



Response to Consultation & Further Consultation

Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands & Spectrum Release Options

Response to Consultation 08/57 & Further Consultation

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All responses to this further consultation should be clearly marked:-
“Reference: Submission re ComReg 09/14” as indicated above, and
sent by post, facsimile, e-mail or on-line at www.comreg.ie (current
consultations), to arrive on or before 5pm on 17 April 2009, to:

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1 Foreword

Access to the radio spectrum is a significant factor in meeting demand from consumers and businesses for broadband services. The two key modes for this are the Commission for Communication Regulation's (ComReg) Fixed Wireless Access Local Area (FWALA) scheme and the provision of broadband by public mobile network operators through 3G technology.

In the case of FWALA, ComReg has set aside a number of bands for FWALA licences and is releasing additional spectrum in the 3.5 GHz¹ and 10.5 GHz² bands to facilitate competition and growth. Fixed wireless access has shown strong promise in Ireland since the scheme was first launched in 2003: over 200 licences have been issued and today FWALA accounts for some 117,000 broadband subscriptions, 10.5% of the total broadband market in Ireland.

Mobile Network Operators (MNOs) are also enjoying significant growth in mobile broadband customers. Results from ComReg's last quarterly report³ show that of a total of over 5.2 million mobile subscriptions, over 268,000 are categorised as users of mobile broadband, nearly 24% of total broadband. Even in the recent uncertain economic climate, mobile broadband subscriptions enjoyed growth of over 20% in the last quarter.

Overall, mobile subscriptions grew by 1.2% during this quarter, bringing total mobile penetration to 121.5%. This serves to demonstrate the importance of mobile services to communications in Irish society and to the conduct of business.

GSM-based services account for an estimated 4 million of the 5.2 million mobile subscriptions in Ireland today. These services operate in two spectrum bands, 900 MHz and 1800 MHz. The first 900 MHz licences issued are due to expire in 2011. It is important that ComReg, as the national authority with responsibility for the efficient management of the spectrum resource, provides clarity over the future use of this valuable spectrum, and develops proposals which fully accord with our statutory responsibilities for competition, innovation and consumer welfare.

ComReg is grateful to the 9 organisations that responded to the initial Consultation on this matter⁴ ("the Consultation"). These contributions have greatly aided our deliberations on the way forward.

This document represents ComReg's response to the Consultation. It sets out those issues which ComReg considers can be settled, and also sets out a smaller number of supplementary issues for further consultation. In some cases, these are new issues, in others we are seeking clarification of unresolved issues arising from the first Consultation. Most notable amongst these are the issues around Mobile Virtual

¹ ComReg 08/99 - FWALA licensing in the 3400 – 3800 MHz band: Release of further spectrum

² ComReg 09/03 - Release of Additional Spectrum in the 10 GHz Band

³ ComReg Quarterly Key Data Report, December 2008, ComReg Document 08/101.

⁴ ComReg [Document 08/57](#) "Liberalising the Use of the 900 MHz and 1800 MHz Spectrum Bands". published 17 July 2008.

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Network Operators (MVNOs) and the new proposals on how the 900 MHz band could be made available for next generation wireless services.

Again I would encourage all interested parties to respond to the matters raised in this document. ComReg will then publish its Response to this further consultation, and a further development of our proposals in relation to the 900 MHz spectrum. We want to move forward as soon as possible to enable the use of liberalised spectrum in support of advanced mobile services to Irish consumers.

**Alex Chisholm,
Commissioner.**

2 Executive Summary

In July 2008 ComReg published its initial proposals on the future use of the 900 MHz and 1800 MHz spectrum bands (ComReg Document 08/57). Nine respondents submitted comments during the consultation period.

While respondents raised a wide variety of issues, and also put forward alternative views and options additional to those formally set out in the Consultation, it is possible for ComReg to arrive at a number of firm conclusions, particularly in relation to spectrum licensing and technical and non-technical issues. These include matters such as the limit on 900 MHz spectrum per operator, spectrum block size, frequency coordination and interference mitigation, licence duration and potential spectrum award processes.

The benefits of liberalisation of the GSM bands were also agreed and the principle of liberalisation was generally welcomed by the majority of respondents to the Consultation. As such ComReg is minded to award all *new* licences in the 900 MHz band on a liberalised basis following an open and transparent competition. A decision to award all *new* licences on a liberalised basis would provide operators with technological flexibility and a high degree of investment predictability. Any existing 900 MHz GSM licence and any spectrum retained to address GSM legacy issues, as discussed in this document, will not be liberalised.

ComReg also concurs with the majority of respondents who pointed out that the 1800 MHz frequency band will be an attractive resource for the provision of high speed mobile broadband in the future. However, there seems to be little certainty as to when new technologies such as Long Term Evolution (LTE) of 3G might become available for deployment at this frequency. Furthermore, ComReg notes that the existing GSM licensees are not using the 1800 MHz spectrum assigned to them to its fullest extent. In light of the above factors, ComReg remains of the view that there is not currently a pressing requirement to hold a competitive award process for 1800 MHz spectrum before 2013. Nevertheless and consistent with this document generally, ComReg reserves its right to alter its position should circumstances materially change in the meantime, and if industry should come forward with strong new information and arguments that would support an earlier release in this band.

Inevitably, some matters consulted upon in document 08/57 proved less clear-cut. Consequently, and in light of the comments received during that Consultation, along with recent developments at a European level, ComReg has set out the next phase of the consultation process and presents some further issues for consultation.

Views had been sought on ComReg's proposal to include obligations on holders of future 900 MHz licences to provide hosting services to a Mobile Virtual Network Operator (MVNO). While the consultation responses received on this issue were valuable, they nevertheless proved inconclusive. ComReg believes that further consultation is appropriate before it arrives at any decision in relation to MVNO commitments as part of future 900 MHz spectrum licences. With this in mind, ComReg invites responses to some further questions.

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In its initial Consultation, ComReg set out three Options as to how the 900 MHz spectrum might be made available in the future. Following ComReg's analysis of respondents' views, ComReg now sets out two new Options to liberalise use of the 900 MHz frequency band. Both Options have their merits as Ireland transitions toward a fully liberalised 900 MHz band. The first Option proposed is relatively straightforward in its process and provides certainty from the outset regarding availability of spectrum. The second Option proposed sets out how to address the GSM legacy issues outlined by some respondents, in a potentially longer timeframe.

3 Introduction and Update on Recent Developments

In July 2008 ComReg published Consultation Document 08/57 which contained proposals on liberalising the use of the 900 MHz and 1800 MHz spectrum bands (“the Consultation”).

The Consultation embraced a broad range of issues, but essentially was driven by two key factors. Firstly; ComReg must deal with the imminent expiry of two of the three existing GSM900 licences in May 2011, followed by the expiry of two GSM1800 licences in December 2014, and by the expiration of the third GSM900 licence along with the last GSM1800 licence in June 2015. Secondly; and in common with the position in all other Community Member States, it is expected that ComReg will be obliged to implement any changes made to the GSM Directive (such changes are currently being proposed), as well as the European Commission (also referred to in this document as “EC”) Radio Spectrum Decision (for which there is also a currently proposed draft), which seeks to liberalise the use of the GSM bands. Both of these are expected to be adopted in mid-2009 and are expected to promote changes in the use of spectrum allocations in the relevant bands.

Nine responses to the Consultation were received and all non-confidential responses will be published⁵ in ComReg Document 09/14s. In alphabetical order, responses were received from:

- ESB;
- Hutchison 3G Ireland limited;
- Imagine Communications;
- LM Ericsson;
- Meteor Mobile Communications Ltd;
- Qualcomm Europe Inc;
- Telefonica O2 Ireland;
- UPC Ireland; and
- Vodafone Ireland.

These respondents raised a wide variety of issues and this document is structured in the following manner.

Some respondents made submissions and proposed Options in relation to matters which were not directly or explicitly included in the Consultation, such as GSM licence renewal and GSM legacy issues. These are addressed particularly in **Section 4**.

The fundamental issues remaining would appear to be: liberalisation, the matter of whether or not ComReg should consider accepting MVNO conditions in any new licences issued, and licence expiry. Given the complexity of the issues, the text of

⁵ ComReg Document 09/14s – Submissions to consultation 08/57 – Liberalising the use of the 900 MHz and 1800 MHz Spectrum bands.

the recently proposed Directive⁶ which would amend the GSM Directive⁷ (“the Proposed Amending Directive”) and points raised by respondents to the Consultation, some further discussion and consideration of these issues is required. This gives rise to the need in some cases for further consultation in respect of these matters so as to ensure that all views and considered opinions can be taken into account. These issues are dealt with in **Section 5** (“Liberalisation of existing GSM Licences”), **Section 7** (“Mobile Virtual Network Operator Access”) and **Section 9** (“New proposals for the release of 900 MHz Spectrum”).

Nevertheless, it has been possible to consider a number of technical and licensing issues raised in the Consultation to be settled. These include: service and technology neutrality; spectrum management and technical licensing conditions; non-technical licence conditions; and future licensing of the 1800 MHz band. These issues are addressed in **Section 6**.

Analysis of the comments received on the three proposed Options for the release of 900 MHz spectrum, that were consulted upon in Document 08/57 is provided in **Section 8**.

Section 10 provides details for parties interested in responding to this consultation.

Three **annexes** with supporting information are set out at the end of this document.

⁶ Brussels, 19.11.2008, COM(2008) 762 final. Proposal amending Council Directive 87/372/EEC on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community.

⁷ Council Directive 87/372/EEC of 25 June 1987 on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community, OJ L 196, 17.7.1987, p.85 (the “GSM Directive”).

3.1 Recent Developments in Europe

There have been some developments in Europe relating to the use of the 900 MHz and 1800 MHz frequency bands since ComReg's publication of its initial Consultation and these are set out briefly below.

3.1.1 European legislation

The existing GSM Directive requires Member States to exclusively reserve the entire 890-915 MHz and 935-960 MHz bands for a pan-European system based upon the GSM standard. This prevents these bands from being used for other systems.

On 19 November 2008, the EC presented its proposal calling upon the European Parliament and Council to adopt a Directive which would amend the GSM Directive so as to allow these bands to be used by other terrestrial systems capable of providing electronic communications services that can co-exist with GSM systems ("the Proposed Amending Directive"⁸). As a first step this would include Universal Mobile Telecommunications System (UMTS), but it is acknowledged that other systems may also be able to co-exist in these bands.

Following any adoption of the Proposed Amending Directive, the EC proposes to adopt a Radio Spectrum Decision which would harmonise the necessary technical conditions for the use of this band. The EC's Radio Spectrum Committee (RSC) has already approved a draft EC Radio Spectrum Decision⁹ in relation to the 900 MHz and 1800 MHz frequency bands ("the Draft Decision") and ComReg understands that the EC intends to adopt a slightly modified version¹⁰ of the Draft Decision at the same time that the GSM Directive would be amended by the European Parliament and Council. It is currently envisaged that adoption of the Proposed Amending Directive would occur in mid 2009.

The Proposed Amending Directive as currently drafted envisages a potential for implementation of the Proposed Amending Directive by Member States to result in competitive distortions in light of differences in national legacy situations. In this regard, it highlights that existing provisions in the Common Regulatory Framework for Electronic Communications, and in particular the Authorisation Directive (Directive 2002/20/EC), give Member States the tools with which to deal with such distortions in a proportionate, non-discriminatory and objective manner¹¹. This view is underpinned by Article 1 (2) of the Proposed Amending Directive which states:

⁸ See footnote 6.

⁹ RSCOM07-04 final "the final draft of the EC's Decision on the harmonisation of the 900 MHz and 1800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community":
http://ec.europa.eu/information_society/policy/radio_spectrum/docs/ref_docs/rsc20_public_docs/07_04%20final_900_1800.pdf

¹⁰ The text of the draft decision contains measures for both the 900 MHz and 1800 MHz bands while the Proposed Amended Directive only discusses the 900 MHz band.

¹¹ Recital 17 of the Draft Decision and Recital 5 of the Proposed Amending Directive.

“Member States shall, when implementing this Directive, examine whether the existing assignment of 900 MHz spectrum to the competing mobile operators in their territory is likely to distort competition in the mobile markets concerned and, where justified and proportionate, they shall address such distortions in accordance with Article 14 of Directive 2002/20/EC.”

Whilst, again, this is contained in the current draft of a legislative measure that has not, or not yet, been adopted, and which is subject to change, the points being made are of some relevance to Section 5 of this document where the issue of liberalisation of existing GSM licences is discussed.

3.1.2 European Liberalisation and Licensing

Since July 2008, a number of Member States have progressed plans regarding the use of the GSM spectrum bands. Some recent developments in a number of other Member States are set out below, while Annex C to this consultation contains a larger inventory of other countries’ plans for this band.

Spain

In July 2008, following a decree of the Spanish Government announcing the introduction of secondary trading in a limited selection of bands including the GSM bands, the Spanish regulator published a consultation¹² to obtain views on *inter alia*:

- The impact of secondary trading of spectrum in the GSM bands; and
- The redistribution of spectrum between mobile operators.

The Spanish Royal decree on secondary trading will come into force in June 2009 and a review of existing GSM licences is due to take place in advance of this date. The Spanish regulator’s review will include new licence conditions to promote “effective deployment” of 3G services in the GSM bands.

Italy

In August 2008, the Italian regulator, Agcom, published its decision on the redistribution of spectrum assignments in the 900 MHz band, in preparation for liberalisation of the band¹³. ComReg understands that this decision is subject to a legal challenge and that a decision on this matter is expected in 2009.

Germany

On 19 November 2008, the German regulator, BNetzA, published its consultation on the future use of the 900 and 1800 MHz bands¹⁴. Amongst other issues

¹² <http://www.mityc.es/en-US/GabinetePrensa/NotasPrensa/Paginas/npforosociadadenredconsultapublica.aspx>

¹³ http://www.agcom.it/provv/d_541_08_CONS.htm

¹⁴ <http://www.bundesnetzagentur.de/media/archive/14982.pdf>

discussed, this consultation sought views on the redistribution of spectrum between mobile operators in advance of liberalisation and the auctioning of spectrum in the 1800 MHz and 2600 MHz bands is planned in 2009. This consultation closed on 19 January 2009 and a decision is expected early in 2009.

Sweden

In November 2008, the four existing GSM 900 operators (TeliaSonera, Swefour, Tele2, and Telenor) and Hi3G submitted an application to the Swedish Regulator, PTS, on the use of the 900 MHz band. Three of the GSM 900 MHz licences are due to expire on the 31 December 2010 with the other expiring in 2017.

On the basis of this application, in January 2009 the PTS announced its intention¹⁵ to launch a consultation on mobile telephony in this band, and published this consultation (in Swedish only)¹⁶ in February 2009. The consultation proposes to renew the existing licences in the GSM 900 band and to assign the entire 900 MHz spectrum band to the five operators mentioned above. The proposed licences would be spectrum assignments of 2 x 10 MHz, 2 x 7.5 MHz and 2 x 5 MHz and would allow the operators to progress to new technology and supply wireless broadband.

Belgium

In December 2008, the Belgian regulator, BIPT, revisited its earlier decision to extend the duration of the 900 MHz and 1800 MHz licences for a period of 15 years. The 900 MHz licences have now been harmonised to have a common expiry date of 2013. A decision has yet to be made on the future of these licences post 2013.

United Kingdom

On 13 February 2009 the UK regulator, Ofcom, published its second round consultation¹⁷ on liberalising the use of the 900 MHz, 1800 MHz and 2100 MHz bands. In the absence of a voluntary solution agreed amongst interested parties to release 900 MHz spectrum for a new entrant, Ofcom proposes to mandate the release of 2 x 2.5 MHz from each of the two existing 900 MHz licensees. This would free a block of 2 x 5 MHz of 900 MHz spectrum for competitive award to another party. The consultation also proposes to review spectrum fees, introduce tradable licences, and to permit the use of the bands for UMTS. Ultimately other systems may be permitted subject to coexistence.

Malta

On 16 February 2009 the Malta Communications Authority, MCA, published its consultation¹⁸ on the future use of the 900 MHz and 1800 MHz bands. Malta's

¹⁵ <http://www.pts.se/en-gb/News/Press-releases/2009/PTS-in-consultation-phase-for-proposed-decision-concerning-mobile-telephony-in-the-GSM900-band-/>

¹⁶ <http://www.pts.se/upload/Remisser/2009/08-12019-beslutsforslag-900mhz.pdf>

¹⁷ <http://www.ofcom.org.uk/consult/condocs/spectrumlib/>

¹⁸ <http://www.mca.org.mt/newsroom/openarticle.asp?id=695>

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existing GSM licences are due to expire in 2010 and 2011. The consultation contemplates that on account of its value, the spectrum in these bands cannot be automatically reassigned following expiry. It is proposed to assess demand via a call for applications and, should demand exceed supply, to award licences through a second stage competitive award process.

3.1.2.1 Analysis of Member States developments

As highlighted above, the plans of each individual Member State vary, but in general they cover a variety of issues, including:

- the liberalisation of the GSM band for other uses;
- the redistribution of spectrum within the GSM band; and
- the reassignment of spectrum via a competition and/or the extension of existing rights to use spectrum beyond licence expiry.

In responding to the issues raised in ComReg's Consultation, a number of mobile operators also noted that several National Regulatory Authorities (NRAs), within the EU and elsewhere, have renewed or extended existing GSM licences.

ComReg has further explored the circumstances surrounding a number of European NRA activities on this issue, including contacting a number of the NRAs directly to ascertain the circumstances influencing their respective decisions. Annex C to this consultation contains the results of this analysis, but in general ComReg believes that three general sets of potentially differentiating factors can be identified in many of these countries:

- There are significant differences in the provisions of the licensing regulations in other Member States when compared to Ireland. Spectrum trading and indefinite licenses are allowed in some Member States, while other Member States had explicit licensing provisions that allowed the regulatory agencies concerned to amend the expiry date of existing licences, albeit subject to consultation. ComReg further notes that a number of these countries have amended the GSM licence fees in renewing such licences.
- Several Member States have unequal, highly fragmented spectrum assignments in the 900 MHz band while other Member States have assigned the entire 900 MHz band among existing licensees. The resolution of these issues is fundamental to these Member States in order that they can introduce new technologies into the band, make efficient use of the spectrum, promote competition and prevent distortions to the market. A number of Member States have proposed plans to overcome such issues. These include the possible mandatory release of spectrum that is currently assigned to incumbents in the band, the redistribution of spectrum in the band and/or the harmonisation of the expiry dates of the existing licences.
- A number of Member States had licences which have already expired or were expected to expire before or immediately after the expected

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implementation date of the EC Draft Radio Spectrum Decision and Proposed Amended Directive. In order to provide regulatory certainty to the market, these Member States have already taken decisions on the use of the 900 MHz band, in advance of any other competitions that they may take over the coming years when this band is liberalised.

In contrast to many of the countries where licence renewal or extensions were granted as a prelude to possible spectrum re-distribution, Ireland has 13.4 MHz of unassigned 900 MHz spectrum. It is important to note that irrespective of the availability of this unassigned spectrum, the comments received from respondents to the Consultation indicate that demand for spectrum is likely to exceed supply. A total of six operators have expressed an interest in acquiring spectrum in the 900 MHz bands. The combined level of demand expressed exceeds 2 x 40 MHz in the 900 MHz band where there is only 2 x 35 MHz available in total.

4 Additional Issues Raised by Respondents

Question 17 of the Consultation asked if there were any other viable options that ComReg should consider in the context of future licensing of the 900 MHz band. A number of respondents considered it desirable to put forward alternative views and options to those formally set out in the Consultation.

Generally speaking, there was considerable opposition by existing 2G licensees and one other respondent to the Consultation proposals in terms of the manner in which it proposed to deal with the expiry of existing GSM licences. In this regard, it was noted that ComReg's Consultation Options did not consider any extension or renewal of current GSM licences in the 900 MHz band beyond their licence expiry dates. These respondents expressed concerns that this approach would open the possibility of a 2G mobile operator, if unsuccessful in any future competition, not having access to 900 MHz spectrum beyond the date on which its 2G licence expired. A number of reasons were put forward as to why existing GSM licences should be "renewed", "extended" or "re-instated" beyond the current 15 year licence duration for GSM 900 and 1800 MHz licences.

