



## CONSULTATION PAPER

# Opportunities for Trialling Wireless Services and Technologies in Ireland

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**An Coimisiún um Rialáil Cumarsáide**

**Commission for Communications Regulation**

Abbey Court, Irish Life Centre

Lower Abbey Street, Dublin 1, Ireland

Tel. +353 1 804 9600 Fax. +353 1 804 9680 E-mail [info@comreg.ie](mailto:info@comreg.ie)

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## **Foreword**

Wireless technology is evolving at a rapid pace and there is a growing need to cater for the testing of new technologies and services that require access to radio spectrum. Ireland's geographic position and small population means it has less pressure on spectrum resources than most EU countries and is therefore particularly well placed to support such activity.

Since 2000, Ireland has offered radio equipment suppliers, manufacturers, service providers and other interested parties the opportunity to test, develop and innovate new radio products. This scheme has been underutilised to date and so it is with pleasure that I present here a number of proposals that ComReg has developed to make the existing test licensing regime more attractive to those involved in wireless research and development, and to encourage developers to choose Ireland as their preferred location for trialling new technologies or services in Europe. We are also proposing to introduce a new class of licence to cater for limited public trials of new radio services. The combination of a relative abundance of available spectrum and a flexible regulatory regime will further enhance Ireland's reputation as a premier location for communications research.

I hope you will take the time to respond to the questions in the consultation. The views and suggestions received will help us to develop our test licensing regime to ensure that it fully meets the needs of the research and development community.

**John Doherty**

**Chairperson**

**Commission for Communications Regulation**

# 1 Introduction

Wireless technology has evolved rapidly in recent years, providing convenient and cost-effective solutions to mobile communications and broadband internet access, to name but two recent developments. Recent innovations such as the licensing of local area fixed wireless services<sup>1</sup> are already having a strong positive impact on competition and new developments are underway which have the potential to enhance quality and choice further still. ComReg is keen to support such developments by providing a flexible regulatory environment that encourages innovation and enterprise.

This rapid pace of wireless technology development provides an excellent opportunity to encourage global developers to choose Ireland as a test-bed for new products or service concepts. A relative lack of congestion in most frequency bands means that frequencies can be made available to test products aimed at Irish, European or wider global markets. Such tests may range from purely technical trials, e.g. to determine coverage characteristics in different frequency bands, to evaluation of user attitudes to new services. The importance of wireless research and technology was highlighted in a recent report<sup>2</sup> by Forfás to the Minister for Enterprise, Trade and Employment, in which expanding ComReg's test licence regime was one of the key regulatory recommendations.

ComReg is proposing a number of changes to the existing test licensing regime to reflect more fully the needs of the wireless communications sector in Ireland. The possibility of a new category of licence to permit service trials that involve third party customers is also being considered.

The purpose of this document is to seek views on these initiatives. ComReg looks forward to a constructive dialogue with industry as to how the regulatory environment can best support this opportunity.

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<sup>1</sup> See ComReg document 03/43, "Guidelines to Applicants for Local Area Fixed Wireless Access (FWA) Licences" for more details.

<sup>2</sup> "Wireless Communications: An Area of Opportunity for Ireland". <http://www.forfas.ie>

## **2 Responding to the Consultation**

The consultation period will run from 11<sup>th</sup> August 2004 to 24<sup>th</sup> September 2004. Written comments should be marked “Response to ComReg Wireless Services and Technology Trials consultation” and submitted either electronically or in hard copy before 5.00 p.m. on 24<sup>th</sup> September 2004, to:

Ms Sinead Devey

Commission for Communications Regulation

Abbey Court

Irish Life Centre

Lower Abbey Street

Dublin 1

E-mail: [sinead.devey@comreg.ie](mailto:sinead.devey@comreg.ie)

It would be helpful when responding if you would make specific reference to the questions raised in this document.

In order to promote further openness and transparency ComReg intends to publish all non-confidential responses to the consultation on the ComReg web site. Respondents are requested to identify clearly any confidential material in their responses and if possible to include it in a separate annex to the response. Such information will not be published and will be treated as strictly confidential.

