



Office of the Director of  
**Telecommunications  
Regulation**

## **Extending Choice...**

# **Opening the Market for Third Generation Mobile Services (3G Mobile)**

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Response to the Consultation

**Document No.** ODTR 00/92

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**Oifig an Stiúirthóra Rialála Teileachumarsáide**

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## **FOREWORD**

I would like to thank all those who responded to the consultation on opening the market for third generation mobile services (3G mobile). My Office has received a total of twenty responses representing a broad cross section of industry, commerce and the user community. There have been many constructive comments that have been taken into account in developing our approach to the licensing of these important new mobile telecommunications services in Ireland.

This response document highlights our position, based on our analysis of the consultation responses and taking account of our objectives to promote effective competition in the mobile telecommunications market whilst ensuring efficient utilisation of the radio spectrum.

The positions described in this paper are for guidance only and will be finalised in the tender documents to be released shortly.

Etain Doyle

Director of Telecommunications Regulation.

## **0. EXECUTIVE SUMMARY**

### **0.1 Introduction**

Third generation (3G) mobile services represent the latest development in the evolution of mobile communications, combining high bandwidth multimedia performance with wide area mobility. Having considered the twenty written responses to the public consultation on the opening of the market for 3G mobile services, and taken account of her duties under relevant EU and national legislation, the Director has reached a number of conclusions on how to proceed with the introduction of these services in Ireland. Licences for the new services will be awarded in accordance with section 111 of the Postal & Telecommunications Act 1983 (as amended)<sup>1</sup> and the Wireless Telegraphy Act, 1926 to 1988.

### **0.2 Economic and Market Factors**

The responses to the consultation broadly supported the Director's view that organisations such as content providers, service providers and Mobile Virtual Network Operators (MVNOs) are likely to have a significant role to play in promoting competition in the delivery of 3G mobile services. The Director believes it is important to promote competition in the mobile telecommunications market at both the infrastructure and service level and is keen to encourage new market entrants at both of these levels. She has therefore decided upon the following approach to the introduction of 3G mobile services in Ireland:

- i) to promote infrastructure competition by offering four 3G mobile licences, and also offering further spectrum in the 900 MHz and/or 1800 MHz bands to new market entrants, and
- ii) to promote service competition by including as an evaluation criterion for one of the four 3G mobile licences the provision of air interface access for MVNOs on a "retail minus" basis.
- iii) to qualify for such access, an MVNO will be required to operate certain dedicated network elements and to have its own unique mobile network code, thus further enhancing infrastructure and service competition.

### **0.3 Technical and Regulatory issues**

#### **0.3.1 International Co-ordination**

Consultation respondents were broadly supportive of the international co-ordination proposals recently developed within CEPT. The current bilateral discussions with the UK administration on cross-border co-ordination will continue, to be supplemented as necessary by dialogue involving licensed 3G operators when the licence tender process is complete.

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<sup>1</sup> Refer to ODTR document 99/70R, "Proforma Mobile Licence Terms" for further information on the service licence format

### 0.3.2 Numbering and Addressing issues

The Director's view, supported by the majority of consultation respondents and by a recent cost-benefit analysis, is that introduction of full mobile number portability (MNP) would be in the best long-term interest of consumers. MNP is currently the subject of a further ODTR consultation<sup>2</sup> and will not therefore be included within the scope of the 3G licensing process, but will be addressed separately.

### 0.3.3 Spectrum Licensing issues

The Director has concluded that her objective to encourage market entry at both the service and infrastructure levels will be best served by offering two distinct 3G licence packages, one of which carries incentives to support certain types of MVNOs<sup>3</sup>. She has therefore decided to offer one "class A" licence and three "class B" licences, all of which will comprise a minimum of 2 x 15 MHz paired and 5 MHz unpaired 3G mobile spectrum. The "class A" licence will also include as an evaluation criterion the offering of a voluntary commitment with regard to the access price for MVNOs, based on a "retail minus X" formula. Where such a commitment is made, additional spectrum comprising up to 2 x 5.2 MHz of spectrum in the 900 MHz band and 5 MHz unpaired 3G mobile spectrum will be made available to the successful applicant, subject to demonstrable need. The "class A" licence will carry a more stringent rollout and coverage requirement than the "class B" licences, which will command a higher spectrum access fee. The higher minimum coverage requirement for the "class A" licence is considered necessary to support an effective national MVNO service, hence its explicit inclusion in that licence.

Additional spectrum in the 900 MHz and/or 1800 MHz bands will also be made available to new market entrants who are awarded 3G mobile licences, to ensure a level playing field relative to incumbent operators who are awarded 3G licences. New 3G services will be delivered alongside new, enhanced 2G services supported by technologies such as GPRS and EDGE. Accordingly, dual mode operations will be utilised as operators configure networks for optimal provision of mobility, coverage and data transmission rates.

Therefore, this assignment of 900 MHz and 1800 MHz spectrum to new entrants is required to offset the inherent advantages of incumbent operators by providing a new entrant with the capability for 2G/3G convergence as well as having the same amount of total spectrum as incumbents. All spectrum will be subject to payment of an appropriate spectrum access fee, as specified in the tender documents.

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<sup>2</sup> "Mobile Numbering and Mobile Number Portability in Ireland", document ODTR 00/86, available on the ODTR web site.

<sup>3</sup> For the purposes of this response document, an MVNO is defined as an organisation operating a physical network infrastructure comprising as a minimum a mobile switching centre, home location register and authentication centre (or 3G mobile equivalents), having its own unique mobile network code with distinct IMSI and E.164 number series (where applicable), and issuing its own branded SIM cards (or 3G mobile equivalent), but without a mobile radio access network. This definition is consistent with the Director's objective to promote competition at both the service and infrastructure level.

### 0.3.4 Pre-entry conditions for the Tender Process

The Director has decided that, in order to ensure the national provision of competing 3G services, pre-entry conditions for the tender process will include provisions relating to:

- minimum coverage and rollout
- national roaming (see below).