This section considers issues raised by these respondents relating to:

- i) the Office of the Director of Telecommunications Regulation's (ODTR) reference to a review of spectrum assignments in the 900 MHz and 1800 MHz bands prior to 2G licence-expiry, and the possibility of future renewal of then existing GSM licences on the basis of demonstrable need (Section 4.1);
- ii) perceived conflicts between the Consultation proposals with the EU regulatory framework and practices adopted by NRAs in other countries (Section 4.2);
- iii) the potential loss of 900 MHz spectrum and the alleged inadequacy of alternative methods to provide continuous service to consumers (Section 4.3);
- iv) market disruption to existing 2G licensees and their customers (Section 4.4);
- v) regulatory certainty, efficient infrastructure investment and sustainability of the business of undertakings (Section 4.5);
- vi) promotion of competition and new entrants into the 900 MHz band (Section 4.6);
- vii) Miscellaneous issues including speculative bids in a competition (Section 4.7).

Other issues brought up in responding to Question 17 such as capping spectrum allocations, the auction process, licence duration and the alternative competition

proposals submitted are not addressed within this section, but are instead addressed within the appropriate sections of this document.

4.1 ODTR's statement regarding possibility of future renewal of GSM licences

Views of respondents

Each of the existing 2G licensees in responding stated that it was their belief that they would retain their existing 900 MHz and 1800 MHz spectrum assignments beyond the expiry of their current licences, and each cited the following from Section 4.2 of ODTR Information Memorandum 01/96:

“Continued availability of existing spectrum assignments in the 900 MHz and 1800 MHz bands to mobile telecommunications licensees will be reviewed three years prior to licence expiry. Retention of such spectrum will be on a demonstrable need basis until the end date of the 3G licences.”¹⁹

It was contended that the Options proposed in the Consultation were flawed as they did not explicitly consider spectrum retention in accordance with the above statement. Furthermore, these respondents called upon ComReg to explain its position and develop alternative proposals that would allow the “extension” of existing GSM licences until at least the expiry dates of the 3G licences.

ComReg's position

ComReg has carefully considered these responses, the circumstances surrounding the Director's statement in ODTR 01/96 and other material relevant to licence expiry and renewal. In forming its position on this issue, ComReg notes the following:

- i) The GSM 900 MHz licences granted to these licensees contained at the relevant time, and still contain, expiry dates of 2011 and 2015, respectively;
- ii) At the time of the Director's statement in 2001, the relevant regulations under which the GSM 900 MHz licences were issued were already in place and provided for annual renewal and a final expiry date of 15 May 2011 (in the case of Vodafone and O2). The regulations are very explicit about the expiry of these licences, and the express intention of the regulations is that GSM 900 MHz licences would expire after their 15-year terms²⁰;
- iii) The Director's statement was made in circumstances where the Information Memorandum in which it was contained was itself attended by disclaimers and caveats, and which expressly indicated that it did not contain the

¹⁹ [ODTR 01/96](#): Information Memorandum – Four licences to provide 3G services in Ireland.

²⁰ The relevant Statutory Instruments are [468 of 1997](#), [442 of 1999](#) and [339 of 2003](#).

Director's final position on any matter in the 3G licensing process²¹. In any event, the Director's statement was not reflected or incorporated by the ODTR into its subsequent 3G Tender documents²² or relevant GSM regulations;

- iv) Prospective applicants in the 3G licence competition conducted by the ODTR, including the current 2G licensees, were provided with opportunities to seek clarification regarding the 3G Tender documentation.²³ This included the opportunity to comment on draft 3G & GSM licence regulations²⁴, (which also provided, *inter alia*, for annual renewal and a final licence expiry date of 2011 in the case of Vodafone and O2 for their GSM 900 MHz licences). ComReg notes that neither the final licence expiry date nor the Director's statement were commented upon in this process;
- v) In 2003, the 2G licences became subject to regulations (being those currently applicable), which provided for
 - a. annual renewal;
 - b. the express disclaimer of any warranty that any 2G licence would be renewed at any time in the future by virtue of the granting or renewal of such licence at any point in time; and
 - c. clear dates for 2G licence-expiry of 2011 and 2015, respectively.
- vi) Renewal of the existing GSM licences, in the manner suggested by the relevant GSM Licensees, would require ComReg to make new regulations under the Wireless Telegraphy Act 1926, which, pursuant to section 37 of the Communications Regulation Act 2002, would require the consent of the Minister for Communications, Energy and Natural Resources;
- vii) Apart from the fact that it has certain powers, functions and duties of a discretionary and other nature to exercise and carry out generally, under the Communications Regulation Act, 2002, ComReg has the statutory function, *inter alia*, of managing the radio frequency spectrum as it deems appropriate in the exercise of its discretion (albeit informed by ministerial directions and so on). Further, under that Act, ComReg has the objective of promoting competition and ensuring the efficient management and use of the radio frequency spectrum. As regards its statutorily-mandated objective

²¹ Specifically: "This memorandum is for information purposes only and does not form part of any formal tender process. It is without prejudice to the legal position of the director or her rights and duties under relevant legislation." (footnote 1). In addition, page 4 of the Information Memorandum states: "It should be stressed that this memorandum is only indicative of the competition".

²² Indeed, section 3.23 of the tender document stated: "... No information contained in this document shall form the basis for any warranty or representation by or term of any contract with the Director."

²³ Persons who purchased a copy of the tender documents and registered with the ODTR were eligible to participate in a question and answer phase to clarify issues in the tender documents.

²⁴ These regulations are now finalised as Statutory Instruments [345 of 2002](#) and [340 of 2003](#).

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of promoting competition in exercising its functions, ComReg must take all reasonable measures which are aimed at achieving that objective, including

- a. Ensuring that users derive maximum benefit in terms of choice, price and quality;
 - b. Ensuring that there is no distortion or restriction of competition in the electronic communications sector;
 - c. Encouraging efficient investment in infrastructure and promoting innovation; and
 - d. Encouraging efficient use and ensuring the effective management of radio frequencies;
- viii) Under Regulation 23 of the Framework Regulations, 2003, (S.I. No. 307 of 2003), ComReg is to ensure the effective management of radio frequencies for electronic communications services in accordance with section 12 of the 2002 Act, and to ensure that the allocation and assignment of such radio frequencies is based on objective, transparent, non-discriminatory and proportionate criteria; and
- ix) ComReg's review of publicly available statements and disclosures by each of the GSM licensees regarding expiry of their respective GSM licence, including those to securities exchanges and financial regulators such as the Securities and Exchange Commission of the United States (for which strict rules on the accuracy of such disclosures apply), has not found any reference to the Director's statement in ODTR 01/96 or to the claimed meaning and effect of that statement²⁵. Indeed, the disclosures found by ComReg, in each case, tended to show that the relevant licensees' own expressed understanding of GSM licence duration was of 15 years.

In light of the above factors, save for the fact of the Consultation, and this response to, and further, consultation, ComReg does not consider that it ought to proceed on the basis of the GSM licensees' particular views of the meaning and effect of the Director's statement in ODTR 01/96.

²⁵ Various Securities and Exchange Commission 20-F submissions, including;

Vodafone Group's Form 20-F filing with the SEC for the fiscal year ending 31 March, 2008 contains a clear reference to the May 2011 expiry date of the 900 MHz licence held by its Irish subsidiary Vodafone Ireland. (Page 20)
http://www.vodafone.com/etc/medialib/attachments/agm_2008.Par.22564.File.dat/2008_Annual_Report_FINAL_20-F.pdf.

Telefonica SA's Form 20-F SEC filing of 19 May 2008 contains a clear reference to the 15 year duration of the 900 MHz licence held by its Irish subsidiary Telefonica O2 Ireland. (Page 53)
http://www.telefonica.es/accionistaseinversores/Ing/pdf/080510_form20f-20007.pdf.

eircom Group PLC's Form 20-F filing with the SEC for the fiscal year ending 31 March, 2006 contains a clear reference to the 15 year duration and subsequent expiry of the 900 MHz licence held by its Irish subsidiary Meteor. (Page 89)
<http://investorrelations.eircom.net/pdf/form20F300606.pdf>.

4.2 EU Regulatory Framework and International Practices

Views of Respondents

Existing 2G licensees variously claimed that the proposals contained in the Consultation did not:

- meet the regulatory objectives and duties set out in Article 8 of the Framework Directive, the Communications Regulation Act 2002, and relevant Ministerial Policy Directions issued to ComReg;
- accord with the conclusions of the EC's Communications Committee (CoCom) on the expiry of 2G licences and use²⁶; or
- accord with the positions taken by other NRA's on GSM licence expiry (such as France, Germany, Portugal and the Netherlands which have decided to renew existing 900 MHz licences)²⁷.

In addition, it was claimed that European legislation, including the Framework Directive and the draft EC Radio Spectrum Decision²⁸ does not oblige NRAs to reassign, via a competition, those spectrum licences which are reaching their termination dates. Instead, it was asserted that the European Framework allows for renewal of existing GSM licences provided such an approach is objectively justified, transparent and proportionate.

ComReg's position

ComReg remains of the view that its proposals contained in the Consultation are in accordance with the regulatory framework within which ComReg operates.

In relation to the view expressed regarding the interpretation of the Draft Radio Spectrum Decision, ComReg agrees that the Draft Decision does not link liberalisation of 900 MHz and 1800 MHz spectrum with the "compulsory release" of the 900 MHz spectrum blocks held by existing licensees. The Options proposed in the Consultation, as they related to the expiry of existing GSM licences, were put forward on the basis that, amongst other things, these licences have explicit durations and expiry dates which are set out, amongst other places, in the relevant licence regulations, and ComReg's continuing belief that demand for 900 MHz spectrum is likely to exceed supply. In such circumstances, ComReg remains of the view that open, non-discriminatory and equitable opportunities to access that spectrum, such as are provided by market mechanisms, are appropriate in this context.²⁹

²⁶ The cited COCOM documents being [COCOM04-21](#), [COCOM04-37](#) and [COCOM04-46](#).

²⁷ The respondents also referred to the following countries where existing 900 MHz assignments were retained: Belgium, Finland, Hong Kong, Italy, Singapore, Spain, Switzerland and the United Kingdom. See Section 3 and Annex C for analysis of overseas developments.

²⁸ Reference was also made to the explanatory note to the Draft Decision which notes that the measure does not address the issue of spectrum usage rights.

²⁹ More specifically, Regulation 9 of the Authorisation Regulations requires ComReg to establish "open, transparent and non-discriminatory procedures for the grant of licences and shall cause any such procedures to be made publicly available". In addition, Regulation 23 of the Framework

ComReg notes the view put forward by one respondent that policies set at the European Union level, and specifically CoCom documents relating to the expiry of 2G rights of use, formed a separate basis upon which it had an expectation of renewal of its GSM licence. While ComReg has, and will continue to have, regard to relevant international developments, practices and policy statements, and particularly those within the European Union, it does not consider that discussions and conclusions within an international forum necessarily give rise to some form of “renewal expectancy”, which would oblige it to renew existing GSM licences.

In relation to the specific CoCom documents concerning “Renewal of 2G Rights of Use”, ComReg notes that these are expressly stated to be working documents and, furthermore, that each contains clear and express disclaimers.³⁰ Amongst other things, therefore, in circumstances where the CoCom has itself made express disclaimers as to the nature and contents of the documents, it is difficult to envisage how ComReg should somehow be bound to the contents of those documents. While acknowledging the important role played by CoCom in relation to the formulation of guidance for the EC, ComReg notes that CoCom is an advisory committee to assist the EC and has no formal decision making powers *per se*. Accordingly, ComReg does not see that such documents are somehow binding upon, or should fetter the statutory discretion conferred on it in respect of its management of the radio spectrum.³¹

In relation to the position of other NRAs regarding GSM licence expiry, ComReg has conducted further analysis, as detailed in Section 3 and Annex C of this document, and notes that:

- i) In many cases, national legislation or licence conditions differ significantly from those applicable in Ireland. For example, in some countries national regulators have specific powers to extend/renew licences, or were required to automatically renew licences unless otherwise justified in advance of expiry. In others, explicit provisions for licence renewal applied;
- ii) For the most part, licence extensions or renewals in the cited countries have been of short duration to facilitate further regulatory measures associated with liberalised spectrum use. These measures include, amongst other things, the resolution of complications in the existing spectrum assignments which do not apply to the same extent in Ireland;

Regulations requires ComReg to “ensure that the allocation and assignment of [such] radio frequencies is based on objective, transparent, non-discriminatory and proportionate criteria”. ComReg does not consider that its position with respect to GSM licence expiry and using well-established market mechanisms to allocate spectrum would be contrary to these requirements.

³⁰ Specifically: “This is a Committee working document which does not necessarily reflect the official position of the Commission. No inferences should be drawn from this document as to the precise form or content of future measures to be submitted by the Commission. The Commission accepts no responsibility or liability whatsoever with regard to any information or data referred to in this document.” (see page 1 of COCOM 04-21, 04-37 and 04-46).

³¹ This view would clearly not apply to Community Directives and Decisions.

- iii) In a number of these countries, there was limited or no demand for access to the spectrum expressed by potential new licensees at the time of the relevant regulator's decision; and
- iv) The relative size of spectrum holdings and the associated expiry dates of licences differ greatly in each country.

It is therefore unrealistic to draw potentially applicable conclusions for Ireland from the approaches taken in other jurisdictions in light of the substantial, and often fundamental, differences in national circumstances.

Consequently, ComReg remains of the view that the more appropriate approach to dealing with the issue of licence expiry is one which takes into account the specific conditions and circumstances applicable. In this regard, ComReg would not consider its proposals as being incongruous with the approach of other Member States and indeed notes that several Member States which participated in the CoCom discussions on 2G rights of use stressed the need for Member States to be able to take into account national circumstances³².

4.3 Potential loss of access to 900 MHz spectrum and alternative methods to provide continuous service to consumers

Views of Respondents

It was argued by existing GSM licensees that if any of the Options proposed in the Consultation were to be adopted it would be possible that any or all of them could face a potential loss of spectrum. It was further stated that it was inevitable that at least one of the 2G mobile operators would be required to realign its network to different frequencies or to operate its network using less spectrum than presently allocated to it for 2G use.

In such a scenario, it was asserted that use of their existing frequency assignments in the 1800 MHz and 2100 MHz bands as a potential solution to any loss of 900 MHz spectrum would be irrelevant in limiting disruption to consumers as:

- these bands had inferior propagation characteristics compared to 900 MHz spectrum; and
- there would be substantial costs and time requirements associated with making the necessary changes to the network to cope with a reduction or loss of 900 MHz spectrum. In this regard, it was claimed that doing so, in the timeframe likely to be involved, would be a practical “impossibility” and significant shortfalls in network capacity and coverage over an extended period of time were therefore likely.

In addition, the respondents queried the feasibility of continued provision of services through MVNO agreements as:

³² See [COCOM04-46](#)

- there was no certainty that a mobile operator could conclude an MVNO agreement with another operator;
- the outcome of a competition could lead to more than one Mobile Network Operator (“MNO”) in search for an MVNO agreement; and
- it could also result in a reduced number of 900 MHz mobile operators with the capability to provide such wholesale services. It was noted that this could particularly be the case where a new operator was rolling out a new wireless technology that was not capable of supporting existing 2G services.

Some respondents also expressed reservations regarding the ability of the Mobile Number Portability (MNP) process to address the situation of a loss of 900 MHz spectrum. In particular, it was stated that existing MNP processes are not designed for mass migration and a two hour disruption of service to a large customer base would be costly and potentially “politically unacceptable”. Another respondent considered that MNP would not limit disruption to customers where new operators had not built out their networks sufficiently to offer coverage equivalent to existing networks, or may not have the network capacity to efficiently provide services to the number of subscribers seeking to port.

In light of the above factors, it was contended that these alternative methods to provide continued services would not be effective and there would likely be customer disruption (experienced in terms of less extensive coverage, reduced voice quality, lower data speeds, and increased congestion leading to an increased incidence of dropped calls) as a result.

ComReg’s position

ComReg acknowledges that the Options proposed in the Consultation involved the possibility of an existing 2G licensee not obtaining 900 MHz spectrum or having reduced frequency assignments. This was made explicit in the Consultation.

In response to the views set out above, ComReg would firstly point out that in any future assignment process, existing 2G licensees would have the same opportunities as all other applicants to gain access to 900 MHz spectrum and there is no reason to believe that incumbent 2G licensees would be likely not to gain access to 900 MHz spectrum. Certainly they should not be disadvantaged in such a process. In this regard, ComReg notes that:

- Incumbent licensees are likely to have certain advantages over other bidders arising from having an established customer base and the resulting nature and level of information and insight available to them (such as in relation to the value of the spectrum, the likely return on investment, industry and market developments, and so on);
- Any competition mechanism would be designed so as to provide the greatest opportunity for those participants who most valued the spectrum to obtain it. Accordingly, full or partial loss of spectrum should only occur if an existing licensee valued the spectrum less than other bidders, or valued the spectrum higher than the winner but lost out due to its bidding strategy; and

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- ComReg would reiterate its proposal to release an additional 2 x 13.4 MHz of liberalised 900 MHz spectrum (i.e. over one third of the entire band) to the market as early as this year, which should alleviate any concerns held by existing licensees in this regard. For instance, under ComReg's proposals it is possible that each of the existing 2G licensees could expand their 900 MHz spectrum assignments by over 25% to 2 x 10 MHz.

Overall, while ComReg acknowledges that there is the potential for an incumbent operator to lose access to 900 MHz spectrum, it could be argued that an at least equally possible outcome is that it will acquire access to 900 MHz spectrum and could expand its 900 MHz assignment to 2 x 10 MHz.

Use of existing alternative spectrum assignments

If an existing 2G licensee did not secure 900 MHz spectrum in a competition, it would not be precluded from continuing to provide 2G services. In this regard, ComReg notes that there are 2G operators in other countries (such as T-Mobile and Orange in the UK) which do not have any 900 MHz assignments and yet provide 2G services using the 1800 MHz band. Additionally, existing 2G licensees all have licences for 2100 MHz spectrum for the provision of 3G services.

In relation to the use of existing 1800 MHz assignments to address any loss of 900 MHz spectrum, ComReg notes that 2 x 14.4 MHz of spectrum is currently assigned per operator in the 1800 MHz band. Despite this, ComReg is aware that those assignments are predominantly being used to reinforce capacity in high traffic areas. Notwithstanding any reasonable time period required for migration, there would seem to be scope for increased use of existing 1800 MHz spectrum assignments, both in terms of maintaining continuity of GSM services to consumers in the event of a licensee not gaining, or gaining less, access to 900 MHz spectrum.

In relation to respondents' views regarding the relatively short timeframe within which to mitigate any loss of access to 900 MHz spectrum, ComReg has made it clear that it proposes to hold a competition in 2009, two years before expiry of the two GSM900 licences in 2011. ComReg notes that Ofcom, in its consultation of 13 February 2009, has suggested a similar timeframe.³³ In addition, the regulations and the GSM licences are very clear on licence duration and expiry, and, in this context, existing licensees, in addition to realising a substantial return on their investment during the 15-year period, have had long-term notice about the issue of the expiry of licensed rights to use 2G apparatus in the 900 MHz frequency band.

MVNO or other arrangement

As noted in the Consultation, another possibility for an existing licensee which did not gain any access to 900 MHz spectrum or was left with a reduced amount of spectrum would be to come to an arrangement with other mobile operators to gain

³³ See Ofcom "Application of spectrum liberalisation and trading to the mobile sector, a further consultation", 13 February 2009.
<http://www.ofcom.org.uk/consult/condocs/spectrumlib/spectrumlib.pdf>

access to their networks. In the case of an operator with a reduced network footprint, ComReg believes that it could come to a national roaming agreement with other operators to provide a service in areas where it does not have coverage with its own network. Indeed, ComReg notes that there are currently two such arrangements in the Irish market.

In relation to the doubts expressed regarding the ability of MVNO or other arrangements to address this possibility, respondents should take note that:

- As stated earlier, ComReg is proposing to release an additional 2 x 13.4 MHz of liberalised 900 MHz spectrum to the market which could be acquired (subject to the proposed spectrum cap) by existing licensees or new operators to the band who could potentially provide hosting services to existing licensees by the time of GSM licence expiry;
- ComReg is consulting further upon MVNO obligations in the context of new 900 MHz licences and, should existing GSM licensees continue to have concerns regarding the incentive and/or ability of parties to come to an efficient commercial arrangement, then this could inform their responses to ComReg's further consultation on this issue.