### 3 Licensing Options for Trialling and Developing New Wireless Services and Technologies

#### 3.1 Current Test Licensing Regime

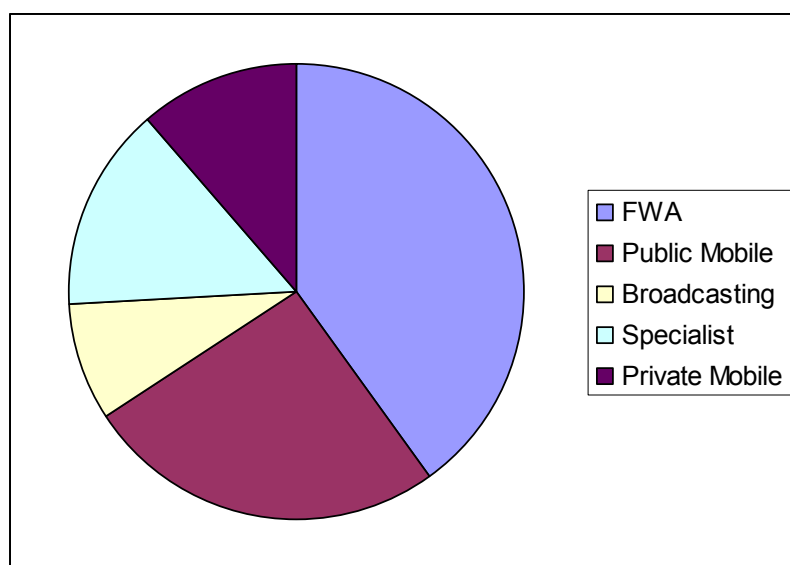
##### 3.1.1 Description

In order to encourage technology innovation and development, ComReg operates a dedicated licensing regime for the testing of new radiocommunications equipment and services. Test licences enable developers to gain timely access to appropriate radio spectrum for a limited period, whilst avoiding any adverse effects on existing users. A relative lack of congestion in most frequency bands in Ireland means that frequencies can be made available to test products aimed at Irish, European or wider global markets. Licences do not currently permit any form of commercial operation or provision of services to third parties.

##### 3.1.2 Take-up of test licences in Ireland and elsewhere

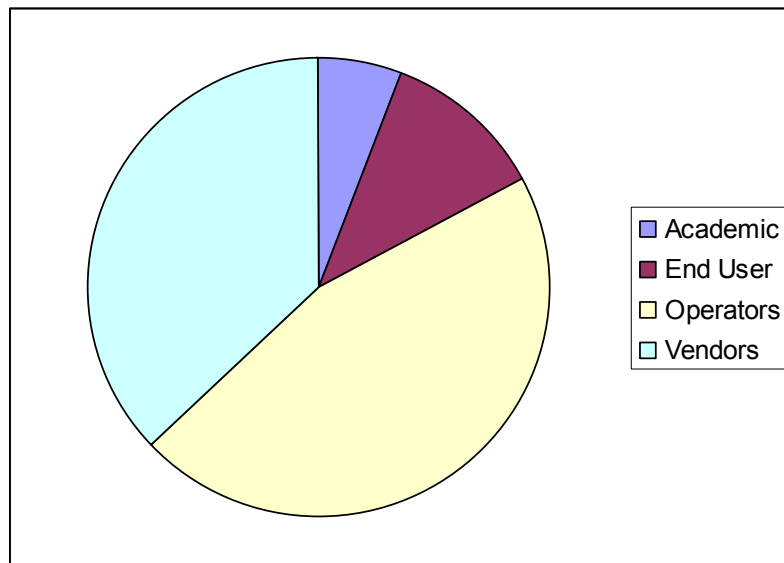
Since March 2000, a total of 35 test licences have been issued. 23 of these related to the trialling of new fixed wireless or mobile technologies, either by equipment vendors or aspiring network operators. The remainder covered a variety of applications, including local digital TV trials, evaluation of new communications technologies for the emergency services, medical devices and signalling systems.

The figure below shows the breakdown of the test licences by category:



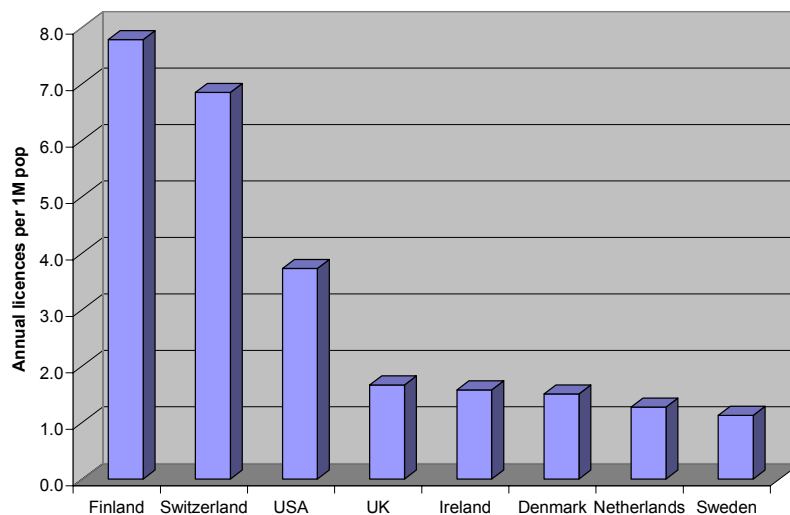
**Figure 1 Breakdown of Test Licences by service category**

The majority of licences were issued to equipment vendors or network operators, though a small number of trials were conducted by end-user organisations or academic institutions, as illustrated in Figure 2:



**Figure 2: Breakdown of Test Licences by licensee type**

A recent survey undertaken by the Danish National IT and Telecommunications Agency (NITA) compared the number of radio test licences issued annually in various countries<sup>3</sup>. Figure 3 is based on this data, normalised to take account of the different population size in the countries compared.



