



Commission for  
**Communications Regulation**

## Consultation Paper

### **Use of Mobile Telephony Interceptors in Ireland**

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| <b>Document No:</b> | <b>04/74</b>        |
| <b>Date:</b>        | <b>22 June 2004</b> |

All responses to this consultation should be clearly marked:-  
“Reference: Submission re ComReg 04/74” as indicated above,  
and sent by post, facsimile, e-mail or on-line at [www.comreg.ie](http://www.comreg.ie)  
(current consultations), to arrive on or before 5.00p.m on July  
30<sup>th</sup> 2004 to:

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Please note ComReg will publish all submissions with the  
Response to Consultation, subject to the standard confidentiality  
procedure.

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## **1 Foreword**

This consultation seeks views on proposals for the use of GSM interceptors in Ireland. There has been considerable growth in the use of mobile devices such as mobile phones, wireless LANs and GPS in recent years which has resulted in calls for restricted use of certain mobile equipment in particular areas such as cinemas, theatres, hospitals etc. In certain instances jammers, which have been illegally placed on the market, have been installed to interfere with the signal from the mobile device resulting in the blocking of all communications including emergency calls.

However ComReg is also aware that there are cases where the ability to restrict mobile phone services in certain areas, such as prisons or hospitals, would be appropriate. This could be done by means of an interceptor rather than a jammer. An interceptor operates in a different manner to a jammer by effectively operating as a base station that only offers restricted services, such as emergency calls, rather than prohibiting all communications.

This document presents a number of proposals on the use of interceptors in Ireland and poses a number of questions seeking the views of interested parties. Responses to this consultation will be accepted until 30<sup>th</sup> July 2004 and a response to consultation published shortly thereafter.

**John Doherty,  
Chairperson.**

## 2 Introduction

The past decade has seen considerable growth in the use of mobile devices such as mobile phones, wireless LANs and GPS. However the ubiquitous nature of such devices has resulted in calls for restricted use of certain mobile equipment in particular areas such as cinemas, theatres, hospitals etc. This has resulted in cases of jammers, which have been placed on the market illegally, being installed to interfere with the signal from the mobile phone and thus blocking all communications including emergency calls.

These jammers emit electro-magnetic radiation that causes interference to the mobile devices within its area of operation and as a consequence they are banned from use in Ireland under section 12A of the Wireless Telegraphy Act 1926 and under the R&TTE and EMC Directives. Interceptors, on the other hand, do not prohibit operation of mobile devices by means of emission of electro-magnetic radiation and would normally be under the control of the mobile network operator, therefore this section of the 1926 act is not applicable.

ComReg understands the frustration and inconvenience that inappropriate and thoughtless use of mobile phones can cause in certain circumstances. This is largely a behavioural issue which could be addressed through public education and improved public awareness of mobile phone etiquette.

However ComReg is also aware that there are cases where the ability to restrict mobile phone services in certain areas, such as prisons or hospitals, would be appropriate. This could be done by means of an interceptor rather than a jammer. An interceptor operates in a different manner to a jammer by effectively operating as a base station that only offers restricted services, such as emergency calls, rather than prohibiting all communications.

ComReg is therefore carrying out a public consultation to obtain the views of all concerned parties about whether the use of interceptors should be allowed and, if so, under what circumstances.

### 3 Definition of Interference

#### 3.1 International

The ITU defines *interference* as: The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy<sup>1</sup>.

The ITU defines *harmful interference* as: Interference which endangers the functioning of a radionavigation services or of other services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with Radio Regulations<sup>2</sup>.

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<sup>1</sup> International Telecommunications Union Radio Regulations 2001. See [www.itu.int](http://www.itu.int) for more information.

<sup>2</sup> International Telecommunications Union Radio Regulations 2001. See [www.itu.int](http://www.itu.int) for more information.

## 4 The use of jammers in Ireland

### 4.1 Defining Jammers

A jammer is a device that deliberately transmits interfering signals on the same frequencies as those on which the particular service is operating with the aim of blocking all communications in its area of influence. While it is possible to acquire wideband jammers covering a multiplicity of services the more common types of jammer is made to nominally cover one band in order to disrupt a targeted service, for example GSM, GPS, video link and wireless LAN.

The intention of jammers is to block all bidirectional or uni-directional communications in a band or on a specific channel(s). In the case of the mobile phone industry, jammers interfere with all phone calls in the zone of influence.

There are different types of jammers such as;

- Wideband – a continuous noise block is generated disrupting all signals in the band – typical of GPS jammers where a Gaussian noise modulated signal, mimicking the direct sequence spread spectrum used by the GPS service is used.
- Sweeper – a narrow band signal is swept through the band disrupting communications – typical of jammers used to disrupt analogue systems as the swept carrier is sufficient to either overpower an AM signal or capture the FM demodulator.
- Narrowband – a narrow band signal with bandwidth equivalent to the signal to be disrupted is placed on a single frequency - typical of broadcast jammers where the jammer power overpowers the receiver.

