



Commission for  
**Communications Regulation**

# **Multi-band Spectrum Release**

Release of the 800 MHz, 900 MHz and  
1800 MHz Radio Spectrum Bands

## **Response to Consultation and Decision**

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**An Coimisiún um Rialáil Cumarsáide**  
**Commission for Communications Regulation**

Abbey Court Irish Life Centre Lower Abbey Street Dublin 1 Ireland

Telephone +353 1 804 9600 Fax +353 1 804 9680 Email [info@comreg.ie](mailto:info@comreg.ie) Web [www.comreg.ie](http://www.comreg.ie)

## Additional Information

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## Chapter 1

# 1 Executive Summary

- 1.1 The Commission for Communications Regulation (“ComReg”), in its capacity as manager of Ireland’s radio spectrum, has been considering and consulting upon how best to conduct the assignment of rights of use in three critical radio spectrum bands that are, or are becoming, available: the 900 MHz, 1800 MHz and 800 MHz bands. This document:
- summarises the views and proposals set out by ComReg in Document 11/60 and, to the extent that they are relevant to ComReg’s Decisions set out in Chapter 8, in ComReg’s draft Information Memorandum;<sup>1</sup>
  - summarises the submissions made by respondents to Consultation 11/60 and to ComReg’s draft Information Memorandum (again, to the extent that they are relevant to ComReg’s Decisions set out in Chapter 8);
  - summarises the views of ComReg’s expert advisors: DotEcon Limited (DotEcon), Red-M and Vilicom in relation to ComReg’s proposed award process and the submissions of respondents to Document 11/60 and to ComReg’s draft Information Memorandum;
  - sets out ComReg’s analysis of the submissions made by respondents in light of the views of its expert advisors and its statutory functions, objectives and relevant duties in relation to Ireland’s radio frequency spectrum;
  - sets out a number of regulatory impact assessments in relation to material elements of the matters considered; and
  - sets out ComReg’s Decisions in relation to assigning spectrum rights of use in these three critical bands by means of a multi-band spectrum auction process.
- 1.2 The auction process will determine assignments of rights of use of spectrum across these three critical bands from 2013 to 2030. This will enable mobile network operators to make the investments needed to deliver enhanced services which will take mobile communications services to a new and significantly higher level of performance.

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<sup>1</sup> ComReg Document 11/75.



- 1.3 The 900 MHz band<sup>2</sup> is the main band currently used for the provision of GSM or '2G' (second generation) mobile services such as voice and SMS text messaging. The 1800 MHz band<sup>3</sup>, is also used for GSM services, mainly to provide additional capacity in urban areas where demand is higher. Until recently, the 900 MHz and 1800 MHz bands were reserved for GSM use only but the EU has mandated that both bands be 'liberalised', meaning that they can be used in future for providing advanced mobile services such as mobile broadband data, utilising '3G' and '4G' technologies alongside GSM.
- 1.4 The 800 MHz band<sup>4</sup> is currently used for the provision of analogue terrestrial television services. However, following the introduction of digital terrestrial television services and the switch-off of analogue services, which the Minister for Communications, Energy and Natural Resources ("CENR") has confirmed will take place on 24 October next<sup>5</sup>, this band will also be available for re-allocation to mobile services.
- 1.5 In total, therefore, 2 × 140 MHz of prime sub-2 GHz spectrum will be available for use by the mobile industry, more than doubling the current assignments in the 900 MHz and 1800 MHz bands.
- 1.6 All three bands are universally regarded as highly suitable for mobile services by virtue of their propagation properties, enabling wide area coverage and effective in-building penetration, and hence facilitate the provision of high quality national mobile network coverage at reasonable cost. How these bands are assigned will therefore be critical to the development of mobile services in Ireland, affecting, in general terms, not only the attainable levels of efficiency, innovation and quality in these services, but also the competitive position of operators as well as the interests of all mobile users.
- 1.7 Added to the critical importance of this spectrum is the considerable element of technical complexity associated with planning for an award process involving three different spectrum bands, two of which have existing GSM licences due to expire at varying points over the next three and a half years. One measure of this complexity is the volume of material this process has generated - to date, over 2100 pages of external submissions and expert reports. ComReg has

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<sup>2</sup> Which comprises the frequency ranges 880 - 915 and 925 - 960 MHz.

<sup>3</sup> Which comprises the frequency ranges 1710 - 1785 and 1805 - 1880 MHz.

<sup>4</sup> Which comprises the frequency ranges 791 - 821 and 832 - 862 MHz.

<sup>5</sup> See <http://www.dcenr.gov.ie/Press+Releases/2011/Change+to+TV+Standard+in+Ireland.htm> and [www.goingdigital.ie](http://www.goingdigital.ie) for further information.

therefore approached this process with considerable care and attention, based on a very full and thorough examination of all relevant options, having regard to all of the external submissions and economic, legal and technical material available to it.

- 1.8 The market and legislative<sup>6</sup> environment has evolved considerably over the course of this consultation process and ComReg has, of necessity, adopted a modular approach in the eight consultations<sup>7</sup> on this subject. It is of particular and positive significance that, over the course of this consultation process, we have been able to expand the scope of the proposed award process from one originally covering just 35 MHz of paired spectrum in the 900 MHz band<sup>8</sup> to one that now also includes 30 MHz of paired spectrum in the 800 MHz band and a further 75 MHz of paired spectrum in the 1800 MHz band. This increase in scope greatly improves the potential of this process to enhance competition, innovation and efficiency, which will be of great benefit to consumers and operators in the mobile industry. It has also reduced concerns, advanced at the outset of the process including, amongst other things, the scope for consumer disruption caused by competing demands on 900 MHz spectrum, and the need to provide for new entry by reserving spectrum for this purpose.
- 1.9 Over this same period we have also seen great strides in mobile technology, including the launch of advanced mobile services using LTE (Long Term Evolution). Services based on this technology are considered likely to be launched in Ireland in the near future, using the liberalised spectrum bands we are now proposing to make available, thereby ushering in a new era of advanced wireless services including fast, high capacity mobile broadband.

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<sup>6</sup> For further details see Annex 2.

<sup>7</sup> See ComReg Documents:

- 08/57 Consultation - Liberalising the Use of the 900 MHz and 1800 MHz Spectrum Bands;
- 09/14 Response to Consultation & Further Consultation - Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands & Spectrum Release Options
- 09/99 Response to Consultation & Further Consultation - Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands;
- 10/71 Consultation - 800 MHz, 900 MHz & 1800 MHz spectrum release;
- 10/105 Consultation - Inclusion of the 1800 MHz Band into the Proposed joint award of 800 MHz and 900 MHz Spectrum;
- 11/11 Response to Consultation and Draft Decision - Interim Licences for the 900 MHz band;
- 11/60 Response to Consultation and Draft Decision – Multi-band licence award process; and,
- 11/75 Draft Information Memorandum - Multi-band licence award process.

<sup>8</sup> While Document 08/57 considered the inclusion of 1800 MHz spectrum in the award process, its inclusion was ultimately ruled out.

- 1.10 The core decision arrived at in this document is to hold an open auction process for all spectrum rights in the 800 MHz, 900 MHz and 1800 MHz bands. ComReg has considered carefully all the views expressed by existing holders of spectrum in these bands as to why they should be allowed to retain or be re-assigned some or all of their current rights of use without facing full competition for these rights. Equally, ComReg has considered carefully the arguments advanced by potential entrants to these bands as to why they should be permitted to obtain new rights of use without facing full competition for such rights. ComReg has, however, concluded that a competitive, open, auction process is preferable to an award process involving limited or no competition for spectrum-use rights, in which incumbent mobile operators would be awarded spectrum-use rights simply by virtue of their incumbency. We have also considered whether the assignment of rights of use in other spectrum bands, in addition to the three spectrum bands selected, might be added into the award process, and concluded, on balance, that this ought not to be done.<sup>9</sup> While a number of these matters have been addressed previously in this process<sup>10</sup>, much of the reasoning in support of ComReg's views is again set out in Chapter 3 below and in Annex 4, as well as in the accompanying report from ComReg's expert economic advisers DotEcon (the "DotEcon's Issues Report")<sup>11</sup>, which is being published in tandem with this document.
- 1.11 Given the many complexities of a single award process across three spectrum bands and the need to cater for a wide range of legislative and regulatory policy requirements, much work has been needed to devise the optimal award format and conditions. The key features of the award process that ComReg has decided to adopt are as follows:
- it will involve a number of stages, including an application stage, a qualification stage, a main stage and an assignment stage, with the outcome of the qualification stage determining whether the procedure moves directly to the assignment stage, or whether the main stage is necessary, due to demand exceeding supply;
  - the main stage, if it occurs, will comprise of a combinatorial clock auction;

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<sup>9</sup> Without significantly delaying the auction process and thereby the economic and societal benefits likely to arise from the deployment of advanced mobile technologies in the short term.

<sup>10</sup> See, for example, Chapter 3 of Document 11/60, Annex 3 of Document 11/60a and Sections 2 and 3 of Document 11/58.

<sup>11</sup> See sections 2 and 3 of Document 12/24.

- the winners of spectrum will be those who make the highest bids (consistent with the auction rules which will be set out in the final Information Memorandum);
- the main stage of the auction, if it occurs, determines who wins what amount of spectrum; the assignment stage determines at which location (within each spectrum band);
- to accommodate the pattern of current licence assignments<sup>12</sup>, spectrum usage rights will be assigned across two time periods ('slices'), applicable to each of the three spectrum bands in respect of which rights of use are being allocated, which are envisaged as follows:
  - Time Slice 1: 1 February 2013 - 12 July 2015; and
  - Time Slice 2: 13 July 2015 - 12 July 2030,with all rights of use coming to an end on 12 July 2030, absolutely.
- to safeguard competition, there will be competition caps placed on the spectrum that bidders, either as a single entity or in combination with other bidders, can acquire:
  - 2 x 20 MHz of sub-1 GHz spectrum (i.e. 800 MHz and 900 MHz spectrum);
  - 2 x 50 MHz of total spectrum in these bands; and
  - 2 x 10 MHz of 900 MHz (Time Slice 1 only)
- to safeguard competition and spectrum efficiency, a minimum price will apply, based on a conservative lower bound estimate of the market value of liberalised spectrum derived from an international benchmarking analysis, which is currently calculated as being €20M per 5 MHz band of paired sub-1 GHz spectrum, and €10M per 5 MHz band of paired 1800 MHz spectrum; and
- the minimum fee will comprise two equal parts, being the upfront reserve element, and a Spectrum Usage Fee (SUF) to apply over the duration of the licence, appropriately adjusted for the time value of money.

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<sup>12</sup> The GSM 900 MHz and GSM 1800 MHz licences of Meteor Mobile Communications Ltd both expire on 12 July 2015. The GSM 1800 MHz licences of Telefónica O2 Communications (Ireland) Ltd and Vodafone Ireland Limited both expire on 31 December 2014.

- 1.12 The precise workings of these design features and rules, and their rationale when considered in the light of ComReg’s statutory responsibilities and the evidence from industry and other sources available to ComReg, are set out in Chapter 4 below, in several Annexes and in the DotEcon Issues Report. The setting of appropriate minimum prices is further analysed and substantiated in a separate DotEcon report on benchmarking (the “DotEcon Benchmarking Report”) <sup>13</sup> also being published alongside this document.
- 1.13 There are a number of additional features of the proposed award process which have been considered in earlier consultations and are now finalised and incorporated, alongside the features listed above, into the Decisions including:
- an ‘Early Liberalisation’ option affecting the 900 MHz and 1800 MHz licence-holders whose current rights have yet to expire;
  - ‘Preparatory Licences’ to assist parties who have been successful in the award process in preparing networks in advance of the spectrum being permitted for use;
  - ‘Transitional Arrangements’ addressing the arrangements for operators to move across and within bands to their spectrum-use rights location as determined in this award process; and
  - ‘Advanced Commencement’ provisions, potentially allowing earlier use, on a liberalised basis, of the spectrum-use rights won in the award process, subject to certain conditions.
- 1.14 ComReg’s Decisions set out in Chapter 8 also include some minor refinements to ComReg’s proposals, as presented in Documents 11/60 and 11/75, in light of responses received. The main refinements include:
- the addition of a two-week “negotiation phase” at the end of the assignment stage. This will give winning bidders the opportunity to agree among themselves an alternative configuration of assignments to facilitate contiguity of spectrum holdings which will in turn encourage the efficient use and ensure the effective management of radio spectrum;
  - the removal of proposed performance guarantees in respect of coverage and roll-out, and quality of service, licence conditions;

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<sup>13</sup> Document 12/23 - Award of 800 MHz, 900 MHz and 1800 MHz; Fifth Benchmarking Report.

- requiring compliance reporting on an annual basis (this had previously been proposed as a 6 monthly obligation);
  - that licence renewal will no longer be required on an annual basis; and
  - an alteration to the calculation of the rebates for early liberalisation in light of eircom Group's submissions in that regard, some of which ComReg considered appropriate.
- 1.15 These useful elaborations and amendments to ComReg's proposals are discussed in Chapters 4, 5, 6 and 7 below, in the Annexes<sup>14</sup> and in the DotEcon Issues Report and an additional technical report by Red-M and Vilicom.<sup>15</sup> Further technical elaboration of the auction procedure prompted by responses to Document 11/75 will be detailed in the final Information Memorandum to the extent that they are not relevant to ComReg's Decisions set out in Chapter 8.
- 1.16 The spectrum licences that are being made available in this award process are, since 2011, subject to new Irish regulations implementing the revised EU regulatory framework.<sup>16</sup> The regulations set out what technical conditions can be inserted in licences. The determination of the most appropriate licence conditions that should attach to licences in respect of relevant apparatus in these bands, given the wider EU legislative framework and ComReg's specific statutory objectives, is a further major work-stream in this project, and is set out in Chapter 5. The following are some of the main licence conditions:
- all licence holders must attain and maintain a minimum coverage of 70% of the population. The existing GSM and 3G licence holders are to attain this coverage obligation within 3 years, while new entrants who do not currently hold an existing GSM or 3G licence are to attain this coverage obligation within 7 years, along with an interim coverage milestone of 35% of the population within 3 years;
  - licence holders may use multiple bands to achieve coverage targets, but at least 50% of the coverage requirement (i.e. 35% of the population) must be met using the 800 MHz, 900 MHz and/or 1800 MHz bands;

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<sup>14</sup> Published in Document 12/25A

<sup>15</sup> See Red-M/Vilicom Report, Document 12/22

<sup>16</sup> European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 – SI No. 333 of 2011; European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 – SI No. 334 of 2011; European Communities (Electronic Communication Networks and Services) (Authorisation) Regulations 2011 – SI No. 335 of 2011; European Communities (Electronic Communications Networks and Services) (Privacy and Electronic Communications).

- minimum quality of service conditions shall require that:
  - the network unavailability will be less than 35 minutes per 6 month period;
  - the minimum voice call quality standard will be in line with the standard as set out in the existing GSM licences;
- technical requirements have been set out in the licence to facilitate the co-existence of services in the 800 MHz, 900 MHz or 1800 Mhz bands with services in same spectrum band or in adjacent spectrum bands; and
- all licence holders are required to comply with International Memoranda of Understanding ('MoUs') relevant to the spectrum band.