**Figure 3: Number of test licences issued per million population in various countries**

<sup>3</sup> “Benchmarking survey on facilities for testing and development of new radio technologies and services in Denmark compared with various other countries”, available on the NITA website at [www.itst.dk](http://www.itst.dk)

### 3.1.3 Awareness of the test licensing regime

ComReg considers that awareness of the test licensing regime and how it compares with similar regimes elsewhere is important in terms of encouraging developers to choose Ireland as a location for wireless research and development. While information on the current regime is readily available from the ComReg web site<sup>4</sup>, ComReg believes there is scope for more active promotion of the opportunities for technology tests and service trials in Ireland. Specific proposals are presented in section 3.5; however feedback on the current regime and how it compares internationally would also be helpful in establishing where improvements should be made.

**Question 1:** *Prior to reading this consultation document, were you aware of the existing ComReg licensing regime for radiocommunications test?*

**Question 2:** *To what extent do you consider that the current ComReg test licensing regime meets industry / users' needs for product and service development?*

**Question 3:** *Are you aware of similar licensing regimes in other countries?*

**Question 4 (please ignore if you answered "no" to Q3):** *How do you consider the test licensing regime in Ireland compares with that in other countries with which you are familiar?*

### 3.1.4 Provision of Third Party Services under the test licensing regime

The current test licensing regime is intended to cater for technical trials and does not permit the provision of services to third parties. This means that the current regime is not suitable for the trialling of new public services, other than enabling any associated new technology to be evaluated. It would not, for example, be possible to conduct trials to assess user reaction to a new type of wireless service, or to test a more complete network solution (e.g. including billing and customer care facilities) under real operational conditions. Such prohibition is not widely applied elsewhere. The recent Danish benchmarking exercise on radio test and development licensing referred to in section 3.1.2 revealed that only three out of fourteen countries surveyed applied such a restriction on third party involvement.

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<sup>4</sup> Licence for Radio Communications Tests – Guidance Notes and Application Form, ODR 99/15R.



## **3.2 ComReg proposals for Radio Test and Trial Licences**

ComReg is proposing a number of improvements to the current test licensing regime to provide greater flexibility and clarity for those engaged in wireless research and development activities. The introduction of trial licences is also proposed under this scheme, to allow limited third party public participation in the trialling of new services, on a non-commercial basis. These two proposed changes are described in the following sections.

## **3.3 Proposed enhancements to test licensing regime**

### *3.3.1 Maximising opportunities for wireless research and development in Ireland*

Ireland has a long-established culture of innovation in information and communications technology (ICT), backed by a strong academic community, a thriving home-grown ICT sector and increasing inward investment by global telecommunications companies. The presence of global centres of excellence such as the MIT Media Lab and the recent announcement by Bell Labs to set up a €69 million research and development centre highlight the importance of this sector to the Irish economy. Wireless technology is playing an increasing role in delivering innovative new ICT services and ComReg aims to ensure that the regulatory regime supports and encourages research and development activity in this area. Specific proposals to promote Ireland as the preferred European location for radio tests and trials are presented in section 3.5 and we would welcome your views or further suggestions.

The following sections highlight a number of proposed enhancements to the current ComReg test licence regime to make it more attractive to researchers and innovators. Two particular examples of emerging wireless technologies, WiMax and Ultrawideband (UWB) are highlighted, which ComReg considers are ideal candidates for test licences. Views are also welcomed on other wireless technology developments and how these can best be supported by the test licence regime.

### *3.3.2 Identification of specific frequencies for test purposes*

Ireland's geographic position and small population means there is less pressure on key parts of the spectrum than in most other European countries. Opportunities therefore exist for specific frequencies to be made available for development activities, at least until there is clear evidence of demand for commercial applications. For example, spectrum is currently available in the

GSM 1800 and UMTS frequency bands and use has already been made of this spectrum by major equipment vendors to conduct technology trials, using the current test licensing regime.

ComReg is also considering whether it might be appropriate to identify other specific frequency bands to support development relating to emerging global standards, such as “WiMax” metropolitan area networks, a low cost approach to broadband wireless access that can operate in various licensed and licence-exempt bands in the 2 – 11 GHz range.