Switching providers and porting in a "mass market" scenario

Another concern expressed by an existing licensee was lack of service during any mass migration to a new operator during a mass migration.

ComReg does not envisage a mass migration in a short period of time, with the potential to disrupt the MNP processes, in the circumstance that an existing MNO left the market. However if a MNO decided to leave the market (either of its own volition or on foot of not securing 900 MHz spectrum) it would seem logical for it to seek to recover the maximum from its business from selling it as a going concern. It would not seem rational for an operator in such a circumstance to engineer or passively accept a situation where a large number of its customers would be facing an imminent loss of service.

Additionally, ComReg notes the views of one other respondent to this Consultation who stated that MNP is working well and over 1 million numbers have already been ported.

Conclusion

In the future assignment Options set out in the Consultation, ComReg acknowledges that there is the potential for an incumbent operator not to gain access to 900 MHz spectrum. However, incumbent 2G licensees would have the same opportunities as all other applicants to gain access to such spectrum and there is no reason to believe that they would be likely not to gain such access; indeed, it could be argued that the opposite would be an equally possible scenario.

Notwithstanding, and in the event of partial or complete loss of access to 900 MHz spectrum, there are other viable options, either singularly or operating in

combination, for existing 2G licensees to provide services to their customers. These include the use of existing frequency assignments in the 1800 MHz and 2100 MHz bands and/or the use of MVNO or national roaming agreements with other mobile operators. Furthermore, if an operator wished to leave the market, it would have the potential to recover the maximum from its business from selling it as a going concern and switching its customers to another service provider.

4.4 Market Disruption to existing 2G licensees and their customers

Views of Respondents

Respondents claimed that loss of the 900 MHz spectrum allocations associated with 2G licences would result in market disruptions to the operators and consumers, and that it would be wrong for ComReg to propose to auction all of the spectrum in the 900 MHz band when the proposed licensing options raised considerable risks for the MNOs and, by extension, consumers.

In the view of these respondents, the partial or complete loss of 900 MHz spectrum usage rights by any existing GSM operator would, for an extended period of time, weaken rather than promote competition in both the retail and wholesale markets. In particular, it was claimed that such an outcome would:

- impair or eliminate the affected operator(s) ability to offer wholesale services and compete in the wholesale market with consequent effects into the retail market;
- reduce the bargaining power of new entrants *vis-a-vis* the remaining operators which were capable of hosting them as Mobile Virtual Network Operators (MVNO) or of augmenting their effective network coverage through national roaming agreements if there were a reduced number of operators competing in the wholesale market; and
- diminish the intensity of retail competition which could result in higher retail prices as it takes time for the new entrant to gain traction in the market.

ComReg's position

ComReg firstly reiterates its view that there is no reason to believe that incumbent 2G licensees would not gain access to 900 MHz spectrum in any future competition and, even in the event of a partial or complete loss of the current 900 MHz spectrum allocated for 2G purposes, there are other viable options which can be employed by the operators to mitigate any disruption to its customers.

Additionally, ComReg has noted that:

- The level of migration of an existing licensee's customers from 2G to 3G services has been, and remains, within the control of the individual licensee. In this regard, ComReg further notes that the respondents have had executive control over the nature and level of their 3G services, marketing and pricing, and deployment of 3G handsets;

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- It was generally envisaged at the time, that the majority of consumers would be using 3G services within a 5 to 10 year period from the date of the issue of 3G licences;
- In addition, the relevant GSM licence regulations have been, and remain, very clear on GSM licence duration and expiry, and, in this context, it is clear that existing licensees have had long-term notice about the potential for loss of particular rights to use 900 MHz spectrum and, as such, could have, amongst other things, prepared their respective 1800 and 2100 MHz networks to address this possibility.

Nevertheless, ComReg takes very seriously the issue of consumer interests that are relevant to the exercise by it of its powers, functions and duties, and it will be seen that ComReg is, by means of this document, consulting upon a further option which seeks to address the 2G legacy issues highlighted and seemingly relied upon by some respondents to the Consultation in advance of expiry dates (see Section 9).

Spectrum Realignment issues at 900 MHz

In relation to the competition Options, ComReg notes the respondents' comments that at least one operator will be required to realign its network based upon the outcome of a competition in the 900 MHz band. ComReg notes that such an eventuality is a result of the existing 900 MHz spectrum assignments and the need to realign the band into 5 MHz blocks. Irrespective of what competition Option is chosen, it is inevitable that at least one MNO will have to realign its spectrum assignment. ComReg has noted this network re-tuning issue and has incorporated a realignment process into the competition Options, as set out in Section 9 of this document.

4.5 Regulatory certainty, efficient infrastructure investment and sustainability of the business of the undertakings

Views of Respondents

Existing 2G licensees argued that ComReg's proposals did not provide regulatory certainty and would therefore stifle current and future investments. In particular, as mobile networks required substantial and continuous investments with long payback periods, these respondents questioned whether there would be ongoing investment in a mobile network, particularly after the initial outlay, if there was no guarantee of licence renewal.

It was further claimed that any existing operators which were not successful in obtaining 900 MHz spectrum in a future competition would have no incentive to do anything but to "sweat the assets" before the licence termination date. In addition, it was claimed that, overall, ComReg's lack of a licence renewal proposal could impact on continued development of, and investment in, the radio communications sector as a whole.

Moreover, it was contended that the Consultation Options did not accord with the following Ministerial Policy Direction³⁴:

“The Commission shall ensure that in making regulatory decisions in relation to the electronic communications market, it takes account of the state of the industry and in particular the industry’s position in the business cycle and the impact of such decisions on the sustainability of the business of undertakings affected.”

ComReg’s position

ComReg considers that efficient radio spectrum infrastructure investment is promoted when, amongst other things, there is certainty regarding spectrum usage rights and obligations. This would include, in the present case, clear and unambiguous terms on licence duration and licence expiry.

In this regard, ComReg considers that its proposals provide regulatory certainty and thereby encourage efficient infrastructure investment as they are premised on a position on licence duration and expiry which would:

- accord with the relevant GSM licence regulations which were consented to by the Minister at the time, and under which these licences were issued and to which they remain subject³⁵; and
- provide regulatory certainty for other users and potential users of the radio spectrum who would reasonably expect that, when licences contain explicit durations and clear expiry dates, the spectrum to which these licences relate could become available for reallocation following expiry of those licences.

In relation to the view put forward that “compulsory release” would introduce investment uncertainty, on the basis that if licences were not renewed, companies would change their plans *vis a vis* investments, ComReg considers that its view would promote investment³⁶. In this regard, ComReg notes that this would appear contrary to the very clear position of licence duration and expiry as set out, amongst other places, in the relevant licence regulations, and the public disclosures and statements of the licensees themselves (such as SEC filings³⁷). Moreover, ComReg notes that licence durations are generally set so as to enable a licensee to make a reasonable return on its investment.

³⁴ See the two policy directions made by Dermot Ahern T.D. then Minister for Communications, Marine and Natural Resources, on [21 February 2003](#) and [26 March 2004](#).

³⁵ The consent of the Minister is required for regulations enacted under the Wireless Telegraphy Acts.

³⁶ ComReg notes Merrill Lynch data (based on company reports) which highlights that the CAPEX of Vodafone and O2 have been declining since 2006, suggesting that the operators are planning for licence expiry in 2011. Source: Annual CAPEX, Global Wireless Matrix Q2’08, Merrill Lynch, 25 September 2008. See www.ml.com

³⁷ See footnote 25

ComReg believes that the MNOs that obtained the right to use 900 MHz spectrum for the purpose of 2G services are likely to have made significantly positive returns on their initial investment³⁸. Moreover, investments made would, under no circumstances be sunk in the event that a firm decided to leave or left the industry on foot of being unsuccessful at auction. The assets of MNOs are valuable and it is likely that much of their value could be recouped by disposal to a new entrant or existing operators³⁹.

In relation to the view expressed that ComReg's Consultation Options, and position on GSM licence expiry generally, would not accord with the Ministerial Policy Direction described above, ComReg points out that it has had, and will continue to have, regard to the various factors identified in this Policy Direction.

ComReg, however, does not hold the view that proposed measures should not be implemented solely on the basis that it could potentially affect the business of a licensee. In this regard, ComReg notes the following:

- many regulatory actions, by their very nature, will effect the businesses of undertakings affected;
- the impact of measures on the industry needs to be considered in the light of long-run investment incentives and patterns, as is recognised, for example, by the 15 year duration of the licences;
- the negative impact for one business that loses spectrum rights needs to be considered alongside the positive impact on another business that gains spectrum rights; and
- the relevant issue, in ComReg's opinion, is whether the proposed measure falls within ComReg's functions, objectives and duties, and also whether the proposed measure is reasonable, objectively justified and proportionate. It is within this overall context that the matters set out in the Policy Direction are to be considered and appropriately applied;

Accordingly, ComReg is of the view that this and other relevant Ministerial Policy Directions should form part of the range of relevant considerations which ComReg should take into account when coming to its decisions. Clearly, the weight given to this or any other consideration will vary depending on the particular circumstances of the matter at hand.

³⁸ Annual revenue data indicates significant growth in revenues over the last six years in the case of Vodafone and O2 and four years in the case of Meteor. Annual EBITDA and EBITDA margins have been positive for at least the last 6 years in the case of Vodafone and O2 and for at least the last two years in the case of Meteor. The country average EBITDA margins have varied between 34.3% and 41.8% over the last six years, while the total country EBITDA has increased significantly from €639mn in 2002 to €977mn in 2007.

Source: Global Wireless Matrix Q2'08, Merrill Lynch, 25 September 2008. See www.ml.com

³⁹ Based on quarter 2 2008 data for ARPU per month, Irish operators are second only to Norway, earning over \$65 per user each month, which translates to \$0.23 average revenue per minute (ARPM). Source: Average revenue per user Q2'08, Global Wireless Matrix Q2'08, Merrill Lynch, 25 September 2008. See www.ml.com

4.6 Promotion of competition and new entrants into the 900 MHz band

Views of Respondents

A number of respondents questioned ComReg's proposals and underlying reasons and analysis for promoting competition and facilitating the entry of new operators into the 900 MHz band.

In addition to questioning ComReg's welfare analysis relating to new market entry (as contained in Annex F of the Consultation), some respondents considered there to be other ways of facilitating entry, including:

- using an auction or other spectrum assignment mechanism for at least some of the currently unassigned spectrum in the band for this purpose, whilst renewing the 900 MHz licences held by existing licensees;
- access to other frequency bands such as the digital dividend; and
- the introduction of spectrum trading to the 900 MHz band.

Furthermore and in relation to spectrum trading, one current licensee responded that the Government's Report on spectrum policy⁴⁰ claimed that trading rights as a "core principle" was to be enshrined in future legislation. This respondent contended that if spectrum trading was permitted in Ireland, within a rolling licence regime, it could resolve many of the issues which ComReg wishes to address through the Consultation's compulsory spectrum release and refarming proposals, but in a much more orderly and efficient manner. It believed that the Government appeared to be moving forward with legislation to adopt spectrum trading in Ireland and that ComReg should reframe its proposals in the light of this.

ComReg's position

Alternative ways of facilitating new entry & spectrum trading

While ComReg is clearly cognisant of the broader environment in which GSM licence expiry and the implementation of the Draft Radio Spectrum Decision is occurring, such as the potential for spectrum trading in Ireland and the "Digital Dividend", ComReg notes, firstly, that the introduction of a regime of spectrum trading is a matter for policymakers and secondly that the limited experience of spectrum trading elsewhere has not necessarily demonstrated the advantages claimed by this respondent.⁴¹

Moreover, ComReg would add that the specifics of both matters are far from decided. For example, it is not altogether clear whether such a regime would apply to existing licences or would, or indeed should, involve the notion of "rolling" licence durations. Similarly, in relation to potential spectrum availability arising from the Digital Dividend, it is unclear what spectrum may be made available, when it may

⁴⁰ <http://www.dcenr.gov.ie/NR/rdonlyres/7691C849-3049-4C29-ACEF-5FD4518B04E4/0/SpectrumGroupReport050908RORFinal.doc>

⁴¹ "2008 review: Spectrum trading fails to impress" Policy Tracker, <http://www.policytracker.com/>

become available and indeed for what uses any such spectrum would be made available. Furthermore, as appropriate public consultations have yet to take place in relation to these matters, it would be inappropriate for ComReg to, in any way, pre-determine the outcome or specifics of these matters.

ComReg therefore considers that it is incumbent on it to outline how it will deal with expiring licences under the current regime and circumstances, in advance of expiry dates.

ComReg's welfare analysis

ComReg agrees with the view put forward that the welfare analysis only demonstrates that any option that induces entry will have a positive welfare effect. Indeed, the purpose of the welfare analysis was not to compare the costs and benefits of different options but rather to determine if options that lead to entry would enhance overall welfare.

ComReg accepts that there are models in economic literature that show that there can be excess entry into an oligopolistic industry, which would have the result that welfare would actually be improved if a firm left the industry. Of course, the current context is not a classic free entry situation. Hence, it is important to show that an increase in the number of operators would lead to an overall increase in welfare. ComReg thinks that it is important to point out that the welfare model shows that we are unlikely to be even approaching this saturation point in the Irish context. Moreover, ComReg believes that entry up to such a level can be dealt with by the normal market mechanism of firms merging/leaving the industry. ComReg notes that it is much more difficult to enter a mature sector with entrenched firms, and hence, ComReg holds that there are strong theoretical and practical grounds to put forward options that facilitate additional entry.

Specific Details of ComReg's Welfare Analysis

In terms of the actual model shown, one respondent criticised the choice of the Cournot⁴² model in a mobile setting, making the following points in this regard:

- In mobile markets quantity decisions are not fixed in advance;
- Operators can and do engage in robust price competition; and
- Both capacity and actual volume of calls are not fixed but can be varied.

Taking each in turn:

- i) In mobile markets capacity on the network and quality of service are closely linked. Coverage both in terms of geography and the quality of signal within buildings in urban areas are critically impacted by capacity decisions. These are important factors in the perception of the quality of an

⁴² In the Cournot model of competition, firms in an oligopoly choose their outputs given the outputs of their competitor firms in the industry.

individual network and in turn feed into the types of subscribers a network can attract and the prices that they can be charged. Overwhelmingly, the plans for such networks will be chosen in advance of entry, even if final implementation may in some circumstances be delayed. The important point is that pricing and marketing plans only make sense in light of the capacity decisions that have been made. Hence, a model where the capacity decision is made in advance, and the pricing decision flows from this, seems a perfectly sensible simplification for modelling purposes in the mobile sector;

- ii) Modelling day-to-day competition (once the capacity/quality decision has been made) as Bertrand⁴³ competition over differentiated products seems to ComReg to be a reasonable approach. In such a model there should be keen price competition but this is mitigated by the earlier decisions on product differentiation. In such models, an inability to differentiate products leads quickly to competitive market outcomes. On the other hand, any conscious effort to produce differentiated products lessens competitive pressure. It is clear that in reality new pricing plans are announced, which in turn may draw a competitive response, and so on. This pricing dynamic might be better captured in a multi-shot game and this might even be useful for other purposes (assessing competitive dynamics within the market, etc.). However, trying to capture the direct impact of entry or exit on market dynamics would be unnecessarily complicated by extending the model in this manner. Overall, this set of observations does not call into question the logic of modelling the choice as one of capacity first and pricing later;
- iii) It would be hard to envisage circumstances where the effect of changing pricing and market differentiation by demand characteristics could reveal a particular inadequacy in a mobile operator's network. In such a circumstance, it might be that pricing changes would lead to demand changes, to congestion etc, and hence to unexpected pressures to change the capacity of the network. However, this would require one to believe that there would be large demographic groups whose demand patterns would cause large unexpected peaks in traffic that could not have been predicted using experience from abroad. (This is, of course, separate to the question of whether adding targeted capacity is, in fact, the best response rather than sending a more targeted pricing signal.)

Some respondents questioned the assumption that the real value of Average Revenue Per User (ARPU) would remain constant over the 15 year period under review. It is accepted that the ARPUs in the market have been declining but these are for the more mature 2G type services. As against this there is considerable potential for new mass market services for 3G type services in the spectrum bands under consideration⁴⁴. Thus, it is much more likely that ARPUs would again rise as these

⁴³ In the Bertrand model of competition, firms in an oligopoly choose their price given the price of their competitor firms in the industry.

⁴⁴ In 2007 and 2008 mobile operators in Ireland enjoyed the second highest data ARPU in a list of 44 countries (Japanese mobile operators were the first). Source: Data ARPU by country (Q2'07-Q2'08),

services roll out in the coming years. For that reason, and to place what is really a lower bound on the likely ARPU, ComReg chose to use a constant real value ARPU over the period of review. ComReg believes that rather than overstating the benefit of additional entry that this is more likely to be a lower bound on benefits.

One current licensee in responding asked why ComReg had not followed the example of Ofcom which allowed that demand would fall as other alternatives came to the market over time. ComReg considered this approach and felt that there were equally valid reasons to presume that the market for services over this particularly attractive spectrum band would actually increase in value. Given this uncertainty, ComReg remains of the view that the most appropriate approach is to not choose between these two alternative scenarios.

One other respondent noted that, whilst their own welfare model produced results that were very similar to ComReg's, the scaling down of the Ofcom model produced smaller welfare changes. ComReg investigated the source of this difference and came to the conclusion that this was driven by different assumptions relating to the supply conditions. ComReg was not of the view that any such changes would overturn the substantial point that new entry would have a large positive effect on overall welfare.

Another MNO respondent argued that the arguments in Annex F of the Consultation would not satisfy the requirements of the EC in an Article 7 (of the Framework Directive) review. This seems to confuse two very different processes. Decisions on spectrum should be taken to ensure that a competitive market place is put in place. Regulatory obligations placed on SMP operators address market power issues in the context of the competitive process on the market. ComReg is of the view that the key role of NRAs in relation to spectrum is to ensure that competition is not restricted in advance, so that the use of the Article 7 procedure to address market power on the retail and related wholesale markets will not likely be required.

Another argument made was that the Cournot model ignores the cost implications of increased entry on the basis that an increased number of entrants would raise network and operating costs. This argument is based on a view that there are sharp economies of scale in the mobile sector. However, research has shown that the mobile sector is actually better modelled as an industry with constant returns to scale⁴⁵. Many commentators have argued that smaller operators have higher costs because they are inefficient, which is in turn the reason why they are small. All of this would point to a market where welfare would increase with entry.

Another respondent argued that a new entrant in the 900 MHz band was not sustainable and pointed to the difficulty of entering a mature and saturated mobile market that already has well established players.

Global Wireless Matrix Q2'08, Merrill Lynch, 25 September 2008. See www.ml.com

⁴⁵ Foreman, R.D. and E. Beauvais, 1999, "Scale Economies in Cellular Telephony", *Journal of Regulatory Economics*. McKenzie, D.J. and J.P. Small, 1997, "Econometric Cost Structure for Cellular Telephony in the United States", *Journal of Regulatory Economics*.

The use of actual responses to expressions of interest to enter a mature 2G market is not relevant to the welfare analysis of whether *a priori* more entry is to be preferred. Such experiences show conclusively that it is hard to engineer competition in a market place that had started from a position of insufficient entry due to regulatory barriers. The analysis in Annex F of the Consultation asked whether, all else being equal, entry would increase welfare in a stylised model of the mobile sector of simultaneous entry. This is a separate matter.

The respondent then refers to the experience of France and Spain. ComReg notes that in both cases when additional spectrum was given to incumbents, NRAs were also trying at the same time to regulate the mobile call origination and access markets on the basis of collective dominance. These *ex-post* attempts to change the structure of the market were only attempted on the basis that the NRA was of the opinion that the competitive dynamics in the market place were not favourable. The Spanish NRA had its views confirmed by the EC. The French NRA in the end withdrew the proposal but it followed so quickly that the three French MNOs had been found guilty of cartel type activity⁴⁶.

These are examples where the number of players was set at a level below that which would serve the public interest. The experience in attempting to get new entry just shows that firms see it difficult to attack an entrenched oligopoly. This actually illustrates how important it is to ensure that a sufficient number of players are allowed to compete in the market in the first place.