1.17 It is also noteworthy that trading of spectrum will be permitted in these spectrum bands. In due course ComReg will set out separately its modality on the rules and procedures associated with spectrum trading.

1.18 Finally, as this document brings together all of the work carried out to date to form a regulatory decision, this document of necessity also addresses the many other relevant points made by respondents, either in response to Document 11/60 or, where relevant, in response to Document 11/75. These points are either addressed as they arise in the main chapters, annexes and reports already referenced.

1.19 ComReg, having had regard to:

1. its statutory objectives, functions and duties (as more particularly set out in Annex 2);
2. the ComReg documents listed in paragraph 2.6 to the extent that ComReg has not changed its position as expressed in those documents over the course of the consultation process;
3. the responses to the documents listed at 2 above;
4. other policy documents published by ComReg;
5. section 13 policy directions, as appropriate;
6. relevant international developments;
7. the views of its staff; and

8. the reports and advice of its expert consultants

has:

1. formed its own view on each of the matters under consideration;
2. decided to adopt each of the positions set out in the body of this document as “ComReg’s Final Position” as its final position in relation to the matters set out therein; and
3. in light of the foregoing made each of the Decisions set out in Chapter 8.

1.20 ComReg will in due course publish its final Information Memorandum setting out the detailed rules for the auction.



## Chapter 2

# 2 Introduction and Background

## 2.1 Introduction

- 2.1 The purpose of this document is to set out ComReg's Response to Consultation and its Decision on its broader spectrum release proposals covering the 800 MHz, 900 MHz and 1800 MHz spectrum bands.
- 2.2 Two of these three spectrum bands (900 MHz and 1800 MHz) are currently used for providing 2nd generation (2G) mobile phone services (voice and SMS services); the third band (the 800 MHz band) is currently used for broadcasting analogue terrestrial television signals. All three bands are well suited to being used to provide advanced wireless services including mobile broadband and this has been recognised by the relevant European institutions. This publication contains ComReg's Decision on making these spectrum bands available for the provision of electronic communications services including both 2G and advanced wireless services in Ireland in the near future, on a competitive basis, based on a multi-band spectrum auction.
- 2.3 ComReg has consulted extensively on the release of these three bands, initially in Consultation 08/57<sup>17</sup> and Consultation 09/14<sup>18</sup> followed by Consultation 09/99<sup>19</sup> proposing the release and liberalisation of the 900 MHz band, Consultation 10/71<sup>20</sup> on the inclusion of the 800 MHz band in the 900 MHz award process and Consultation 10/105<sup>21</sup> on the inclusion of the 1800 MHz band in the same award process and Consultation 11/60<sup>22</sup> presenting ComReg's comprehensive proposals as well as a draft decision supported by a draft regulatory impact assessment. In addition, ComReg has published a number of expert reports

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<sup>17</sup> Document 08/57 – Liberalising the use of the 900 MHz and 1800 MHz spectrum bands - published 17 July 2008.

<sup>18</sup> Document 09/14 – Liberalising the future use of the 900 MHz and 1800 MHz spectrum bands & spectrum release options - published 10 March 2009.

<sup>19</sup> Document 09/99 – Response to consultation and further consultation on liberalising the future use of the 900 MHz and 1800 MHz bands: response to Consultation 09/14 and further consultation - published 21 December 2009.

<sup>20</sup> Document 10/71 – Consultation paper on 800MHz, 900 MHz & 1800 MHz spectrum release - published 17 September 2010.

<sup>21</sup> Document 10/105 – Consultation paper on inclusion of the 1800 MHz band into the proposed joint award of 800 MHz and 900 MHz spectrum - published 15 December 2010.

<sup>22</sup> Document 11/60 and 11/60a – Response to Consultation and Draft Decision on a Multi-band spectrum release and - published 24 August 2011.

alongside its Consultations and these are referenced in the consultations mentioned above.

- 2.4 During this period, ComReg also consulted on the issue of interim licences for the 900 MHz band in Consultation 10/71<sup>23</sup>, Document 11/11<sup>24</sup> and Document 11/29.<sup>25</sup> As this matter is now closed no further consideration is given to 900 MHz interim licences in this publication.
- 2.5 Following on from the publication of Consultation 11/60 ComReg has also published Document 11/75<sup>26</sup>, concerning a draft information memorandum which details the processes and procedures ComReg envisages it will employ if it were to implement its proposals as detailed in document 11/60.<sup>27</sup> Having considered the responses received to Document 11/75, ComReg is of the view that many of the issues raised in the responses to that document, dealt with matters covered by Consultation 11/60 and are therefore best responded to in this response to consultation document. Issues only relevant to Document 11/75 will be dealt with in an appropriate response to consultation in due course.
- 2.6 ComReg's policy is to publish all non-confidential material received in relation to matters under consultation and it refers interested parties to the following ComReg publications:
- Document 12/21 – Publication of responses received to Document 11/75 - Published 16 March 2012;
  - Document 11/102 – Publication of non-confidential responses to ComReg Document 11/60 and recent correspondence - Published 22 December 2011;
  - Document 11/69 – Publication of recent Correspondence (from July 2011 to September 2011) – Published 4 October 2011;

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<sup>23</sup> In particular see section 3 of Consultation 10/71 which included Questions 5, 6 & 7.

<sup>24</sup> Document 11/11 – Response to consultation and draft decision: Interim licences for the 900 MHz band - published 17 February 2011.

<sup>25</sup> Document 11/29 – Response to consultation and Decision: Interim licences for the 900 MHz band - published 13 April 2011.

<sup>26</sup> Document 11/75 – Draft Information memorandum on Multi-band Spectrum Release - published 24 October 2011.

<sup>27</sup> Document 11/75, the draft Information Memorandum and associated materials were prepared, in the main, while ComReg was awaiting the responses and submissions of Interested Parties to Document 11/60. Clearly, ComReg's full consideration of these responses and submissions in this document, as well as its final evaluation of the matters at issue, may result in appropriate changes to the draft Information Memorandum (11/75) and its associated materials.

- Document 11/50 – Publication of Interim Licences, MoU and non-confidential correspondence – Published 18 July 2011;
  - Document 11/37 - GSM Liberalisation Project - Publication of Correspondence - Published 13 May 2011;
  - Document 11/27 - Interim Licences for the 900 MHz band - Response to Consultation & Correspondence - published 6 April 2011;
  - Document 11/10 - Inclusion of 1800MHz into Proposed Award of 800MHz & 900MHz - Responses to Consultation & Correspondence - published 9 February 2011;
  - Document 10/103R - 800 MHz, 900 MHz & 1800 MHz spectrum release - Submissions received from respondents -published 7 January 2011;
  - Document 10/79 - GSM Liberalisation Project - Publication of non-confidential submissions, correspondence and other material - published 30 September 2010;
  - Document 10/21R - Submissions to Consultation 09/99 - Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands - published 29 March 2010;
  - Document 09/99s – Publication of non-confidential input and correspondence with interested parties - published 21 December 2009
  - Document 09/51s - Publications of responses received to consultation 09/14; and
  - Document 09/14s - Publications of responses received to consultation 08/57.
- 2.7 All public documents related to this process are also referenced on a dedicated webpage: <http://www.comreg.ie/gsm.lib>.
- 2.8 Ten interested parties submitted a response to Consultation 11/60. These were:
- Vodafone;
  - Telefónica Ireland (O2);
  - eircom Group (eircom/Meteor);

- Hutchison 3G Ireland Limited (H3GI);
- IBEC Telecommunications and Internet Federation Mobile and Wireless Industry Group (TIF);
- RTÉ and RTÉNL (RTÉ);
- TG4;
- HKC Ltd;
- Stephen Minch; and
- Arqiva.

2.9 Five interested parties submitted a response to Document 11/75. These were:

- Vodafone;
- Telefónica Ireland (O2);
- eircom Group (eircom/Meteor);
- Hutchison 3G Ireland Limited (H3GI);
- RTÉ and RTÉNL (RTÉ).

2.10 ComReg received very late submissions on Consultations 11/60 and 11/75 which has delayed this response to consultation.

2.11 ComReg is grateful for all the submissions provided by respondents in response to Documents 11/60 and 11/75 as well as to this consultation process overall and has given careful consideration to all the material submitted by interested parties as well as to other available information before it, including the material contributed by the experts retained by it to advise and report in relation to matters of relevance to the process. All discussions concerning this process included in previous documents or in response to previous documents should be regarded as having been considered in full in the preparation of this response to consultation and the associated documents.

2.12 While ComReg has carefully considered the expert external advice provided to it in the course of this process, ComReg has formed its own view in arriving at its final positions as set out in this document.

2.13 Throughout ComReg's consultation process, ComReg has been guided by its statutory functions, objectives and relevant duties in relation to Ireland's radio frequency spectrum (which are set out in Annex 2 of this document) and the findings of its Regulatory Impact Assessment ("RIA"). Whilst the use of a RIA analytical framework has been formally utilised only in certain, appropriate circumstances, it should be apparent to readers that ComReg has, for the large number of issues it is required to consider and address as part of this consultation process, nevertheless, been informed by the potential impact of its proposed measures on different stakeholder groups and on competition. Accordingly, and in concert with the above, ComReg's aim for the award process and its outcome is to ensure - to the extent reasonably possible - that following the award process there is no material restriction of downstream competition relative to the current situation.

2.14 This document is structured as follows:

- Chapter 3: sets out ComReg's views on the award process in addition to the supporting RIA and assessment against other statutory objectives;
- Chapter 4: outlines the particulars of the award process;
- Chapter 5: sets out the licence conditions that will apply;
- Chapter 6: details how ComReg intends to handle transitional issues;
- Chapter 7: sets out how advanced commencement of liberalised licences will operate;
- Chapter 8: sets out ComReg's Decision on the multi-band spectrum release;
- Chapter 9: sets out relevant next steps in relation to this spectrum release Decision; and in Document 12/25A the following annexes:
  1. Glossary and definitions;
  2. The legal framework, ComReg's statutory functions and objectives in relation to radio spectrum;
  3. The Band Plans;
  4. Regulatory Impact Assessment (RIA);
  5. Spectrum Cap;
  6. Coverage measurement metrics;

7. The Draft Regulations;
8. Draft Part 4 to the Liberalised-Use Licence;
9. Co-existence of the 800 MHz band and DTT;
10. Spectrum Fees;
11. Final RIAs on coverage and Quality of Service (QoS) licence conditions;
12. Consideration of other issues raised;<sup>28</sup>
13. International update on regulatory actions; and
14. Agreed Memorandum of Understanding (MoU) with the UK on the 800 MHz band.

2.15 Readers might also note that:

- DotEcon's views and recommendations as they relate to and address respondent's views, are set out in Documents 12/24 and 12/23 issued alongside this Response to Consultation and Decision; and
- Red-M and Vilicom's views and recommendations as they relate to and address respondents' views, are set out in Document 12/22 issued alongside this Response to Consultation and Decision.

2.16 For the avoidance of doubt, throughout this document ComReg refers to Hutchison 3G Ireland as 'H3GI', eircom or Meteor Mobile Communications Ltd as either 'eircom Group', 'eircom', 'Meteor' or 'eircom/Meteor', Telefónica O2 Communications (Ireland) Ltd as 'O2', 'Telefónica', 'Telefónica Ireland' or 'Telefónica O2' and Vodafone Ireland Limited as 'Vodafone'.

## 2.2 Background

2.17 This section summarises the context for ComReg's broader spectrum release project. The section first sets out the current status of spectrum bands that have been considered for use for the provision of mobile electronic

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<sup>28</sup> The other issues raised dealt with in Annex 12 are:

- contention that ComReg's position is outdated;
- request for a detailed timetable;
- uncertainty of access to 800 MHz;
- undue emphasis on the need to liberalise licences;
- lack of consumer participation in the consultation process; and
- weighing of factors

communications services and the second section outlines relevant legislative developments at the European level.

## **2.2.1 Current Status of Spectrum Bands Suitable for Public Mobile Communications**

2.18 During this consultation process a number of spectrum bands have been put forward as suitable for the provision of mobile electronic communications services, including 2G and 3G mobile telephone services and the provision of broadband (fixed, mobile and nomadic). These spectrum bands are the:

1. 800 MHz band;
2. 900 MHz band;
3. 1800 MHz band;
4. 2.3 GHz band;
5. 2.6 GHz band;<sup>29</sup>
6. GSM-R band (876 – 880 MHz paired with 921 – 925 MHz);
7. Unspecified spectrum between 300 MHz and 500 MHz; and
8. Spectrum immediately above the GSM900 band (960 – 1164 MHz).

2.19 All eight bands have previously been considered for inclusion in the broader spectrum release project. The bands covered by numbers 6, 7 and 8 have been discounted – please see section 6.10 of Consultation 09/99. The bands covered by numbers 4 and 5 have also been discounted at present – please see section 2.5.2 of Consultation 10/71, section 2.3.2.1 of Consultation 10/105, Annex 3 of Consultation 11/60a and ComReg’s Spectrum Strategy Statement as published in Document 11/89.

### **2.2.1.1 Current Usage of the 800 MHz band**

2.20 The band, 790 - 862 MHz is currently used for the provision of analogue terrestrial television services on a national basis.

2.21 In order for the 800 MHz band to be made available on a liberalised basis for the provision of electronic communications networks and services, the current

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<sup>29</sup> For ComReg’s ongoing work on the future use of this band please see Document 11/80.

usage of this band needs to cease. This process is known as “analogue switch-off” (“ASO”) and is provided for under Part 8 of the Broadcasting Act 2009. In August 2010, the Minister for Communications, Energy and Natural Resources (“CENR”) established a Digital Switch Over Steering Group, with additional working groups, to manage the switch from analogue to digital television.<sup>30</sup>

2.22 ComReg has reported on developments in ASO in Document 10/59<sup>31</sup> and in Section 1 of Consultation 10/71. Since the publication of Consultation 10/71 the Minister for CENR has, in May 2011, announced the launch of Saorview,<sup>32</sup> RTÉ’s national free to air digital terrestrial television<sup>33</sup> service. In doing so, the Minister noted that at least a quarter of a million Irish households are reliant on the analogue service and with the national launch of Saorview these households would have 18 months to move to digital TV before the analogue TV network is switched off. The Department of Communications, Energy and Natural Resources (DCENR) is currently advancing its plans to ensure that all households in Ireland receive adequate notice of this major development in Irish public service broadcasting.<sup>34</sup>

2.23 The Minister for CENR has announced that analogue terrestrial television is to be switched off on 24 October 2012.<sup>35</sup>

### **Recent Developments at WRC-12 on a Second Digital Dividend**

2.24 At the recent ITU World Radiocommunication Conference (WRC-12) (Geneva, 23 January to 17 February 2012)<sup>36</sup> a proposal was adopted to allocate the frequency band 694-790 MHz in Region 1<sup>37</sup> to the mobile, except aeronautical mobile, service on a co-primary basis with other services to which this band is allocated (in effect the broadcasting service) and to identify it for International Mobile Telecommunications (IMT). The allocation is to take effect immediately

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<sup>30</sup> See <http://www.digitaltelevision.ie/>

<sup>31</sup> Document 10/59 - Update on the availability of Ireland’s “digital dividend” and the 900 MHz band liberalisation process - published 29 July 2010.