**Question 5:** *Should specific frequencies or frequency bands be identified and/or actively promoted for test and development purposes, and should these include pan-European and Global harmonised bands such as GSM and UMTS?*

**Question 6** *What additional frequencies do you think might be suitable to support testing of emerging standards such as WiMax?*

### 3.3.3 *Facilitating trials of Ultrawideband and other innovative wireless technologies*

Ultrawideband (UWB) technology provides a means of wirelessly conveying large amounts of data over very short distances using very low power signals that are spread over a very wide bandwidth<sup>5</sup>. UWB devices typically operate in the frequency range 3 – 10 GHz and standards are currently under development in European and US technical standards bodies. One of the main concerns relating to UWB is the need to protect other narrower bandwidth systems that use the same spectrum. To achieve this, various “spectrum masks” have been proposed, defining limits on the power that can be radiated in specific parts of the spectrum. The current masks for indoor and outdoor operation, as developed by the European Communications Committee (ECC), are presented in Annex C for information. These masks are subject to revision and there remains considerable uncertainty about the extent that UWB devices might interfere with other radio devices in close proximity.

ComReg believes there are opportunities to promote coexistence trials involving new technologies which make use of spectrum already used by existing services. In particular, UWB technologies are likely to require extensive technical trials to

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<sup>5</sup> Further information on UWB technology can be found in ComReg technology brief, ODTR 01/59. [http://www.comreg.ie/\\_fileupload/publications/odtr0159.pdf](http://www.comreg.ie/_fileupload/publications/odtr0159.pdf)

ensure compatibility with existing wireless services, creating further opportunities under the test licensing regime. Such trials would be subject to compliance with pre-defined emission limits (for example reflecting any spectrum masks in existence at the time the licence is issued) and geographic constraints to protect existing spectrum users. The latter might include a requirement to restrict operation to indoor or confined spaces, depending on the location of the test.

To enable ComReg to assess the likelihood of interference from new and innovative systems, additional conditions may be applied, for example ComReg may require access to any results emerging from the trials.

**Question 7:** *In the case of UWB tests, do you consider that additional requirements such as a restriction to operation indoors or confined areas, is required?*

**Question 8:** *Which other wireless technologies do you think should be supported by the test licensing regime?*

#### 3.3.4 Duration of Test Licences

New product development typically takes place over a timescale of several years and may involve requirements to conduct trials over extended periods that may exceed the current six-month limit applied in Ireland. ComReg therefore proposes to extend the initial duration of a test licence to 12 months with the possibility of one or more six month extensions, subject to technical justification and reasonable notice of revocation if the spectrum should be required for other uses. This would allow vendors to embark on long term trials of new equipment or service concepts without having continually to renew licences.

**Question 9:** *What is your view on the proposal to extend the initial duration of radio test licences to twelve months and to permit one or more extensions?*

#### 3.3.5 Fees for test licences

Current ComReg fees for development and test licences are the same as for operational licences in the band concerned. In some cases, fees may therefore be somewhat higher than in those countries that apply specific fees to test licences. Whilst licence fees are likely to be a relatively small proportion of the total outlay involved in a radio trial, ComReg recognises that application of fees significantly higher than elsewhere could act as a disincentive in some cases.

ComReg therefore proposes a fixed fee of €500 per licence to cover the administrative costs involved in processing the licence application.

**Question 10:** *What do you consider to be an appropriate fee for a test licence?*

### 3.3.6 Radio tests involving suppressed emissions

ComReg is considering exempting from licensing, radio tests that are carried out under conditions that limit the level of emissions to the extent that there is negligible risk of harmful interference (e.g. where tests are conducted inside an anechoic chamber). Such emissions would be defined in terms of maximum field strength at a pre-defined distance from the equipment under test, with the intention of ensuring that harmful emissions are constrained to within the immediate vicinity of the equipment. ComReg would welcome views on the principle of exempting such suppressed emission tests and on appropriate limits that might be applied.

**Question 11:** *What is your view on the principle of exempting from licensing, radio tests involving emissions that are sufficiently suppressed to make the risk of harmful interference negligible?*

**Question 12:** *What emission limits do you consider appropriate for such tests?*

### 3.3.7 Provision for Service Trials

As noted in section 3.1.4, the current test licensing regime does not permit the provision of services to third parties. ComReg considers that there are circumstances where limited public trials of novel or innovative services may be appropriate and is therefore proposing to introduce a radio service trial licence that would allow such trials on a limited scale and for a limited period.

ComReg proposes that a service trial licence would only be issued when the radio spectrum concerned would be available for the subsequent provision of the service in question. Access to spectrum, upon completion of the trial, will require a full operational licence which will be subject to an application process and may be subject to a competitive selection process in accordance with the Authorisation Regulations 2003.<sup>6</sup> The holding of a trial licence would not guarantee in any way, the subsequent award of a full operational licence.

Conditions that would apply to trial licences would broadly reflect those that currently apply to test licences, with a number of additional requirements

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<sup>6</sup> S. I. No. 306 of 2003

governing the participation of third parties in the trials and the recovery of costs from third parties. These requirements would include limits on the geographic extent of the trials, number of users and the extent of the trial network (e.g. the number of base stations). Trial licences would be limited to a maximum period of twelve months. Extensions would not be permitted, since ComReg takes the view that long term provision of services to third parties should be covered by a full, operational licence. ComReg is proposing a fee of €500 for a trial licence, to cover its administrative costs.