### 4.2 Legal Position on Jammers

It is not possible to construct jammers that comply with the European legislation on the R&TTE<sup>3</sup> or the EMC Directives<sup>4</sup>. Such devices cannot therefore be legally placed on the market within the European Community for use under these Directives.

Therefore, where such products claim compliance with the R&TTE or the EMC Directive, Member States' market surveillance authorities are under an obligation to

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<sup>3</sup> European Commission Directive 1999/5/EC, transposed into Irish law as Statutory Instrument 240/2001

<sup>4</sup> European Commission Directive 89/336/ECC, transposed into Irish law as Statutory Instrument 22/1998.

take action to have them removed from the market under the provisions of those Directives and to notify such actions to the European Commission.

The CEPT/ECC Electronic Communications Committee has published two Recommendations<sup>5</sup> concerning forbidding the placing on the market and use of jammers in the CEPT member countries. They recommend that CEPT administrations shall not allow the placing on the market and use of jammers and that they should take appropriate measures to stop the transmission of jammers. They also recommend that administrations exchange information on market surveillance activities with regard to jammers. Although Ireland has yet to adopt these Recommendations we are in agreement with them.

While the Commission has sympathy with the annoyance factor caused by discourteous use of mobile phones it is of the opinion that this is best dealt with by improving personal mobile phone etiquette and not by the use of illegal technology.

Recognising that all jammers (mobile, GPS etc.) are in contravention of the R&TTE and EMC Directives and the Wireless Telegraphy Act 1926, the Commission cannot allow the placing of jammers onto the Irish market. The Commission has already taken action against the use of jammers and will continue to do so.

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<sup>5</sup> CEPT/ECC Recommendation (03)04 with regards to forbidding the placing on the market and use of GSM jammers in the CEPT member countries. See ERO website [www.ero.dk](http://www.ero.dk) for further details.

CEPT/ECC Recommendation (04)01 with regard to forbidding the placing on the market and use of jammers in the CEPT member countries. See ERO website [www.ero.dk](http://www.ero.dk) for further details.

## 5 The use of GSM interceptors in Ireland

### 5.1 Defining Interceptors<sup>6</sup>

Unlike jammers, interceptors do not transmit interfering signals.

One type of interceptor, when located in a designated ‘quiet’ area, functions as a detector. It has a unique identification number for communicating with the cellular base station. When the interceptor device detects the presence of a mobile phone in the quiet area; the filtering (i.e. the prevention of authorization of call establishment) is done by the software at the base station. When the base station sends the signalling transmission to a target user, the device, after detecting simultaneously the presence of that signal and the presence of the target user, signals the base station that the target user is in the quiet area; and the base station, does not establish the communication.

Messages can be routed to the user’s voice- mail box. This process of detection and interruption of call establishment is done during the interval normally reserved for signalling and handshaking. For emergency users, the detector device makes provisions for designated users who have emergency status. These users must pre-register their phone numbers with the service providers. When an incoming call arrives, the detector recognizes that number and the call is established for a specified maximum duration. The emergency users are also allowed to make out-going calls. Similarly, the system is capable of recognizing and allowing all emergency calls. It should be noted that the device being an integral part of the cellular mobile system, would need to be provisioned by the cellular mobile service provider or provisioned by a third-party working cooperatively with full support of the cellular mobile service providers.

Sophisticated or selective interceptors can be used for security purposes (non-civil use) and can also be used by the mobile operators in case of an overflow of calls in certain parts of the network. As with most forms of interceptor, emergency calls and registered numbers are enabled while all other, non-registered numbers are not permitted.

The second type of interceptor functions as a base station. Any mobile phone within the control zone of the interceptor will determine that the interceptor response signal is the strongest and will therefore establish communication with the interceptor. Once the phone is captured by the interceptor, the interceptor is able to exploit control features built into the cellular system to prevent phone conversations from taking place, instruct the phone to turn its power level down to minimum and instruct the phone to wait for incoming calls at an unused channel. The unused channel will be one that is but not used by the cellular system in the range of the interceptor so that no incoming calls are ever received.

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<sup>6</sup> This consultation relates to the potential lawful use of interceptors by licensed mobile phone operators in order to minimise the disruption caused by unwanted use of mobile phones. It does not relate to the interception of Posts and Telecommunications by An Garda Síochána for law enforcement purposes. For more information on the latter please see [www.justice.ie](http://www.justice.ie) .



Incoming callers will be informed by the cell phone system that the mobile subscriber they are attempting to contact is not presently on the system. Mobile phones in the control zone will not be able to establish contact when attempting to dial a number as it is attempting to use an unused frequency and will therefore not be picked up by the legitimate mobile network. With this system all calls are prohibited, similar to the effect of jammers.

Once the phone leaves the control zone of the interceptor, a normal base station as the strongest signal, will establish communications with the mobile phone and normal service will be established.