### 0.3.5 Access and Roaming issues

Roaming is a critical factor to support operators during the build out phase of network development since network geographic coverage is a key consideration for mobile service consumers. It is, therefore, essential to the development of effective mobile network competition as – during the build out period – an operator without geographic coverage comparable to that of established operators would be at a severe disadvantage in obtaining a customer base that would make its full network development economically feasible. Accordingly, the Director has concluded that acceptance of an obligation to provide national roaming to other 3G mobile operators should be a pre-condition to all applicants for either the “class A” or “class B” licences who have ownership interests in a licensed GSM network in Ireland. The obligation on the roamed party will apply for a period of five years from the issue of a 3G mobile licence to the roaming party and will be applicable to the roaming party when it has rolled out 3G mobile radio access network infrastructure covering at least 20% of the Irish population.

Additionally, to facilitate 3G service competition, applicants for the “class A” licence will be invited to offer a binding commitment allowing air interface access for MVNOs on a “retail minus X” basis. The value of “X” will be marked as part of the tender evaluation process. Only applicants who commit to a value of “X” of zero or greater will be eligible for additional 2G spectrum as identified in section 0.3.3 above.

### 0.3.6 Self co-ordinating (private) 3G mobile systems<sup>4</sup>

The Director is not minded at this stage to make specific regulatory provision for delivery of third party services using self co-ordinating 3G mobile systems. The situation will be reviewed once public 3G services are operational.

## 0.4 General Principles of Licensing

### 0.4.1 Licensing issues

Having considered the consultation responses, the situation elsewhere in Europe and the historical life cycle of first and second generation mobile services, the Director proposes a fifteen-year duration for the 3G mobile service licence. She proposes to

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<sup>4</sup> 10 MHz of unpaired IMT-2000 spectrum is designated for self co-ordinating systems, which are likely to operate independently of licensed public 3G mobile networks, in ERC Decision ERC/DEC(99)25.

review the continued availability of existing spectrum assignments in the 900 MHz and 1800 MHz bands to mobile telecommunications licensees 3 years prior to licence expiry and anticipates that retention of such spectrum will until the end date of the 3G licences in the future be on a demonstrable need basis.

#### **0.4.2 Site Sharing issues**

The Director is encouraged by the broad support for site sharing among consultation respondents and is minded to pursue the development of a Code of Practice with all major operators of radio transmission sites, upon completion of the 3G mobile licensing process. She will also consider the offering of binding commitments relating to site sharing as part of the comparative evaluation process in the tender.

#### **0.5 Legal Notice**

This response document does not form part of the tender documentation, nor does it constitute legal, commercial or technical advice. The Director is not bound by it. The contents herein are without prejudice to the legal position of the Director or her rights and duties under legislation.

# 1. INTRODUCTION

## 1.1 Background

The Director of Telecommunications Regulation (“the Director”) and her Office (“the ODTR”) are responsible for the regulation of the Irish telecommunications market in accordance with EU and National legislation. The ODTR is the National Regulatory Authority (“NRA”) for the purposes of that legislation.

Third generation (3G) mobile, sometimes referred to as IMT-2000<sup>5</sup> or UMTS<sup>6</sup>, represents the latest development in the evolution of mobile communications, combining high bandwidth multimedia performance with wide area mobility. The development is underpinned by global initiatives to set aside dedicated radio spectrum and to develop harmonised equipment standards. In July 2000, the Director published a consultation document (ref. ODTR 00/52), "Opening the Market for Third Generation Mobile Services", which outlined and sought views upon her proposals for the introduction of 3G mobile services in Ireland.

The Director’s role is to encourage and secure effective competition in the interests of all users. In promoting economic efficiency and ensuring the maximum benefit to users, she must balance the needs of users for satisfactory communications with the need for a competitive market, whilst ensuring that Ireland is aligned with technical and regulatory developments elsewhere in the European Union.

This document summarises the responses received to that consultation document and outlines the conclusions reached by the Director, taking account of the consultation responses and other relevant legal, competition and technology considerations. In developing the licensing process for 3G mobile services the Director has consulted with the European Commission and taken account of their views. The Minister for Public Enterprise has been consulted on public service requirements and these are covered by the requirements outlined below.

## 1.2 Respondents to the Consultation

Twenty responses to the consultation document were received, as listed below:

- Budget Telecom
- Crown Castle International
- Dublin Chamber of Commerce
- Eircell Ltd
- Esat Digifone Ltd

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<sup>5</sup> IMT-2000 is the international family of third generation mobile standards approved by the International Telecommunications Union.

<sup>6</sup> UMTS is a European standard which is part of the IMT-2000 family. Other IMT-2000 standards may be deployed but the EU requires that at least one UMTS-based 3G mobile network must be licensed in each Member State to facilitate national roaming.



- Forfàs
- Formus
- GSM Association
- Irish Business and Employers Confederation (Wireless Special Interest Group)
- Irish Cellular Industry Association
- Irish Farmers Association
- Irish Multichannel
- Mercury Engineering Ltd
- Meridian Communications
- Michael J Barrett
- NTL
- Orange
- Simpson Securities Inc
- Vivendi Telecom International
- Worldcom

The Director wishes to express her thanks to everyone who contributed to the consultation. With the exception of material marked as confidential, the written comments of respondents are available for inspection at the ODTR's office in Dublin.

### **1.3 Legislative Background**

Licences for 3G mobile services will be awarded by the Director under the Postal and Telecommunications Services Act, 1983 (as amended) and the Wireless Telegraphy Acts, 1926 – 1988. The Licensee will be granted the right to use 3G mobile technology based on the IMT-2000 family of standards to offer telecommunications services to the public, for the duration of the licence. The offering of the licences is in accordance with EC Decision 128/1999/EC<sup>7</sup>, which obliges Member States to allow for the co-ordinated introduction of 3G mobile services by 1st January 2002. Radio spectrum for 3G mobile systems in Europe is identified in CEPT Decisions ERC/DEC(97) 07<sup>8</sup> and ERC/DEC(00)01<sup>9</sup>. A further CEPT Decision, ERC/DEC(99)25<sup>10</sup>,

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<sup>7</sup> Decision of the European Parliament and Council of 14<sup>th</sup> December 1998, on the co-ordination of a 3<sup>rd</sup> generation mobile and wireless communication system in the Community.