Licensees would also be required to ensure that all third parties to the trial were made fully aware that any service being provided was in connection with a trial, that there would be no guarantee of continued service beyond the trial period and that no obligation to subscribe to any subsequent commercial service would apply. ComReg proposes that a waiver document should be signed by each third party participant acknowledging their awareness of these conditions. Signed waiver documents for all participants would be required to be kept by the licensee and made available for inspection by ComReg. The licensee would be required to comply with all relevant legal obligations arising under general law, including where applicable requirements under the Authorisation Regulations 2003, consumer protection and data protection law. Draft text for an appropriate waiver document is presented in Annex B.

**Question 13:** *If you agree that third party services should be permitted, do you consider that licensees should be permitted to recover reasonable costs from third party participants? If so do you have a view on how this should be done?*

**Question 14:** *What is your view on the appropriate duration for trial licences involving third party service provision?*

**Question 15:** *What is your view on the maximum number of third party participants permitted under a trial licence?*

**Question 16:** *What other types of restriction should be placed on the provision of third party services under a trial licence?*

**Question 17:** *What is your view on the draft waiver document for third party participants in radio trials, presented in Annex B?*

### 3.4 Guidelines for Radio Test and Radio Service Trial licences

In light of the above, ComReg has drafted new guidelines for radio test and radio service trial licences, which would replace the existing radio test guidelines (ComReg document 99/15A). The revised guidelines are presented in Annex A.

***Question 18:** Please provide any comments on the draft trial licence guidelines presented in Annex A that have not already been covered in your responses to the previous questions*

### 3.5 Opportunities to promote technology development and testing

The comparative lack of spectrum congestion in Ireland, combined with a highly developed ICT sector and a strong academic base, make Ireland particularly attractive for research and development into wireless communication. The situation is further enhanced by Ireland's geographic location, with only a single land border, providing greater freedom in spectrum use than other European countries where multilateral co-ordination is often required. ComReg is keen to ensure that its licensing regime supports innovative testing and development applications, whether intended for the home market or for export, and that industry at home and abroad is aware of the opportunities that exist here.

International comparisons indicate that the take-up of test licences in Ireland is around the European average, but is considerably lower relative to population than in countries such as Finland or the USA (see Figure 3). ComReg is therefore keen to improve international awareness of the opportunities for wireless technology development in Ireland. This could be achieved in a number of ways, for example by including a link on the ComReg home page or by actively promoting the facility through bodies such as IDA Ireland.

Opportunities may also exist for the creation of a dedicated "development park" to take advantage of the relatively sparse demand for radio spectrum in some parts of the country, enabling trials of emerging wireless technologies with minimal risk of interference to existing services. This could be particularly attractive for certain types of development activity, such as the trialling of airborne transmission platforms<sup>7</sup>.

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<sup>7</sup> A number of international development activities are currently underway relating to "high altitude platforms", involving radio transmissions from high flying stationary airborne platforms such as microlight aircraft or balloons. See also ComReg Briefing Note on high altitude platform stations: [http://www.comreg.ie/\\_fileupload/publications/odtr0159.pdf](http://www.comreg.ie/_fileupload/publications/odtr0159.pdf)

**Question 19:** *How can ComReg and other interested parties (such as industry or government) best promote the opportunities for radio system testing in Ireland, particularly to overseas based developers?*

**Question 20:** *Do you consider that an on-line application facility would make it more likely that developers would choose Ireland as a location for wireless technology or service trials?*

**Question 21:** *How significant do you consider the relatively sparse demand for radio frequencies in parts of Ireland to be in terms of making such areas attractive for wireless development activities?*

## 4 Summary of Issues for Consultation

Views are sought on the following specific aspects of ComReg's proposals, as outlined in the previous section:

**Question 1:** *Prior to reading this consultation document, were you aware of the existing ComReg licensing regime for radiocommunications test?*

**Question 2:** *To what extent do you consider that the current ComReg test licensing regime meets industry / users' needs for product and service development?*

**Question 3:** *Are you aware of similar licensing regimes in other countries?*

**Question 4: (please ignore if you answered "no" to Q3):** *How do you consider the test licensing regime in Ireland compares with that in other countries with which you are familiar?*

**Question 5:** *Should specific frequencies or frequency bands be identified and/or actively promoted for test and development purposes, and should these include pan-European and Global harmonised bands such as GSM and UMTS?*

**Question 6:** *What additional frequencies do you think might be suitable to support testing of emerging standards such as WiMax?*

**Question 7:** *In the case of UWB tests, do you consider that additional requirements such as a restriction to operation indoors or confined areas, is required?*