<sup>32</sup> See [www.saorview.ie](http://www.saorview.ie)

<sup>33</sup> See <http://www.dcenr.gov.ie/Press+Releases/Minister+Rabbitte+Launches+National+Free+to+Air+Digital+Terrestrial+Television.htm> – 26 May 2011

<sup>34</sup> See <http://www.dcenr.gov.ie/Press+Releases/Change+to+TV+Standard+in+Ireland.htm> as well as [www.goingdigital.ie](http://www.goingdigital.ie)

<sup>35</sup> See [www.dcenr.gov.ie/Press+Releases/MINISTER+RABBITTE+ANNOUNCES+DATE+FOR+DIGITAL+TV+SWITCHOVER.htm](http://www.dcenr.gov.ie/Press+Releases/MINISTER+RABBITTE+ANNOUNCES+DATE+FOR+DIGITAL+TV+SWITCHOVER.htm)

<sup>36</sup> See <http://www.itu.int/ITU-R/index.asp?category=conferences&rlink=wrc-12&lang=en>

<sup>37</sup> ITU Region 1 includes Europe, Africa, the Middle East and the Russian Federation.

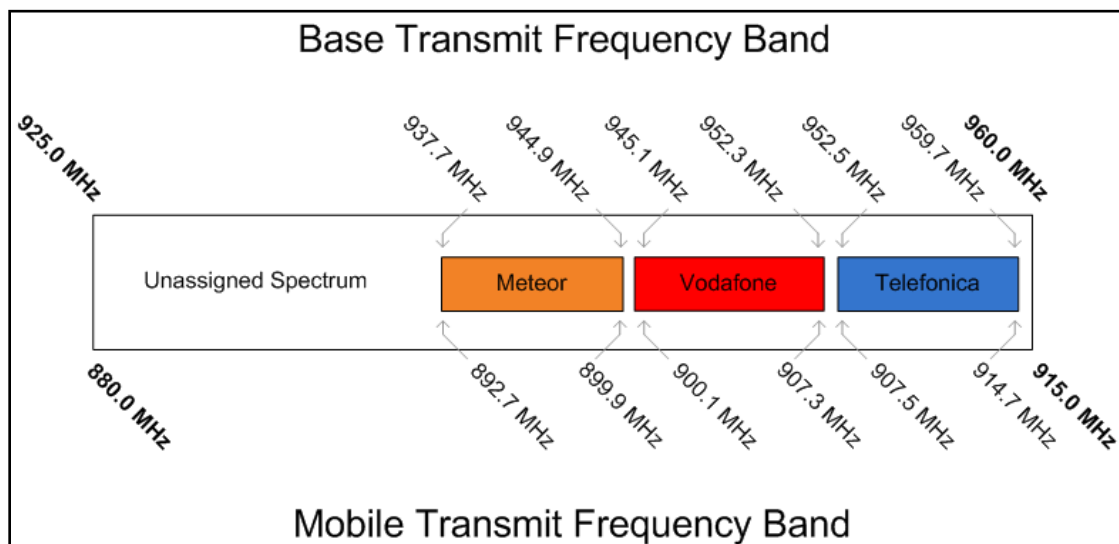


after the next WRC in 2015<sup>38</sup> (WRC-15) which will also decide whether the lower limit of the band should be at 694 MHz or another frequency.

- 2.25 Although the proposal was not on the agenda for the conference, having been adopted it will now have to be taken into account at the European level and at the national level in Ireland. As it has a potential impact on the future structure of the TV broadcasting network the proposal has implications for policy in general concerning the future use of the band 470-790 MHz, e.g., not only for broadcasting or mobile uses but also for services ancillary to broadcasting such as PMSE. It is more than likely that a European consensus will be developed on the treatment of the new allocation, however, the timeframe for this is as yet unknown.

### 2.2.1.2 Current Usage of the 900 MHz Band

- 2.26 The 900 MHz band is comprised of the 880–915 MHz sub-band paired with the 925–960 MHz sub-band. The total amount of spectrum in the 900 MHz band is  $2 \times 35$  MHz. Currently there are three spectrum assignments of  $2 \times 7.2$  MHz held by each of Vodafone, Telefónica O2 and Meteor, in the 900 MHz band. This means that  $2 \times 13.4$  MHz (including guard-bands) of spectrum is currently unassigned; including a contiguous unassigned block of  $2 \times 12.7$  MHz. Figure 1 illustrates the 900 MHz band, and the current spectrum assignments in the band. The various licence expiry dates are set out in Table 1.



<sup>38</sup> The precise dates for WRC-15 have not yet been established.

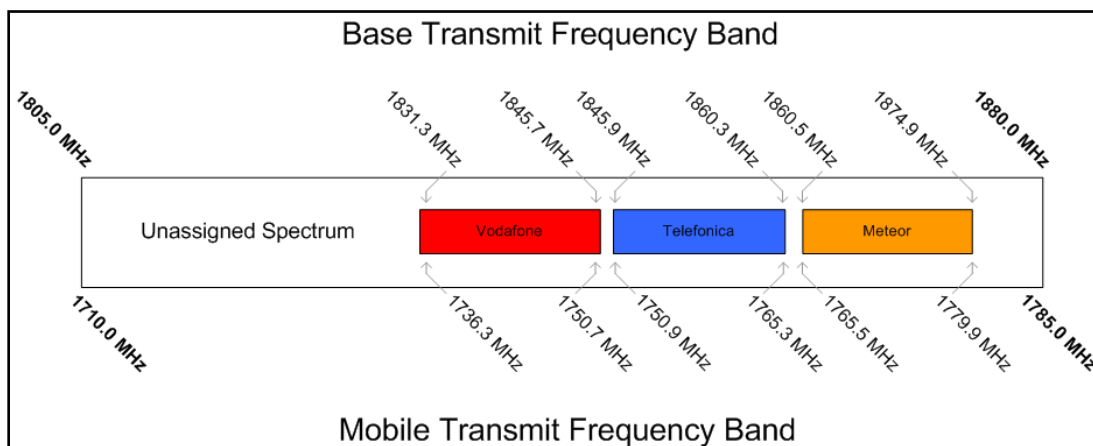
**Figure 1: Current Spectrum Assignments in the 900 MHz band**

Licensee	GSM 900 Licence Expiry Date
<b>Meteor Mobile Communications Ltd</b>	12 July 2015
<b>Telefónica O2 Communications (Ireland) Ltd</b>	31 January 2013
<b>Vodafone Ireland Limited</b>	31 January 2013

**Table 1: Licence Expiry Dates of the GSM900 MHz Licences**

**2.2.1.3 Current Usage of the 1800 MHz Band.**

2.27 The 1800 MHz band is comprised of the 1710–1785 MHz sub-band paired with the 1805–1880 MHz sub-band. As shown in Figure 2 the total amount of spectrum in the 1800 MHz band is 2x75 MHz. Currently there are three spectrum assignments of 2x14.4 MHz each in this band. This means that 2x31.8 MHz (including guard-bands) of spectrum is currently unassigned, including a contiguous unassigned block of 2x 26.3 MHz. The various licence expiry dates are set out in Table 2.



**Figure 2: Current Spectrum Assignments in the 1800 MHz band**

Licensee	GSM 1800 Licence Expiry Date
Meteor Mobile Communications Ltd	12 July 2015
Telefónica O2 Communications (Ireland) Ltd	31 December 2014
Vodafone Ireland Limited	31 December 2014

**Table 2: Licence Expiry Dates of the GSM1800 MHz Licences**

## 2.2.2 Legislation – Liberalisation of the 900 MHz and 1800 MHz Bands

2.28 Until the latter part of 2009, under European legislation the 900 MHz and 1800 MHz bands could only be used for the provision of GSM mobile telephony services – i.e. second generation or “2G” comprising traditional voice and SMS services and “2.5G” comprising limited data services. In the third quarter of 2009 two pieces of legislation were adopted at a European level which provided for “liberalisation” of the 900MHz band and the harmonisation of the 900 MHz and 1800 MHz frequency bands. As a result, it is now possible to introduce other terrestrial systems capable of providing electronic communications services that can co-exist with GSM systems in the 900 MHz and 1800 MHz bands. These pieces of legislation are:

- European Directive 2009/114/EC, adopted on 16 September 2009, which amends the existing GSM Directive and removes the exclusive reservation of the 900 MHz band for GSM services ( “GSM Amendment Directive”);<sup>39</sup> and
- European Commission (“EC”) 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 (2009/766/EC), adopted on 16 October 2009, which sets out the technical harmonisation measures for the introduction of other terrestrial systems capable of providing electronic communications services that can co-exist with GSM systems in the 900 MHz and 1800 MHz bands (the “EC Decision on the 900 and 1800 MHz bands”).<sup>40</sup> This Decision was subsequently amended in 2011 via Decision 2011/251/EU and the Long Term Evolution (“LTE”) and the Worldwide Interoperability for Microwave Access (“WiMAX”), technologies are now added

<sup>39</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:274:0025:0027:EN:PDF>

<sup>40</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:274:0032:0035:EN:PDF>

to the list of permitted technologies in the Annex of the EC Decision on the 900 MHz and 1800 MHz bands.<sup>41</sup>

2.29 On 7 May 2010, the Minister for CENR made the European Communities (Public Pan-European Cellular Digital Land-Based Mobile Communications) Regulations 2010 (the “GSM Amendment Regulations”) which transposed the GSM Amendment Directive into Irish law.<sup>42</sup>

2.30 The GSM Amendment Directive and the GSM Amendment Regulations make the 900 MHz band available for GSM and Universal Mobile Telecommunications System (“UMTS”) systems, as well as for other terrestrial systems capable of providing electronic communications services that can co-exist with GSM systems, in accordance with technical implementing measures adopted pursuant to Decision 676/2002/EC.<sup>43</sup> The GSM Amendment Regulations require ComReg to examine whether, on liberalisation of the 900 MHz band, the existing assignment of spectrum in band to competing mobile operators is likely to distort competition in the mobile markets in the State and, where justified and proportionate, ComReg must address any such distortions in accordance with Regulation 15 of the Authorisation Regulations.

### 2.2.3 Legislation – The 800 MHz Band

2.31 On 6 May 2010, the EC adopted a Decision (the “800 MHz Decision”) which harmonises the technical conditions of use in the 800 MHz band, for terrestrial systems capable of providing electronic communications services in the European Union.<sup>44</sup> When an EU Member State designates or makes available the 800 MHz band for networks other than high-power broadcasting networks, the 800 MHz Decision obliges that Member State to allow the 800 MHz band to be used for terrestrial systems capable of providing electronic communications services in compliance with the parameters set out in the Annex to the 800 MHz

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<sup>41</sup> 2011/251/EU - Commission Implementing Decision of 18 April 2011 amending Decision 2009/766/EC on the harmonisation of the 900 MHz and 1 800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community - see <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:106:0009:0010:EN:PDF>

<sup>42</sup> See Statutory Instrument 195 of 2010: <http://www.irishstatutebook.ie/2010/en/si/0195.html>

<sup>43</sup> Decision No. 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community.

<sup>44</sup> Commission Decision (2010/267/EU) of 6 May 2010 on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union. See <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010D0267:EN:HTML>

Decision. The Annex of the Decision sets out a number of technical conditions in the form of frequency arrangements and block-edge masks (BEMs).

## **2.2.4 Legislation – Legal Framework, ComReg’s Objectives and Functions**

- 2.32 The legal framework within which ComReg operates and ComReg’s functions and objectives in relation to Radio Spectrum are set out in detail in Annex 2 of this document.

## Chapter 3

# 3 RIA and Assessment against Statutory Objectives

- 3.1 In Chapter 3 of Document 11/60, ComReg first carried out a draft Regulatory Impact Assessment (“RIA”) in accordance with the RIA framework set out therein, in order to identify a preferred option on the spectrum to be awarded and the assignment process. That chapter then set out an assessment of the preferred option identified against ComReg’s statutory obligations generally. This chapter considers submissions received on, or relevant to, Chapter 3 of Document 11/60. ComReg’s final RIA can be found in Annex 4 of this document.
- 3.2 Following the above mentioned assessment, ComReg was satisfied in Document 11/60 that the preferred option identified was in compliance with its statutory obligations. As will be seen from the consideration of submissions below and from the final RIA contained in Annex 4 of this document, ComReg has not received any further submissions on this aspect of the project and is not in possession of any new information tending to suggest that it is appropriate to amend the option preferred in Document 11/60 or to choose an alternative option. As such, ComReg does not consider it necessary to reproduce the above assessment again in this document, but, instead, refers readers to Chapter 3 of Document 11/60 and to its consideration of responses received on that chapter set out below.
- 3.3 The draft RIA contained in Chapter 3 of Document 11/60 was split into two parts – a draft ‘Spectrum for Award’ RIA and a draft ‘Assignment Process’ RIA. Respondents’ comments relating to this draft RIA are set out below and should be read in conjunction with the RIA contained in Annex 4 of this document.

## 3.1 General Comments on Draft RIA

### 3.1.1 Views of Respondents

- 3.4 In its response to Document 11/60, Telefónica pointed out that in the draft RIA ComReg assigned views to new entrants without referring to consultation submissions (para 2.6).

- 3.5 Telefónica noted that *“A RIA should be evidence-based and not a speculative narrative of how a market or an operator, incumbent or new entrant, may behave in a given scenario”* (para 2.5).
- 3.6 Telefónica states that in other Member States, market assessments are conducted as a source of supporting evidence for RIAs (para 2.5). Telefónica states that ComReg has not undertaken any independent reviews of the mobile market, the impact of the spectrum auction on that market or the impact on competition, to support its viewpoint.
- 3.7 H3GI notes that ComReg has failed to *“conduct a thorough assessment of the likely future competition in markets for the provision of mobile electronic communications services after the conclusion of the award of the 800, 900 and 1800 MHz bands.”*

### **3.1.2 ComReg's Response**

- 3.8 Telefónica points out that ComReg has assigned views to new entrants without referring to consultation submissions. In conducting a RIA, ComReg must take into consideration the impact on all stakeholders including existing operators, potential new entrants and consumers, in accordance with ComReg's statutory objectives, and not just those respondents who make submissions to formal consultation processes. New entrants considering entry through a competitive auction may, for good reason, choose not to declare their interest in advance and therefore choose not to submit responses to consultation documents. Potential new entrants are not required to submit responses or make themselves known in advance. For that reason, when discussing the impacts of the options under consideration on potential new entrants it is not always possible to assign particular viewpoints to particular operators or to reference specific submissions. Even if ComReg does not receive responses to consultations from potential new entrants, or from consumers, that would not provide grounds for ComReg to ignore the impact its decision making might have on new entrants or consumers.
- 3.9 In assessing each of the options considered in the RIA, ComReg has considered the likely impacts of each option on potential new entrants and commented on whether an option would be likely to have a positive or negative impact on the entry decision of a potential new entrant. ComReg has taken a reasonable and sensible approach when considering the options from the perspective of a potential new entrant.