<sup>8</sup> ERC Decision of 30 June 1997 on the frequency bands for the introduction of the Universal Mobile Telecommunications System (UMTS)

<sup>9</sup> ERC Decision of 28 March 2000 eextending ERC/DEC/(97)07

<sup>10</sup> ERC Decision of 29 November 1999 on the harmonised utilisation of spectrum for terrestrial Universal Mobile Telecommunications System (UMTS) operating within the bands 1900 - 1980 MHz, 2100 - 2025 MHz and 2110 - 2170 MHz

defines channel spacings, minimum carrier separations and the apportionment of spectrum between licensed and unlicensed 3G mobile systems. Ireland is committed to the implementation of both of these CEPT Decisions.

Successful applicants will require two types of licence, namely:

- A Telecommunications Licence<sup>11</sup> issued in accordance with section 111 of the Postal and Telecommunications Services Act, 1983, as amended, and
- A Wireless Telegraphy Licence issued in accordance with regulations made under the Wireless Telegraphy Acts, 1926 to 1988.

The competition will be designed to ensure that licences are awarded according to objective, transparent, non-discriminatory and proportionate selection criteria, giving due weight to the need to facilitate the development of competition and to maximise benefits for users in accordance with the provisions of the European Communities (Telecommunications Licences) Regulations 1998 (SI no. 96 of 1998), which transposed into Irish law the European Parliament and Council Directive 97/13/EC<sup>12</sup>.

The combined Licences will entitle the holder(s) to provide 3G mobile services to the public subject to certain conditions and obligations.

#### **1.4 Format of this Document**

The remainder of this document is split into four sections, each addressing one of the key areas addressed by the consultation. These were:

- i) Economic and Market factors;
- ii) Technical and Regulatory issues (including International Co-ordination, Numbering, Addressing, Spectrum Licensing, Roaming, Network Access and the status of Self co-ordinating 3G mobile systems);
- iii) Pre-conditions of entry to the tender;
- iv) General Principles of Licensing 3G mobile networks.

Each section comprises a brief synopsis of the consultation issues, followed by a summary of the consultation responses, a statement of the Director's position and proposals for further action.

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<sup>11</sup> The Licence will be based on the current proforma mobile licence terms, , which can be viewed on the ODTR web site ([www.odtr.ie](http://www.odtr.ie), document ODTR 99/70R)

<sup>12</sup> Directive of the European Parliament and Council of 10<sup>th</sup> April 1997, on a common framework for general authorisations and individual licences in the field of telecommunications services

## **2. ECONOMIC AND MARKET FACTORS**

### **2.1 Summary of the Consultation Issues**

The consultation paper addressed the potential market structure for the delivery of 3G mobile services, noting that the market relationships are likely to be more complex than those in the current mobile market, with a greater focus on value added content and service providers. Views were sought specifically on the likely role of content providers, service providers and mobile virtual network operators (MVNOs) in the 3G mobile market (Question 1).

### **2.2 Views of Respondents**

A wide range of views was expressed. The majority of respondents agreed that content providers, service providers and MVNOs were all likely to play a role in the future mobile market. Of the seven respondents who expressed a view, four felt that arrangements between licensed 3G networks and such players should be on a commercially negotiated basis, without regulatory intervention. Of these four, the two responding incumbent GSM operators suggested that it might be too early to determine appropriate market models for MVNOs, as it is not clear what form these will take in practice. However, other respondents felt that some form of mandatory access, with possible regulatory intervention, may be required in the interests of consumers and to encourage market entry from a diverse range of companies.

### **2.3 Position of the Director**

The responses to the consultation were broadly consistent with the Director's view, as expressed in response to the recent ODTR Mobile Access consultation<sup>13</sup>, that organisations such as content providers, service providers and MVNOs will have an important role to play in the delivery of 3G mobile services. Having considered the responses both to the Mobile Access and 3G mobile consultations, and taking account of recent market developments relating to 2G mobile services in Ireland and elsewhere, the Director considers that such organisations will enhance the overall level of competition in the provision of mobile communication services. She believes that the concerns expressed by incumbent operators about the uncertain nature of future MVNOs can be effectively addressed by ensuring that these are clearly defined within the regulatory regime and are themselves subject to certain requirements in terms of infrastructure provision. Furthermore, the Director believes that the MVNO concept provides potential opportunities and benefits for network operators as well as for consumers. For example, a successful MVNO is likely to stimulate the overall traffic level in the host network, lead to better capacity utilisation and potentially lower costs for network operators.

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<sup>13</sup> Refer to document ODTR 00/53, Report on the Consultation on the Regulatory Framework for Access in the Mobile Market.

MVNOs also have the potential to bring to the mobile market strong, established brands, a broad range of marketing skills and access to attractive content. The host network operator may thus gain access to valuable content or market exposure from the MVNO, whilst the MVNO's marketing strategy may be designed to stimulate traffic at times when the host network might otherwise have idle capacity. The Director recognises that a balance must be struck between the furtherance of competition at the service level, to which the presence of MVNOs and other non-network players may make a contribution, and effective infrastructure competition to ensure efficient and cost effective delivery platforms for 3G mobile services. She therefore intends to license 3G mobile services in a manner that will encourage new entrants in both the infrastructure and service markets.

## 2.4 Conclusions

In line with her above stated position, in particular her desire to promote further competition in both 3G mobile infrastructure and services, the Director has decided to take the following approach to the introduction of 3G mobile services in Ireland:

- i) to promote network infrastructure competition by offering four 3G mobile licences, enabling the entry of at least one additional network operator in the Irish mobile market (“new market entrant”)<sup>14</sup>. Further details of the spectrum licensing proposals are presented in section 3.3.3 of this response document.
- ii) to promote service competition by including as an evaluation criterion for one of the four 3G mobile licences the provision of access for MVNOs to the mobile radio access network (i.e. the air interface), on a “retail minus” basis. To ensure that there is an appropriate balance between service<sup>15</sup> and infrastructure competition, access on such terms will be available only to those MVNOs who, although not having a mobile radio access network, operate their own mobile switching centre (MSC), home location register (HLR) and authentication centre (AUC), (or 3G mobile equivalents). The MVNO will also be required to have a distinct identifiable network including a unique mobile network code (MNC) and issue their own SIM cards (or 3G mobile equivalent) with distinct International Mobile Subscriber Identity (IMSI) numbers. Further details of the Director’s proposals relating to evaluation criteria and access for MVNOs are presented in section 3.5.3 of this response document.