**Q. 1. Do you agree that there is a limited requirement for the use of GSM interceptors in Ireland and if not why not?**

**Q. 2. In what locations should the installation of GSM interceptors be considered? Examples given in the document are prisons and hospitals, are these appropriate and are there others?**

**Q. 3. Do you agree with the proposal to permit the use of GSM interceptors under the following conditions:**

- only interceptors that are able to recognise emergency numbers or lists of approved numbers can be installed,
- only public mobile network operators can install an interceptor,
- the interceptor can only intercept calls made by the operators own customers in their licensed spectrum unless an agreement is in place with other operators to share interceptors,
- the interceptor cannot cause any degradation of service to another network operator,
- mobile network operators must notify all installations to ComReg.

**Q. 4. Do you have any further proposals for conditions that should apply to the use of GSM interceptors? If so please give details.**

**Q. 5. How do you think mobile phone users should be informed that they are in a restricted services zone and is displaying a notice in public areas sufficient?**

## 6 Submitting Comments

All comments are welcome, however it would make the task of analysing responses easier if comments were referenced to the relevant question numbers from this document.

The consultation period will run from 22<sup>nd</sup> June 2004 to 30<sup>th</sup> July 2004 during which the Commission welcomes written comments on any of the issues raised in this paper.

Having analysed and considered the comments received, ComReg will review the position on interceptors and publish a report in August 2004 on the consultation which will, inter alia summarise the responses to the consultation.

In order to promote further openness and transparency ComReg will publish the names of all respondents and make available for inspection responses to the consultation at its Offices.

**Please note** ComReg will publish all submissions with the Response to Consultation, subject to confidentiality.

ComReg appreciates that many of the issues raised in this paper may require respondents to provide confidential information if their comments are to be meaningful. Respondents are requested to clearly identify confidential material and if possible to include it in a separate annex to the response. Such information will be treated as strictly confidential.

## Appendix A – Legislation

All Wireless Telegraphy apparatus used in the State must be licensed under section 5 of the Wireless Telegraphy Act 1926 unless it is specifically subject to an exemption order, for example, GSM and 3G mobile telephones.

Section 3(2) of the Act provides that it is an offence for a person licensed under the Act to use the apparatus otherwise than in accordance with the terms and conditions subject to which such licence is expressly, or is by virtue of this Act deemed to have been granted.

Section 12A of the 1926 act, refers to interference with is injurious to Wireless Telegraphy, it states that “it shall not be lawful for any person to work or use any apparatus for wireless telegraphy that electro-magnetic radiation there from interferes with the working of or otherwise injuriously affects any apparatus for wireless telegraphy in respect of which a licence has been granted under this Act .....

As jammers emit electro-magnetic radiation that causes interference to the mobile devices within its area of operation they are banned from use in Ireland under this section of the Wireless Telegraphy Act. However as interceptors do not prohibit operation of mobile devices by means of emission of electro-magnetic radiation this section of the 1926 act is not applicable.

Section 12(b) of the Wireless Telegraphy Act 1926 prohibits deliberate interference to wireless telegraphy. The section states,

- “**12B.** (1) Any person who uses any apparatus for the purpose of interfering with any wireless telegraphy shall be guilty of an offence.
- (2) Subsection (1) of this section shall apply whether or not the apparatus in question is wireless telegraphy apparatus or apparatus to which section 12A of this Act applies and whether or not any notice under subsection (7) or subsection (9) of that section has been given with respect to the apparatus.
- (3) A person guilty of an offence under this section shall be liable -
- (a) on summary conviction, to a fine not exceeding one thousand pounds together with, in the case of a continuing offence, a further fine (not exceeding one thousand pounds in all) not exceeding one hundred pounds for every day during which the offence is continued,
- (b) on conviction on indictment, to a fine not exceeding twenty thousand pounds together with, in the case of a continuing offence, a further fine not exceeding two thousand pounds for everyday during which the offence is continued.”

Section 12(a) deals with interference caused by Wireless Telegraphy apparatus emitting electro-magnetic radiation, whereas, section 12(b) does not limit itself to wireless telegraphy apparatus and moreover does not limit interference to that caused by the emission of electro-magnetic radiation.

In the absence of a definition of interference in the Act, such a definition is sought elsewhere. Regulation 2 of the Authorisation Regulations<sup>7</sup> primarily defines harmful interference<sup>8</sup> in a manner limited to radio-navigation and emergency services. However, it adds to the definition a general prohibition against harmful interference which “. . . otherwise seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with the applicable European Community or national regulations.”<sup>9</sup>

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7 S.I. 307 of 2003

8 “harmful interference” means interference which endangers the functioning of a radionavigation service or of other safety services or which otherwise seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with the applicable European Community or national regulations;

9 This is the same as the definition in the General Authorisation.

## Appendix B – Consultation Questions

All Consultation Questions must be listed here. This can simply be done by positioning below and selecting F9 to update after you have completed your document. In order for questions to be automatically listed here they must be style

Q.1. ComReg Question.

### List of Questions

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