- 3.10 Telefónica suggests that ComReg’s draft RIA was speculative and was not evidence-based. ComReg notes that there are two issues at the core of this RIA: the spectrum that should be awarded at this time and the process that should be used to award such spectrum. Throughout this process, respondents have provided detailed responses on these two issues, their views on their preferences between options and on the various issues of relevance to the impact analysis. These views have been set out in detail in Annex 3 of Document 11/60. The draft RIA was clearly informed by Annex 3 of Document 11/60. In addition, the current document takes into account the most recent views received from respondents in response to Document 11/60.<sup>45</sup> ComReg has clearly considered these detailed views of respondents throughout this process and its assessment cannot therefore be disregarded as speculative. Insofar as the criticism in that regard was aimed at the attribution by ComReg in the draft RIA of possible views and preferences to interested parties, where such were not actually expressed by them, these were, in the main, views that ComReg felt could reasonably be expected to be held, but which for commercial, strategic or expediency reasons might not have been disclosed. Also, as noted above, potential new entrants cannot be required to make submissions or make themselves known in advance, and may, for good reason, choose not to declare their interest in advance. In this light, ComReg must take a reasonable and sensible approach to considering the likely impact of each option on potential new entrants without being in a position to reference particular submissions, but having regard to its experience and expertise and also having regard to the advice of its consultants.
- 3.11 In addition to considering and having due regard to detailed submissions made by interested parties, ComReg has also consistently sought and relied upon detailed expert economic and technical advice throughout this process. Furthermore, ComReg has relied upon information and evidence of relevant and recent international developments, such as technological developments and auction experiences in other countries, as referenced in the draft RIA and the accompanying Annex 3 (see Document 11/60a), to inform its impact analysis and decision-making. ComReg therefore rejects the assertion that the draft RIA was not, or not sufficiently, evidence based.
- 3.12 In response to Telefónica’s comment that a further or other market assessment or independent review should be undertaken as a source of supporting evidence for a RIA, and H3GI’s call for an assessment of future competition in

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<sup>45</sup> ComReg has consistently published all inputs received from interested parties throughout this process and these are available at [www.comreg.ie/gsmllib](http://www.comreg.ie/gsmllib).



the market post-auction, it is important to note that ComReg clearly has discretion under the regulatory framework as to how it goes about assessing whether its proposed actions might reasonably be expected to achieve its competition-related objectives and, under the RIA framework, as to how it goes about assessing different options and their impact on competition. This may differ from authorities in other jurisdictions who may be undertaking a review of the mobile market for a different purpose and/or to deal with circumstances which are different to those that exist in Ireland at this time. For example, unlike, say, Ofcom in the UK, ComReg has not been directed under legislation to carry out a full-blown competition assessment, nor is ComReg faced with a post-allocation-of-spectrum-use-rights scenario that is partly set in stone in advance of the allocation process, and will continue thereafter, which may require pre- and/or post-allocation process competition assessments. It is also important to note that in conducting this RIA ComReg is not trying to remedy what might be perceived by some parties as a lack of competition in the mobile market, as ComReg does not have any information to suggest that the mobile market in Ireland is not effectively competitive. However, in conducting the RIA the existing market equilibrium has not been the focus; rather, the central focus is prospective, and is on setting the initial competitive conditions that can reasonably be expected to safeguard and promote competition in the market over the entire licence period. The RIA analysis also suggests that the implementation of an open, objective, transparent, non-discriminatory, proportionate and ultimately competitive award process will serve to ensure that industry stakeholders, competition and consumers benefit over the entire licence period.

- 3.13 ComReg must, amongst other things, liberalise and assign rights of use in the 800 MHz, 900 MHz and 1800 MHz bands, in a way that does not distort competition. The purpose of the RIA is to determine what spectrum should be awarded at this time, and what is the best way of awarding this spectrum, in a manner that is in line with ComReg's statutory obligations and objectives. A key element of the RIA is to consider each of the options in terms of their impact on competition. This is set out clearly in Step 4 in each of the two parts of the RIA. Having assessed the impact on competition of each of the options, drawing upon market information in its possession, advice received from its economic and technical advisors and information received from interested parties, ComReg is also satisfied that the preferred option best meets its objectives in terms of the promotion of competition. For example, ComReg notes that the proposed auction format promotes potential new entry while ensuring that there is no distortion or restriction of competition in the mobile market. ComReg also notes that alternatives put forward by industry operators, including

administrative assignment of spectrum or removal of the 900 MHz sub-cap, do not achieve either of these objectives to the same extent, if at all.

- 3.14 Notwithstanding the above observations and its view that the draft RIA contained in Document 11/60 was already sufficiently and objectively reasoned and supported, ComReg has taken on board those comments noted above and has included further detailed and supported reasoning in its assessment of the preferred option in the final RIA set out in Annex 4. As will be seen from the final RIA, the addition of this information only serves to strengthen the view that the preferred option identified in Document 11/60 is appropriate, effective, proportionate and justified and is the one that best meets ComReg's statutory obligations. As noted above and further discussed below, ComReg is not in possession of any new information tending to suggest that it is appropriate to amend the option preferred in Document 11/60 or to choose an alternative option.

## 3.2 Spectrum for Award RIA

- 3.15 ComReg set out three spectrum band award options in the draft 'Spectrum for Award' RIA.
- Option 1 – Assign rights of use in the 900 MHz band in a stand-alone assignment process. Assign rights of use in the 800 MHz and 1800 MHz bands in a separate later assignment process, or in later processes, which might, or might not, include the award of rights of use in related bands, such as the 2.6 GHz band, when this becomes available;
  - Option 2 – Combine the 900 MHz and the 800 MHz bands into a single assignment process, with or without synchronisation of the timing of the release of these bands. Rights of use in the 1800 MHz band might be assigned as part of a separate, later assignment that might, or might not, include the assignment of rights of use in other similar bands; and
  - Option 3 – Combine the 900 MHz, 800 MHz and 1800 MHz bands into a single assignment process, with or without the timing of the release of these bands being synchronised.
- 3.16 Having considered the impacts on stakeholders, and on competition, Option 3 was ComReg's preferred option. This option has been developed over time in light of market developments, expert advice, and also in response to submissions made and concerns raised by respondents over the course of this consultation process.

### 3.2.1 Views of Respondents on Draft 'Spectrum for Award' RIA

- 3.17 In their responses to Document 11/60, two respondents, Vodafone and H3GI (page 51), stated that they supported the inclusion of the 1800 MHz band in the proposed award process. In expressing their support for its inclusion, Vodafone added that including the 1800 MHz band could *"increase the economic efficiency of the auction by allowing greater flexibility to bidders to obtain combinations of spectrum usage rights that accommodate their business plans"*.
- 3.18 Only one respondent to Document 11/60, Telefónica, stated that it did not agree with the proposal to auction 1800 MHz with sub-1 GHz spectrum, as proposed under Option 3 of the draft 'Spectrum for Award' RIA. Telefónica supported its position on the grounds that near substitutable spectrum should be grouped and sold together, e.g. 800 MHz and 900 MHz spectrum or 1800 MHz and 2.6 GHz spectrum. Telefónica suggests that if ComReg cannot combine the 800 MHz, 900 MHz, 1800 MHz and 2.6 GHz bands into a quad-band auction, then they should be separated into two separate auctions, below 1 GHz and above 1 GHz (with the latter possibly also including the 2.3 GHz band). Telefónica stated that the arguments in favour of the joint award of the 800 MHz and 900 MHz bands were exactly the same for 1800 MHz and 2.6 GHz, and that greater weight should be placed on ensuring that substitutable spectrum was awarded together.
- 3.19 Building on this point, Telefónica claims that ComReg has focused exclusively on the perceived efficiency gains of including 1800 MHz spectrum as complementary to sub 1 GHz spectrum, and, in doing so, has failed to consider the greater efficiency gains that could, in its view, be achieved by auctioning 1800 MHz and 2.6 GHz spectrum together. Telefónica disputes the claim that the inclusion of the 1800 MHz band in the proposed award would facilitate an 1800 MHz only entrant. In its view, this is *"an extremely unlikely scenario"*. Telefónica argues instead that new entrants would be better off with the joint award of the 1800 MHz and 2.6 GHz spectrum, after the award of sub 1 GHz spectrum.
- 3.20 In addition, Telefónica made a number of further points:
- It suggests that it would be possible to run a second auction shortly after the first as the infrastructure would already be in place;
  - It states that ComReg claimed that incumbent mobile operators may not want 1800 MHz included in the auction so as to limit potential new entry; and

- It argues that if the existing MNOs buy 1800 MHz spectrum in the first auction then they would be less likely to have sufficient funds or any remaining demand to be able to meaningfully compete for 2.6GHz spectrum. According to Telefónica, UPC would then be able to obtain 2.6 GHz spectrum with little or no competition and this would confer a significant advantage on UPC in terms of procuring spectrum.

3.21 Three respondents to Document 11/60, eircom Group<sup>46</sup>, Telefónica and Vodafone, call for further clarity from ComReg on the future of the 2.6GHz band.

### 3.2.2 ComReg Response

3.22 ComReg notes the support of both H3GI and Vodafone for the inclusion of the 1800 MHz band in their respective responses to Document 11/60, particularly in light of the fact that both of these respondents had previously expressed concern about the inclusion of the 1800 MHz band. ComReg notes the recognition by Vodafone of the benefits of its inclusion in terms of greater efficiency and greater flexibility to bidders.

3.23 ComReg notes that only one respondent to Document 11/60, Telefónica, does not support the inclusion of the 1800 MHz band.<sup>47</sup> This would seem to be contrary to the views expressed previously by Telefónica.<sup>48</sup>

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<sup>46</sup> ComReg notes that eircom Group has reiterated its concerns in this regard in a letter sent to ComReg on 9 March 2012 calling for (i) the 2.6 GHz band to be combined with the release of 800 MHz, 900 MHz and 1800 MHz spectrum bands and (ii) for ComReg to publish its timeline for the conclusion of its review on the future use of the 2.6 GHz band to ensure that clarity on the availability of the 2.6 GHz band is given to interested parties in advance of the multi-band award process. ComReg is of the view that it has already addressed these issues sufficiently below in considering submissions made by respondents to Document 11/60 and 11/75.

<sup>47</sup> Of the respondents to Consultations 10/71 and 11/60, other than Telefónica, only one other respondent, Digiweb, did not support the inclusion of the 1800 MHz band. Digiweb was concerned that its inclusion could result in a delay to the process as a whole. Digiweb did not respond to Document 11/60. However Vodafone also expressed a concern as regards a delay at that time, but has since expressed support for the inclusion of the high frequency band.

<sup>48</sup> In particular see page 101 of Document 09/73 (Liberalising the future use of the 900 MHz and 1800 MHz Spectrum bands - Publication of the non-confidential minutes of bilateral meetings) which states "In respect to O2's response on the issue of the release of 1800 MHz spectrum, ComReg asked how it might help to have liberalised spectrum in the 1800 MHz band available sooner than 2013. O2 responded that the same issues that are being dealt with now at 900 MHz could potentially arise when the 1800 MHz band is released. O2 said that there was no 3G/LTE equipment currently available for the 1800 MHz band, nor was there any visibility expected of such equipment in the medium term. However, if the 1800 MHz band was liberalised now it would allow MNOs to make investment decisions on a holistic basis."

- 3.24 Telefónica's preferred approach would involve the joint award of substitutable spectrum, and as such calls for a quad-band award of rights of use in the 800 MHz, 900 MHz, 1800 MHz and 2.6 GHz bands or if that is not possible, the bands should be split up into two sequential auctions containing substitutable spectrum. ComReg agrees that, in principle, substitutable spectrum should be grouped and awarded together. However this is only feasible when such spectrum is available for award within a similar timeframe. If a substitutable band is not available for use by a new licensee in and around the same time, then there may be very good reasons to proceed with separate award processes if delay could hinder the roll out of new services or potential new entry to the detriment of consumers. This must be assessed on a case-by-case basis. The wide variety of different combinations of spectrum that have been awarded in recent years around the world indicates that there is no one-size-fits-all approach to spectrum awards. The particular circumstances of each potentially substitutable band must be taken into account and a reasonable judgement made in terms of whether it is feasible to use a joint award process or whether separate award processes are appropriate.
- 3.25 In the present context, the 800 MHz, 900 MHz and 1800 MHz bands are available for use within a similar timeframe. The degree of substitutability of these bands is discussed separately below. It is not however possible at this point to say that the 2.6 GHz band would be available in a similar timeframe as this band is subject to a particular review process which has not yet been completed. For this reason, it is sufficiently clear that only the first three bands mentioned above are available for award at this time.
- 3.26 Therefore in response to Telefónica's preferred approach of a quad-band award of the 800 MHz, 900 MHz, 1800 MHz and 2.6 GHz spectrum or, in the alternative, two sequential auctions containing substitutable spectrum, and as noted in Annex 3 of Document 11/60a, it is not possible to combine the award of these four bands within the projected timelines as the award of the 2.6 GHz band is subject to a separate process.<sup>49</sup> The timeline for the availability of the 2.6 GHz band is contingent on the outcome of this process and so is not certain at this point. The clarity requested by eircom Group, Telefónica and Vodafone will be provided as part of the separate 2.6 GHz consultation process.
- 3.27 Telefónica also proposes that should a quad-band award not be possible, their second-best option would involve the award of sub-1 GHz spectrum followed by

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<sup>49</sup> As stated in Document 12/09 ComReg is considering the views received to Consultation 11/80 and will in due course consult in relation to the future use of the band and whether or not the existing licences should be renewed beyond April 2014.

the award of higher frequency spectrum, claiming that the arguments in favour of the joint award of the 800 MHz and 900 MHz band apply equally to the award of higher frequency spectrum. In its view, greater weight should be placed on awarding substitutable spectrum together as this would lead to greater efficiency gains. Telefónica claims that this would be in the best interests of new entrants.

- 3.28 As has been set out in detail in previous documents, and as agreed by respondents, due to their respective propagation characteristics, the 800 and 900 MHz bands are regarded as highly substitutable (albeit there will be obvious differences between the bands in the short-term). The 1800 MHz band is generally regarded as a complementary band while being substitutable with the sub-1GHz bands at the margin. Therefore the inclusion of the 1800 MHz band would result in the combination of both substitutable *and* complementary spectrum in the same award process.
- 3.29 The benefits associated with awarding both substitutable and complementary spectrum bands together have been discussed previously. As ComReg has previously noted, MNOs generally require a balanced portfolio of spectrum to provide a cost effective service. Different bands offer different strengths and operators may demand access to the same bands for different purposes. The inclusion of substitutable and complementary bands in the same award would provide bidders with a much greater opportunity to secure the mix of spectrum which best suits their needs. This point has been acknowledged by Vodafone in its response to Document 11/60. In addition, its inclusion would increase the possibility of new entry *and* provide existing MNOs with greater opportunity to rebalance their portfolio of holdings based on the movements of relative prices within the auction.
- 3.30 From the perspective of new entrants, the opportunity to bid for both high and low frequency spectrum and thereby obtain a mix of frequencies that best suits their needs, would appear to make entry more attractive than the alternative of a sequential process for low and high frequency spectrum. As DotEcon noted in Document 11/58, the presence of 1800 MHz spectrum in a common award process is likely to have greatest impact on entrants, as an entrant might treat high and low frequency spectrum as complements (i.e. it benefits from a mix) but also substitutes at the margin (i.e. it might make do with more high frequency spectrum even if it ideally would prefer low frequency spectrum).
- 3.31 Although Telefónica claims that two separate awards would be in the best interests of new entrants, it does not explain why this would be the case.