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<sup>14</sup> In this document a “new market entrant” is defined as an Applicant for a UMTS licence that is not an operator licensed to provide GSM services and networks in Ireland, or, an Applicant for a UMTS licence that is not part of a group that includes any such operator. A full definition of new market entrant will be contained in the tender document.

<sup>15</sup> See ODTR 00/53 ‘The Regulatory Framework for Accessing the Mobile Market – July 2000’ for a detailed discussion of the role of MVNOs.

### **3. TECHNICAL AND REGULATORY ISSUES**

The consultation paper addressed a number of technical and regulatory issues relating to 3G mobile services and technology, including:

- International co-ordination
- Numbering and Addressing
- Spectrum Licensing issues
- Roaming and Access issues

For clarity, each of these issues is dealt with separately in the following sections.

#### **3.1 International Co-ordination**

##### **3.1.1 Summary of the Consultation Issues**

Views were sought on the approach that should be taken to cross-border co-ordination of 3G networks operating in adjacent territories (Question 2).

##### **3.1.2 Views of Respondents**

There was broad support for the approach to international co-ordination proposed recently by ERC Task Group 1<sup>16</sup>. In general it was felt that a memorandum of understanding involving CDMA code sharing would be workable.

##### **3.1.3 Position of the Director**

The Director is encouraged by the progress that has been made within CEPT with regard to the international co-ordination of 3G mobile services. Bilateral discussions with the UK administration are proceeding to establish a broad framework for co-ordination. It is anticipated that this will be supplemented by dialogue involving the licensed operators in both administrations, with a view to assisting the development of effective co-ordination agreements, upon completion of the forthcoming tender process.

#### **3.2 Numbering and Addressing issues**

##### **3.2.1 Summary of the Consultation Issues**

Views were sought on the following specific issues:

- Numbering, naming and addressing requirements (Question 3)

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<sup>16</sup>A draft ERC Recommendation on cross-border Co-ordination of UMTS / IMT-2000 systems has been prepared and is currently awaiting approval. The draft Recommendation recommends that co-ordination shall be based on bilateral or multilateral agreements using field strength levels and CDMA code groups specified in the Recommendation.

- Specific numbering arrangements for 3G services (Question 4)
- Requirements for Mobile Network Codes (Question 5)
- Mobile Number Portability (Questions 6 and 7)

### 3.2.2 Views of Respondents

#### 3.2.2.1 Numbering and Addressing arrangements for 3G

Respondents broadly agreed that IP addressing would play an increasingly important role in 3G mobile services. However a number of respondents raised the need for ongoing compatibility with existing services (i.e. continuing requirement for E.164 numbers). There was some concern among a minority of respondents that there may be insufficient IP addresses available to cater fully for Irish 3G requirements, particularly if IPv6 did not emerge in time. One respondent suggested that it would be appropriate to pursue this issue within the European regulatory fora responsible for IP addressing.

Both incumbent operators expressed concern that current mobile numbers might run out by mid-2001 without the introduction of 8-digit numbering. However another respondent suggested that the introduction of IP addressing would negate the need for separate voice and data numbers, freeing up some of the current numbering resource. It was also observed that numbering arrangements for 3G should be consistent with 2G.

#### 3.2.2.2 Mobile Network Codes (MNCs)

A few respondents pointed out that some non-network operators, particularly MVNOs, would require MNCs. It was also pointed out, however, that the same MNC could be used for an operator's 2G and 3G services. One respondent foresaw a need to adopt three-digit MNCs to support future mobile growth.

#### 3.2.2.3 Number Portability

Eight of the ten respondents who commented on this issue supported the early introduction of full mobile number portability (MNP). Most of these also supported full portability between 2G and 3G networks. One of the arguments put forward was that, since existing 2G customers would be migrated to their networks' own 3G networks without a number change, this facility should also exist for new entrant 3G operators, to ensure a level playing field.

The only respondents opposed to full MNP were the two responding incumbent GSM operators, who argued for the retention of the current partial number portability arrangement and introduction of 8-digit numbering.

### 3.2.3 Position of the Director

The Director is of the view that the introduction of full MNP would be in the best long term interests of consumers. This view was supported by a recent cost benefit analysis carried out for the Director, which concluded that it is in Ireland's best economic interests to move to full MNP as soon as practicable. However, the Director recognises that this will take some time to implement. In the meantime, a

number of interim modifications to the mobile numbering scheme have been proposed. These are the subjects of a current consultation document, “Mobile Numbering and Mobile Number Portability in Ireland” (document ODTR 00/86), which is available on the ODTR web site. The consultation document draws on the conclusions reached in the cost-benefit analysis and should be read in conjunction with the Ovum consultants’ report of the same title (ref. JCD50), which is also available on the ODTR web site.

In the light of this development, mobile number portability will not be included within the scope of the 3G mobile licensing process.

### **3.3 Spectrum Licensing Issues**

#### **3.3.1 Scope of the Consultation issues**

The consultation document sought views on the following:

- A proposal to offer four equal 3G mobile licences of 2 x 15 MHz + 5 MHz radio spectrum (question 8)
- A proposal to reserve one of these licences for a new entrant, and to include spectrum in the 900 MHz and 1800 MHz bands within this licence (question 9)
- The minimum set of conditions that applicants should be required to meet in order to enter the 3G mobile licence competition (question 10)

#### **3.3.2 Views of the Respondents**

Overall, the proposal for four equal 3G spectrum licences was favourably received. However, several respondents thought there was a case for providing new entrants with additional spectrum to stimulate competition for licences in the contest and counter the incumbents’ advantage in terms of their existing 2G spectrum and networks. The two responding incumbent GSM operators expressed doubts about the commercial viability of a fourth network operator in the relatively small Irish market. One respondent suggested that if feasible a small amount of spectrum should be made available for testing 3G services and equipment on a pre-commercial basis, to attract R&D work to Ireland. In relation to this last point, the Director notes that there is a framework for non-commercial testing of Irish spectrum – ODTR 99/15 refers.