**Question 8:** *Which other wireless technologies do you think should be supported by the test licensing regime?*

**Question 9:** *What is your view on the proposal to extend the initial duration of radio test licences to twelve months and to permit one or more extensions?*

**Question 10:** *What do you consider to be an appropriate fee for a test licence?*

**Question 11:** *What is your view on the principle of exempting from licensing, radio tests involving emissions that are sufficiently suppressed to make the risk of harmful interference negligible?*

**Question 12:** *What emission limits do you consider appropriate for such tests?*



**Question 13:** *If you agree that third party services should be permitted, do you consider that licensees should be permitted to recover reasonable costs from third party participants? If so do you have a view on how this should be done?*

**Question 14:** *What is your view on the appropriate duration for trial licences involving third party service provision?*

**Question 15:** *What is your view on the maximum number of third party participants permitted under a trial licence?*

**Question 16:** *What other types of restriction should be placed on the provision of third party services under a trial licence?*

**Question 17:** *What is your view on the draft waiver document for third party participants in radio trials, presented in Annex B?*

**Question 18:** *Please provide any comments on the draft radio test and radio service trial licence guidelines presented in Annex A that have not already been covered in your responses to the previous questions*

**Question 19:** *How can ComReg and other interested parties (such as industry or government) best promote the opportunities for radio system testing in Ireland, particularly to overseas based developers?*

**Question 20:** *Do you consider that the ability to submit test licence applications using an on-line application facility make it more likely that developers would choose Ireland as a location for wireless technology or service trials?*

**Question 21:** *How significant do you consider the relatively sparse demand for radio frequencies in parts of Ireland to be in terms of making such areas attractive for wireless development activities?*

## **Annex A: Proposed Revisions to the ComReg Guidelines for Radio Test Licensing**

### **Introduction**

1. The Commission for Communications Regulation ('ComReg') wishes to encourage innovation and development by facilitating persons conducting experiments with, or carrying out tests involving, new radio equipment, new radio spectrum applications and/or new radio services. Accordingly, in certain circumstances, ComReg is prepared to issue temporary and limited licences to testers to operate within specified areas of the radio spectrum for the purposes of carrying out such tests.

2. There are two types of licence to cover such requirements, namely the radio test licence (hereafter referred to as "test licence") and the radio service trial licence (hereafter referred to as "trial licence"). The test licence is intended for in-house technical tests of new equipment or technology, whereas the trial licence is intended for trials of novel or innovative services involving public participation. Most of the licence conditions are common to both types of licence; however the trial licence cannot be renewed. This note explains the licensing process for radio tests and radio service trials as administered by ComReg and sets out the manner in which application should be made for these licences.

3. The main body of national legislation governing licensing for experimental purposes, radio frequency allocation and charges is the Wireless Telegraphy Acts (1926–1988), various statutory instruments made under those Acts and the Communications Regulations Act 2002. In 1996, many of the functions and powers under this legislation were transferred to the Officer of the Director of Telecommunications Regulation (ODTR) and subsequently to ComReg under the Communications Regulation Act 2002. In addition EU measures may affect the policy and regulation of amongst other things the granting of spectrum rights of use, innovation and licensing.

4. ComReg has in place various schemes concerning the licensing, possession and use of radio equipment for commercial purposes. However, ComReg is aware that the "full licensing" regimes are not always appropriate to cases requiring only the temporary use of the radio spectrum for limited purposes. Such needs might arise in connection with research & development projects, the

carrying out of tests on new equipment, or the trialling of new services, for example.

5. For these reasons, ComReg is prepared to issue test or trial licences in certain such cases and subject to certain conditions. These licences authorise the temporary and limited use of radio spectrum for the purpose of carrying out radio tests or radio service trials. Test licences will not permit the involvement of members of the public in the tests. Trial licences will permit limited participation by third party members of the public. Please note that it may also be necessary to hold other forms of licence or authorisation before a particular test or service trial can be carried out. Specific queries should be referred to ComReg.

#### **General Basis for the Issue of Test and Trial Licences**

6. The following is the general basis on which ComReg is prepared to issue test or trial licences and to make available on a temporary basis portions of radio spectrum to licensees:

- (a) **Test licences** relate solely to the carrying out of tests of radio equipment, spectrum or services and may not be appropriate where the applicant is seeking in the longer term to acquire a full operational licence for the service under test;
- (b) **Trial licences** relate to the carrying out of trials of novel or innovative services involving members of the public and involving radio equipment.