Incumbents and new entrants are in different starting positions for many reasons. Incumbents each have high frequency spectrum in the 2.1 GHz band regardless of the outcome of the auction. It is difficult to see why new entrants would be better off with two sequential awards of spectrum, as claimed by Telefónica. Indeed, as DotEcon went on to note in Document 11/58, having two separate award processes for high and low frequency spectrum would result in a significant time lag between awards owing to the resources required to plan and complete an award process. This would mean that a winner of low frequency spectrum in the first award would not have the opportunity to acquire the high frequency spectrum necessary for an optimal network for a significant period of time after this first award. This could discourage a potential entrant from market entry and participation in the award process for sub-1GHz spectrum as it would incur the risk of not being able to obtain high frequency spectrum to complement its sub-1 GHz spectrum, and would in any case have to make do with acquiring this spectrum significantly later. This risk would not be the same for existing mobile operators, as they each have usage rights for spectrum in the 2.1 GHz band.

3.32 ComReg is concerned not just with the needs of new entrants, as Telefónica suggests, but also with the needs of incumbent operators. The support of, for example, H3GI and Vodafone in their responses to Document 11/60 for the inclusion of the 1800 MHz band in the award is clear evidence that these operators view the tri-band award with both complementary and substitutable spectrum as the preferred approach. Indeed it appears that Telefónica is the only operator that does not support its inclusion.<sup>50</sup> Other operators have clearly shown that they would value the ability to engage in the type of flexible bidding strategies that ComReg has discussed in previous consultation documents rather than the alternative, as suggested by Telefónica, of sequential award processes.

3.33 Telefónica claims that ComReg has focused exclusively on the perceived efficiency gains of including 1800 MHz spectrum as a complementary band and in so doing has ignored the greater efficiency gains that could be achieved, in its opinion, by auctioning the 1800 MHz and 2.6 GHz bands together. ComReg disagrees with Telefónica's view. Whilst operators may at the outset view 800 MHz and 900 MHz spectrum as complementary to 1800 MHz, it may be that at a certain relative price, they would start to view them as substitutes. Thus award processes that seek to only sell clearly substitutable spectrum at the same time limit this type of price discovery and marginal substitutability and can lead to

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<sup>50</sup> Apart from Digiweb who previously disagreed only on the basis of potential delay to the process.

inefficient portfolios of spectrum holdings by operators.<sup>51</sup> This points to the importance of including the 1800 MHz band with sub-1 GHz spectrum.

- 3.34 ComReg's proposal for a tri-band award does not necessarily preclude the efficiency gains that may be associated with a separate joint award of 1800 MHz and 2.6 GHz, to which Telefónica refers to in its submission. This is because if demand for 1800 MHz is less than supply at the time of the award, any unsold spectrum in this band can be awarded again at a later date, possibly alongside the 2.6 GHz band.
- 3.35 Telefónica's proposal, on the other hand, would preclude the potential efficiency gains associated with a tri-band award of substitutable *and* complementary spectrum. Telefónica's suggestion would remove the possibility for a bidder to bid on a package of high and low frequency spectrum at the same time. This could deter entry, and result in inefficient portfolios of spectrum amongst incumbent MNOs.
- 3.36 As noted by Telefónica itself: "*It has never been more important for ComReg to get this spectrum assignment right.*" (page 10 of its response to 11/60) For this very reason, it would be inappropriate to ignore the potential efficiency gains associated with including the 1800 MHz band with sub 1 GHz band, which have been recognised by respondents. If this fails to materialise, however, the possibility of a later award with the 2.6 GHz band remains open as a possibility and the efficiency gains to which Telefónica refers can still accrue at that point in time.
- 3.37 Telefónica suggests that it would be possible to run a second auction for high frequency spectrum shortly after the first auction for sub-1 GHz spectrum as the infrastructure would already be in place. This ignores the fact that in most cases an award process must be individually designed to ensure that it is fit-for-purpose and addresses the relevant circumstances. Given the complexity involved in this particular award, such as different licence expiry dates and transitional issues, it is clearly evident that an 'off-the-shelf' auction package is not realistic and a bespoke auction design is necessary. Even if ComReg were to proceed with Telefónica's suggestion of a sub-1GHz auction followed by a high frequency award, or if there was unsold 1800 MHz spectrum which was later awarded alongside 2.6 GHz spectrum, it would not be possible for ComReg to simply reuse the infrastructure.

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<sup>51</sup> As DotEcon has noted in previous reports and in its latest report (Document 12/24), sequential auctions involve uncertainties for participants with regards to expectations of future prices or availability of spectrum and are, therefore, likely to be inefficient.



- 3.38 Telefónica states that ComReg claimed that incumbent mobile operators did not want 1800 MHz included in the auction as incumbents would believe it rational grounds for limiting potential new entry. Telefónica has misconstrued ComReg's point. ComReg stated as follows: "...*some incumbent operators may prefer to delay the assignment of rights of use in the 1800 MHz bands, and not award it at the same time as the sub-1 GHz spectrum, ComReg is of the view that the only rational basis for this preference would be on the grounds of limiting the potential for new entry*". In any case, ComReg notes that the former statement, were it in fact to be made, would not be wholly unreasonable. The problems associated with anti-competitive spectrum hoarding are well-documented by industry experts such as Martin Cave.<sup>52</sup> This might include denying rivals or new entrants' access to spectrum or raising its cost to them. As also noted by Cave, incumbents have incentives to engage in procedural stratagems to delay competition. Large incumbent operators may well prefer an option that maintains the status quo and prevents competitors from acquiring spectrum.<sup>53</sup>
- 3.39 Telefónica's argument that delaying the award of 2.6 GHz spectrum favours UPC on the grounds that MNOs would have insufficient funds to bid for this spectrum at a later date is not credible for a number of reasons:
- based on the submissions received to previous consultations, it is evident that there is considerable interest in the 2.6 GHz band;
  - Telefónica's argument appears to be based on the expectation that UPC would not participate in the current award process. It is not clear how Telefónica could hold this view with any certainty;
  - Telefónica's argument appears somewhat circular. Telefónica suggests that incumbent MNOs who purchase 1800 MHz spectrum in this award process would be in a weaker position to compete for 2.6 GHz spectrum in a subsequent award. This assumes that an incumbent MNO who was willing but unable to purchase 1800 MHz spectrum now (due to its exclusion from the award process) would no longer have a preference for 1800 MHz in any subsequent award process and would be happy to switch its demand to 2.6 GHz spectrum. Furthermore, a joint award of 1800 MHz and 2.6 GHz spectrum would arguably have the effect of reducing demand for 2.6 GHz spectrum (through increased supply of above-1 GHz spectrum in a single process) than

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<sup>52</sup> See Cave, M. (2010) Anti-competitive behaviour in spectrum markets: Analysis and response, Telecommunications Policy, Volume 34, Pages 251-261.

<sup>53</sup> See Delta Partners, April 2011 "The Digital Dividend in Europe: in the Eye of 'The Perfect Storm'", <http://www.deltapartnersgroup.com/the-digital-dividend-in-europe-in-the-eye-of-the-perfect-storm>.

would otherwise be the case in a 2.6 GHz-only award. In this light, it is not at all clear how competition for 2.6 GHz would be greater in a joint award of 1800 and 2.6GHz spectrum than in the case of a 2.6 GHz-only award; and

- finally, ComReg notes that designing an award process to cater for the financial position and commercial decision making of individual operators is unlikely to accord with its statutory functions, objectives and duties. ComReg has designed an award process which will ensure the optimal use of spectrum without encouraging inefficient entry or sheltering inefficient incumbents. What incumbent MNOs choose to bid for in the multi-band award process is entirely a matter for those undertakings. If incumbent MNOs engage in bidding strategies that leave them in a financial situation whereby they require but are unable to acquire additional spectrum in future awards is, again, entirely a matter for each individual undertaking.

- 3.40 In summary, Telefónica does not make a compelling case for holding back the award of rights of use in the 1800 MHz band, and, when weighed against the case for the inclusion of such an award in the overall process, the case made is clearly insufficient to tip the balance in its favour. Moreover, Telefónica's views on this matter stand in contrast to all other respondents. As set out in Document 11/60a, Ericsson, Qualcomm, eircom and UPC support its inclusion, and in response to Document 11/60, Vodafone and H3GI (who previously did not support its inclusion) also support ComReg's proposal. As noted above, the award is structured such that if demand is less than supply, the joint award of unsold 1800 MHz spectrum and 2.6 GHz spectrum at a later date remains a possibility that ComReg could consider at the appropriate time.
- 3.41 Having considered all respondents views on the draft 'Spectrum for Award' RIA, ComReg remains satisfied that Option 3 ought to be the preferred option.

### 3.3 Assignment Process RIA

- 3.42 ComReg set out two options in the draft 'Assignment Process' RIA.
- 3.43 **Option 1:** This option is ComReg's preferred option which has been developed over time in light of market developments, expert advice, and also in response to submissions made and concerns raised by respondents over the course of this consultation process. Option 1 would involve a Combinatorial Clock Auction with the following main features:
- Spectrum caps set to ensure that, at a minimum, the current number of competitors in the market is maintained by guaranteeing an outcome of at least

four operators in the event that there is demand from at least four operators (including four operators in the 900 MHz band in the period up until 2015);

- With multiple bidding rounds the auction process itself would generate important information for bidders particularly with regard to the value of business continuity;
- A “*relative cap activity*” rule allowing bidders to adopt a simple strategy in the supplementary bids round such that their position in the final primary bid round is protected. This would ensure that any operator which requires spectrum to serve existing GSM consumers has the opportunity to be successful in the auction, while reducing the incentives for bidders to engage in strategic shading of bids, by giving them better information on the value of business continuity;
- Licence conditions relating to minimum levels of coverage and minimum levels of quality of service;
- Spectrum fees whereby the price paid would be determined by the outcome of the auction subject to a minimum price which would be based on a benchmark analysis (as set out in Annex 9) set at a conservative lower bound estimate for spectrum in each band. This would allow bidders to choose amongst spectrum bands on the basis of price information generated during the course of the auction;
- Limited transparency to bidders in the course of the auction, to reduce the risk of tacit collusion amongst bidders; and
- A two stage auction process whereby bidders bid for particular quantities of spectrum in the first stage, and particular frequency locations in the second stage.

3.44 **Option 2:** A CCA (with features as set out in Option 1 above) with a restriction on outcomes as a result of an administrative assignment process.

3.45 Option 2 is an option reflecting the range of proposals that have been put forward by respondents to this consultation process, as set out in detail in Annex 4. The administrative assignment process under Option 2 could take many forms, e.g. the administrative grant of spectrum to particular operators (such as incumbents) followed by a CCA for the remaining spectrum, or the reservation of spectrum to particular bidders (such as new entrants or new band entrants) with the remainder of the spectrum being awarded in the main auction and open to all bidders, or even a mixture of these two approaches. While each

of the proposals put forward by respondents would involve an auction of some amount of spectrum, there is a key difference between Option 1 and Option 2. Under Option 2, as a result of an administrative assignment process, there would be a much greater restriction on the number of possible outcomes in the auction, compared to Option 1. The administrative process could thereby be used to favour particular types of operators. The more expansive the administrative assignment process, the larger the number of possible outcomes that would be precluded as a result and the greater the likelihood of an inefficient outcome. Option 2 essentially comprises the following two broad types of administrative assignment:

- **Option 2A:** Reserve spectrum for new entrants or new band entrants to promote competition
- **Option 2B:** Grant licences to incumbents in advance of the auction to ensure business continuity and minimise the risk of consumer disruption

3.46 Having considered the impacts on stakeholders, and on competition, Option 1 was ComReg's preferred option.

### 3.3.1 Views of respondents on draft 'Assignment Process' RIA

3.47 In its response to Document 11/60, eircom Group asserted that Meteor "*enjoys an enforceable legal right to 900 MHz licence extension*" (page 5). eircom Group states that if ComReg ignores what it considers to be the legitimate expectations of MNOs, this puts existing and future investments at risk, thereby endangering competition in the mobile market.

3.48 In its response to Document 11/60, Vodafone notes that ComReg's proposals (Option 1) are reasonable and address the concerns that Vodafone previously expressed. However, Vodafone maintains its previously expressed view (as set out in their response to 09/99) that an administrative assignment to existing MNOs of at least 2 × 5 MHz of liberalised 900 MHz spectrum, and at least part of the 1800 MHz band, is a superior approach to achieving ComReg's statutory objectives.

3.49 In its response to Document 11/60 (para 3.13), Telefónica expressed support for Option 2B (using a combination of a partial auction and partial administrative assignment to incumbent GSM operators) rather than an auction of all available

spectrum, as proposed under Option 1. Telefónica provided the following reasons to support its view<sup>54</sup>:

- It meets ComReg's objectives in a more proportionate manner.
  - It is less risky than a full band auction. It would ensure against the risk of consumer and industry disruption that would arise from the sudden loss of 900 MHz spectrum to an existing operator "...loss of licence for either [Vodafone or Telefónica] would mean massive disruption to their customer base through loss or impairment of service, as well as losses to their roaming partners and MVNOs, damage to competition and to GSM services." (para 3.13, (a)) This would be an unacceptable risk, in Telefónica's opinion.
  - Prices for all spectrum would still be set in the auction.
  - It would facilitate new entrants. With the 800 MHz and 900 MHz bands, a short term allocation of 3 lots for GSM continuity would leave 10 lots of sub-1 GHz spectrum available for auction, rising later to the full 13. Therefore there is sufficient sub-1 GHz spectrum to grant extensions to incumbents and still have enough spectrum left over to meet the demand for sub-1 GHz spectrum from new entrants.
- 3.50 Telefónica (para 2.7) states "*ComReg fails to explain why, if the existing operators have sufficient 900 MHz spectrum through administrative assignment, they would wish to secure more.*"
- 3.51 H3GI, in its response to Document 11/60, states that it supports an auction but that this is "*without prejudice to its previous advocacy for an administrative assignment*" (page 55).
- 3.52 H3GI refers to the problems noted by ComReg in relation to setting prices for spectrum if it was administratively assigned (page 55). According to H3GI, ComReg appears to believe that it is not possible to determine a price for spectrum other than by way of an auction. H3GI states that ComReg should determine the appropriate price for administratively assigned spectrum by reference to the prices paid in the award and should not be afraid of being

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<sup>54</sup> Telefónica state "*the full band auction for the entire period might not be the correct option to meet ComReg's statutory obligations, when the alternative of a partial auction and partial assignment better meets its obligations in a more proportionate and less risky manner. Essentially partial auction and assignment combines the same benefits of having prices set by auction and facilitating new entrants, while also ensuring against the risk of consumer and industry disruption that would arise from the sudden loss of 900 MHz spectrum to an existing operator.*" (para 3.13)

contentious. However H3GI goes on to suggest that the price set by ComReg for administratively assigned spectrum would not have to be the price that would have been achieved if it formed part of the award. H3GI notes that ComReg has administratively set prices for other spectrum where there was no auction and is likely to do so again in relation to other spectrum.