Twelve of the fourteen respondents who expressed a view supported the proposed reservation of one licence for a new entrant. Most of these were also supportive of awarding 900 MHz and/or 1800 MHz spectrum to a new entrant. One respondent thought that this would help a new entrant to roll out quickly. Only the two responding incumbent GSM operators were not in favour of the proposal, suggesting that it would not make economic sense for a new entrant to roll out a 2G network as well as 3G.

All respondents were in favour of applying minimum conditions, particularly for coverage and rollout. Half of the respondents commented on minimum coverage and rollout obligations and broadly agreed with the proposals in the consultation paper, with a number of them supporting the inclusion of coverage/rollout as a selection criterion. Only one respondent specified actual coverage levels, suggesting that as a

minimum requirement all cities and towns be covered, though they did not define town size.

In relation to access and roaming requirements the responses were much more varied. (see section 3.4 below).

### 3.3.3 Position of the Director

The Director acknowledges the broad preference for equal apportionment of spectrum between four 3G mobile licences, but also recognises the concern that new market entrants will be disadvantaged relative to established incumbents by such an arrangement (since incumbents may apportion traffic between their 2G and 3G networks). Such disadvantage may be addressed either by the provision of additional spectrum to facilitate the provision of a full range of mobile services or by ensuring access on the part of new entrants to the established networks of incumbent operators, or a combination of the two.

In considering the spectrum available to each operator, the Director recognises the probability that in the future many mobile services will be delivered seamlessly and transparently over both 2G and 3G networks that will converge to dual mode networks, optimising factors such as mobility, coverage, and data transmission rates. Therefore, the assignment of spectrum in the 900 MHz and 1800 MHz bands to any new entrant is required to offset the inherent advantages of incumbent operators.

Such an assignment conveys two means of providing a level playing field. First, this spectrum would provide a new entrant with the same capability for 2G/3G convergence as an incumbent. In doing so, the new entrant could build a network with comparable cost characteristics as well as the same technical features for mobility, coverage and data transmission rates as an incumbent.

Second, such an assignment provides comparable amounts of spectrum to all operators and provides the basis for full and effective competition.

She further notes the conclusions of the UMTS Forum<sup>17</sup> that a minimum spectrum assignment of 2 x 15 MHz (paired) plus 5 MHz (unpaired) is likely to be required for the delivery of a full range of 3G mobile services. The Director also recognises that the provision of access for MVNOs, which she considers important for the promotion of full and effective service competition, would have implications for the overall capacity of a mobile operator's network, which in turn is likely to have implications for radio spectrum requirements.

Taking all these factors into account, the Director has considered options for applying differential spectrum packages to mobile telecommunications licences to reflect the disadvantages likely to be faced by a new entrant and the additional capacity requirements likely to be required to provide MVNO access facilities. These options included the provision of differential amounts of 2G and/or 3G spectrum, such that entitlement to larger spectrum assignments will apply to new entrants and/or to applicants willing to offer commitments relating to MVNO access. In developing

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<sup>17</sup> The UMTS Forum is a European body representing the mobile communications industry, promoting the development of 3G mobile services in Europe.



these options, the Director has taken account that ERC Decision ERC/DEC(99)25 provides for up to five licensed unpaired IMT-2000 carriers (comprising nominally 5 MHz each), in addition to twelve licensed paired carriers (comprising nominally 2 x 5 MHz each).

Applicants will be asked to make voluntary offerings concerning coverage and rollout in excess of the minimum requirements stipulated below and other offerings such as site sharing and co-location. Performance guarantees will form part of the evaluation process as well as the promotion of competition.

The class A licence will involve roll-out on a phased basis with coverage of a minimum of 53% of the national population by the end of June 2004 and with the fulfilment of a minimum requirement of 80% by the end of 2005.

The class B licence will also involve phased roll-out but on a less stringent basis and will cover a minimum of 33% of the population by the end of 2004.

Additionally, the minimum requirement for coverage on the B licence by end 2006 shall be 53%.

### 3.3.4 Conclusion

The Director has concluded that her objectives to encourage new market entrants to the Irish mobile communications market at both the infrastructure and service level are best served by offering two distinct 3G mobile licence classes, one of which supports certain types of MVNOs, thus facilitating increased competition at the service level. She has therefore decided to offer in the forthcoming 3G mobile licence competition a single licence, to be designated the “class A” licence and three further licences, to be designated the “class B” licences. The Director has further decided that the “class A” licence will carry more stringent coverage and roll out requirements (as described in the previous section) than the “class B” licences, which will attract a higher spectrum access fee. The higher minimum coverage requirement for the “class A” licence is considered necessary to support an effective national MVNO service, hence its explicit inclusion in that licence.

Each of these four licences will comprise a core spectrum package of 2 x 15 MHz (paired) plus 5 MHz (unpaired) IMT-2000 spectrum. The “class A” licence will also include the opportunity, as part of the comparative evaluation process, for applicants to offer a binding commitment to offer access to the radio access part of the applicant’s 3G mobile network and, where applicable, any 2G mobile radio access network in which the applicant has, or might in the future have, an ownership interest, priced on a “retail minus X” basis. This commitment will earn the applicant points in the evaluation process if the value of “X” is zero or greater. It will not be an obligation to provide binding commitments with regard to the value of “X”. However, if the successful applicant offers such a binding commitment (i.e. “X” greater than or equal to zero), additional spectrum will be made available to that applicant in the form of a further 5 MHz of unpaired IMT-2000 spectrum and up to 2 x 5.2 MHz of paired spectrum in the 900 MHz band, the latter on the basis of demonstrable need to support MVNOs. Further details of the proposed approach to MVNO access is presented in section 3.5.3 of this response document.

Additional spectrum will also be made available, subject to compliance with a pre-defined spectrum efficiency threshold, to successful applicants who do not already have access to 2G spectrum or who are not connected to undertakings<sup>18</sup> which have such access. In the case of a single new market entrant, this spectrum will comprise up to 2 x 7.2 MHz of spectrum in the 900 MHz band, and up to 2 x 6.0 MHz in the 1800 MHz band. In the case of more than one new market entrant, spectrum in the 900 MHz and 1800 MHz bands will be made available as necessary to cater for individual operators' demonstrable needs.

