz band for equipment using ultra-wideband technology without appropriate mitigation techniques should be time limited and be replaced by more restrictive conditions beyond the date of 31 December 2010, because there is an expectation that equipment of this type should operate exclusively above 6 GHz in the longer term.

(19) 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 purpose of this Decision is to allow the use of the radio spectrum by equipment using ultra-wideband technology and to harmonise the conditions of such use in the Community.

This Decision shall apply without prejudice to Directive 1999/5/EC (the R&TTE Directive) and to any Community provisions allowing use of the radio spectrum by specific types of equipment using ultra-wideband technology.

Article 2

For the purposes of this Decision:

1. 'equipment using ultra-wideband technology' means equipment incorporating, as an integral part or as an accessory, technology for short-range radiocommunication, involving the intentional generation and transmission of radio-frequency energy that spreads over a frequency range wider than 50 MHz, which may overlap several frequency bands allocated to radiocommunication services;

2. 'non-interference and non-protected basis' means that no harmful interference may be caused to any radiocommunication service and that no claim may be made for protection of these devices against harmful interference originating from radiocommunication services;

3. 'indoors' means inside buildings or places in which the shielding will typically provide the necessary attenuation to protect radiocommunication services against harmful interference;

4. 'automotive vehicle' means any vehicle as defined by Council Directive 70/156/EEC ([9]);

5. 'railway vehicle' means any vehicle as defined by Regulation (EC) No 91/2003 of the European Parliament and of the Council ([10]);

6. 'e.i.r.p.' means equivalent isotropic radiated power;

7. 'mean e.i.r.p. density' means the mean power measured with a 1 MHz resolution bandwidth, a root-mean-square (RMS) detector and an averaging time of 1 ms or less;

8. 'peak e.i.r.p. density' means the peak level of transmission contained within a 50 MHz bandwidth centred on the frequency at which the highest mean radiated power occurs. If measured in a bandwidth of x MHz, this level is to be scaled down by a factor of 20log(50/x)dB;

9. 'maximum e.i.r.p. density' means the highest signal strength measured in any direction at any frequency within the defined range.

Article 3

The Member States shall, as early as possible and no later than six months following the entry into force of this Decision, allow the use of the radio spectrum on a non-interference and non-protected basis by equipment using ultra-wideband technology provided that such equipment meets the conditions set out in the Annex to this Decision and it is either used indoors or, if it is used outdoors, it is not attached to a fixed installation, a fixed infrastructure, a fixed outdoor antenna, or an automotive or railway vehicle.

Article 4

Member States shall keep the use of the bands identified in the Annex by equipment using ultra-wideband technology under scrutiny, in particular with regard to the continued relevance of all the conditions specified in Article 3, and report their findings to the Commission to allow a timely review of this Decision.

Article 5

This Decision is addressed to the Member States.

Done at Brussels, 21 February 2007.

For the Commission

Viviane REDING

Member of the Commission

([9]) OJ L 42, 23.2.1970, p. 1.

([10]) OJ L 14, 21.1.2003, p. 1.

ANNEX

1. **Maximum e.i.r.p. densities in the absence of appropriate mitigation techniques**

Frequency range (GHz)	Maximum mean e.i.r.p. density (dBm/MHz)	Maximum peak e.i.r.p. density (dBm/50 MHz)
Below 1,6	– 90,0	– 50,0
1,6 to 3,4	– 85,0	– 45,0
3,4 to 3,8	– 85,0	– 45,0
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

2. **Appropriate mitigation techniques**

A maximum mean e.i.r.p. density of – 41,3 dBm/MHz is allowed in the 3,4 to 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 milliseconds.

Equipment using ultra-wideband technology may also be allowed to use the radio spectrum with e.i.r.p. limits other than those set out in the table in point 1 provided that appropriate mitigation techniques other than those set out in the first sub-paragraph are applied with the result that the equipment achieves at least an equivalent level of protection to that provided by the limits in the table set out in point 1.