### 3.3.2 ComReg Response

- 3.53 In response to eircom Group's view that Meteor enjoys an enforceable legal right to a 900 MHz licence extension, this issue has been discussed in detail and dealt with in previous consultation documents (in particular please see Annex 4 of Document 11/60a) and ComReg maintains its position as expressed therein.
- 3.54 H3GI expresses support for an auction of the spectrum, though H3GI states that this is without prejudice to its previous preference for an administrative assignment. H3GI does not elaborate on this point. As noted in Annex 3 of Document 11/60a, H3GI has made a number of different suggestions for administrative assignments throughout the course of this process. H3GI does not provide any additional information regarding its preference for an administrative assignment, and as such ComReg is of the view that it has adequately addressed H3GI's previous suggestions in the RIA, and the supporting Annex 3 of Document 11/60a.
- 3.55 In its response to Document 11/60, Vodafone considers that ComReg's general approach is reasonable and addresses its previous concerns. This is in line with Vodafone's previous views as set out in its response to Document 10/71 following the important changes to the auction design. Vodafone, in its response to Document 10/71 stated that ComReg's proposals:

*"..when taken together, are an appropriate approach that in large measure address the concerns that we have raised in response to the proposals in the previous ComReg consultation papers on the future licensing arrangements for the 900 Mhz band."* (page 3)

and

*"the proposed auction format now ensures that existing licensees will not lose access to the minimum amount of spectrum usage rights they require to maintain existing service provision in the 900 MHz band. We therefore strongly welcome the current proposed auction format and believe that it must be incorporated in ComReg's final licensing decision."* (Page 5)

and

*“Vodafone agrees with the proposal by ComReg to use an open auction format, the combinatorial clock auction, in a joint award process for spectrum in the 900 MHz and 800 MHz spectrum band. We welcome the decision to take explicit account of business continuity risks, and the difficulties of accurate valuation of spectrum for business continuity purposes in the context of a single shot sealed bid combinatorial (SBC) auction format. We maintain our view that significant common value uncertainty favours the choice of a CCA over a SBC auction format, whether for an award process for 900 MHz spectrum only or a joint award process for 900 MHz and 800 MHz spectrum.”*  
(Page 5)

3.56 However despite these clear and unambiguous statements made by Vodafone in its response to Document 10/71, and Vodafone’s recognition that ComReg’s approach is reasonable and addresses its previous concerns, in its response to Document 11/60, Vodafone nonetheless proceeds to express a preference for an administrative assignment of spectrum to existing MNOs rather than an auction of all spectrum bands. Vodafone claims that an administrative assignment of 2 x 5 MHz of 900 MHz spectrum to each incumbent and some 1800 MHz spectrum would be a superior approach to achieve ComReg’s statutory objectives compared to ComReg’s proposal for an auction of all spectrum. Vodafone provides no additional information or justification in its response to Document 11/60 to support why such an approach would be “superior”. Also Vodafone make no reference to the relative cap activity rule that was introduced into the auction design to address respondents’ concerns in terms of business continuity and consumer disruption. Absent any stated basis for claiming that administrative assignment of spectrum to incumbents would be superior to an auction of all spectrum, in circumstances where ComReg has not identified particular advantages to administrative assignment, and given Vodafone’s express support for ComReg’s approach on a number of occasions, Vodafone’s request for an administrative assignment of spectrum to incumbent MNOs does not warrant any additional consideration by ComReg.

3.57 A similar situation arises in the case of Telefónica. In its response to Document 10/71 Telefónica expressed support for the use of a CCA noting that it appears to address the main objectives of ensuring an efficient outcome whilst facilitating continuity of operators of existing services so as to avoid consumer disruption; and minimising common value uncertainty. Specifically Telefónica stated in its response to 10/71:

*“O2 had raised a serious objection to ComReg’s previous auction proposal as outlined in the O2 09/99 Response, and welcomes the fact that ComReg has in a number of material respects taken that objection into account.”*

*The primary objective of an auction is to ensure an efficient outcome in the form of a set of assignment decisions. In this case, there are a number of additional requirements, including:*

- facilitating continuity of operation of existing services so as to avoid consumer disruption;
- facilitating aggregation, and avoiding fragmentation of assignments;
- minimising common value uncertainty; and
- avoiding or minimising the possibility of manipulation of the auction result by non-genuine strategic bidding.

*ComReg has proposed a combinatorial clock auction with supplementary and assignment stages whilst retaining the second price rule. The auction mechanism proposed appears to address the main objectives outlined above.” (10/105<sup>55</sup>)*

3.58 However despite the above observations made in response to 10/71, Telefónica nonetheless claims that an administrative assignment of 2 × 5 MHz of 900 MHz spectrum to the GSM operators until 2015 would better meet ComReg’s objectives than an auction of all spectrum. The main issue raised by Telefónica in response to Document 11/60 relates to the need for an administrative assignment of 900 MHz to avoid the risk of consumer disruption. Although claiming that an administrative assignment would address this concern, and as noted above in relation to Vodafone, Telefónica fails to make any reference in this context to the relative cap activity rule<sup>56</sup> which was specifically introduced to deal with this very issue.

3.59 Telefónica also claims that its administrative assignment approach would facilitate new entry. However, ComReg notes that large incumbent operators may well prefer an option that maintains the status quo and prevents competitors from acquiring spectrum.<sup>57</sup> It is acknowledged by industry experts that incentives for incumbents to hoard spectrum are pervasive in an administrative spectrum management regime and that there are limited

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<sup>55</sup> Telefónica argued in favour of an administrative grant of 2 × 5MHz of spectrum in the 900 MHz band until 2015 and also referred to its entitlement to have their licence extended.

<sup>56</sup> Telefónica merely notes later in its submission that they support the use of the relative cap activity rule. “We support the use of a relative price activity rule, as used in the Danish 2.6GHz auction.” Page 25

<sup>57</sup> See Delta Partners, April 2011 “The Digital Dividend in Europe: in the Eye of ‘The Perfect Storm’”, <http://www.deltapartnersgroup.com/the-digital-dividend-in-europe-in-the-eye-of-the-perfect-storm>



defences against such hoarding.<sup>58</sup> While an administrative assignment approach could be designed to promote new entry, ComReg notes that the award of new licences in and of itself facilitates new entry. However, as a RIA is a comparative analysis it is necessary to consider the extent to which various options are likely to facilitate new entry – not just one option. Telefónica fails to conduct any comparative analysis of their suggested approach vis-à-vis ComReg’s preferred approach. ComReg considers that Option 1 would facilitate new entry to a much greater extent than Option 2B, as was explained in detail in the draft RIA and in the final RIA in Annex 4.

- 3.60 No new information has come to light to prompt ComReg to change its view on this issue. H3GI, Vodafone and Telefónica have all at various times expressed their support for the proposed auction. Vodafone and Telefónica have both previously expressed support for the addition of the relative cap activity rules, and acknowledged that this modification of the auction format addressed the issues they raised in relation to valuing business continuity and thereby avoiding consumer disruption.<sup>59</sup> However in their recent responses to Document 11/60 both operators choose to ignore this important change and make no reference to the relative cap activity rule in their responses on the draft RIA.
- 3.61 Telefónica (para 2.7) state that “*ComReg fails to explain why, if the existing operators have sufficient 900 MHz spectrum through administrative assignment, they would wish to secure more.*” As discussed in detail in Document 11/60, if existing operators are granted administrative assignments of spectrum, this would make it easier for these operators to secure more spectrum in the competitive award process. An incumbent could bid more aggressively for a second lot in competition than a new entrant bidding for its first lot. All incumbent bids would be incremental and have this advantage built in. Incumbent operators also have an incentive to buy more spectrum than they efficiently need as a means of market foreclosure. The problems associated with anticompetitive spectrum hoarding are well-documented by industry experts such as Martin Cave.<sup>60</sup> ComReg also notes that Telefónica’s comment above appears inconsistent with its demand elsewhere in its response to have the 900 MHz sub-cap removed so that it is free to acquire greater than 2 × 10 MHz of 900 MHz spectrum in the auction.

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<sup>58</sup> See Cave, M. (2010) Anti-competitive behaviour in spectrum markets: Analysis and response, Telecommunications Policy, Volume 34, Pages 251-261.

<sup>59</sup> In its response to Document 10/71, Meteor also referred to the relative cap activity rule saying that it would provide greater safeguards against unintentional loss of business continuity.

<sup>60</sup> See Cave, M. (2010) Anti-competitive behaviour in spectrum markets: Analysis and response, Telecommunications Policy, Volume 34, Pages 251-261

- 3.62 In relation to H3GI's comments on the pricing of administratively assigned spectrum, ComReg notes that H3GI does not go into any detail as to how this might be achieved other than to suggest that ComReg should not be afraid to be contentious in determining the price. ComReg would first note that H3GI's suggestion is hard to reconcile with the strong representations it has made in the past with regards to State aid. ComReg would also note that H3GI's comments fail to address the fundamental issue that the administrative assignment of spectrum in this case would be disproportionate, discriminatory and would fail to meet ComReg's statutory objectives. In any case, as noted above, H3GI does not go into any detail as to how its proposal might be achieved. As such, ComReg does not consider it appropriate to address H3GI's suggestions further in this regard.
- 3.63 Having considered all respondents views on the draft 'Assignment Process' RIA, ComReg remains satisfied that Option 1 ought to be the preferred option.

### **3.3.3 Conclusion on RIA**

- 3.64 As was seen from the consideration of submissions above, ComReg has not received any further submissions and is not in possession of any new information tending to suggest that it is appropriate to amend the option preferred in Document 11/60 or to choose an alternative option.
- 3.65 As noted previously, notwithstanding its view that the draft RIA contained in Document 11/60 was already sufficiently and objectively reasoned and supported, ComReg has taken on board the comments made by some respondents in relation to providing evidence to support certain views and has included further detailed and supported reasoning in its assessment of the preferred option in the final RIA. The final RIA can be found in Annex 4 of this document.
- 3.66 As will be seen from the final RIA, the addition of this information only serves to strengthen the view that the preferred option identified in Document 11/60 is appropriate, effective, proportionate and justified and is the one that best meets ComReg's statutory obligations. Therefore, ComReg intends to award the 800 MHz, 900 MHz and 1800 MHz bands using a CCA in the format proposed involving no administrative assignment of spectrum.

## 3.4 Assessment against Statutory Objectives

- 3.67 In this section ComReg sets out its consideration of those responses received which address, or touch upon, those issues discussed in the assessment against its statutory obligations set out in Chapter 3 of Document 11/60.
- 3.68 As noted in the previous section, ComReg does not consider it necessary to amend the option preferred in Document 11/60 or to choose an alternative option. Therefore, and as noted at the beginning of this chapter, ComReg does not propose to reproduce the above mentioned assessment again in this document, but, instead, refers readers to Chapter 3 of Document 11/60 and to its consideration of responses received on that assessment set out below.
- 3.69 As will be seen below, ComReg has not received any additional information which would tend to suggest that the preferred option is not in compliance with its statutory obligations.

### 3.4.1.1 General Provisions on Competition

#### Views of Respondents

- 3.70 In its response to Document 11/60, Telefónica asserts that the addition of a proposed new 900 MHz sub-cap represents a failure by ComReg to meet its statutory obligation to ensure that there is no distortion or restriction of competition in the electronic communications sector. (para. 1.17)

#### ComReg Response

- 3.71 ComReg does not agree with Telefónica's suggestion that the introduction of a 900 MHz sub-cap will distort or restrict competition in the electronic communications sector. On the contrary, ComReg would point out that the primary objective of the sub-cap is to avoid a potentially significant distortion of competition that might otherwise result from the award process. As DotEcon points out in its latest report (Document 12/24), a number of the points made by Telefónica in this regard also fail to consider the implications of the cap applying solely to the first time slice and the potential for reconfiguration of spectrum holdings in 2015 to address fragmentation problems
- 3.72 ComReg notes that Telefónica fails to substantiate its view that a sub-cap would distort or restrict competition. Instead, it makes what appear to be circular and counterintuitive arguments as regards bidding in the auction, suggesting that the price of 800 MHz spectrum would be pushed up with the price of 900 MHz spectrum being driven down, without explaining why this hypothetical result

would harm competition (or even harm Telefónica given its stated desire for 900 MHz spectrum, presumably at a lower price). Indeed, ComReg is of the view that Telefónica's analysis of likely price fluctuations resulting from the implementation of a sub-cap (at Section 4.2 (iii) and (v) of its response to ComReg 11/58) bears no resemblance to normal market dynamics (in the absence of collusive behaviour). It is difficult to understand how a reduction in the amount of 900 MHz that is available to each potential bidder would reduce the price that the bidder would then have to pay in the auction. Telefónica also argues that existing operators would not be able to switch demand from 800 MHz to 900 MHz in response to price increases. Again, this appears to be a circular argument in that Telefónica suggests that the relative price for 900 MHz will be artificially driven down by the sub-cap thereby inducing demand for that spectrum in the first place.

- 3.73 As DotEcon notes in its latest report, if there were only a  $2 \times 20$  MHz sub-1GHz cap, the smaller amount of spectrum available in the first time slice relative to the second time slice would increase the probability of more extreme outcomes in the first time slice than would be possible in the second time slice. For example, in this scenario it is possible that one bidder could win  $2 \times 20$  MHz of 900 MHz spectrum in the first time slice, and another bidder could win the remaining  $2 \times 15$  MHz of 900 MHz spectrum. This would leave at least one incumbent unable to service existing demand for GSM 900 MHz services and could result in significant consumer disruption. While such an outcome may be acceptable to operators in the second time slice when it is considered that 800 MHz and 900 MHz spectrum will be substitutable, this is not necessarily so in the first time slice
- 3.74 Indeed, ComReg notes that, in essence, Telefónica appears to be arguing that it expects there to be a natural outcome (or equilibrium) in the first time slice in the absence of a sub-cap, whereby it would obtain at least  $2 \times 15$  MHz of 900 MHz spectrum. Telefónica has not indicated how it envisages the remaining  $2 \times 20$  MHz, or less, of available 900 MHz spectrum would be divided amongst other bidders under that outcome. Presumably, it expects that one of the remaining three MNOs, who have all expressed a strong desire for 900 MHz spectrum, would fail to win any 900 MHz spectrum in the auction with symmetric or highly asymmetric allocations amongst the remaining two MNOs (assuming that no new entrant wins any 900 MHz spectrum in the auction). ComReg fails to understand how such highly asymmetric allocations in the 900 MHz band would not distort competition, contrary to ComReg's obligations under the regulatory framework and, in particular, the GSM Amendment Directive. Indeed, in making this assertion, Telefónica offers no analysis of the effect that

its alternative proposal of essentially allowing a ‘free-for-all’ in the 900 MHz band would have on competition.

- 3.75 ComReg is, therefore, of the view that the absence of a sub-cap would in fact risk causing a serious distortion of competition in the 900 MHz band, and remains of the view that the imposition of a sub-cap complies with its obligations both under the regulatory framework and under the GSM Amendment Directive. Furthermore, ComReg has extensively addressed the merits of a 900 MHz sub-cap in Section 4.2, Annex 5.5 and Document 11/60 and does not propose to revisit the matter here.