All spectrum in the 900 MHz and 1800 MHz bands made available as a result of the forthcoming 3G mobile licence tender will be subject to spectrum access fees comparable to those which applied to currently licensed spectrum in these bands.

It will be open to all applicants to submit applications for both the "A" licence and the "B" licences. However, each applicant may only take up one licence, and the applicants will therefore be requested to prioritise *ex ante* their licence applications. Only applicants who meet the formal and minimum requirements specified in the tender document will be able to proceed to the comparative evaluation stage. In order to comply with EC requirement relating to national roaming, at least one licensed 3G network must operate to the UMTS technical standard<sup>19</sup>. In the event that all four of the highest ranked applicants operate to non-UMTS standards, the fourth licence will be awarded to the highest ranked applicant proposing to use the UMTS standard.

Note that all spectrum packages referred to above must include any necessary inter-carrier and inter-operator guard band requirements. In the case of 3G mobile spectrum, these guard bands should be compatible with the minimum carrier spacing requirements specified in ERC Decision ERC/DEC(99)25.

### **3.4 Pre-entry Conditions for the Tender Process**

#### **3.4.1 Scope of the Consultation Issue**

Question 10 sought views on the minimum set of conditions that applicants should be required to meet in order to enter the 3G mobile licence competition.

#### **3.4.2 Views of Respondents**

All respondents were in favour of applying a minimum set of obligations on 3G mobile licensees, particularly for coverage and rollout. Half of the respondents commented on minimum coverage and rollout obligations and broadly agreed with the proposals outlined in the consultation paper, with a number of them supporting the

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<sup>18</sup> A connected undertaking is any entity that has a shareholding link with any existing licensed GSM networks in Ireland.

<sup>19</sup> Decision 128/1999/EC of the European Parliament and of the Council of 14 December 1998 on the co-ordinated introduction of a third generation mobile and wireless communication system in the Community requires the issuing of at least one UMTS licence in each Member State, to ensure the availability of an interoperable service and facilitate pan-European roaming for the benefit of consumers

inclusion of coverage/rollout as a selection criterion. Only one respondent specified actual coverage levels, suggesting that as a minimum requirement all cities and towns be covered, though they did not define town size.

### 3.4.3 Position of the Director.

The Director acknowledges the broad support for the application of minimum coverage and rollout criteria to 3G mobile licensees. These views are consistent with her own objective to ensure that 3G mobile services are made available to a substantial majority of the Irish population. She considers that this objective will best be met by the inclusion of acceptance of the minimum coverage obligation specified in section 3.3.3 above as a pre-entry condition for participation in the 3G mobile licence tender. To facilitate the national provision of competing 3G mobile services, acceptance of an obligation to provide time-limited national roaming to new market entrants who acquire 3G mobile licences will also be included as a pre-condition, for all applicants who have an ownership interest in an existing Irish GSM network. Further details of this roaming obligation is presented in section 3.5.3 below.

### 3.4.4 Conclusions

Pre-conditions of entry to the 3G mobile tender process will include acceptance of obligations relating to minimum coverage and rollout criteria, as specified in section 3.3.3 of this document, and national roaming, as specified in section 3.5.3 of this document. Further formal and minimum entry requirements may also apply, including provisions relating to the format and timely delivery of the application. These requirements will be detailed in the tender documentation.

## 3.5 Access and Roaming Issues

### 3.5.1 Scope of the Consultation issues

The consultation document invited views on the following specific proposals:

- Inclusion of a commitment to provide national roaming between 3G and 2G networks as a condition of entry to the competition (question 11)
- Inclusion of an agreement to offer access to non-network operators (including MVNOs) as a condition of entry to the competition (question 12)
- The opportunity for applicants to offer commitments on access provision (including roaming), and/or commitments on inter-operator pricing as part of the comparative selection process (question 13)

### 3.5.2 Views of the Respondents

All respondents supported the principle of a roaming condition, although views on the duration and the charging basis varied considerably. There was a marked preference for time limited roaming; only two respondents suggested there should be no time limit (in one case for rural areas only). Views were split over the charging basis for

roaming. Whilst overall there was a slight preference for roaming charges to be set on a commercial basis, some respondents preferred charges to be regulated on a cost-plus or retail-minus basis. One respondent thought roaming should apply only to operators who are deemed to have significant market power and to existing 2G mobile operators who acquire 3G mobile licences, whilst another respondent suggested that only one incumbent should be required to provide roaming.

Views were split on the inclusion of agreement to offer access as a condition of entry to the 3G mobile licence competition. A majority of the ten respondents who expressed a view were in favour of the principle of access, on the basis that it would enhance competition, although one of these thought it should be negotiated on a commercial basis and two thought that access should only apply to operators with significant market power. One respondent thought that access pricing should be on a cost-oriented basis.

Four respondents, including the two responding incumbent GSM operators, were against the proposal to mandate access to MVNOs. One thought that mandating access would give non-Irish operators an unfair advantage by allowing them to enter the Irish market without incurring a licence fee. Another argued that the new EU regulatory regime would provide sufficient power to mandate access. One respondent thought that an access pre-condition would deter new entrants from bidding, whilst another thought access conditions could not be justified in the case of new systems requiring huge investments from operators.

There was stronger support for the proposal to invite applicants to offer access commitments as part of the comparative selection process, with eight of the eleven who expressed a view supporting the proposal. A number of suggestions were put forward regarding how this might be achieved. One respondent suggested that credit could be given during the evaluation phase to applicants willing to allow MVNO access on the basis of regulator arbitration if commercial agreements fail. Another suggested the approach should apply only to operators with significant market power and to existing 2G operators who acquire 3G licences.

The two responding incumbent GSM operators were opposed to this proposal. One thought that ongoing development of alternative access models would result from licensing competent operators and should not be a factor in bid evaluation, whilst the other thought the proposal may lead to some bidders making unrealistic offers, distorting competition and giving non-operators subsidised access.