#### **Involvement of Third Parties in Tests and Trials**

- (c) Test licences do not permit the involvement of the public and are intended for in-house testing only. Involvement of other third parties, e.g. arising from joint ventures or collaborative research, may be permitted subject to prior notification to ComReg of the name, address and nature of participation of each such party, and the issue by ComReg of prior specific sanction for the involvement of each such third party. This applies equally to the inclusion of additional or alternate third parties subsequent to the issue of a test licence;

Trial licences are issued on the understanding that the trial is carried out on a non-commercial basis and, in particular, that any payment or like consideration by a third party to the test licensee in connection with the use of radio equipment, spectrum or services under the licence is limited to recovery

of costs arising from the trial. The trial licensee must retain for inspection on demand by ComReg, the name, address and nature of participation of each third party involved in the trial. The trial licensee will be required to obtain a signed waiver from each third party participant involved in the trial confirming that he or she is aware of the nature of the test licence (i.e. temporary, for trial purposes only, non-commercial, cost (if any applies)) and that there is no obligation to subscribe to any commercial service that might subsequently be launched by the licensee following completion of the trial. These signed waivers must be retained by the licensee and be available for inspection by ComReg.

The number of third parties that will participate in the trial must be stated in the application and must not be exceeded without ComReg's prior agreement. In any event the number of third party participants will be limited to 50.

#### **Licence Duration**

- (d) A test licence is valid only for a specified duration which will initially be limited to a maximum period of twelve months. Where the nature of the test requires a longer duration and the radio spectrum that is licensed is not required for other purposes, ComReg may consider extending the duration for a further six month period, subject to a formal application from the holder of the test licence not less than one month before its expiry. Further extensions will be considered on a similar basis.

A trial licence is valid only for a specified duration of a maximum of twelve months. Trial licences may not be used for the long term provision of services to third parties. These should be properly delivered under a full, operational licence. Further extensions to trial licences will not therefore be permitted.

Upon completion of the specified duration a test or trial licence will automatically expire without any further act, step, notification or measure by ComReg or the licensee. Test / trial licensees should note that upon revocation of the test licence, any prohibitions and criminal or civil liabilities imposed by law, such as under the Wireless Telegraphy Act (1926 – 1988) may apply.

Permission for the use of the portion of radio spectrum allocated under the test / trial licence lapses not later than the licence's expiry. The granting of a

test / trial licence does not convey any right, entitlement or expectation, either implicit or explicit, to –

- (i) any renewal or replacement of the test / trial licence,
- (ii) a full licence (i.e. permission for the use of radio spectrum for purposes other than the defined testing purposes permitted under the test / trial licence), or
- (iii) any continued use of the portion of radio spectrum allocated under the test / trial licence, or to any other portion, following completion of the test / trial;
- (iv) immunity or a defence in respect of any criminal or civil liability arising upon the expiry of the test / trial licence.

**Other Conditions for Test / Trial Licences**

(e) non-protected – a test / trial licence carries no guarantee of protection against interference by other users of the radio spectrum;

(f) non-interference – a test / trial licence is issued on the basis that the use which it allows does not cause interference to other users of the radio spectrum;

(g) shared – a test / trial licence does not convey any exclusive right to the use of the spectrum which is authorised under that licence;

(h) further requirements - nothing in a test / trial licence shall be interpreted as fulfilling, substituting or negating any requirement to obtain agreement, of whatever type, of any other party;

(i) telecommunications network connections - any equipment to which a test / trial licence refers shall not be connected directly or indirectly to the public telecommunications network unless specific prior authorisation has been received from ComReg;

(j) access to results, data or information arising from tests or trials – ComReg reserves the right to require access to any test results, data or information arising from operations carried out under a test or trial licence, where this might have a bearing on interference or other spectrum management considerations.

and

(k) a test / trial licence may be revoked by ComReg should the test licensee cease to meet the provisions set out above or any of the terms or conditions attached to the test / trial licence or cease to use the licensed equipment, spectrum and/or

services for the purposes set out in the test / trial licence. ComReg also reserves the right to amend, suspend or withdraw a test / trial licence.

### **Consideration of Applications**

7. In addition to the general basis of the licence detailed above, the following are some of the factors which ComReg may take into account in considering whether or not to issue a test / trial licence on foot of an application for same:

(a) the principles of good management of the radio spectrum as a scarce natural resource and as a public facility;

(b) existing, and possible future, frequency allocations at national and international level. (A copy of the national frequency allocation plan, entitled Table of Frequency Allocations: Ireland (ComReg document 04/77), is available from ComReg on request.); and

(c) the purpose of the test / trial for which the test licence is sought and its potential outcome and associated benefits, in terms of radio development and/or the national economy.

8. Following consideration of an application ComReg shall decide whether or not to issue a test / trial licence.

### **Specific Provisions**

9. ComReg is also concerned to ensure consistency between the approaches to the issue of a test / trial licence and the issue of a full licence within a particular area. This may prompt the inclusion in a test / trial licence of further specific provisions.