ComReg notes, however, that some respondents have argued that very few customers have migrated from 2G to 3G. This indicates that there is a large growth potential in the 3G market. Moreover, in a liberalised context the main entry barrier (access to spectrum) is being significantly reduced. Given that the move to 3G and higher bandwidths is linked to demand for content, this may mean that new and more innovative companies may be better placed to enter and compete.

It was also argued that additional charges on spectrum costs would be passed on to consumers. ComReg considers that such a claim would not appear to have a strong basis in economics, given that spectrum fees are sunk, nor indeed in experience - a comparison⁴⁷ of retail rates and spectrum fees between countries can demonstrate that one country can have high prices with low spectrum fees while the other can have lower prices with higher spectrum fees.

Summary

Overall ComReg believes that there are strong theoretical and practical grounds to put forward options that will facilitate additional entry into the market and that the use of 900 MHz spectrum is one such method of facilitating entry.

⁴⁶ http://ec.europa.eu/competition/annual_reports/2005/aeccr_2005_en.pdf. This decision was upheld by the Paris Court of Appeal in December 2006.

⁴⁷ http://www.competition-commission.org.uk/appeals/communications_act/mobile_phones_determination.pdf

4.7 Miscellaneous items

Views of respondents

Various other miscellaneous issues were put forward by the MNOs in relation to ComReg's Options:

- A number of MNOs called upon ComReg to carry out a robust and detailed analysis or a Regulatory Impact Assessment (RIA) demonstrating that the potential benefits of its proposals outweigh the costs.
- Existing GSM licensees believed that the Consultation Options failed to take account of the existing use of spectrum by the current licensees and that each Option was inefficient and disproportionate. As an alternative to permitting licence expiry, it was put forward that ComReg could "administratively assign" licences to existing licensees. In addition, it was claimed by one respondent that ComReg had "prejudged the outcome of the Consultation".
- Two respondents noted the vulnerability of ComReg's proposed spectrum allocation approach to entities motivated by the prospect of speculative financial gain, rather than possessing a serious intention of providing service to consumers.

ComReg's position

ComReg's position on GSM licence expiry is informed by, amongst other things, the explicit licence duration and expiry dates as set out in the licences concerned, and in the relevant regulations. Additionally the GSM Licensees' own publicly available statements and disclosures also appear to confirm the licensees' own understanding of this 15 year licence duration. The regulations make it clear at the outset that the option of licence renewal beyond that point is not a legal possibility and hence the possibility of conducting a cost-benefit type analysis would not be relevant in these circumstances. Moving forward and where appropriate, ComReg will act in accordance with best international practice in relation to cost-benefit analysis.

In relation to the "alternative option of licence renewal or reinstatement through direct administrative assignment", the latter being a reference to the DCENR's Report of the Working Group on Spectrum Policy, ComReg notes that the same report refers to the use of market mechanisms, primarily auctions, normally where the number of spectrum rights are limited. In the present context, ComReg reiterates its opinion that demand for 900 MHz spectrum is likely to exceed supply. Furthermore, ComReg does not believe that the use of auctions in such circumstances would be disproportionate in any reasonable interpretation and application of that concept.

ComReg believes that it would not be fair, proportionate or reasonable to somehow favour current holders of licences in any bidding process. Even the suggestion that such discriminatory action would be contemplated could damage the reputation of Ireland from an investment perspective. Market participants and potential new entrants need to have full confidence in the character of telecommunications regulation in Ireland.

Speculative bids in a competition

As noted previously, any auction mechanism would be designed so as to provide the greatest opportunity for those participants who most valued the spectrum to obtain it. Accordingly, full or partial loss of spectrum should only occur if an existing licensee valued the spectrum less than other bidders, or valued the spectrum higher than the winner but lost due to their own bidding strategy.

An opportunity for speculative gain where the unsuccessful mobile operator would then be forced to buy the firm that had acquired the spectrum would only occur if that operator had bid well below the true valuation in the original auction.

More generally, ComReg has other means by which to ensure licensees comply with licence obligations. It would also be open to ComReg to require prospective participants to a competition to submit business, operational and other plans as a pre-condition of entry so as to allow ComReg to determine their *bona fides*.

4.8 Summary of ComReg's position

ComReg has carefully considered the issues raised in responses concerning whether its proposals in the Consultation satisfy various procedural and substantive matters set out in this Section.

Save for the fact of the Consultation, and this response to, and further, consultation, ComReg does not consider that it ought to proceed on the basis of the GSM licensees' particular views of the meaning and effect of the Director's statement in ODTR 01/96.

ComReg remains confident that its proposals and approach are compliant with the EU regulatory framework, the Communications Regulation Act 2002 and its other statutory obligations and objectives. Moreover, ComReg considers that its proposals, and particularly its approach to the issue of licence expiry, are consistent with the positions adopted by other NRAs, as it properly focuses upon the specific circumstances applicable, and is being applied to meet the needs of the national market.

On the issues of regulatory certainty, efficient infrastructure investment and expectations of licence renewal, ComReg's views, in summary, are as follows:

- i) the principles of annual licence renewal, subject to licence compliance, and of expiry at term, are of fundamental importance within the framework of a fixed licence duration. The relevant GSM licence regulations have been, and remain, very clear on licence duration, annual renewal and ultimate expiry. Since the first GSM licences were issued in 1996, ComReg has, without exception, annually renewed the licences provided that the licensees demonstrate compliance with their licence obligations. ComReg proposes to continue this process within the duration of the current 15-year GSM licences;

- ii) the Options presented in the Consultation operate on this basis, and provide further clarity to existing 2G licensees and other actual and potential users of the radio spectrum. That is, either in advance, or on expiry of the GSM licences the spectrum assigned to those licences would be released using open, transparent, non-discriminatory procedures, and objective, transparent, non-discriminatory and proportionate criteria as required under the Framework and Authorisation Regulations, respectively. ComReg's proposals in this regard recognise that demand for 900 MHz spectrum is likely to exceed supply and, in these circumstances, open, non-discriminatory and equitable opportunities to access that spectrum, such as through market mechanisms, are appropriate; and
- iii) ComReg proposes that new licences would again be subject to a fixed licence duration (as discussed in Section 6.3 of this document).

In the interests, *inter alia*, of protecting mobile consumers from significant service disruption, ComReg may also consider the possibility of short-term retention of spectrum for continuity in the provision of legacy 2G services whilst the affected MNOs transition to other solutions. ComReg has developed a modified proposal to take account of any such justifiable legacy issues and is consulting on this as set out in Section 9 below.

Should an incumbent 2G MNO experience partial or complete loss of access to 900 MHz spectrum arising from a spectrum award process in the 900 MHz band, ComReg is of the view that there are other options available to an incumbent MNO which can be used either singularly or in combination, and which would allow the affected licensee to continue to provide 2G and 3G services to consumers including:

- Through use of their existing frequency assignments in the 1800 MHz and 2100 MHz bands, notwithstanding any reasonable time period required;
- By gaining access to 900 MHz spectrum by means of MVNO or roaming agreements with other MNOs,

In the event of withdrawal of an MNO from the market its customers could be migrated to other mobile networks through the mobile number portability mechanism.

5 Liberalisation of Existing GSM Licences

5.1 Existing GSM Licences

5.1.1 Summary of Consultation Issue (Question 1)

Views were sought on ComReg's proposal to liberalise existing GSM licences in the 900 MHz and 1800 MHz bands in line with the Draft Radio Spectrum Decision as soon as practicable following its coming into force in order to enable the earliest realisation of the benefits of liberalisation.

5.1.2 Views of Respondents

Eight of the nine respondents commented on this question. Seven of these respondents supported ComReg's proposal while one respondent believed that ComReg should only liberalise the existing licences when it is appropriate to do so and not immediately after the entry into force of the EC Decision.

The seven respondents who were in favour of this proposal supported ComReg's view that the early liberalisation of the existing 900 MHz and 1800 MHz licences would benefit consumers and society as it facilitates the early provision of mobile broadband and other innovative 3G services using these frequency bands. This would underpin the expansion of 3G services in Ireland and help address any potential for a digital divide between urban and rural areas.

Currently 3G mobile broadband services are provided solely within the 2100 MHz core 3G frequency bands and the majority of respondents noted that the liberalisation of the 900 MHz and 1800 MHz frequency bands would allow the existing licensees to efficiently and economically deploy 3G mobile broadband services, assuming they were able to acquire liberalised licences. In particular these respondents cited the favourable propagation characteristics of the 900 MHz band for UMTS deployment and the benefits its deployment could bring in allowing operators to cover larger distances than is currently possible in the higher frequency bands licensed for UMTS.

One of these respondents also called upon ComReg to decouple the liberalisation process and timetable from issues relating to expiry of the current 900 MHz and 1800 MHz licences in order to achieve the benefits of liberalisation as promptly as possible for the Irish market.

One other respondent stated that ComReg is not obliged by the EC Decision to liberalise the existing GSM licences in the 900 MHz and 1800 MHz bands as soon as practicable following the entry into force of the EC Decision. Instead it argued that ComReg should only liberalise the existing licences when it is appropriate to do so having regard to a number of principles including equality, the promotion of competition, the promotion of the interests of users, the development of the internal market and the efficient management and use of spectrum in line with ComReg's statutory functions and objectives. It contended that if ComReg was to liberalise these licences without due regard to the above principles, then this would confer an

unjustified competitive advantage on parties with existing 900 MHz and 1800 MHz spectrum assignments and may even infringe state aid provisions in the EC treaties. It called upon ComReg to ensure equality of opportunity for all 3G operators and for ComReg to compensate it for the significant competitive disadvantages that it would face by virtue of the historic advantages enjoyed by those currently licensed to use GSM equipment in the 900 MHz and 1800 MHz bands, if this was to occur.

Aside from the general issue of liberalisation and its timescale, a number of comments relating to liberalisation of the existing licences were submitted by respondents:

- One respondent was of the view that ComReg should allow for spectrum sharing when liberalising the licences as it may be required in the future with the introduction of LTE and other high bandwidth services which could require up to 20 MHz of contiguous spectrum. This view was supported by another respondent in their response to Question 5 where it urged ComReg to allow the utmost flexibility in spectrum co-ordination, spectrum swapping and even spectrum sharing in future licence conditions;
- One respondent questioned why ComReg had not undertaken a cost/benefit analysis of shortening Meteor's licence so it would co-terminate with that of Telefonica O2 and Vodafone, while another respondent questioned the analysis on the size of the cost savings that may be gained by deploying UMTS at 900 MHz versus higher frequency bands. This respondent believed that a redacted version of the study should be provided to interested parties for review and comments to ensure that the conclusions drawn can be properly tested.

5.1.3 ComReg's Position

The benefits of liberalisation were agreed and the principle of liberalisation was generally welcomed by the majority of respondents to the Consultation, and accordingly, ComReg is fortified in its proposal to award all *new* licences in the 900 MHz band on a liberalised basis following an open and transparent competition. This decision to award all new licences on a liberalised basis would provide operators with a high degree of transparency and predictability in terms of future investment.

Concerning existing licences, respondents to the Consultation were of the view that, in the short term, there would not be the possibility of non-GSM use within the existing 900 MHz spectrum assignments and that GSM legacy issues create technical difficulties in using a mixture of technologies.

ComReg notes the points raised concerning the liberalisation of the existing GSM licences and how this could distort competition in the mobile market by potentially conferring a significant advantage on the existing GSM licensees that would not be

available to a non-GSM mobile operator. The EC recognises this potential outcome which is reflected in the current draft of the Proposed Amending Directive.⁴⁸

ComReg additionally notes that there would be no requirement under the terms of the current version of the Draft Radio Spectrum Decision for Member States to liberalise existing GSM licences, and ComReg further understands that given the short licence term remaining on two of the existing GSM licences and that legacy issues exist, any operator benefits (and by extension any consumer benefits) that could be derived from liberalisation of the existing licences are reduced.

Therefore, it is ComReg's proposal that any existing 900 MHz GSM licence and any spectrum retained to address GSM legacy issues, as discussed in Section 9 below, would not be liberalised, while all new licences in the 900 MHz band would be issued on a liberalised basis.

ComReg also notes the suggestion to permit spectrum sharing put forward by two respondents. ComReg is of the view that there may be justification to permit sharing when making future licences available in the 900 MHz and 1800 MHz bands, but within the context of existing licences there is insufficient demand at present due to limited availability of wideband systems.

In response to the request to publish a redacted version of the report contrasting the cost savings associated with UMTS deployment in the 900 MHz, 1800 MHz and 2100 MHz bands, ComReg plans to publish this document on its website in due course.

5.2 Licence Fees

5.2.1 Summary of Consultation Issue (Question 3)

Views were sought on ComReg's proposal to review annual GSM licence fees to reflect the increased value of spectrum that would be associated with liberalised licences. This question followed on from Question 1 and was asked in the context of existing GSM licences being liberalised before expiry.

5.2.2 Views of Respondents

Most respondents agreed that the ability to deploy 3G services in the 900 MHz and 1800 MHz bands would increase the value of that spectrum. However, a number of respondents noted that the practicalities of ongoing GSM provision would limit the advantage that could be leveraged by existing GSM licensees.

One respondent stated that GSM licence fees were set at the time of licensing and accepted by both parties and cannot be unilaterally adjusted by one party at a later point in time. This respondent considered that ComReg has assumed that there is some increased value to the licences, but this would seem incorrect, arguing that if an operator continues to operate the service as before then the value of the spectrum is unchanged.

⁴⁸ See Article 1(2) of the Proposed Amending Directive

The practicalities of rolling out 3G services differ greatly depending on circumstances, according to two respondents, and therefore the change in spectrum value would be subjective, may take several years to manifest and should therefore be phased in slowly, if at all. Another respondent noted that the required investment costs would offset the increased spectrum value in the short term and that an upward adjustment is not warranted. It was also suggested that the value of mobile spectrum is falling due to the competitive market of revenue sources, difficulty securing capital investment, economic downturn and the increasing amount of spectrum harmonised for mobile use at an international level.

Opinion was strongly divided over when a review should be carried out. One respondent suggested that such a review should be done in advance of any spectrum auction. An opposing view suggested that it would be premature for ComReg to review licence fees until the industry had a clearer view of the impact of releasing spectrum in alternative bands that could be used for the provision of mobile services, the scale of capital investment required and the evolution of the operators' business models as dictated by a changing market.

Several respondents suggested that if a review of GSM licence fees was to take place, it should reflect not just the increased revenue and cost savings potential, but also the short term investment prerequisites and the increasingly competitive nature of the market to acquire subscribers and secure capital investment.

5.2.3 ComReg's Position

ComReg's statutory functions and objectives include ensuring the efficient management and use of the radio spectrum and, to that end, spectrum access fees are considered an effective way to ensure a finite national resource is utilised appropriately. Notwithstanding this ComReg notes the arguments made against reviewing the fees applying to current GSM licences.

Respondents' views in relation to this question are largely supportive of ComReg's position not to liberalise the existing licences as they believe that there would be little opportunity for 3G technologies to be deployed in advance of licence expiry and within current spectrum assignments. As ComReg does not intend to liberalise any existing licences, there would not be justification to increase the licence fees of current GSM licences to reflect any increased value of the spectrum due to liberalisation of those licences; however, as will appear later in this document, ComReg considers there to be a justification in principle for increasing licence fees of current GSM licences in circumstances where such licences are renewed or extended beyond their currently applicable expiry dates.

As discussed later in this document, ComReg is consulting on options for the release of new licences in the 900 MHz band and the possibility that the existing 900 MHz licensees could retain 900 MHz spectrum for a transitional period to deal with legacy issues. ComReg notes that regulatory authorities in other countries have adjusted the level of their 900 MHz spectrum fees or their payment terms when making decisions on the use of the 900 MHz band, and it is ComReg's intention to revise the 900 MHz fee structures in Ireland for new or retained 900 MHz licences issued.

While it is ComReg's intention to make known the spectrum fees in advance of the competition, the principles set out below outline ComReg's current views, and Question 10 to this consultation is seeking feedback on these principles.

For any retained 900 MHz licence, ComReg believes that the fee structure should contain both an upfront access fee and an ongoing annual spectrum fee. In setting the upfront access fee, ComReg is minded to base this fee upon the savings that an existing GSM licensee could make by retaining 900 MHz spectrum beyond its licence expiry date. Such savings would include any realignment or migration savings that an MNO may benefit from by retaining such spectrum a longer period of time. In setting the annual spectrum fee, ComReg is minded to base this fee upon the annual opportunity cost to society for the non release of the spectrum into the market on a liberalised basis.

For any new 900 MHz licences, it is ComReg's intention to set access fees (which may be an auction reserve price) and licence fees for any future liberalised licences at a level appropriate to encourage efficient spectrum use.

6 Conclusions on Licensing and Technical Issues

6.1 Service & Technology Neutral Licences

6.1.1 Summary of Consultation Issues (Questions 2, 6 and 10)

In the Consultation, ComReg asked a number of questions relating to the issue of service- and technology-neutral licences in the context of liberalised licences.

6.1.2 Views of Respondents

Question 2:

Question 2 sought the views of respondents on whether they agreed with ComReg's proposal to implement a service-neutral licensing regime for existing spectrum assignments in the 900 MHz and 1800 MHz bands, once liberalised. Supporting arguments and detailed alternatives were also requested.

There were nine responses to this question, the majority of which were broadly in favour of ComReg's service-neutrality proposal for existing GSM licences once liberalised.

Those respondents who supported ComReg's proposal noted the potential benefits that service neutral licensing offers to operators and consumers by allowing the development and deployment of innovative services that maximise the use of this valuable spectrum resource. However, three of these respondents also called upon ComReg to provide further clarity on its service-neutral licensing approach.

One of these respondents proposed that there should be a consultation on the detailed aspects of service neutrality, while another respondent believed that it was important to distinguish between application neutrality (e.g. voice, data, video services etc.) and "radio" service neutrality (e.g. frequency arrangements, power levels etc.). The latter respondent considered that radio service neutrality should be avoided as it would lead to increased risk of interference and the inefficient use of spectrum, and in this regard it supported the work of CEPT in providing harmonised technical spectrum usage rights. Another respondent argued that service neutrality must ensure spectrum efficiency, minimum interference, protection of existing services, pan-European operation and be in the best interests of consumers. It recommended that ComReg should only allow services based on the technologies identified in the Annex to the Draft Radio Spectrum Decision (as amended from time to time).

The one respondent who did not explicitly support service neutrality stated that it required a level of information and certainty on the long-term availability of a service for its own business decisions. It currently has a large base of GSM based telemetry equipment and, in summary, it needed to know if a nationwide GSM/GPRS network was guaranteed, and if so, for how long.

Question 6:

Question 6 asked respondents whether they agreed with ComReg's proposal to implement a service-neutral licensing regime for future 900 MHz spectrum assignments. Again, supporting arguments and detailed alternatives were requested.

There were nine responses to this question, eight of which supported the principle of introducing service-neutrality in any future licences issued in the 900 MHz band. The responses to Question 6 mirrored those given in Question 2 and no new issues were raised.

Question 10:

Question 10 asked whether respondents agreed with ComReg's proposal to introduce technology neutrality in the 900 MHz band for any licences which would be issued in the future. In line with the Draft Radio Spectrum Decision, ComReg proposed to permit the deployment of systems which demonstrated technical compatibility with GSM and UMTS systems.

There were nine responses to this question, seven of which supported the principle of technology neutrality. A number of respondents qualified their support for technology neutrality by noting that the introduction of new technologies should not cause harmful interference to other services in the band. In the interests of protecting other band users, these respondents suggested that only technologies which appear in the Annex to the Draft Radio Spectrum Decision should be permitted and that for any other technologies coexistence should first be established at CEPT level.

Of the two respondents who did not support full technology neutrality, one respondent again stated its requirement for certainty to be provided on the long-term availability of a particular technology as this is important for its business decisions when considering capital investments. The other respondent believed that ComReg's approach to use "any technology" appeared to be a change in policy direction from encouraging pan-European markets based upon European or international harmonised standards. It believed that a divergence from the existing policy of promoting standardisation could lead to fragmentation in the market place and reduce the cohesion of the single market.