### 3.5.3 Position of the Director

The Director is encouraged by the broad consensus on the principle of roaming between 2G and 3G networks. This supports her consideration that roaming is a critical factor to support operators during the build out phase of network development. Geographic coverage is a key determinant of network selection by subscribers and, during the period of network construction, it would be a severe disadvantage to any one operator to have substantially lower coverage than its competitors. The severity could be enough to prevent an operator from being able to obtain an adequate customer base and never thereby become an established market player. There is widespread agreement among European National Regulatory Authorities (NRAs) that, in the early stages of 3G network roll out at least, delivery of a full range of mobile

services will require access to both 2G and 3G networks. It follows that a new entrant that does not already have its own 2G network will face a significant disadvantage unless there is a means to gain access to an established 2G network. The Director therefore believes that inclusion of a mandatory roaming condition on a time-limited basis should be an essential pre-requisite for operators with existing GSM networks to enter the 3G licence tender process.

As noted in section 2.3 of this response document, the Director considers that full and effective competition in the mobile service market will be enhanced by the participation of a wide range of market players, including MVNOs. She has therefore considered options for facilitating access to MVNOs to the radio access networks of licensed 3G operators. In general, the Director would prefer such access to be made available on a voluntary rather than a mandatory basis, however she is keen to provide some assurance to those MVNOs with the necessary infrastructure to provide innovative value added services that access would be available on reasonable terms. As indicated in section 3.3.4 of this response document, she has therefore decided to include, as part of the evaluation criteria for the “A” licence, the offering of a voluntary binding commitment relating to MVNO access on a “retail minus X” basis.

#### 3.5.4 Conclusions

In line with her above stated position, the Director’s decisions with regard to National Roaming and Access for MVNOs, in the context of the forthcoming 3G mobile licence tender, are as follows:

##### 3.5.4.1 *National Roaming*

All undertakings which apply for a 3G mobile licence and who are licensed to provide GSM services and networks in Ireland (or are connected to undertakings holding such a licence), will be required to agree to, as a pre-condition to enter the competition, an obligation to provide national roaming facilities onto their GSM network to all 3G mobile licensees who meet the minimum rollout requirement to qualify for roaming as set out below. This obligation will provide the Director with the power to intervene and where necessary impose a national roaming agreement where commercial negotiations have failed. Accordingly, where voluntary commercial negotiations have failed the Director reserves the right to intervene. Should such intervention be required, it is envisaged that the Director will set a price for national roaming based on the price charged by the licensee for the provision of a service to end users, less any elements of cost that are not incurred in providing the same service to the new entrant, plus any elements of cost reasonably incurred solely to provide roaming services. National roaming will be required to include the full range of GSM bearer services, teleservices, and standard supplementary services as defined in the current GSM standards at the time the roaming agreement is concluded.

The national roaming obligation will apply for a period of five years. This period will run from the date of the granting of the 3G licence to the roaming party, by which time the Director considers that the new entrant should have rolled out sufficient infrastructure not to require the national roaming facility. In accordance with the Director’s objective of promoting infrastructure as well as service competition, the national roaming obligation will become effective only when the new entrant has rolled out a 3G mobile radio access network infrastructure capable of serving at least

20 per cent of the Irish population. The obligation will only apply to applicants who are awarded 3G mobile licences.

#### 3.5.4.2 MVNO Access

All applicants for the “A” licence will be invited to offer a binding commitment relating to the provision of access to the radio access part of their 3G mobile network and, where applicable, any 2G mobile radio access network in which the applicant has, or might in the future have, an ownership interest. This binding commitment should specify, as a minimum, the pricing basis specified in the form of “retail minus X”, for a range of services and functionality equivalent to those available to its own retail subscribers. Those applicants offering such a binding commitment and a value of “X” equal to or greater than zero, will be entitled to request, on a demonstrable need basis, a further 5 MHz of unpaired IMT-2000 spectrum plus an amount of paired 900 MHz spectrum not exceeding 2 x 5.2 MHz.

Applicants for the “A” licence will be ranked according to a number of criteria, one of which will be the pricing basis of the MVNO access commitment. Applicants who offer a value of “X” greater than zero, will be awarded accordingly higher marks. Applicants who do not offer a value of “X” of zero or greater will receive no marks in this part of the evaluation process.

For the purposes of the “A” licence access pricing commitment, an MVNO will be defined as an organisation operating a physical network infrastructure comprising as a minimum a mobile switching centre, home location register and authentication centre (or 3G mobile equivalents), having its own unique mobile network code with distinct IMSI and E.164 number series (where applicable), and issuing its own branded SIM cards (or 3G mobile equivalent), but without a mobile radio access network. This definition is consistent with the Director’s objective to promote competition at both the service and infrastructure level.

These proposals do not in any way preclude alternative, commercially negotiated access agreements of any kind, on the part of holders of either “A” or “B” licences.

### 3.6 Self co-ordinating (private) 3G mobile systems

#### 3.6.1 Scope of the consultation issue

The consultation document sought views on the preferred regulatory approach to self co-ordinating 3G mobile systems operating in the unpaired spectrum designated for such systems in ERC Decision ERC/DEC (99)25 (question 14).

#### 3.6.2 Views of the Respondents

Respondents broadly agreed that the 3G mobile licensing regime should cater for limited provision of third party services using self co-ordinating systems in the spectrum internationally designated for such systems. It was suggested that this could provide benefits for organisations such as employers or hotels. There was some concern that licensed 3G operators should not be able to use self co-ordinated spectrum to increase their public network capacity, while operators of self co-

ordinating systems should not use this spectrum for any service that would require either a basic or general telecommunications licence.

### 3.6.3 Position of the Director

Having considered the views expressed in the consultation, the Director has concluded that self co-ordinated 3G mobile systems are likely to provide a valuable complement to licensed public services. Her current view is that such systems are likely to be primarily deployed for private, in-building systems in a similar manner to DECT and other cordless technologies today.

### 3.6.4 Conclusions

The Director is not minded at this stage to make specific regulatory provision for the delivery of third party services by means of self co-ordinated 3G systems until there is a clearer picture of the likely demand for private systems and the resultant implications for radio spectrum capacity. The situation will be reviewed in the light of market and technology developments, once public 3G services are operational.

## **4. GENERAL PRINCIPLES OF LICENSING.**

The consultation paper set out the Director's proposals in relation to the licence procedure, structure, types and conditions for 3G mobile networks. Views were also sought on issues relating to the sharing of transmission sites. These two aspects are dealt with separately in the following sections.