### **3.4.1.2 Efficient Use and Effective Management of Spectrum**

#### **Views of respondents**

- 3.76 In its response to Document 11/60, Telefónica suggests that the imposition of a sub-cap and the proposed level of the minimum price will lead to an inefficient allocation of spectrum. Telefónica suggests that the sub-cap restricts the ability to switch demand during the auction in response to price increases thus reducing the likelihood of efficient allocation of spectrum. Telefónica also suggests that the minimum price is being set at a level which will choke off demand and therefore result in an inefficient outcome in the auction. (paras 1.14, 4.6, 9.3, 9.5, 9.12 (i) and (iii), 9.18)

#### **ComReg Response**

- 3.77 In relation to Telefónica’s arguments concerning the sub-cap, ComReg again notes and agrees with DotEcon’s observation that a number of the points made by Telefónica in this regard fail to consider the implications of the cap applying solely to the first time slice and the potential for reconfiguration of spectrum holdings in 2015 to address fragmentation problems.
- 3.78 ComReg also notes that Vodafone has stated in its response to Document 11/60 that it has no objection to the sub-cap and has even noted that the “*sub-cap appears to enhance the potential for the proposed award process to achieve an efficient outcome by reflecting the imperfect substitutability for 800 MHz and 900 MHz spectrum in the near term, arising from issues including differences in availability of suitable spectrum*”. It is for this reason, to ensure an efficient outcome despite the imperfect substitutability of 800 MHz and 900 MHz spectrum, that ComReg has proposed a sub-cap and ComReg does not agree with Telefónica’s assertion that the sub-cap reduces the likelihood of

efficient allocation of spectrum by restricting the ability to switch demand during the auction.

- 3.79 The sub-cap has been set at a level to maximise flexibility within the auction while at the same time minimising possible distortions to competition, whereas the overall cap of 2 × 20 MHz provides bidders with the opportunity to obtain sufficient spectrum so that the various likely strategies for service provision can be effectively accommodated (as also acknowledged by Vodafone in its response to ComReg 11/60). ComReg notes that Telefónica’s argument does not appear to be as much centred on switching barriers but rather its inability to obtain as much valuable 900 MHz spectrum as possible in the first time slice. As noted elsewhere in this document, ComReg is of the view that the alternative ‘free-for-all’ in the 900 MHz band proposed by Telefónica, whereby extremely asymmetric outcomes would be possible, would not satisfy this statutory objective. The serious risks to competition would clearly far outweigh any efficiency gains that might accrue for Telefónica.
- 3.80 In relation to Telefónica’s comment concerning the minimum price choking off demand, ComReg notes that this issue has been addressed at length elsewhere (see Section 4.8 and Annex 10 of this document) and in previous documents, and does not propose to revisit this issue here, except to state once again that it is satisfied that the Minimum Price is not set at a level that would lead to an inefficient allocation of spectrum. This view is supported by the analysis set out in DotEcon’s latest benchmarking report, Document 12/23.

### 3.4.1.3 Regulatory Principles

#### Views of Respondents

- 3.81 In its response to Document 11/60 Telefónica asserts that ComReg is failing to meet its statutory obligation to encourage the promotion of innovation within the industry:
- *“by not taking account of changes in the structure of the market, recent technology changes and the significant and continuing deterioration of the market for mobile telecommunications services in setting the minimum price in the proposed auction”* (para. 1.18)

#### ComReg Response

- 3.82 ComReg understands that the “*changes in the structure of the market*” to which Telefónica refers are the launch of new MVNOs and the commercial network sharing agreement between it and Meteor. Telefónica argues that by making only one reference to the existence of MVNOs and neglecting to make reference to the existence of the network sharing agreement, ComReg is failing to meet its statutory obligations. Telefónica also argues that ComReg is failing to meet its statutory objectives by making no provision for spectrum trading and only addressing joint bidding in a single paragraph. In that regard, Telefónica further argues that by refusing to allow for augmented spectrum caps for a joint bidder, i.e. Telefónica and Meteor, ComReg is, in practice prohibiting joint bidding for any combination of the current operators.
- 3.83 ComReg would first note, as noted in its consultation guidelines set out in ComReg Document 11/34, that silence on certain matters does not mean that it has not considered all submissions and matters of relevance. ComReg has, in fact, had due regard to the interests of all users of the radio frequency spectrum, including MVNOs. In this regard, ComReg notes that it has previously received submissions from MVNOs to which it has given full consideration. In addition, ComReg has clearly considered the position of MVNOs in the RIA set out in Annex 4. Furthermore, ComReg notes that it has given full consideration to the issue of network sharing in Section 4.5 of this document and does not propose to revisit the matter here except to point out that ComReg generally supports network sharing agreements but is not required to comment on the commercial decisions of individual operators and instead prefers to consider what measures are beneficial for the market as a whole and ultimately consumers.
- 3.84 In relation to the issue of spectrum trading, ComReg notes that it has considered this issue in Document 11/88 and Document 11/89 (section 4.2) and does not propose to revisit it here. In relation to Telefónica’s comment with regards to amending the sub-cap to allow joint bidders combine spectrum allowances, ComReg has considered this issue in Section 4.2 and Annex 5.5 of this document and does not propose to revisit it here.
- 3.85 In terms of the “*recent technology changes*” to which Telefónica refers, it does not appear to identify in its submission what these technology changes are. However, it is ComReg’s understanding that it is referring to the increased availability of new equipment and new technology in the 800 MHz and 1800 MHz bands. ComReg has clearly considered and consulted upon these issues extensively in recent consultation documents. Indeed, it was, amongst other things, the availability of new technology in these bands that has influenced

ComReg's decision to include these bands in the current award process. ComReg therefore rejects Telefónica's assertion that it has not taken into account recent technology developments.

- 3.86 Finally, in terms of the setting of a minimum price and "*the deterioration of the market for mobile telecommunications services*", ComReg considers those comments under the heading Policy Direction Number 4 below.

#### **3.4.1.4 Relevant Policy Directions and Policy Statements**

##### **Policy Direction No.4 of 21 February 2003 on Industry Sustainability**

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

- 3.87 In its response to Document 11/60, Telefónica takes the view that ComReg has failed to take on board the requirements of this policy direction because it has failed to take into the account the structure and state of the Irish market and, in particular, the deterioration in the Irish mobile market. On this basis Telefónica claims that the Preferred Option fails to promote innovation. (paras 1.9, 1.16, 1.18, 2.1, 2.2 and 2.8)

###### ***ComReg Response***

- 3.88 ComReg rejects the assertion that it has not taken account of the state of the electronic communications industry and in particular the industry's position in the business cycle in coming to its decisions under the award process. ComReg has set out extensive reasoning for this view in previous documents under this consultation process and in Section 4.8 and Annex 10 of this document and does not propose to revisit the issue here.

##### **Policy Direction No.5 of 21 February 2003 on Regulation only where Necessary**

###### ***Views of respondents***

- 3.89 In its response to Document 11/60, Telefónica argues that ComReg must carry out a demand analysis in order to avoid imposing unnecessary obligations and thereby comply with Policy Direction No. 5 on Regulation only where Necessary. (para 3.11)

###### ***ComReg Response***

- 3.90 ComReg would first note that it is not clear from Telefónica's submission what regulatory 'obligations' that it is supposedly imposing on Telefónica here. In addition, the allocation of spectrum is a function exclusively reserved to



ComReg and so it is not possible to instead rely on 'market forces' as suggested by Telefónica. Furthermore, ComReg notes that Telefónica's argument here appears to be circular in that it suggests that ComReg should rely on market forces when, in fact, Telefónica itself is advocating an administrative assignment of spectrum to the incumbent MNOs, i.e. a regulatory action which is obviously devoid of the influence of market forces.

- 3.91 In terms of conducting a demand analysis, ComReg is satisfied that, on the basis of the submissions received over the course of this consultation process alone, there is sufficient demand to justify conducting a competitive selection procedure. Furthermore, in the unlikely event it transpires that demand does not exceed supply in one or more of the bands, there are mechanisms built into the auction design whereby the procedure then involves a de facto administrative assignment. In any case, ComReg has previously noted that it is not possible to properly and fully assess the level of demand for spectrum where a potential new entrant may want to remain anonymous until the last minute, as was the case for example in the 2.1 GHz 3G spectrum awards. ComReg would also remind Telefónica of the 2009 bilateral discussions and in particular when it was agreed that there were practical difficulties involved with pre determining any level of demand.<sup>61</sup> As such, ComReg remains satisfied that it has complied with this policy direction.

### **3.4.1.5 General Guiding Principles (in terms of spectrum management, licence conditions and setting of licence fees)**

#### **Non-discrimination**

#### **Views of respondents**

- 3.92 Telefónica variously asserts that, in implementing a 900 MHz sub-cap, ComReg is discriminating against incumbent MNOs in favour of H3GI, as H3GI is the only existing operator that could launch UMTS immediately. Telefónica also argues that the sub-cap is in breach of ComReg's obligation to be technology neutral, by disincentivising incumbent GSM operators from launching UMTS and thereby discriminating against them. This is because the other operators would first have to reduce their GSM requirements at 900MHz in order to be able to fit any kind of UMTS services within the proposed cap. (Telefónica submission to Document 11/60, paragraphs 1.14, 1.17, 4.2 (i) and (ii), and Section 6 (iii).)

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<sup>61</sup> See Section 4 at page 99 of Document 09/73 at [www.comreg.ie](http://www.comreg.ie)

## ComReg Response

- 3.93 ComReg rejects Telefónica's assertion that the 900 MHz sub-cap is discriminatory in nature. ComReg has set out its reasoning for this view in Section 4.2 of this document and does not propose to revisit this issue here.
- 3.94 Telefónica also argues that the sub-cap breaches the requirement of technology neutrality by "*disincentivising incumbent GSM operators from launching UMTS*". In this regard, ComReg would note that, under the obligation of technology neutrality, ComReg must neither impose nor discriminate in favour of the use of a particular type of technology. However, Telefónica's rationale for removing the sub-cap arguably discriminates in favour of GSM use. Furthermore, ComReg would note that Telefónica's assertion implicitly assumes that ComReg is somehow required to incentivise incumbent GSM operators to launch UMTS services. While the auction is designed to promote competition both within the auction and in downstream retail markets and to facilitate the introduction of new and advanced services, whether or not, and the extent to which, operators launch UMTS services, is a matter for the market to determine. Indeed, a policy of incentivising incumbent GSM operators could even be viewed as discriminating against potential new entrants. As such, ComReg rejects Telefónica's arguments that the sub-cap breaches the requirement of technology neutrality.

### 3.4.1.6 Proportionality

#### Views of respondents

- 3.95 In its response to Document 11/60, Telefónica argues that in carrying out a full band auction ComReg would be acting disproportionately because a full band auction is a more risky option to that of administrative assignment. In addition, Telefónica argues that a later start date for new liberalised licences would be more proportionate than 2013 given that the lead time post-auction and pre-licence commencement has now been significantly reduced to 6 months or less. (paras 3.13(c) and 6.16)

#### ComReg Response

- 3.96 In relation to Telefónica's argument concerning a full band spectrum, ComReg notes that it has addressed this issue at length throughout this consultation process and in Annex 4 of this document, and has introduced amendments to the auction design specifically to address concerns around consumer disruption. As explained previously and elsewhere in this document, ComReg does not consider that an administrative assignment is a more proportionate

means of achieving its statutory objectives. ComReg does not propose to revisit this issue here.

- 3.97 In relation to Telefónica's argument concerning a later start date, ComReg notes that transitional issues are dealt with in Chapter 6 and so does not propose to consider this matter further here, except to state that further delaying liberalisation of the 900 MHz spectrum band as proposed by Telefónica would seem to run contrary to, amongst other things, ComReg's objective of the promotion of competition, the requirement of technology neutrality, the promotion of efficient investment and innovation and the GSM Amendment Directive.
- 3.98 ComReg, therefore, remains satisfied that the Preferred Option is the most proportionate means to achieve its objectives.

### **3.5 Conclusion**

- 3.99 Having considered all respondents views above and in light of the assessment against its statutory obligations, ComReg remains satisfied that the preferred option is the one which best complies with its statutory obligations.

## Chapter 4

# 4 Details of the Award

## 4.1 Introduction

4.1 This Chapter sets out, in relation to key elements of the Award Process:

- a summary<sup>62</sup> of ComReg's views, as set out in Document 11/60 and, to the extent relevant, Document 11/75;
- a summary of respondents' views on those issues;
- a summary of updated advice received from ComReg's consultants;<sup>63</sup> and
- ComReg's analysis of the foregoing and final position.

In particular, this Chapter considers the following elements of the Award Process:

- spectrum caps;
- auction format;
- time slices;
- full assignment round;
- possibility of interim GSM rights of use in the 1800 MHz band;
- early liberalisation option;
- spectrum fees (minimum prices and structure of payments); and
- eligibility points.

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<sup>62</sup> Where summaries are provided, whether of previous ComReg proposals, respondents' submissions or expert reports reference should be made to the original document for the definitive version thereof.

<sup>63</sup> See DotEcon report, published as Document 12/24, which sets out DotEcon's detailed consideration of and response to respondents' view.

4.2 Given the volume and complexity of material received, in particular in relation to spectrum caps and spectrum fees, ComReg analyses these two issues in detail in annexes and the relevant sections of this chapter summarise the detail in the annexes. The relevant annexes are Annex 5 on Spectrum Caps and Annex 10 on Spectrum Fees.

## 4.2 Spectrum Caps

4.3 Given the volume and complexity of material submitted in relation to the spectrum caps, ComReg sets out its detailed analysis in Annex 5, which should be read for further information. This section sets out a high level overview of the material in Annex 5. Annex 5 adopts the same structure as each of the sections of this Chapter.

### 4.2.1 Summary of ComReg's Position in Documents 11/60 and 11/75

4.4 In Documents 11/60<sup>64</sup> and 11/60a<sup>65</sup>, ComReg set out its then proposals in relation to spectrum caps and other matters as follows:

- spectrum caps are required to promote and safeguard competition<sup>66</sup>;
- existing spectrum holdings other than 900 MHz and 1800 MHz spectrum (i.e. 2.1 GHz) should not count towards a spectrum cap in the award process;
- the following caps should apply to the award process:
  - a sub 1 GHz spectrum cap of 2 × 20 MHz;
  - an overall spectrum cap of 2 × 50 MHz (between the 800 MHz, 900 MHz and 1800 MHz bands); and
  - a 2 × 10 MHz spectrum cap on 900 MHz spectrum in Time Slice 1;
- not to include a spectrum floor in the award process;
- not to assign unsold spectrum for a period of at least 1-2 years after the auction; and

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<sup>64</sup> Paragraphs 4.3 – 4.45 of Document 11/60

<sup>65</sup> Annex 6.1 of Document 11/60a

<sup>66</sup> Paragraph 4.36 of Document 11/60

- to permit joint bidding from 2 or more bidders, but joint bidders must adhere to the same spectrum cap as individual bidders, i.e. joint bidders could not combine their individual spectrum cap allowances.
- 4.5 Document 11/75 set out ComReg's proposals to implement the spectrum cap in the award process.