6.1.3 ComReg's Position

ComReg is encouraged by the broad support for the introduction of technology and service neutrality, and agrees that it can optimise the use of this valuable spectrum resource by allowing operators to deploy the equipment and services which best meet the needs of consumers. In such a scenario, operators would no longer be restricted exclusively to providing GSM services, but would also be able to provide additional or alternative services (e.g. broadband) supported by technologies other than GSM, on condition that these technologies are compatible with existing systems in the band.

With regard to the request for certainty on the long-term availability of services or technology in this band, ComReg believes that the introduction of service and technology neutral licences does not necessarily mean the imminent removal of the existing GSM/GPRS services or technology from the band. Aside from the possibility that there may be continued consumer demand for GSM services in the medium to longer term, which would then sustain the commercial deployment of GSM technology, existing GSM licensees are required to comply with licence obligations, and the retention of 900 MHz spectrum to address GSM legacy issues is one of the Consultation Options discussed in Section 9.

Furthermore, and as stated in the Consultation, it is ComReg's intention to include licence conditions, similar to those in the existing GSM 900 MHz licences, in any new 900 MHz licences issued. While such licence conditions may not specify the particular technology to be deployed, they would provide some degree of certainty to end users regarding the ongoing continuity of services, and the quality thereof. In this regard, ComReg notes the request from one respondent for a consultation on the more detailed aspects of service neutral licences in the 900 MHz band.

ComReg notes that a number of respondents had specific concerns about the introduction of "full" technology neutrality in this band and the potential interference problems this could cause. As proposed in the Consultation, ComReg considers that the full provisions of the Draft Radio Spectrum Decision should be implemented in Ireland. While such provisions may change between now and its adoption, the current provisions of the Draft Radio Spectrum Decision will allow Member States to introduce:

"...other terrestrial systems not listed in the Annex, provided that they ensure that such systems can co-exist with GSM systems and systems listed in the Annex on their own territory as well as in neighbouring Member States".⁴⁹

Such an approach would allow greater flexibility in deploying technologies in the band while also protecting other band users from harmful interference. Technical compatibility would be assured either by deploying a technology listed in the Annex to the Draft Radio Spectrum Decision, and hence which has been approved by CEPT and the EC, or by demonstrating to ComReg that the technology is compatible and would not cause undue interference to existing services within Ireland or in neighbouring administrations.

6.2 Spectrum Management & Technical Licensing Conditions

6.2.1 Limit on 900 MHz spectrum per Operator (Question 5)

ComReg sought views on its proposal to limit the maximum amount of spectrum any one licensee can hold in the 900 MHz band to 2 x 10 MHz.

⁴⁹ Article 3 (3) of the Draft Radio Spectrum Decision (RSCOM07-04)

6.2.1.1 Views of Respondents

There were seven responses received on this proposal and while raising some concerns regarding ComReg's competition Options, all responses were generally supportive of a spectrum cap and the majority of the respondents supported a 2 x 10 MHz cap.

One respondent, despite being opposed to an auction of the entire band, noted that if such a scenario did arise it would favour the proposed cap, as it would reduce the likelihood of existing operators failing to acquire 900 MHz spectrum in the competition. It further argued that if there was insufficient demand for the entire spectrum in the 900 MHz band that the cap should be removed to allow existing licensees to utilise the spectrum left unallocated in the auction. This would ensure that the 900 MHz band would be fully utilised to facilitate the deployment of UMTS technology rather than leaving it unused for an extended period of time.

Two respondents supported a 2 x 10 MHz cap as a short term measure, suggesting that it be removed following any auction to facilitate the efficiency benefits of wideband technologies requiring contiguous frequency assignments in excess of 2 x 10 MHz. One of these respondents contended that the cap should be removed immediately after the frequency assignment phase was completed.

Another respondent noted that the proposed cap would increase the migration cost for existing licensees wishing to deploy new 3G services, but acknowledged that it was an acceptable compromise as it was the only solution that could facilitate entry of a new operator into the 900 MHz band.

Two further respondents supported a spectrum cap in the award process, but argued that 2 x 10 MHz was too great in light of the scarcity of available spectrum (both assigned and unassigned) and that this could hinder entry of new operators into the band.

6.2.1.2 ComReg's Position

Responses to this question indicated strong support for the principle of a spectrum cap and the responses generally supported ComReg's proposal to set the cap to 2 x 10 MHz of 900 MHz spectrum.

ComReg notes the points put forward by respondents suggesting that a lesser cap size would be more appropriate. However, as discussed below, ComReg proposes to award spectrum in minimum blocks of 2 x 5 MHz or multiples thereof. ComReg acknowledges that while the sub-10 MHz cap sizes proposed by some respondents may be advantageous in promoting competition, ComReg nevertheless believes that they could lead to inefficient use of the spectrum in the longer term.

The opinions expressed in response to this question were generally in agreement that a spectrum aggregation cap is necessary to facilitate the entry of a new operator into the 900 MHz band. ComReg also notes the point raised by one respondent that a 2 x 10 MHz cap would reduce the risk for existing licensees intending to participate in an auction.

ComReg has reviewed the 900 MHz spectrum assignments in 29 other European countries (the EU27, Norway and Switzerland). According to information published by the European Radiocommunications Office in June 2008, the average 900 MHz assignment held by operators licensed in that band across Europe is 10.16 MHz⁵⁰. This average assignment calculation would correlate with ComReg's proposed 2 x 10 MHz spectrum cap and ComReg notes that many Member States, such as the UK, are currently in the process of redistributing the 900 MHz spectrum assignments in their country which may result in reduced average individual 900 MHz spectrum assignments.

Additionally, ComReg has noted that each of the existing 900 MHz licensees has stated that it is possible to deploy both a GSM and a UMTS network using 2 x 10 MHz of spectrum and that the alternative proposals of each of these respondents all used the notion of a 2 x 10 MHz spectrum block in their design.

In light of the above factors, ComReg is therefore minded to limit the amount of spectrum in the 900 MHz band that could be held by any licensee to 2 x 10 MHz. For the avoidance of doubt, this cap would apply across all spectrum licences in the 900 MHz band, that is to existing, legacy (if any) and new liberalised licences.

In applying the above spectrum cap ComReg is aware that the GSM networks of existing operators are tuned to specific spectrum assignments and that a re-alignment process may have to be incorporated into the design of the 900 MHz spectrum competition in order to allow the seamless transitioning of existing services from one spectrum assignment to another, while not exceeding the spectrum cap limits.

A number of respondents raised issues in relation to spectrum sharing and the removal of the spectrum cap after a period of time or if supply exceeds demand in a spectrum competition. ComReg is of the view that there may be justification to consider such options when making future licences available in the 900 MHz and 1800 MHz bands and ComReg will continue its practice of reviewing proposals as matters develop.

6.2.2 Spectrum Block Size (Question 11)

In this question ComReg sought views on its proposal to award any future 900 MHz spectrum in a minimum block size of 2 x 5 MHz.

6.2.2.1 Views of Respondents

There were eight responses to this question, five of which supported the proposed block size of 2 x 5 MHz.

Two respondents suggested aggregating two such blocks into 2 x 10 MHz, while another suggested that 2 x 2.5 would be the most flexible block size when making spectrum available.

⁵⁰ <http://www.ero.dk/fc2e8966-1db9-445b-a8d5-e5c7cf825cc2?mid=97605DCA-E7D9-4E5A-84B7-1E84586C7205&frames=no>

6.2.2.2 ComReg's Position

ComReg notes that the majority of respondents support the proposed block size of 2 x 5 MHz, as this is the minimum block size for UMTS 900.

ComReg noted the proposals from a number of respondents for a larger block size of 2 x 10 MHz, but considers that such a block size would potentially limit the number of possible licensees in the 900 MHz band to four, and is contrary to its objective to promote competition. However, ComReg will endeavour to implement an appropriate auction methodology where bidders who win more than one 2 x 5 MHz block would have the opportunity to aggregate those blocks contiguously.

It was also proposed in one response that a block size of 2 x 2.5 MHz would offer greater flexibility to bidders. ComReg notes that this suggestion was based on the assumption that the existing 900 MHz MNOs retained 2 x 7.5 MHz of spectrum. While a 2 x 2.5 MHz spectrum block may offer greater flexibility, it also increases the possibility that non-contiguous spectrum blocks could be assigned, and it opens up the possibility that a licensee may end up with a stranded 2 x 2.5 MHz spectrum block which would prevent its use by systems requiring a bandwidth of 2 x 5 MHz or greater (such as UMTS900).

6.2.3 Frequency Coordination and Interference Mitigation (Question 12)

In this question, ComReg sought views on proposals to manage frequency coordination and interference mitigation in the 900 MHz bands in relation to new licences that would be issued.

6.2.3.1 Views of Respondents

There were eight responses to this question expressing broad agreement with the approach proposed by ComReg. A number of these respondents also stated that CEPT studies done to date adequately demonstrate how compatibility can be ensured between GSM and UMTS technologies.

One respondent proposed that the rules on spectrum usage should have enough flexibility to facilitate licensees swapping blocks as well as being able to aggregate spectrum and then to share the aggregated spectrum between themselves. Another noted that 3G technology allows licensees to administer their own inter-system interference while a further respondent pointed out that ComReg should ensure that licensees arrange contiguous spectrum which would minimise the number of internal guard bands.

6.2.3.2 ComReg's Position

ComReg agrees that the CEPT study⁵¹ provides sufficient guidance on how to ensure compatibility between GSM and UMTS technologies in the 900 MHz band and, as discussed in Section 6.1.3 above, ComReg would take appropriate steps to ensure that any new technologies introduced into the band are compatible with existing services.

⁵¹ <http://www.erodocdb.dk/docs/doc98/official/pdf/ECCREP082.PDF>

ComReg agrees that contiguous assignments are preferable in maximising spectrum utilisation and is of the view that there may be justification to consider such options when making future licences available in the 900 MHz and 1800 MHz bands. ComReg will continue its practice of reviewing proposals as matters develop.

In relation to new licences issued in the band, in line with the respondents' responses, it is ComReg's position that each operator will be responsible for the management of their interference within their spectrum assignments, and no guard bands will be set aside by ComReg.

6.3 Non-Technical Licence Conditions

ComReg sought input on a number of non-technical licence conditions, namely: licence duration; licence co-termination; and choice of spectrum award process.

6.3.1 Licence Duration and Co-termination (Questions 7 and 8)

ComReg sought views on the appropriate duration of licences in the 900 MHz band in the absence of a secondary market or spectrum trading. In the Consultation, ComReg proposed that any new licences issued in the 900 MHz band should be granted for a minimum duration of between 10 to 15 years, with varying durations to ensure that all new 900 MHz licences have a common termination date.

6.3.1.1 Views of Respondents on Licence Duration (Question 7)

Of the eight respondents who responded to this question, most were of the view that licences should be granted for between 15 to 20 years.

A number of respondents proposed a minimum duration of 15 years, with one of these proposing that it should be limited to a maximum of 10 years in the case of existing licence holders in the band.

Two other respondents considered that new licences should be granted for 20 years, while another respondent queried why ComReg was proposing a licence duration which was shorter than the 20 year licences which were granted for the existing 3G licences in the 2100 MHz band.

Some additional arguments were also made by respondents. These respondents argued that ComReg should issue tradable licenses with some suggesting indefinite duration. One of these respondents, who called for ComReg to extend the licences of the existing 900 MHz licensees to, at a minimum, the expiry date of the 3G licences in 2021, added that at a minimum, licences should be granted until 2021 with five years notice of revocation on the basis of conditions clearly defined at the outset. Another respondent was of the view that licences should be of an indefinite term, subject to a reasonable period of notice where assignments must be recovered for spectrum management reasons. This respondent held that this would be consistent with ensuring ongoing investment and referred to Ofcom's proposals for indefinite licence terms for the spectrum covered by the Digital Dividend⁵².

⁵² <http://www.ofcom.org.uk/consult/condocs/ddr/statement/statement.pdf>

6.3.1.2 ComReg's Position on Licence Duration (Question 7)

ComReg is mindful of the need for regulatory certainty and efficient infrastructure investment provided by a spectrum licence of an appropriate duration that is compatible with the investment requirements of the licensee. In setting licence durations, it is important for ComReg to strike an appropriate balance between offering assurances to licensees to assist with their business plans, while also not potentially tying up spectrum for unduly long periods, which would stifle the potential for other interested parties to obtain access to this spectrum in the future.

According to the CEPT Electronic Communications Committee (ECC) report there are a number of factors which should be taken into consideration when determining licence duration, namely, “the type of services concerned, the types of use or markets addressed and the level of investment needed to develop those services”⁵³.

The ECC point out that determining the appropriate licence duration requires striking the correct balance between a number of opposing factors. On the one hand, longer licences are preferable from the operators' perspective as they require regulatory certainty and security of access to spectrum in situations where large, risky investments are necessary and demand is uncertain. Where spectrum trading is permitted and a secondary market exists, longer licence durations will result in a higher resale value of the associated rights to that spectrum for the operator. The combination of a long licence and spectrum trading in theory provides operators with greater flexibility and more opportunities to sell the spectrum on secondary markets. Notwithstanding the current legal framework in Ireland, which does not currently provide for spectrum trading, ComReg is aware that there is only limited experience of spectrum trading in other countries⁵⁴.

If NRAs grant long-term licences this reduces their flexibility to take back the spectrum and re-award it to other potential users should market conditions change, or to modify licence conditions, should the need arise. Shorter term durations therefore provide greater flexibility for spectrum management, enabling the refarming of frequencies for other uses or reviewing licence conditions.

In the context of the 900 MHz band, ComReg notes the views expressed by the respondents with some favouring licences of indefinite duration, and others preferring durations of 10, 15 or 20 years respectively.

Following the coming into force of the Draft Decision and the liberalisation of the 900 MHz band, new licence holders would be permitted to use the band for other potential uses as it will no longer be limited to GSM services only. In Ireland, spectrum trading is not currently permitted under primary or secondary legislation. This means that although it will be possible to use 900 MHz band frequencies for alternative uses, it is only the licensee who will be permitted to use those frequencies. The only potential for a transfer of spectrum to another entity is if there

⁵³ [ECC Report 080](#): Enhancing harmonisation and introducing flexibility in the spectrum regulatory framework. Oulu, March 2006.

⁵⁴ See footnote 41.

is a change in ownership of the entity in question. This creates the potential for the inefficient use of spectrum or indeed the possibility of spectrum lying fallow. For this reason, ComReg is of the view that, in the absence of spectrum trading, it would not be appropriate to issue licenses of indefinite duration.

One respondent refers to the fact that existing 3G licences in the 2100 MHz band, issued in 2002, have licence durations of 20 years. These licences were granted specifically for 3G use, and were awarded on the basis of a comparative selection procedure (“beauty contest”) with set spectrum fees. In addition, at the time of the beauty contest, a 20-year licence term was seen as appropriate in the economic and market conditions then prevailing, and these licences were specific to 3G technology, and took account of the investment risks at that time.

On the other hand, new licences in the 900 MHz band would be liberalised licences and therefore, within the Draft Decision framework, there would be greater flexibility for licensees regarding the types of services and technologies which they would be able to deploy to best meet market demands⁵⁵.

In light of the above factors, ComReg considers that a licence duration of 15 years for all new licences issued for 900 MHz spectrum is appropriate as it would strike an appropriate balance between the need to provide operators with the opportunity to earn a reasonable return on their investment and the need for efficient spectrum management (such as the flexibility to re-farm the spectrum to other uses should the need arise)⁵⁶.

6.3.1.3 Views of Respondents on Licence Co-termination (Question 8)

There were seven responses, six of whom supported the proposal for licence co-termination in the absence of a secondary market. The remaining respondent agreed that staggered spectrum release dates complicated future assignments, but suggested an alternative solution to resolve the issue. This is addressed in greater detail below where ComReg considers alternative proposals put forward by respondents to the Consultation.

6.3.1.4 ComReg’s Position on Licence Co-termination (Question 8)

ComReg notes the widespread acknowledgement of the benefits of licence co-termination. A common termination date for all new 900 MHz licences is an optimum solution as it provides a clear timeline for future availability of the band.

The practicality of licence co-termination is a difficult issue, however, given that there are four years between the expiry of the first two 900 MHz licences and the third 900 MHz licence. There is also the possibility that existing 900 MHz licences may, in certain cases, be required to be extended to address GSM legacy issues so as

⁵⁵ Outside of the necessary service and technical conditions in future licences, e.g., in relation to compatibility with other systems, etc.

⁵⁶ This should help ensure the efficient management and use of the radio spectrum, and in the absence of spectrum trading act as a potential mechanism for dealing with market failures.

to prevent consumer disruption (see Section 9 for further discussion of this issue). ComReg recognises that there would be a cost associated with co-termination and while licence co-termination is desirable from the perspective of spectrum management efficiency, this criteria could be regarded in this context as subordinate to other objectives such as protecting consumer interests and promoting regulatory certainty. At this stage it would seem to be premature to promote licence co-termination at the expense of other priorities. However, ComReg will revisit this issue following analysis of the responses to this Consultation.

6.3.1.5 Choice of Spectrum Award Process (Question 4)

Given its belief that demand for 900 MHz spectrum would be likely to outweigh supply, ComReg proposed that an auction process would be the most suitable process for assigning frequencies in the band. Respondents were asked for their views on this proposal.

6.3.1.6 Views of Respondents

Seven responses were received in relation to this question. In responding to this question, a number of respondents took the opportunity to voice either their objections to or support for ComReg's proposed Options. These responses are dealt with under the relevant area in Section 8 and only responses directly relevant to Question 4 are addressed here.

Notwithstanding these arguments in relation to future licensing options, in the main respondents saw auctioning as the favoured award process.

In direct response to the question, one respondent, pointed out that ComReg needs to be mindful of a number of factors when granting licences, including the current and future use of the band; providing the foundation for increased competition and innovation; the liberalisation of future spectrum bands and deriving a fair economic return for the spectrum.

A further respondent stated that it is important that the auction is properly designed. In its opinion any auction must maximise the social and economic benefits for Ireland as well as ensuring that auction prices are not over inflated by hype or inferior auction design.

Another respondent drew attention to the need for ComReg to consult on the auction mechanism and rules on account of its statutory requirements and the complexity of issues at stake and several other parties also took the opportunity to address the issue of auction format.

6.3.1.7 ComReg's Position

There was no opposition voiced to the use of an auction to assign any future release of liberalised spectrum in the 900 MHz band and ComReg favours the adoption of an appropriate auction format for the award of new licences in the 900 MHz band.

Bearing in mind the comments made by the respondents, ComReg will, in due course, set out its proposals for the competition format to be used for the assignment of frequencies in the 900 MHz band.

6.4 Future Licensing of the 1800 MHz band

6.4.1 Demand and Timing of Award Process (Questions 18 and 19)

In considering future assignments in the 1800 MHz band ComReg sought evidence of demand for additional 1800 MHz spectrum at this time (Q18) and, based on ComReg's initial assessment of limited demand, views on whether 2013 would be an appropriate time during which to hold a competitive spectrum award (Q19).

6.4.2 Views of Respondents

Seven responses were received to both questions. Three respondents submitted that there is no imminent demand for additional 1800 MHz spectrum. One respondent stated that there are many uncertainties concerning demand for 1800 MHz spectrum including decisions yet to be made regarding the Digital Dividend, the future of the 2600 MHz band (2500 – 2690 MHz) and the timeframe for the availability of Long Term Evolution (LTE) equipment. It noted that equipment vendors have prioritised the 900 MHz and 2600 MHz bands over 1800 MHz, and considered that it is unclear where 1800 MHz spectrum will figure in LTE development. Overall it suggested that ComReg should liberalise the current 1800 MHz assignments and increase the size of the current licensees assignments in any event.

Three other respondents disagreed with ComReg's opinion, stating that, in their view, there is justification to run a competitive process for additional 1800 MHz spectrum in the near future. It was argued by one respondent that the case for an early release of unassigned 1800 MHz spectrum was reinforced as it appears very likely that most European countries will see deployment of LTE in the 2600 MHz band much earlier than will be possible in Ireland. This respondent also stated there is a strong case for current 1800 MHz assignments to be renewed or reinstated prior to 2010 and that there is a need for a coherent, strategic and holistic plan for the management of spectrum for mobile broadband services. Two of these respondents stated that 1800 MHz spectrum is a prime band for deployment of immediate emerging wireless technologies, such as LTE, and argued that additional spectrum should be made available in the near future in order to speed up the deployment of such technologies.