### **4.1 Licensing issues**

#### **4.1.1 Summary of the consultation issues**

The following specific issues were raised in the consultation paper:

- 3G mobile licence duration (question 15)
- Expiration date of amended 2G licences for existing 2G operators who acquire 3G licences (question 16)
- Position of spectrum in the 900 MHz and 1800 MHz bands upon expiry of current 2G licences (question 17)

#### **4.1.2 Views of Respondents**

A range of views was expressed. Some respondents thought that the licence period should be longer than the fifteen years proposed in the consultation document, preferring between twenty and twenty five years. Others felt that fifteen years would be adequate and one respondent supported a shorter duration of 10 – 15 years.

Most of the respondents who expressed a view thought that the expiry date of an existing operator's 2G licence should be extended in line with any 3G licence that the operator is awarded. One respondent thought the 2G expiry date should remain unchanged but with provision to review, while two respondents thought that the 2G and 3G expiry dates should not be linked. Where the 2G licence is extended, one respondent thought that there should be a provision to withdraw 2G spectrum before expiry of the 2G licence and two other respondents thought this should not be the case.

#### **4.1.3 Position of the Director**

Having considered the responses to the consultation, the situation elsewhere in Europe and the historical life cycle of first and second generation mobile services, the Director has decided upon a fifteen-year duration for the 3G mobile telecommunication service licence. This period provides a reasonable balance between the need to retain flexibility for long term service and technology evolution, whilst providing operators with sufficient time to achieve a reasonable return on their rollout investments. In line with current practice, the Wireless Telegraphy licence will be renewable on an annual basis.

The Director acknowledges that 3G services will, during the initial phases of roll out at least, be delivered transparently over both 2G and 3G radio access networks. She is therefore of the view that the existing modular mobile telecommunications service



licence is appropriate in this regard. . She is however also cognisant of the anticipated migration from 2G to 3G technology over time and therefore proposes to review the availability of existing spectrum in the 900 MHz and 1800 MHz bands to mobile telecommunications licensees three years prior to licence expiry. The Director anticipates that retention of such spectrum by licensees in the future should be on a demonstrable need basis, including considerations of spectrum utilisation efficiency. Spectrum in the 900 MHz and 1800 MHz bands will be reviewed in tandem with 3G spectrum.

#### **4.1.4 Conclusions**

3G mobile telecommunications service licences will be issued for a period of fifteen years. Wireless Telegraphy (WT) licences will continue to be renewable on an annual basis for the time being, although the Director may review this arrangement to extend the licence duration within the overall timeframe for the 3G licence as part of her broader spectrum management duties. Where an existing licensed 2G mobile operator is awarded a 3G mobile licence, the existing 2G mobile telecommunications service licence may be extended in line with the new 3G mobile licence. The retention of existing assignments of spectrum in the 900 MHz and 1800 MHz bands will be reviewed three years prior to expiry, to consider, inter alia whether on a demonstrable need criterion they should be extended, within the timeframe of the 3G licence.

## **4.2 Site Sharing issues**

### **4.2.1 Scope of the Consultation issues**

The following specific issues were raised in the consultation document:

- How best to promote mast sharing with existing services or between new operators (question 18)
- Establishment of a radio sites database and how this might operate in practice (question 19)
- Establishment of a Code of Practice requiring operators to consider all available mast sharing options before proceeding with a new mast (question 20)
- Whether mandatory site sharing may be required in the longer term (question 21)

### **4.2.2 Views of Respondents**

Six respondents were in favour of amending Planning Regulations to facilitate mast sharing. Three respondents favoured a licence condition to require sharing, whereas two preferred to rely on commercial negotiation. A sizeable majority of respondents supported the establishment of a site database, although one cautioned that commercial confidentiality might deter operators from providing extensive site details and that sites that are unsuitable for sharing should not be included on the database. Views were mixed on who should operate the database: three respondents thought ODTR should be responsible, one suggested outsourcing to an independent company and two preferred joint control by the ODTR and operators.

The majority of respondents who commented were in favour of a Code of Practice. One suggested that a code already existed in the form of PPG8 (Planning Guidelines Code of Best Practice). Another respondent thought a code would be helpful but should not be binding on operators. Two respondents, one an incumbent GSM operator, were against a Code: the incumbent operator thought it would involve additional overhead and force operators in to using non-optimal sites, while the other respondent argued that industry experience to date indicated a Code of Practice would not work.

The majority was against mandatory site sharing, generally preferring industry self-regulation. However, one respondent was in favour of immediate mandatory sharing, whilst another thought this would become necessary in the future as demand outstrips supply.

#### 4.2.3 Position of the Director

The Director is keen to encourage site sharing wherever possible to ensure that innovative new services can be rolled out speedily and with a minimal environmental impact. She is encouraged by the broad support among consultation respondents for a Code of Practice and is minded to pursue this option with all major operators of radio transmission sites upon completion of the 3G mobile tender process. To encourage further effective self-regulation in this area, the Director will also consider including the offering of binding commitments relating to site sharing as part of the comparative evaluation process in the forthcoming 3G mobile licence tender.

#### 4.2.4 Conclusions

The Director will explore site sharing options, including a Code of Practise with operators following the conclusion of the 3G mobile licensing process and will consider voluntary binding sharing commitments as an evaluation criterion in the tender process.

## **5. GLOSSARY**

<b>AUC</b>	Authentication Centre
<b>CEPT</b>	European Conference of Posts and Telecommunications Administrations
<b>CDMA</b>	Code Division Multiple Access
<b>DECT</b>	Digital European Cordless Telecommunications
<b>EC</b>	European Community
<b>ERC</b>	European Radiocommunications Committee
<b>EU</b>	European Union
<b>HLR</b>	Home Location Register
<b>IMSI</b>	International Mobile Subscriber Identity
<b>IMT-2000</b>	International Mobile Telecommunications 2000, the generic ITU term for third generation mobile telecommunications
<b>NRA</b>	National Regulatory Authority
<b>MSC</b>	Mobile Switching Centre
<b>MVNO</b>	Mobile Virtual Network Operator
<b>ODTR</b>	Office of the Director of Telecommunications Regulation
<b>SIM</b>	Subscriber Identity Module
<b>UMTS</b>	Universal Mobile Telecommunications System (European member of IMT-2000 family of standards)