### **Frequencies for test / trial licences**

10. The radio spectrum extends from very low frequencies (below 9 kHz) to frequencies up to 3000 GHz<sup>8</sup>. Different parts of the spectrum are allocated to different services, such as fixed, mobile, broadcasting or satellite. In principle, test licences will be considered for any part of the radio spectrum that is not currently being used for other purposes. However a number of frequency bands exist in which spectrum is currently available for test purposes and may be particularly suitable for specific applications. These include parts of the following frequency bands:

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<sup>8</sup> For a full description of available radio spectrum allocations in Ireland please refer to the national frequency allocation table (ComReg document 04/77)

- Mobile communications: GSM cellular and 3G mobile frequency bands (900 MHz, 1800 MHz and 2 GHz),
- Fixed applications: 3.8- 4.2 GHz, 10.5 GHz, 26 GHz, 28 GHz, 33 GHz, 40 GHz

A trial licence may only be issued where, in ComReg's opinion, there is scope for a full operational licence for the service under trial to be issued in the radio spectrum concerned in the future. In the event that ComReg does subsequently decide to make full operation licences available, the holding of a trial licences will not accord any right, entitlement, expectation or advantage to the trial licensee with regard to obtaining a full operational licence following the trial and the award of a full operational licence cannot be guaranteed.

## **Annex B: Text of Waiver Document to be signed by all public participants in radio service trials**

I have agreed to participate in a radio service trial to be carried out by [name of licensee] during the period [enter estimated start and finish dates of trial]. I understand that that there is no guarantee of continued service beyond the trial period and that I am under no obligation to subscribe to any subsequent commercial service provided by [name of licensee] upon completion of the trial.

Signature \_\_\_\_\_

Date \_\_\_\_\_

Name of Trial Participant \_\_\_\_\_

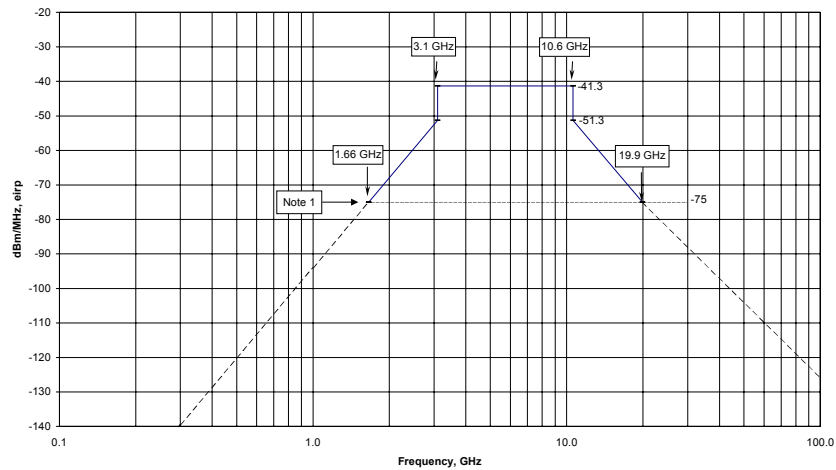
Contact Details \_\_\_\_\_



## Annex C: Current spectrum masks for Ultrawideband systems, as proposed by CEPT

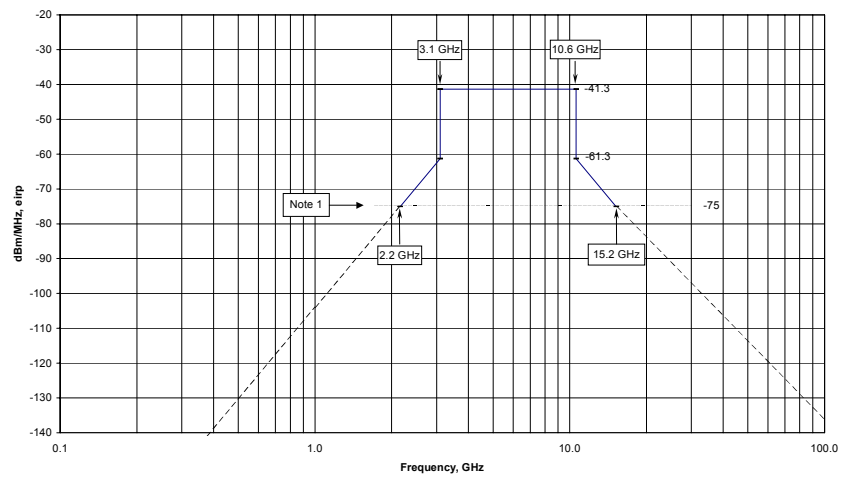
The following masks are taken from a draft European Communications Committee (ECC) report on UWB and are subject to change as work on the masks progresses within the ECC.

**FIGURE 8 – Indoor preliminary proposal for a slope mask**



*Note1: Current measurement technology prevents measurements below -75 dBm in a one MHz bandwidth.*

**FIGURE 9 – Outdoor preliminary proposal for a slope mask**



*Note1: Current measurement technology prevents measurements below -75 dBm in a one MHz bandwidth.*