In direct reply to Question 19 one respondent agreed with ComReg's view while three respondents cited that a competition should be held immediately based in the main on the same arguments employed in response to Question 18. However, there was little consensus on an optimal date, with views ranging from 2009 onwards.

Four respondents disagreed with 2013 being a suitable time to hold such a spectrum award process. Three of these suggested that an auction of currently unassigned 1800 MHz spectrum should take place simultaneously with an auction for unassigned lots of 900 MHz spectrum.

Two respondents were of the opinion that “renewal rights” regarding current 1800 MHz licences need to be addressed before 2012.

A number of other issues were raised by respondents to these questions. One respondent suggested that the 1800 MHz spectrum assignments of the current three licensees should be increased to 2 x 15 MHz in order to facilitate three 5 MHz channels. Another respondent suggested that, should current 2G assignments at 900 MHz and 1800 MHz be liberalised, then unassigned spectrum in the 1800 MHz band should be made available immediately to non-GSM licensees on a liberalised basis.

6.4.3 ComReg’s View

In line with all responses to these questions, ComReg agrees that the 1800 MHz frequency band will be an attractive resource for the provision of high speed mobile broadband in the future.

ComReg notes that there was a clear divergence of views among respondents on the level of imminent demand for 1800 MHz spectrum. The three respondents who disagreed with ComReg’s view believed that this spectrum band will be needed immediately in order to facilitate innovative systems such as LTE. However, ComReg notes that no supporting evidence as to when such technology would become available in this band was provided to substantiate their claims. It remains ComReg’s understanding that LTE equipment will not be widely available for the 1800 MHz band until after 2012, and that it is quite possible that other technologies and applications could become available in the intervening period. Additionally, ComReg notes that LTE is not currently listed in the Annex to the Draft Radio Spectrum Decision and ComReg would therefore not be in a position to allow its use in Ireland unless it was satisfied that LTE could co-exist with UMTS and GSM.

Furthermore, ComReg notes that the existing GSM licensees are not using the 1800 MHz spectrum assigned to them to its fullest extent. Typically, it is used in built up areas to reinforce capacity where high traffic demands. Given ComReg’s responsibility to ensure the efficient management and use of spectrum, the utilisation of existing 1800 MHz spectrum assignments is an area which ComReg may need to further explore.

In light of the above factors, ComReg remains of the view that there is not a pressing requirement to hold a competitive award process for 1800 MHz spectrum at this time.

There was also a diversity of views on the timing for such an award process with support respectively for it taking place in 2009, 2011 at the latest, and 2013.

ComReg remains of the view that holding a competitive award process for assignment of 1800 MHz frequencies closer to 2013 would provide greater clarity to applicants on spectrum developments in other bands of interest for wideband data transmission, namely the 2600 MHz band and Digital Dividend spectrum. ComReg must also address the 1800 MHz band given current licences expire in 2014 and 2015.

In light of the discussion at Section 4, ComReg is also of the view that all existing licences in the 1800 MHz band will expire in 2014/2015 as set out in the licences and the relevant regulations. As such, a competition (or competitions) would need to be conducted to release part or the entire band as liberalised spectrum.

ComReg is mindful that in the rapidly developing world of electronic communications, the situation could evolve in a relatively short timeframe to the point where it would be appropriate, for example, to hold a competition for access to 1800 MHz spectrum earlier than 2013. With this in mind, ComReg points out that it may have to alter its position should circumstances materially change.

6.4.4 Spectrum block size in the 1800 MHz Band (Question 20)

Views were requested on ComReg's proposed minimum spectrum block size of 2 x 5 MHz for future assignments in the 1800 MHz band. Supporting arguments and detailed alternatives were also sought.

6.4.5 Views of Respondents

There were eight responses to this question of which five supported a minimum block size of 2 x 5 MHz. One of these respondents suggested that it would be imprudent of ComReg to commit to minimum block sizes at this point in time given the changing nature of telecommunications and mobile technology.

Three other respondents disagreed with the proposal for a minimum block size of 2 x 5 MHz. Instead one of these respondents stated that 2 x 10 MHz should be the minimum block size in order to facilitate the efficient deployment of LTE. Another respondent preferred a minimum block size of 2 x 10 MHz in order to facilitate a new entrant to compete in the mobile market.

6.4.6 ComReg's View

In line with the majority of responses ComReg believes that the minimum block size should be 2 x 5 MHz for future frequency assignments in the 1800 MHz band with provision for interested parties to obtain licences for contiguous spectrum in order to amalgamate assignments into larger blocks of spectrum. This facility to amalgamate assignments into larger spectrum blocks should meet the needs of the respondents favouring a minimum block size greater than 2 x 5 MHz.

Notwithstanding this position, ComReg is mindful that reaching conclusions about minimum block sizes for the 1800 MHz band at this time is complex and it therefore may revisit this issue at a later date.

7 Mobile Virtual Network Operator Access

7.1 Summary of Consultation Issue (Question 9)

Views were sought on ComReg's proposal to include obligations on holders of future 900 MHz licences to provide hosting services to a Mobile Virtual Network Operator⁵⁷ (MVNO):

7.1.1 Views of Respondents

Eight of the nine respondents replied to this question.

Three respondents were in favour of MVNO access conditions.

One respondent while in favour of the proposal expressed an interest in the details of any such obligation and the process to be put in place so as to ensure a fair outcome. Largely echoing this view, a second respondent added that in order for any such obligation to be meaningful it would need to be enforceable by ComReg with pre-determined criteria including commercial considerations and a defined timetable. The third respondent in favour of the inclusion of MVNO obligations noted its clear preference for commercial negotiations to be the basis for such arrangements. This respondent suggested that if ComReg wished to ensure the emergence of MVNOs in the context of the new licences then there is a requirement for more prescriptive licence conditions. In this regard, and somewhat contrary to the views expressed above by another respondent, the respondent advocated that minimum commercial requirements be imposed on network operators to facilitate MVNO agreements while noting the requirement for wholesale arrangements that would allow an MVNO to get a reasonable return and the ability to differentiate its service. Without such arrangements it was further argued that MVNOs are reduced to being resellers only which would not drive innovation in the marketplace. It was also suggested by this respondent that the wholesale pricing structure should be based on the amount of data/voice traffic transmitted so as to yield a reasonable tariff margin on the part of the MVNO.

Five of the eight responses on this issue were opposed to the proposal to include MVNO obligations in future 900 MHz licences.

In stating its opposition to the proposal, one respondent commented that in its view there is at present sufficient competition in the Irish mobile market to cater for market exit of an existing operator, and contended that MVNO conditions were not necessary to protect consumers from potential service disruption. In support of its argument this respondent pointed to Ireland's very efficient mobile number portability (MNP) system which can port a number within 2 hours and has done so for over 1.2 million mobile customers. However, this respondent conceded that customer awareness of number porting could be further heightened, possibly by way of an appropriate information campaign.

⁵⁷ A licensed mobile operator with no spectrum assignment and with or without network infrastructure.

A further respondent argued that NRAs should not use the licensing process to pursue what, in its opinion, were unrelated regulatory goals. The same respondent also contended that regulated MVNO access should only be used as a remedy following a market review of the relevant market undertaken in accordance with the prevailing EU regulatory framework and even to do so might be fraught with legal difficulties. Such difficulties could have the effect of delaying the entire process according to this respondent.

The three remaining respondents who were opposed to the proposal further stressed that it would be inappropriate, if not impossible, for ComReg to impose MVNO conditions, without first establishing Significant Market Power (SMP) in accordance with the Access Directive (2002/19/EC). The substance of this argument, as set out in detail by these respondents, is that the Authorisation Directive (2002/20/EC) establishes that Member States may not impose any restrictions on providers of electronic communications services other than those contained in a general authorisation. These respondents further contend that Article 6(1) of the Authorisation Directive states that only the conditions listed in the Annex to the Directive may be attached to a general authorisation. Article 6(2) then permits NRAs to impose certain specific conditions, as permitted by (and in accordance with the terms of) other provisions of the Framework, including SMP conditions and more specifically access conditions, which can be imposed under Article 8 of the Access Directive.

These respondents also added that Part B of the Annex to the Authorisation Directive does not include an MVNO access condition or similar. Instead, access conditions are dealt with by the Access Directive (Article 12). In this regard, the three respondents, in the main, rehearsed Article 8.3 of the Access Directive which they claimed affirms that NRAs shall not impose the obligations set out in Articles 9 to 13 on operators that have not been designated as having SMP.

Notwithstanding the above, one of these three respondents also noted that Condition 7 of Part B of the Annex to the Authorisation Directive allows for any commitments, which the undertaking obtaining spectrum usage rights has made in the course of a competitive or comparative selection procedure, to be included in licence conditions.

7.1.2 ComReg's View

ComReg is grateful for the responses received which, when taken together, serve to highlight that the issue of MVNO commitments is complex with the responses reflecting a dichotomy of views.

Those in favour of MVNO commitments in any future 900 MHz licences cited the need for such commitments to be clear, prescriptive and enforceable although there was some divergence between these respondents with regard to the degree that any such conditions should be imposed.

Those who opposed the proposal did so mainly on the narrow basis of the Access Directive and the need, in their view, to first establish significant market power in the relevant markets. Other arguments postulated that there was sufficient competition in the marketplace currently and that this competition could cater for

any operator exit given Ireland's favourable number porting arrangements, that regulated MVNO access was an unrelated regulatory goal, and that legal difficulties arising from any imposition of MVNO obligations could delay the entire process.

Largely absent from the debate, however, were detailed arguments for or against the merits or otherwise of the MVNO proposal *per se* or indeed any thorough consideration of the potential impact of this on consumers and investment incentives. Furthermore, no consideration seemed to have been given to the changing dynamics within the broader electronics communications marketplace or for the differing forms that an MVNO could take ranging from the type of model currently to be seen to full national competition. Whilst moves to converged services and bundled offers at the retail level have proved popular with consumers⁵⁸, and can in principal be welcomed, ComReg is concerned about the possible implications for the competitive process if high entry barriers persist in the mobile sector, even in the light of the proposals presented during this consultation process. ComReg would welcome views from all sections of the industry, including fixed and mobile operators, as to whether these concerns have any grounding and whether the risks are such that ComReg should look favourably on offers to host MVNOs.

In this context ComReg must ensure that its actions are objectively justified, non-discriminatory, proportionate and lawful. ComReg observes the legal reasoning put forward by some respondents and notes the observation of one respondent that the Authorisation Directive allows for any commitments which the undertaking obtaining the usage right has made in the course of a competitive or comparative selection procedure to be included in the subsequent licence conditions. In this regard, ComReg notes that Regulation 9 of the Access Regulations, which refers to the circumstances and manner in which access type obligations may be imposed, is without prejudice to ComReg's ability to attach commitments, made by an undertaking obtaining spectrum usage rights in the course of a competitive or comparative selection procedure, as spectrum usage rights conditions.

In summary, ComReg is of the view that the responses to the initial Consultation in relation to MVNOs, while valuable, are nevertheless inconclusive and focus too narrowly on ComReg's role in addressing situations of significant market power through the Article 7 procedure. ComReg therefore considers that further consultation is appropriate before it arrives at any decision in relation to MVNO commitments as part of any future 900 MHz spectrum licences. With this in mind, ComReg invites responses to the following four questions.

⁵⁸ For example recent research carried out on behalf of ComReg in November and December 2008 (see ComReg [Document 09/07](#)) shows that 27% of all Irish consumers subscribe to communications services on a bundled basis, including fixed and mobile elements.

Furthermore, a Eurobarometer survey on behalf of the European Commission, published in June 2008, found that 29% of consumers in the EU-27 countries have a combined package offering more than one communication service from the same provider
http://ec.europa.eu/information_society/policy/ecom/doc/library/ext_studies/household_07/eb68_2infoecomm_full.pdf

Q. 1. MVNO and the competitive process:

- a. What would be the impact of MVNOs on competition and investment?**
- b. What in your opinion would be the likely benefits and costs of ComReg inviting MVNO commitments as part of a future 900 MHz spectrum licence competition?**

In support of your response please refer to current and likely future market conditions and developments.

Q. 2. MVNO licence commitments:

- a. What should be the minimum services encompassed by MVNO licence commitments?**
- b. Should any services be excluded or should this be left solely to normal commercial agreement?**
- c. How might MVNO licence commitments be enforced? What criteria, processes and timelines might apply?**

Q. 3. MVNO Wholesale Pricing:

- a. Should wholesale pricing considerations form part of any discussion on MVNO commitments?**
- b. What factors should form the basis of any wholesale pricing structure in the event that MVNO licence commitments are included in any future 900 MHz spectrum licences? Please support your response with the reasoning for considering any such factors.**

Q. 4. MVNO Technical Issues:

- a. Are there any technical or practical constraints to the inclusion of MVNO commitments within future 900 MHz licences in a liberalised setting?
Please provide reasons for your view.**

8 Consideration of Previous Consultation Options for the Release of 900 MHz Spectrum

8.1 Option A, B & C (Questions 13 to 16)

In the Consultation, ComReg put forward three possible Options as to how the 900 MHz band could be licensed. Questions 13, 14 and 15 respectively sought views on each of the Options. In summary, these Options were:

Option A would involve the 900 MHz band being divided into:

- Six blocks of 2 x 5 MHz each; and
- 1 block (Block C) divided into 2 parts – Block C1 would comprise 2 x 2.8 MHz and Block C2 would comprise 2 x 2.2 MHz.

Three separate competitive award processes would be held, one for unassigned spectrum in mid-2009, one in advance of the expiry of the licence's of Vodafone and O2 and the final one in advance of the expiry of Meteor's licence.

Option B

This Option would involve the entire 900 MHz band being divided into seven 2 x 5 MHz blocks (named Blocks A to G). Block C would be comprised of sub-blocks C1 and C2. One licence competition for the entire 900 MHz band would be held in mid-2009. The assignment of spectrum to the winners of the licence competition would occur in three phases corresponding to the different expiry dates of existing licences.

Option C

Option C is similar to Option B and would involve the entire 900 MHz band being divided into seven 2 x 5 MHz blocks (named Blocks A to G). Block C would comprise sub-blocks C1 and C2. One licence competition for the entire 900 MHz band would be held in mid-2009. The assignment of spectrum to the winners of the licence competition would occur in three phases corresponding to the different expiry dates of existing licences. Where Option C differed from Option B is that up to two blocks (Blocks A and B) could be reserved for new entrants to the 900 MHz band in the licence competition.

Question 16 asked, within the context of Option C, for views on the number of blocks that should be reserved for new entrants.

8.1.1 Views of Respondents

Option A (Question 13):

No responses to this question supported Option A. One respondent was of the view that this was the “most flawed” of the three Options put forward and considered that, given the differing termination dates of the existing licences and the non-

homogeneous nature of the proposed spectrum blocks, there is a limited probability of an efficient outcome. The respondent also considered that holding three separate licence competitions would not provide any advantage over the alternative of holding a single competition for the entire spectrum band. It further contended that an auction for the entire 2 x 35 MHz of spectrum in the 900 MHz band would undermine the business plans of existing operators and could have the effect of freezing investment until after the auction, due to lack of certainty of return on investment.

A second respondent was of the view that the phased nature of the auctions would create unnecessary levels of uncertainty during the period from adoption to 2013, and that this uncertainty would impact on the ability of existing licensees to secure investment up to 2013.

Four respondents noted that there was no guarantee that bidders would be able to acquire contiguous blocks of spectrum.

Option B (Question 14)

Only one of the seven respondents to this question supported Option B. This respondent stated that a single auction was preferable from an administrative and financial perspective and that the reservation of at least one block of 2 x 5 MHz of unassigned spectrum for a new entrant would promote competition in the interest of end users.

Although respondents expressed the view that Option B was superior to Option A, concerns were raised that contiguous blocks of spectrum may not become available at the same time due to the differing assignment phases. It was considered that this would result in disruption both to existing GSM services and to the deployment of new services in the band. These respondents also highlighted the substantial risk, in their view, of existing licensees being unsuccessful in the auction.

Option C (Questions 15 and 16)

Three of the seven respondents to Question 15 supported Option C. One of the respondents was of the view that this Option maximises the potential for new entrants to gain access to the market, thereby ensuring the promotion of competition. Another of the respondents in favour of Option C stated that it would be difficult for the market to support two new entrants and as such the full new entrant reservation should go to one new operator who could demonstrate that they could enter the market and offer real infrastructure-based competition. Another respondent favoured Option C as it imposed the least administrative burden on both operators and ComReg and also allowed for new entrants.

All of the respondents who opposed Option C expressed concerns with ComReg's proposal to reserve up to two blocks of spectrum for a new entrant. All considered ComReg's welfare analysis, as contained in Annex F of the Consultation, to be flawed for several reasons, including the lack of clarity in relation to whether the analysis was for a "new market entrant" or a "new entrant to the band". In addition

it was argued by some of the respondents that no analysis was conducted in relation to the impact of the possible reduction in the spectrum assignment of an existing licensee under Option C. One respondent was of the view that it is not necessary to reserve spectrum for new entrants because if they can generate greater benefits from the use of the spectrum than existing operators then this would be reflected in their valuation which would result in them acquiring spectrum in an auction. Another respondent stated that, along with ComReg's Consultation proposal to impose an aggregation cap of 2 x 10 MHz per operator, there was scope for one new entrant to the 900 MHz band. One respondent contended that Option C indicated that ComReg's priority may be to maximise the proceeds from licence refarming rather than fostering sustainable competition and innovation.

8.1.2 ComReg's View

ComReg notes the concerns expressed by respondents to the Options with regard to transparency of the auction process, bidder certainty and the ability to obtain contiguous blocks.

In the interests of clarity, ComReg rejects any suggestion that its focus, primary or otherwise, is on the maximisation of auction proceeds. ComReg's approach in all regards is informed by its statutory obligations - without exception.

As ComReg proposes to implement a spectrum cap of 2 x 10 MHz in the 900 MHz band, this means that the three existing 900 MHz licensees could gain a maximum of 2 x 30 MHz between them, thus leaving at least one 2 x 5MHz block in the 900 MHz band for a new entrant in any event. ComReg is now putting forward two new Options, which are detailed in Section 9, for consideration by stakeholders.

8.2 Other Options suggested by Respondents (Question 17)

In addition to the three Options that were proposed in the Consultation, ComReg invited proposals for any other viable Options that should be considered. Respondents were requested to explain their proposals in detail and to provide supporting arguments to assist ComReg in considering each proposal.

8.2.1 Views of Respondents

There were 4 responses to Question 17 with alternative proposals.

One respondent proposed that a variant of Option B, involving a single auction in 2009 should be considered, but that this should be combined with: i) a decision to reserve at least a 5 MHz block for each of the existing 2G operators; and ii) a decision to extend the existing 2G assignments to the end of the 3G license period. This was proposed on the grounds, albeit without any apparent justification, that it would provide a very balanced approach with the advantage that any negative impact on consumers would be minimised, the existing operators would be encouraged to invest and there would still be up to four 2 x 5 MHz blocks available for which existing and new operators could compete. It was also proposed that if economic analysis conclusively showed that a new entrant would have a positive effect then one 2 x 5 MHz block could also be reserved for such a purpose.

The remaining responses were from existing 900 MHz licensees who variously argued that ComReg should reconsider its proposals and instead either:

- i. Extend the term of the current 900 MHz and 1800 MHz licences to expire coincident with the expiry of the 3G (2100 MHz bands) licences;
- ii. Expand each of the incumbent MNOs spectrum holdings so that each has a contiguous 2 x 10 MHz block that includes as far as possible their current spectrum assignment;
- iii. One MNO initially proposed assigning 2 x 11.2 MHz to each incumbent but then proposed 2 x 10 MHz as a compromise; or reserve 2 x 7.5 MHz for each incumbent MNO and auction spectrum in 2 x 2.5 MHz blocks, thus allowing each MNO scope to obtain up to 2 x 10 MHz;
- iv. Where there is 2 x 5 MHz of unassigned spectrum this could be administratively assigned or auctioned to a new entrant to the band, at the earliest opportunity as considered appropriate by ComReg.

It was also proposed that as demand for GSM services gradually declines, the requirement to maintain spectrum for both GSM services and 3G services would diminish. Once this point is reached over the next several years, operators could agree to a realignment of all spectrum allocations, each with a 2 x 5MHz assignment allocation. This would provide ComReg with an opportunity to re-assign the remaining spectrum vacated by the current licensees.

8.2.2 ComReg's Position

For the reasons set out in Section 4 of this document, ComReg's position is that existing 900 MHz and 1800 MHz licensees do not have spectrum usage rights beyond the explicit term, and terms, of their licences, as set in the licences and the relevant regulations. Further, ComReg considers that any future spectrum assignments, notwithstanding the need to address GSM legacy issues, should be made through an open and transparent frequency assignment process.

This makes it difficult to analyse in any great detail the alternative proposals put forward by respondents as all include as a fundamental, underlying proposition that existing 900 MHz licensees would be granted some form of licence renewal, extension, expansion or reservation of spectrum.

Nevertheless, ComReg has examined the remaining features of the proposals and sees interest and some merit in certain aspects. Of particular note were the views that:

- Reserving at least 2 x 5 MHz of spectrum for each of the existing operators would provide certainty to existing operators to enable them to continue to invest in their networks. Further, it was argued that this would leave existing

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900 MHz licensees open to the possibility of not obtaining sufficient spectrum to enable them to operate both a 2G and 3G network simultaneously, in which case the licensee may be required to make additional investments in order to provide 2G services using existing 1800 MHz assignments while rolling out 3G services using 900 MHz spectrum, or delay provision of new technology services in the band;

- Each respondent suggested that differing amounts of spectrum be reserved for the existing 900 MHz licensee. These ranged from 2 x 5 MHz to 2 x 11.2 MHz, although this respondent later supported a 2 x 10 MHz spectrum reservation as a “compromise”. Overall this suggests that each respondent had a differing view on the amount of reserved spectrum required;
- The alternative proposals from existing 900 MHz licensees all used the notion of a 2 x 10 MHz spectrum block in their design;
- There is potential for some technical inefficiency in various proposed Options as in the short-term spectrum could not be assigned for a number of years, until the expiry of Meteor’s licence in 2015;
- Holding three separate licence competitions for spectrum in the 900 MHz band, between mid-2009 and mid-2013, may cause some uncertainty for stakeholders. In particular, existing licensees are seeking visibility as to the future of the band in advance of the expiry of their licences, although it could equally be argued that such an approach could afford interested parties multiple opportunities to secure spectrum.
- Holding a licence competition early would also provide an opportunity for new entrants to obtain 900 MHz spectrum in mid-2009 and therefore benefit from liberalisation relatively quickly following the coming into force of the Draft Decision.

Therefore, taking note of responses to the Options A, B and C proposed in the Consultation, the various concerns and issues raised, alternative proposals put forward by respondents and within the context of ComReg’s statutory obligations and objectives, two new Options have been developed for consideration by stakeholders, which are detailed in the following section. ComReg is of the view that the three Options for the release of spectrum in the 900 MHz set out in Consultation Document 08/57 should no longer be considered.

Q. 5. Do you believe that the Options for the release of spectrum in the 900 MHz set out in Consultation Document 08/57 (Options A, B and C) should be further considered by ComReg? If yes, please provide detailed supporting argument with your answer.

9 New Proposals for the Release of 900 MHz Spectrum

Following ComReg's analysis of respondents' views as set out in Section 8 above, ComReg is presenting two new Options to liberalise use of the 900 MHz frequency band. Both Options have their merits, the first being relatively straightforward in its process and providing certainty from the outset regarding availability of spectrum, and the second dealing with the GSM legacy issues outlined by some respondents, in a potentially longer timeframe.

For convenience, the current spectrum assignments in the 900 MHz band are shown in Figure 1 below.

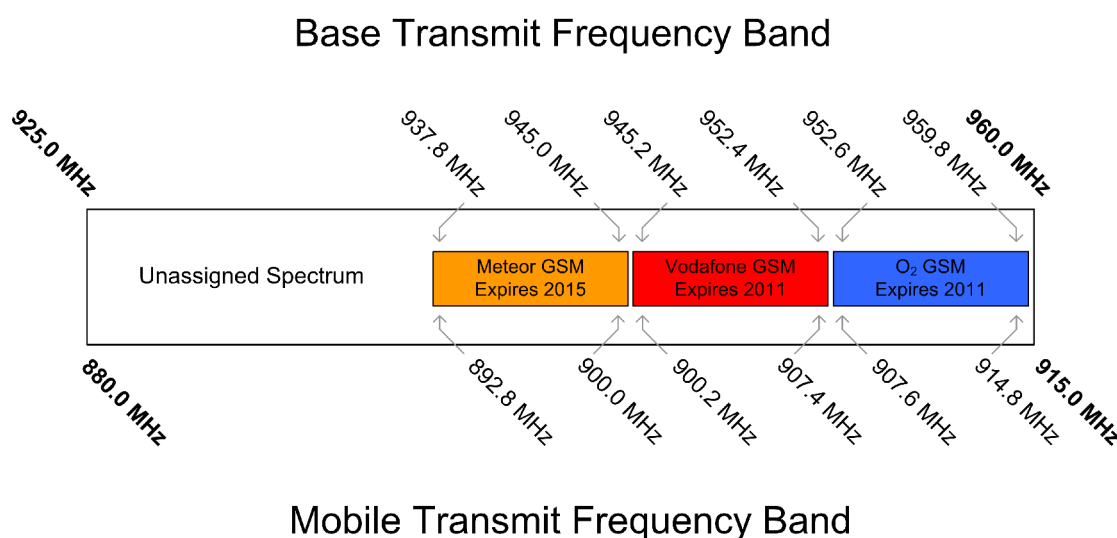


Figure 1: Current spectrum assignments in the 900 MHz band

9.1 Option 1: Single Auction

Option 1 would involve making the entire 900 MHz band available in a single auction. Each applicant to the auction would be limited to a maximum of 2 x 10 MHz of spectrum in the band. Following the auction, it is likely that realignment of the existing licensed frequency assignments will be necessary to facilitate use of the new assignments arising from the competition.

Under this Option the process would be as follows:

- i) In 2009 ComReg would auction the entire 900 MHz band, in blocks of 2 x 5 MHz, in a single licence competition;
- ii) No applicant would be permitted to obtain more than 2 x 10 MHz of spectrum in line with the proposed spectrum cap. In the case of existing 900 MHz licensees, the spectrum cap would include current assignments. Thus, should an existing licensee (holding 2 x 7.2 MHz of spectrum)

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acquire, say, a further 2 x 5 MHz in the auction, then it would be required to release some spectrum (2 x 2.2 MHz in this case), from its current assignment in order to comply with the 10 MHz cap;

- iii) As a pre-condition of entry to the auction, all existing 900 MHz licensees would be required to enter into a Memorandum of Understanding (MoU) under which they would agree to co-operate with other licensees and ComReg on re-alignment of their current licensed frequency assignments to facilitate use of the new assignments arising from the competition. This re-alignment process may also involve the retuning of an existing operator's network to a different spectrum assignment in order to comply with the 2 x 10 MHz spectrum cap. ComReg envisages that such realignment process would be completed within a short timeframe not exceeding 6 months; and
- iv) Licences issued to successful applicants following the auction would be for use of frequencies in the 900 MHz band on a liberalised, technology-neutral basis, in accordance with, amongst other things, the conditions of the Draft Decision (as amended).

The precise format of the competition is still to be decided but in line with Section 7, it may be possible for bidders to offer licence commitments for consideration.

If any of the existing 900 MHz licensees were not successful in the auction for liberalised spectrum, they would be permitted to continue providing GSM services until the expiry of their licence. After this, they would have the following options:

- Continue to provide 2G services using their existing 1800 MHz assignments;
- Make arrangements to port their customers onto other networks of the customer's choice; and/or
- Conclude a national roaming agreement with another licensed operator for use of its 900 MHz network.

9.1.1 Efficient Management and Use of Spectrum

9.1.1.1 Implications for Existing Licensees

The main advantage of having a single auction for the entire 900 MHz spectrum is that it would provide certainty with regard to the amount of spectrum that will be licensed and the timing of the provision. It would also give bidders the opportunity to acquire contiguous blocks of spectrum, although due to the differing licence expiry dates the spectrum will become available at different times.

The main disadvantage of the Option is that it would leave existing 900 MHz licensees open to the possibility of not obtaining sufficient spectrum to enable them to operate both a 2G and a new technology network simultaneously, in which case the licensee may be required to make additional investments in order to provide 2G services using existing 1800 MHz assignments while rolling out 3G services using 900 MHz spectrum, or delay provision of new technology services in the band.

9.1.1.2 Technical Efficiency

This proposed Option has significant potential to increase the efficiency of the 900 MHz band by making the whole of the 900 MHz band available immediately for use by liberalised licences.

It is recognised that there is some potential for inefficiency in the short term depending on the outcome of the auction and the length of time that 900 MHz spectrum continues to be used for the provision of 2G services only.

9.1.2 Providing Regulatory Certainty

Existing 900 MHz licensees and new entrants would be made aware of future block assignments in 2009 for the full 900 MHz band, two years ahead of the expiry of existing licences in 2011 and five years in advance of the last GSM licence expiry in 2015.

Accordingly, this Option would provide industry with a high degree of certainty regarding the future of the 900 MHz band. Awarding the usage rights for all 900 MHz spectrum in a single process would provide existing licensees with greater visibility compared to a multi stage auction and so facilitate efficient planning and investment.

9.1.3 Promotion of Competition

This Option has the potential to promote competition by providing an opportunity for new entrants to acquire liberalised 900 MHz spectrum, on the same terms as existing licensees (i.e. via the same licence competition).

An early licence competition would also provide an opportunity for new entrants to obtain 900 MHz spectrum in 2009 and therefore benefit from liberalisation relatively quickly following the coming into force of the Draft Decision. In this Option there would be a level playing field for all parties interested in acquiring liberalised spectrum.

9.1.4 Implications for Consumers

Option 1 allows for the possibility of new entrants to the 900 MHz band. With the greater coverage possibilities available through use of the 900 MHz band in comparison to, say, the 3G core band at 2100 MHz, the potential for competition between operators would be increased, thus increasing benefits to consumers in terms of choice, price and quality. This Option would allow both new entrants and current operators an equal opportunity to acquire new spectrum.

This Option may have the effect of deterring short-term investment by existing 900 MHz licensees prior to the expiry of their current licences.

On the other hand, as all blocks would be awarded simultaneously, all stakeholders would be provided with a high degree of visibility and certainty regarding the future of the band. This would likely benefit consumers by providing licensees with the certainty with which to make the necessary infrastructure investments to deliver new technology services sooner.

9.2 Option 2: Multi-Phased Approach

Option 2 would involve a phased approach to liberalisation of the 900 MHz band, dealing first with the legacy issues of those 2G licences in the band expiring in May 2011, and then making the 900 MHz spectrum available in blocks, the timing of which will be linked to expiry of the 2G licences. This Option would provide a staged transition from the current 2G networks to fully liberalised use of the band, first through liberalising the currently unused spectrum and then through the gradual liberalisation of any released 2G spectrum, with an ultimate deadline of 2015 for full liberalisation of the band. It is important to note that this Option would require ComReg to make new regulations under the Wireless Telegraphy Act 1926, which, pursuant to section 37 of the Communications Regulation Act 2003, would require the consent of the Minister for Communications Energy and Natural Resources.

As with Option 1, any new licences would be awarded on a liberalised basis and the maximum amount of spectrum a licensee would be permitted to hold would be limited to 2x10 MHz including that held under its existing 2G licence if applicable.

9.2.1 Addressing Incumbent 2G Legacy Issues

Under this Option, in mid 2009, ComReg would invite submissions from O2 and Vodafone to support any need for them to maintain part or all of their current spectrum assignments in the 900 MHz GSM band (2 x 7.2 MHz each) beyond 15 May 2011, the expiry date of their licences. O2 and Vodafone would each be asked to specify how much of its spectrum assignment it would need to retain. It would be emphasised that any spectrum retained beyond 15 May 2011 could only be used to provide 2G services (that is, on the same technical and quality of service terms and conditions as their current licence), and it is ComReg's intention to set revised 900 MHz fees for retained spectrum licences in advance of the competition.

As outlined in Section 5.2.3 ComReg believes that such fees should include both an upfront access fee and an ongoing annual spectrum fee. In setting the upfront access fee, ComReg is minded to base this fee upon the savings that an existing GSM licensee could make by retaining 900 MHz spectrum beyond its licence expiry date, and is minded to base the annual spectrum fee upon the annual opportunity cost to society for the non release of the spectrum into the market on a liberalised basis. ComReg is seeking feedback on the above principles in this consultation document and its intention is to provide further detail on these fees in advance of a competition. While the exact fees or fee structure has yet to be defined, it is ComReg's expectation that the fees for any retained 900 MHz spectrum will be substantially increased compared to the existing 900 MHz spectrum fees.

One of ComReg's key objectives is to ensure the efficient management and use of the radio frequency spectrum. Therefore, ComReg proposes to adopt the following course of action when assessing 2G incumbent legacy issues:

- ComReg would specify the relevant technical criteria and modelling approach to be used in evaluating O2 and Vodafone's submissions.

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- ComReg will detail the form in which this information will need to be supplied.
- Where necessary and justified, to protect incumbents business plans, this information can be submitted confidentially.
- ComReg's decision on the amount of spectrum to be retained by each operator would be final.
- The amount of spectrum required by each of these licensees would be reviewed by ComReg on an annual basis.
- Any operator availing of this approach would be required to comply with all information requests from ComReg to facilitate these reviews and failure to do so would constitute a breach of licence conditions.

No extension of any 2G licences would be granted beyond 17 June 2015 (the expiry date of Meteor's 2G licence). Beyond 17 June 2015, if any of the existing 900 MHz licensees have not been successful in winning liberalised spectrum in auction(s) held in the intervening period up to mid-2015, they would have the following options:

- Make use of other licensed frequency assignments in the 1800 MHz and 2100 MHz bands;
- Conclude an MVNO or roaming agreement with another licensed operator; and/or
- Make arrangements to sell its business as a going concern and switch its customers to another service provider.

9.2.2 The 900 MHz Spectrum Auctions

Commencing in 2009, auctions for access to spectrum in the 900 MHz band would be held on a phased basis with the following conditions:

- i) Spectrum Cap: No applicant would be permitted to hold more than 2 x 10 MHz of spectrum. In the case of existing 900 MHz licensees, the spectrum cap would include their current assignments. Should an existing licensee (holding 2 x 7.2 MHz of spectrum) acquire, say, a further 2 x 5 MHz in the auction they would be required to release some spectrum (2 x 2.2 MHz in this example), from their current assignment in order to comply with the 10 MHz cap;
- ii) As a pre-condition of entry to the auction, all existing 900 MHz licensees would be required to enter into a Memorandum of Understanding (MoU) under which they would agree to co-operate with other licensees and ComReg on re-alignment of their current licensed frequency assignments to facilitate use of the new assignments arising from the competition. This re-alignment process may also involve the retuning of an existing operator's network to a different spectrum assignment in order to comply with the 2 x 10 MHz spectrum cap. ComReg envisages that such realignment process would be completed within a short timeframe not exceeding 6 months; and

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- iii) Liberalised licences: All successful bidders would be awarded liberalised licences and would be able to immediately implement the provision of liberalised services on a technology-neutral basis in accordance with, amongst other things, the conditions of the Draft Decision on the frequencies covered by the licence.

Auction Phase 1 - ComReg would auction the two currently unassigned 2x5 MHz blocks in the 900 MHz band.

- **Auction date:** 2009;
- **Auctioned spectrum availability:** immediately on award of licences;
- **Amount of spectrum to be auctioned:** 2 blocks of 2 x 5 MHz each (Blocks A and B in Figure 2 below).

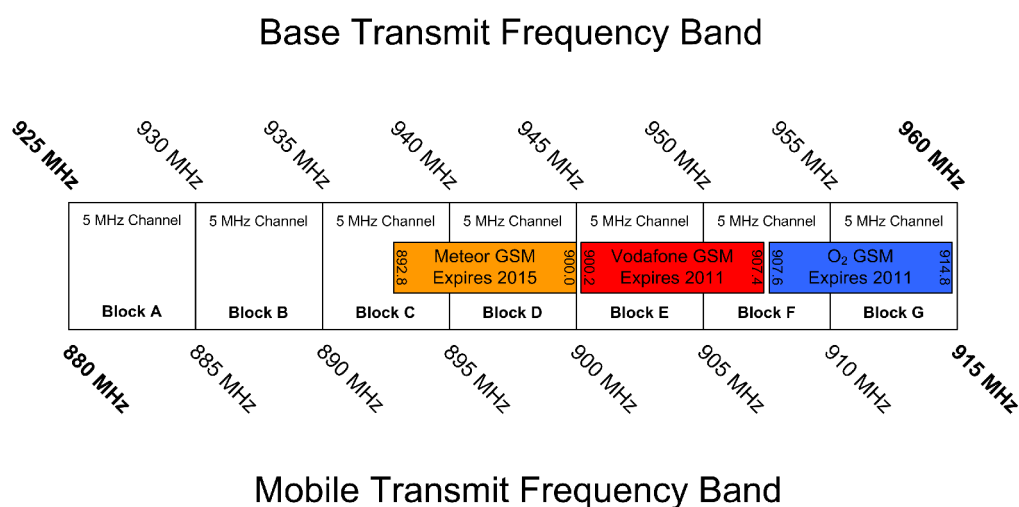


Figure 2: Blocks in relation to current spectrum assignments in the 900 MHz band

Auction Phase 2 – ComReg would auction spectrum which becomes available following the expiry of incumbent licences in 2011 and taking account of the treatment of GSM legacy issues outlined above. It is possible that no spectrum could become available if both Vodafone and O2 argue that they require all of their current assignments, and ComReg agrees with this assessment.

- **Auction date:** prior to May 2011 (following completion of legacy issue review);
- **Auctioned spectrum availability:** from May 2011 subject to award of licences;
- **Amount of spectrum to be auctioned:** would depend on the amount of spectrum to be released by O2 and Vodafone.

Auction Phase 3 – ComReg would auction all remaining 900 MHz spectrum.

- **Auction date:** Prior to 17 June 2015;
- **Auctioned spectrum availability:** from June 2015 (Meteor licence expiry date) subject to award of licences;
- **Amount of spectrum to be auctioned:** 2 x 10 MHz (comprised of the 2 x 7.2 MHz currently assigned to Meteor and the adjoining 2 x 2.8 MHz), plus any remaining spectrum from Vodafone and O2).

9.2.3 Efficient Management and Use of Spectrum

9.2.3.1 Implications for Existing Licensees

Under Option 2 there would be up to three licence competitions. An advantage of this feature is that there would be up to three separate opportunities for existing licensees to gain spectrum and also an opportunity for an early technology adaptor to emerge. Another advantage is that, under the multi-phased approach, any interested bidders would be able to more closely correlate the value of spectrum blocks with circumstances at the time of the award, given that the value of spectrum and individual blocks could change over time as a result of technological and industrial developments as well as the prevailing economic climate.

The disadvantages are threefold. Firstly, that the opportunities to acquire contiguous spectrum are made more complex and/or reduced since the 2 x 35 MHz available would be split across a number of auctions. Secondly, it would prolong for up to 6 more years the uncertainty over who will be assigned spectrum in the 900 MHz band. Thirdly, it would leave existing 900 MHz licensees open to the possibility of not obtaining sufficient spectrum to enable them to operate both a 2G and a new technology network simultaneously.

9.2.3.2 Technical Efficiency

Option 2 would also provide an increase in spectrum efficiency of the band by making 2 x 10 MHz of the currently unused 900 MHz spectrum available immediately.

Efficiency would continue to improve as spectrum used only for GSM is gradually liberalised following each auction.

9.2.4 Providing Regulatory Certainty

ComReg recognises that the multi-phased approach, covering 2009 to 2013, may cause uncertainty for stakeholders and that the main disadvantage of this Option is that stakeholders would not have full visibility as to the future of the band well in advance of the expiry of the GSM licences. This may make future planning more complex and perhaps affect investment in current networks – until licensees have greater certainty of the outcome of each phase of the process.

9.2.5 Promotion of Competition

Option 2 has the potential to promote competition by providing several opportunities for new entrants to acquire spectrum. The phased approach provides potential applicants with the opportunity to observe market, industry and technological developments in the period up to 2015, thus gauging the optimum time to enter the market.

A possible argument against this Option is that the 2 x 10 MHz comprising Blocks A and B to be auctioned in 2009 may be the most attractive blocks as it would allow

the full spectrum cap to be attained in a contiguous block and provides the main opportunity to achieve first mover advantage. This would increase the value of this 2 x 10 MHz tranche of spectrum and, it might be argued, could inflate auction bidding.

9.2.6 Implications for Consumers

Option 2 allows for the possibility of new entrants to the 900 MHz band. This would increase the potential for competition between operators thereby increasing benefits to consumers in terms of choice, price and quality.

Consumers are likely to benefit from the release of currently unused 900 MHz spectrum in the first auction in mid-2009.

Additionally, to the extent that holding up to three separate competitions at different times would decrease regulatory certainty, Option 2 may have the effect of deterring short-term investment by existing 900 MHz licensees prior to the expiry of their current licences. This in turn could hamper deployment of new technologies and potentially delay the benefits of liberalisation for consumers if existing GSM licences are extended for a long period of time.

9.3 Summary

ComReg is now inviting views from all interested parties on Options 1 and 2 and encourages respondents to indicate a clear preference for one Option or the other along with supporting arguments relevant to the Option at hand.

Q. 6. Which of the two Options described above for release of spectrum in the 900 MHz band would you prefer? Please provide supporting arguments with your answer.

Q. 7. What variations of the two Options should ComReg consider in finalising the process? Again please provide supporting arguments with your answer and suggest a detailed alternative if applicable.

Q. 8. Are there any other new Options that ComReg should consider? Please provide supporting arguments with your answer.

Q. 9. In the above Options, do you agree with ComReg's proposal to limit the time period for re-alignment of existing networks to other spectrum assignments to a maximum period of 6 months?

Q. 10. Under Option 2, and in the event that the existing 900 MHz licensees wish to continue use of their frequency assignments beyond the expiry dates of their current licences, do you agree with the principles ComReg has outlined for use when setting an increased spectrum fees levy appropriate for those extended licences? Please provide supporting arguments with your answer and suggest a detailed alternative if applicable.

Q. 11. It is ComReg's intention to include conditions in any new 900 MHz licences issued.

- a. Should the conditions be limited to existing services such as voice and text or be broadened to include other services such as broadband?**
- b. What kind of conditions (e.g. Coverage, Roll-Out, Quality of Service, etc.) should be included?**
- c. At what level should these conditions be set?**

Please provide reasons for your views.

10 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 until 5pm on 17 April 2009 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 subject matter and publish a report in on the consultation which will, *inter alia* summarise the responses to the consultation.

In order to promote further openness and transparency ComReg will publish all respondents' submissions to this consultation, subject to the provisions of ComReg's guidelines on the treatment of confidential information.⁵⁹ We would request that electronic submissions be submitted in an-unprotected format so that they can be appended into the ComReg submissions document for publishing electronically.

Please note

ComReg is consulting on the basis of the draft EC Decision, and potential measures which may be implemented by ComReg pursuant to it, in order to provide stakeholders with an opportunity to provide their views in anticipation of the draft EC Decision coming into force.

ComReg understands that the draft EC Decision is in final draft form. However, in the event of material differences between it and the final EC Decision, ComReg points out that it may have to amend its response to this Consultation and this further consultation, including putting forward and adopting new or amended proposals. ComReg may also conduct further consultations where it considers it appropriate and/or necessary to do so.

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.

As it is ComReg's policy to make all responses available on its web-site and for inspection generally, respondents to consultations are requested to clearly identify confidential material and place confidential material in a separate annex to their response.

Such information will be treated subject to the provisions of ComReg's guidelines on the treatment of confidential information.

⁵⁹ See ComReg [Document 05/24](#)

Annex A: Glossary

Table 1 – Governmental Bodies, Regulatory and Standardisation Organisations

CEPT	European Conference of Postal and Telecommunications Administrations
CoCom	Communications Committee of the European Commission
ComReg	Commission for Communications Regulation
DCENR	Department of Communications, Energy and Natural Resources
EC	European Commission
ECC	Electronic Communications Committee of CEPT
EU	European Union
ITU	International Telecommunication Union
NRA	National Regulatory Authority
RSC	The Radio Spectrum Committee of the European Commission

Table 2 – Legislation & Regulations

2002 Act	The Communications Regulation Act 2002
Access Regulations	European Communities (Electronic Communications Network & Services) (Access) Regulations 2003. SI. 305 of 2003
Authorisation Regulations	European Communities (Electronic Communications Network & Services) (Authorisation) Regulations 2003. SI. 306 of 2003
Framework Regulations	European Communities (Electronic Communications Network & Services) (Framework) Regulations 2003. SI. 307 of 2003
The draft EC Decision	The EC's Radio Spectrum Committee ("RSC") approved the final draft of the EC's Decision on <i>the harmonisation of the 900 MHz and 1800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community.</i>
The Minister	Minister for Communications, Energy and Natural Resources
The Proposed Amending Directive	The EC's proposal amending Council Directive 87/372/EEC on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community.

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WAPECS Recommendation	Draft Commission Recommendation on the non-technical conditions attached to the rights of use for radio frequencies under the regulatory framework for electronic communications in the context of the Wireless Access Policy for Electronic Communications (WAPECS)
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Table 3 – Technical Terms

2G	Second generation mobile services
2.5G	2G systems incorporating packet switched services
3G	Third Generation Mobile System
ARPU	Average Revenue Per User
Beauty Competition or Beauty Contest	A licence award method involving comparative evaluation of applications
ECN	Electronic Communications Network
ECS	Electronic Communications Service
FWALA	Fixed Wireless Access Local Area Network
FWPMA	Fixed Wireless Point to Multi-Point Access
GDP	Gross Domestic Product
Guard-band	An unused spectrum bandwidth separating channels to prevent interference
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
HSDPA	High Speed Downlink Packet Access
IMT	International Mobile Telecommunications system
LTE	Long Term Evolution of 3G
MMDS	Multipoint Microwave Distribution Service
MNO	Mobile Network Operator
MNP	Mobile Number Portability
MoU	Memorandum of Understanding
MVNO	Mobile Virtual Network Operator (a licensed mobile operator with no spectrum assignment and with or without network infrastructure)
ODTR	Office of the Director of Telecommunications Regulation
Porting	Number Portability is the process by which a consumer can transfer from one service provider to another service provider while maintaining their existing telephone number
RIA	Regulatory Impact Assessment
Service Neutrality	An approach to granting of licences whereby any electronic communications service (ECS) may be provided in any frequency band over any type of electronic communications network
SMP	Significant Market Power
Technology Neutrality	An approach to granting of licences without specifying

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	the technology to be deployed. However, certain technological requirements may be imposed to ensure compatibility with other services in the same or adjacent frequency bands
UMTS	Universal Mobile Telecommunications System
WAPECS	Wireless Access Policy for Electronic Communications Services
900 MHz Band	880 – 915 MHz paired with 925 – 960 MHz
1800 MHz Band	1710 – 1785 MHz paired with 1805 – 1880 MHz
2100 MHz Bands	1920 – 1980 MHz paired with 2110 – 2170 MHz 1910 – 1920 MHz

Annex B: Consultation Questions

Q. 1. MVNO and the competitive process:

- a. What would be the impact of MVNOs on competition and investment?**
- b. What in your opinion would be the likely benefits and costs of ComReg inviting MVNO commitments as part of a future 900 MHz spectrum licence competition?**

In support of your response please refer to current and likely future market conditions and developments.

Q. 2. MVNO licence commitments:

- a. What should be the minimum services encompassed by MVNO licence commitments?**
- b. Should any services be excluded or should this be left solely to normal commercial agreement?**
- c. How might MVNO licence commitments be enforced? What criteria, processes and timelines might apply?**

Q. 3. MVNO Wholesale Pricing:

- a. Should wholesale pricing considerations form part of any discussion on MVNO commitments?**
- b. What factors should form the basis of any wholesale pricing structure in the event that MVNO licence commitments are included in any future 900 MHz spectrum licences? Please support your response with the reasoning for considering any such factors.**

Q. 4. MVNO Technical Issues:

- a. Are there any technical or practical constraints to the inclusion of MVNO commitments within future 900 MHz licences in a liberalised setting? Please provide reasons for your view.**

Q. 5. Do you believe that the Options for the release of spectrum in the 900 MHz set out in Consultation Document 08/57 (Options A, B and C) should be further considered by ComReg? If yes, please provide detailed supporting argument with your answer.

Q. 6. Which of the two Options described above for release of spectrum in the 900 MHz band would you prefer? Please provide supporting arguments with your answer.

Q. 7. What variations of the two Options should ComReg consider in finalising the process? Again please provide supporting arguments with your answer and suggest a detailed alternative if applicable.

Q. 8. Are there any other new Options that ComReg should consider? Please provide supporting arguments with your answer.

Q. 9. In the above Options, do you agree with ComReg's proposal to limit the time period for re-alignment of existing networks to other spectrum assignments to a maximum period of 6 months?

Q. 10. Under Option 2, and in the event that the existing 900 MHz licensees wish to continue use of their frequency assignments beyond the expiry dates of their current licences, do you agree with the principles ComReg has outlined for use when setting an increased spectrum fees levy appropriate for those extended licences? Please provide supporting arguments with your answer and suggest a detailed alternative if applicable.

Q. 11. It is ComReg's intention to include conditions in any new 900 MHz licences issued.

- a. Should the conditions be limited to existing services such as voice and text or be broadened to include other services such as broadband?**
- b. What kind of conditions (e.g. Coverage, Roll-Out, Quality of Service, etc.) should be included?**
- c. At what level should these conditions be set?**

Please provide reasons for your views.

Annex C: International Developments in Refarming the 900 MHz and 1800 MHz Bands

In responding to ComReg's Consultation, four interested parties highlighted decisions that were taken by the administrations of other countries where GSM licences were extended or renewed. ComReg contacted the regulatory agencies of a number of the European Union Member States cited to garner more information about the circumstances that influenced such decisions and compared them to the situation pertaining in Ireland.

By way of summary, ComReg has determined that three key factors that influenced decisions to renew licences in other Member States differ substantively to the situation in Ireland. These being:

- There are significant differences in the provisions of the licensing regulations in other Member States when compared to Ireland. Spectrum trading and indefinite licenses are allowed in some Member States, while other Member States had explicit licensing provisions that allowed the regulatory agencies concerned to amend the expiry date of existing licences, albeit subject to consultation. ComReg notes that a number of these countries have amended the GSM licence fees in renewing such licences.
- Several Member States have unequal or highly fragmented spectrum assignments in the 900 MHz band while other Member States have assigned the entire 900 MHz band among existing licensees. Resolution of these issues is fundamental to these Member States in order to introduce new technologies into the band, make efficient use of the spectrum, promote competition and prevent distortions to the market. A number of Member States have proposed plans to overcome such issues. These include the possible mandatory release of spectrum that is currently assigned to incumbents in the band, the redistribution of spectrum in the band and/or the harmonisation of the expiry dates of existing licences.
- A number of Member States had licences which have already expired or were expected to expire before or immediately after the anticipated implementation date of the EC Decision/Directive on the bands. In order to provide regulatory certainty to the market, these Member States have already taken decisions on the use of the 900 MHz band, in advance of any other competitions that they may take over the coming years when this band is liberalised.

ComReg is of the view that the incidence of GSM licence extension cited in other EU Member States is of limited relevance to the issues at stake in Ireland. Factors influencing this view being *inter alia*, the pertaining legislation at a national level, the degree of demand indicated for access to the 900 MHz band and the inapplicability of *ex ante* regulatory measures adopted or under consideration elsewhere to facilitate the mandatory release or rationalisation of spectrum assignments in advance of licence expiry.

A brief overview of developments in EU Member States cited by respondents to 08/57 is as follows:

France:

In 2005 the French regulatory body (ARCEP) conducted a public consultation to determine amongst other considerations, the degree of demand that existed for access to spectrum in the 900 MHz band. As a result of the consultation, ARCEP concluded that there was limited demand for spectrum in the band on the part of new market entrants and published its decision to renew existing licences subject to new conditions. The amended conditions include an obligation on operators to extend their level of population coverage. Pending the future award of a fourth 2100 MHz 3G licence, ARCEP may proceed with the mandatory release of 5 MHz spectrum from existing 900 MHz MNOs for reassignment to a new 3G operator⁶⁰.

In contrast to the circumstances pertaining in France during ARCEP's 2005 consultation, the responses received following ComReg's 2008 consultation indicate that demand is likely to outstrip the supply of spectrum. A total of six operators have expressed an interest in acquiring spectrum in the bands. The combined level of demand expressed exceeds 2 x 40 MHz in the 900 MHz band where there is only 2 x 35 MHz available in total.

Belgium and Portugal:

The duration of the Belgian 900 MHz and 1800 MHz licences, due to expire in 2011, were extended for a period of five years. According to the Belgian regulator (BIPT), under the pertaining legislation the renewal of GSM licences is automatic unless the regulator opposes their renewal two years in advance of expiry.

In 2006, the Portuguese regulator (ANACOM) renewed the GSM licences for a period of 15 years. The licences were renewed pursuant to Article 36 of the Portuguese transposition of the Authorisation Directive, under which the renewal of GSM licences is also automatic unless opposed by the regulator in advance of expiry.

In contrast, the statutory instrument under which the GSM licences were issued in Ireland states that licences are annually renewable, but shall not be renewed on the 16th anniversary of first issue. The 16th anniversary of the issuing of 900 MHz licences being 16th May 2011 in the case of Vodafone and Telefonica O2 and 18 June 2015 in the case of Meteor.

Germany:

In 2005 the German Telecommunications Regulator (BNetzA) conducted a public consultation on a proposal to encourage further competition in the GSM bands. The

⁶⁰ "Any future 3G new entrant authorised following the application procedure for the fourth 2.1 GHz UMTS licence would also have access to the 900 MHz spectrum once it has been returned by the existing 2G operators". See ARCEP Press Release: [http://www.arcep.fr/index.php?id=8571&L=1&tx_gsactualite_pi1\[uid\]=957&tx_gsactualite_pi1\[bac_kID\]=2095&cHash=64ad094f02](http://www.arcep.fr/index.php?id=8571&L=1&tx_gsactualite_pi1[uid]=957&tx_gsactualite_pi1[bac_kID]=2095&cHash=64ad094f02)

consultation also addressed the issue of extending the existing 900 MHz and 1800 MHz licences to allow them to expire simultaneously.

The expiry dates of GSM licences previously ranged between 2009 and 2016, but following the consultation BNetzA harmonised all expiry dates to December 31st 2016 (the latter-most of the original expiry dates).

Due to the possibility of further refarming measures that may be required in the coming years to address *inter alia* spectrum fragmentation and measures to facilitate the possible entry of a new licensee into the band, the German regulator concluded that harmonisation of licence expiry dates was necessary. BNetzA's decision was published pursuant to Section 55 (8) of the German Telecommunications Act of 2004 which includes a specific provision to amend the expiry date of existing licences.

The Netherlands:

Following two public consultations (in 2005 and 2007), the Radiocommunications Agency of the Netherlands announced a decision to extend the duration of the two 900 MHz licences (KPN and Vodafone).

The two 900 MHz licences were extended for a period of three years, so that all 900 MHz and 1800 MHz licences would co-terminate (in 2013), two years in advance of a planned auction for all 900 MHz and 1800 MHz spectrum.

As part of this process, KPN agreed to release a block of 900 MHz spectrum for re-assignment to the third MNO (T-Mobile who had no previous spectrum assignment in this band). The two 900 MHz licences were extended for three years out of a maximum possible five year extension permitted under the pertaining legislation.

United Kingdom:

The GSM licences in the UK are issued in perpetuity and therefore consideration of expiry differs greatly from the Irish context. Ireland does not at this point have the legislative framework in place to permit a secondary market in spectrum usage rights, and therefore as discussed in Section 6.3 it is appropriate for ComReg to issue licences of finite duration.

Ofcom published its consultation on refarming GSM spectrum in September 2007. On February 13th 2009, Ofcom published a second phase consultation in which it is proposed to remove conditions on the use of the 900, 1800 and the 2100 MHz bands. It is also proposed that spectrum in these bands should be tradable (albeit subject to regulatory monitoring).

It is proposed that O2 and Vodafone each release 2 x 2.5 MHz of 900 MHz spectrum (out of a total of 2 x 17.4MHz each) for reassignment to another party through an auction. Vodafone and O2 will have 2 years to release this spectrum which will be auctioned in mid 2010. Ofcom believes that the cost of releasing this spectrum will amount to £30-£45m each.

Respondents to ComReg's July consultation also referred to a number of countries outside of the European Union. While these countries are not subject to the same legislative constraints as Ireland, ComReg notes the following;

Sweden:

In November 2008, the four existing GSM 900 operators (TeliaSonera, Swefour, Tele2, and Telenor) and Hi3G submitted an application to the Swedish Regulator, PTS, on the use of the 900 MHz band. Three of the GSM 900 MHz licences are due to expire on the 31 December 2010 with the other expiring in 2017.

On the basis of this application, in January 2009 the PTS announced its intention⁶¹ to launch a consultation on mobile telephony in this band, and published this consultation (Swedish only)⁶² in February 2009. The consultation proposes to renew the existing licences in the GSM 900 band and to assign the entire 900 MHz spectrum band to the five operators mentioned above. The proposed licences would be spectrum assignments of 2 x 10 MHz, 2 x 7.5 MHz and 2 x 5 MHz and would allow the operators to progress to new technology and supply wireless broadband.

Spain:

A consultation⁶³ published by the Ministry of Industry in July 2008 announced that re-distribution of spectrum amongst 2G and 3G operators could be imposed, at the time of a review of such licences which must take place before June 2009.

The Ministry will seek a voluntary agreement on the re-distribution of this spectrum between existing band licensees and a 3G service provider with no current 900 MHz spectrum assignment. Should the operators concerned fail to reach a voluntary agreement by mid 2009, the Ministry has indicated that it may proceed with its own solution for spectrum re-distribution.

Finland:

On May 31, 2006 the Ministry of Communications amended Decree 1159⁶⁴ of 2002 to allow MNOs to deploy UMTS in the GSM bands. The amendment came into force on July 1, 2006. The Finnish regulator (Ficora) published a decision 958/700/2007⁶⁵ in October 2007 with the aim of re-distributing 900 MHz spectrum assignments by Jan. 2010. The reassignment of spectrum is to ensure equitable access to contiguous assignments and will be achieved in three separate phases between 2007 and 2010.

⁶¹ <http://www.pts.se/en-gb/News/Press-releases/2009/PTS-in-consultation-phase-for-proposed-decision-concerning-mobile-telephony-in-the-GSM900-band-/>

⁶² <http://www.pts.se/upload/Remisser/2009/08-12019-beslutsforslag-900mhz.pdf>

⁶³ <http://www.mityc.es/en-US/GabinetePrensa/NotasPrensa/Paginas/npforosociedadenedconsultapublica.aspx>

⁶⁴ <http://www.ficora.fi/index/saadokset/lait/radiotaajuudet.html>

⁶⁵ http://www.ficora.fi/attachments/suomi_R_Y/5t7vt8yvR/Files/CurrentFile/Paat071031dna.pdf

Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands

Developments in countries outside the EU cited by respondents to 08/57 are detailed below.

Switzerland:

The Swiss regulator renewed the licences of Swisscom, Orange and Sunrise on March 22, 2007. The licences were due to expire in May 2008 but were extended up to 2013 with amended conditions allowing the deployment of UMTS900.

The regulator's decision to renew the licences was overturned in April 2008 by a decision of the Federal Court. Provisional licence extensions have been issued to MNOs to ensure continuity of service while the issue is being decided. ComReg's understanding is that the final judgement of the Court has not yet been made and that the Swiss regulator (ComCom) intends to publish a further consultation early in 2009.

Norway:

Interested parties were invited to register for an auction of spectrum. No parties other than the incumbent licensees expressed an interest in the spectrum planned for release, so licences were assigned to existing licensees.

Hong Kong:

Licences in the 800 MHz band were considered to be used inefficiently, so the regulator revoked these licences. The incumbents in this band were given first right of refusal for licences in the 900 MHz and 1800 MHz bands.

Singapore:

Spectrum lots in the 900 MHz and 1800 MHz bands were awarded in a two-stage combinatorial auction. All lots were ultimately assigned to existing operators at the reserve price.