#### **4.2.2 Views of Respondents to Document 11/60 and 11/75**

- 4.6 Four interested parties provided comments on ComReg's spectrum cap proposals, being Telefónica, Vodafone, H3GI and eircom Group. The key issues on which these views were provided are as follows:
- the proposed sub-1GHz spectrum cap of 2 × 20 MHz;
  - the proposed overall spectrum cap of 2 × 50 MHz;
  - the proposed 900 MHz spectrum cap of 2 × 10 MHz for Time Slice 1;
  - the suggested introduction of a spectrum floor for sub-1GHz spectrum;
  - ComReg's position on unsold lots at the end of the Award Process;
  - the suggested ability of bidders to combine their individual spectrum cap allowances; and
  - other issues.
- 4.7 Vodafone and eircom Group supported ComReg's proposed 2 × 20 MHz sub-1 GHz spectrum cap proposal as it strikes a reasonable balance. Conversely, H3GI argued that the sub-1 GHz spectrum cap was too high and did not guarantee 2 × 10 MHz for four operators. This respondent would prefer a 2 × 15 MHz sub-1 GHz cap, relaxed to 2 × 20 MHz if supply exceeds demand.
- 4.8 Vodafone supported ComReg's proposal of an overall spectrum cap of 2 × 50 MHz, whereas H3GI and eircom Group opposed this and would prefer a 2 × 40 MHz spectrum cap providing many reasons, including that, in their view, ComReg's proposal could result in extremely asymmetric outcomes and affect competition and this cap would not guarantee a certain amount of spectrum for four operators.
- 4.9 Vodafone, H3GI and eircom Group supported ComReg's proposed 2 × 10 MHz spectrum cap for 900 MHz band in Time Slice 1, for such reasons as it strikes

the balance to deal with short term substitutability between 800 MHz and 900 MHz spectrum and in certain situations could facilitate earlier release of liberalised spectrum. Telefónica did not support ComReg's proposal in this regard and set out a number of reasons why in its view the proposed cap is inappropriate, including its assertion that this proposed cap; discriminates in favour of H3GI, forces long term technology selection on operators, reserves a block for a new entrant and it drives up the price of 800 MHz spectrum.

- 4.10 H3GI repeated its previous arguments in support of a spectrum floor for sub-1 GHz spectrum, arguing that ComReg must carry out a competition assessment and ComReg should ensure the existence of "four credible players" in the market by implementing a floor on the amount of sub-1 GHz spectrum for four bidders. On the other hand, eircom Group did not agree with spectrum floors and considered the spectrum caps appropriate to address substantive competition concerns.
- 4.11 Vodafone agreed that ComReg's proposal not to assign unsold spectrum for at least 2 years would provide a disincentive for a 'wait and see' approach from bidders hoping that any unsold spectrum would be offered on more favourable terms in the future;<sup>67</sup> whereas H3GI submitted that ComReg should not leave spectrum unallocated, given its scarcity and importance.
- 4.12 H3GI agreed with ComReg's proposal to maintain the same spectrum cap for joint bidders as for individual bidders. Telefónica disagreed with ComReg's proposal in this regard for setting out a number of reasons why, in its view, this proposal is contrary to ComReg's obligations and objectives.
- 4.13 Three respondents provided further views on the ability of bidders to combine their individual spectrum cap allowances in submissions to Document 11/75. Telefónica sought clarification on spectrum sharing arrangements, H3GI submitted that ComReg's spectrum cap proposal would lead to one operator having a small amount of spectrum resulting in it not being able to negotiate spectrum trading and/or spectrum sharing agreements.

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<sup>67</sup> Provided that ComReg confirmed that any unsold spectrum in these bands was only released on terms that were no more favourable than the terms of the currently proposed award process paragraph. See paragraph 10 of Vodafone's response to Document 11/60 published in Document 11/102.

### 4.2.3 ComReg's Assessment and Final Position on Spectrum Caps

4.14 ComReg sets out its assessment of the issues raised in relation to spectrum caps in Annex 5.

4.15 Having had regard to all relevant material before it and on the basis of the discussion set out in Annex 5, ComReg's final position on spectrum caps is as follows:

- ComReg will apply a 2 x 20 MHz cap to 800 MHz and 900 MHz (i.e. sub-1GHz) spectrum rights for each of Time Slice 1 and Time Slice 2;
- ComReg will apply a 2 x 50 MHz spectrum cap to 800 MHz, 900 MHz and 1800 MHz spectrum rights for each of Time Slice 1 and Time Slice 2;
- ComReg will apply a 2 x 10 MHz cap to 900 MHz spectrum rights in Time Slice 1;
- Existing spectrum holdings other than those in the 900 MHz and 1800 MHz bands (i.e. the 2.1 GHz band) should not count towards a spectrum cap in this award process;
- ComReg will retain its discretion regarding how it will treat unsold spectrum lots depending on the factual circumstances arising from the Award Process, but unsold lots will not be allocated for a period after the Award Process of an appropriate period of at least 1 year;
- ComReg will ensure that any combined bids in the Award Process are subject to the same spectrum caps as applicable to individual bidders; and
- ComReg will not implement spectrum floors.

## 4.3 Auction Format

### 4.3.1 Summary of ComReg's Position in Documents 11/60 and 11/75

4.16 In Document 11/60 and 11/60a, ComReg noted that its then view on the appropriate auction format for the Award Process had developed over the course of its previous consultations, in light of respondents' views and changing circumstances.<sup>68</sup>

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<sup>68</sup> In Document 10/71 and Document 10/105, ComReg proposed that a combinatorial clock auction (CCA) format would be the most appropriate auction format as, amongst other things, that format best meets



- 4.17 In Document 11/58, DotEcon reiterated its recommendation that a combinatorial clock auction (CCA) format in conjunction with, amongst other things, a relative cap activity rule<sup>69</sup> provided the most appropriate auction format given the particulars of the Award Process.
- 4.18 After careful consideration of the views of interested parties, noting that respondents generally supported the use of a CCA format, and DotEcon's recommendation in that regard, ComReg reiterated its proposal to utilise a CCA format together with a relative cap activity rule.
- 4.19 In Document 11/75 (see Section 4.4), ComReg presented the detailed rules for the Main Stage for the first time. The proposed auction format in Document 11/60 was a CCA, and the rules presented in Document 11/75 were based on the application of the CCA proposal.

### 4.3.2 Views of Respondents on Document 11/60

- 4.20 Three responses were received on this issue, being from Vodafone, eircom Group and Telefónica.
- 4.21 Two respondents, Vodafone and eircom Group<sup>70</sup>, supported the use of a CCA format together with a relative cap activity rule. Vodafone also stated ComReg's proposal largely addressed the concerns it had previously raised.
- 4.22 Telefónica did not agree with the proposed use of the CCA format for several reasons, including that:
- the release of currently unassigned 900 MHz spectrum via an open auction "*is not the option that best meets ComReg's statutory objectives and obligations.*";
  - whilst Telefónica recognises that ComReg's CCA proposal attempts to minimise strategic bidding risks, it claims that the proposal nonetheless "*creates a*

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ComReg's objectives whilst it also overcomes business continuity risks, enables price discovery and reduces incentives to collude.

<sup>69</sup> See section 6.3 of Document 11/58.

<sup>70</sup> eircom Group's support was "*subject to detailed activity rules yet to be published for review by interested parties. We reserve the right to alter our expressed view should the detailed rules be found to be deficient in any respect.*" The detailed activity rules were set out in Document 11/75. As such issues are more relevant to the Information Memorandum. Consideration of eircom Group's proposals will be set out in the forthcoming Information Memorandum on the Multi-band spectrum release.

*significant risk that the auction will not meet ComReg’s own stated objectives”*,<sup>71</sup>  
and

- the proposed CCA rules are “*relatively complex to read and interpret compared to other formats*”<sup>72</sup>, as opposed to the Simultaneous Multi Round Auction approach (SMRA) used in other Member States.

4.23 Telefónica also submits that, if ComReg does utilise the CCA format, it will be important to closely follow the rules from other awards, such as the Danish 2.6 GHz auction rules, if it is to avoid confusion. Telefónica also make several suggestions with regard to the mechanics of the auction.<sup>73</sup>

### 4.3.3 Views of Respondents on Document 11/75

4.24 In its response to Document 11/75, Vodafone states that it has some concerns regarding the complexity of the auction design and considers that this complexity could potentially lead to an inefficient outcome as bidders might not accurately express their preferences. Vodafone suggests that the auction rules presented by ComReg in Document 11/75 result in the auction being very similar to a SMRA auction in which case it might be better to simply adopt such an approach.

4.25 Telefónica reiterated its view and reasons from its submission to Document 11/60 as to why the CCA format is not the best approach, that the proposed design is difficult to comprehend, and that different bidders may have to invest different amounts of effort in understanding the auction design. Telefónica considers this approach is therefore inconsistent with ComReg’s goal of promoting fair competition and efficient outcomes. Telefónica also considers that, in addition to the existing complexity of the auction, new rules concerning activity and the winner and price determination add unnecessary complexity.

4.26 In addition, Telefónica identified what it believed may be a fatal flaw in the winner and price determination mechanism of the auction as proposed in the Document 11/75. In particular, Telefónica asserted that there are circumstances where the auction can produce an incorrect result, failing to liberalised bidder

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<sup>71</sup> See paragraph 1.13 of Telefonica submission to Document 11/60.

<sup>72</sup> See paragraph 5.1 of Telefonica submission to Document 11/60.

<sup>73</sup> See section 5.3 of Telefónica submission. Concerns include scheduling of bidding rounds, bid increments, information available to bidders in primary and supplemental rounds, payment of fees and revelation of base prices. Telefónica suggestions dealing with the mechanics of the auction are relevant to the draft Information Memorandum. ComReg will consider Telefónica’s suggestions in finalising the forthcoming Information Memorandum on the Multi-band spectrum release.

specific lots or where the winner and price determination might have no solution. Telefónica believed that this is caused by the inclusion of distinct lot categories to allow liberalisation of GSM licences at so called 'fair market prices' and in its submission to Document 11/75 Telefónica submitted an confidential illustrative example<sup>74</sup>: **[Confidential Text Removed]**.

4.27 Furthermore, Telefónica stated that:

- *“the auction cannot proceed until these flaws have been eliminated” and*
- *“its preliminary view is that the best way these problems can be completely eliminated is to abandon the entire time slicing and party-specific lot approach.”*

#### 4.3.4 Additional Submissions

4.28 ComReg received two additional submissions<sup>75</sup> relating to the Auction Format; Telefónica submitted a letter to ComReg on 1 March 2012 and eircom Group submitted a letter on 9 March 2012.

4.29 Telefónica's most recent submission reiterated concerns presented in submissions to Document 11/60 and Document 11/75 (see summaries above). Telefónica stated in this submission;

- It is the first example where a CCA similar to ComReg's was used for a multiband spectrum auction<sup>76</sup>;
- *“apparent disparities between the prices paid by the three bidders in Switzerland”*;
- ComReg's auction should:
  - meet ComReg's objectives;
  - *“encourage participation in the process”*,

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<sup>74</sup> Telefónica claimed the example provided was confidential and ComReg is currently engaging with Telefónica with regard to this claim.

<sup>75</sup> Both Telefónica and eircom Group raised concerns in these submissions regarding ComReg's proposed Auction Format (as detailed in Document 11/60 and Document 11/75), with both referencing the recent Swiss multi-band auction. Both of these letters are contained on Document 12/21

<sup>76</sup> *“it [the Swiss multiband auction] is the first example where a Combinatorial Clock Auction (CCA) format was used for a multi-band mobile spectrum auction that is comparable to ComReg's proposed auction. There are several similarities between this auction in Switzerland and the one proposed by ComReg”*

- *“mitigate concerns about bidder asymmetries”* between incumbents and new entrants;
- *“promote incentives for bidders to bid in a straightforward manner, and not to engage in strategic behaviour or tacit collusion”*;
- *“provide a high level of clarity and certainty for bidders as to the level of expenditure that they are liable for as a result of the bids that they place”*; and
- *“be simple and transparent to bidders”*.

- 4.30 *“the disparities in the Swiss auction result would suggest that the mechanism may have been susceptible to strategic behaviour, and may also have failed to give bidders clarity and certainty as to the level of expenditure that they were liable for as a result of the bids that they placed”*;
- *“ComReg will now review its proposed auction mechanism against the outcome of the Swiss auction to ensure that it will meet ComReg’s objectives”*; and
  - Referenced its proposals in its submission to ComReg Document 11/60 which it felt would increase the transparency of the supplemental round, and winner and price determination.
- 4.31 eircom Group raised “concerns in light of two recent events that raise serious questions regarding the efficiency and effectiveness of the proposed multi-spectrum award process”.
- 4.32 eircom Group stated *“The outcome of the Swiss auction is extremely asymmetrical in terms of the amounts to be paid by each of the winners relative to the quantity of spectrum acquired. In our view such a similarly asymmetrical outcome in Ireland would be highly damaging to the competitive functioning of the market and contrary to ComReg's statutory objectives”*.
- 4.33 eircom Group said this was of concern for them, and requested that ComReg set out that it would *“ensure that such illogical and extreme asymmetries will not be permitted to arise from its proposed award process”* in advance of any Decision.

### 4.3.5 DotEcon's Commentary on Auction Format and Respondents' Views

- 4.34 DotEcon notes that respondents to Document 11/60 were generally in favour of the CCA format and that Telefónica made submissions on a number of aspects of the CCA process in anticipation of the publication of detailed rules (which were published subsequently in Document 11/75). Noting that the publication of Document 11/75 occurred after submissions were received to Document 11/60 and on the basis that Document 11/75 details, amongst other things, the specific auction rules, DotEcon does not comment on Telefónica's views on the specific auction rules made in its response to Document 11/60, but rather to those in response to Document 11/75 as those views had the benefit of being informed by the content of both Document 11/60 and Document 11/75.<sup>77</sup>
- 4.35 DotEcon notes that some respondents to Document 11/75 did not consider that the specific auction rules were adequately clarified and, in some cases, referred to their respective submissions made to Document 11/60. ComReg notes that DotEcon will address issues raised relating to the detailed auction rules in its forthcoming report to ComReg relating to the Information Memorandum.
- 4.36 In relation to the suggestions that the auction format should be changed from CCA to SMRA, DotEcon refers to its previous analysis on the different auction formats (as originally detailed in Document 09/99c). In summary, DotEcon considers in section 6.3 of its latest report (Document 12/24) that:
- a SMRA-type format is poor at addressing aggregation risk as a bidder could be the highest bidder on some lots but not all the lots on which it wanted to win. Also, a SMRA would present significant fragmentation risks, whilst the transparency with this format gives bidders greater freedom to formulate gaming strategies and to establish tacitly collusive arrangements; and
  - a CCA format removes aggregation risks, as each package bid, by an individual bidder, is mutually exclusive and non-divisible, i.e. it is not possible to win part of a package; a bidder either wins an entire package it stated a preference for or it does not win the package. DotEcon considers this to be particularly important in the current context as a CCA with multiple open rounds mitigates common value uncertainty, whilst the specific activity rules proposed address business continuity risks for incumbent GSM operators.

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<sup>77</sup> It should be noted that Telefónica's proposal to remove the temporal lot approach (as stated in para 5.3 of Telefónica's submission to 11/60) is addressed in Section 4.4 of this document: Time Slices.

- 4.37 In relation to Telefónica and eircom Group's concerns (raised in Additional Submissions) surrounding the CCA and in particular the outcome of the Swiss multi-band spectrum auction, DotEcon provide detailed discussion in Section 6.4 of its report (Document 12/24).
- 4.38 Within its discussion, DotEcon state that it does not consider that the Swiss auction result raises any concerns regarding the appropriateness of a CCA format. Additionally, DotEcon state "*Telefonica did not articulate clear and specific objections to the approach taken in Switzerland, but rather had diffuse concerns about disparities between the prices paid between the three winning bidders*".
- 4.39 DotEcon, who acted as advisers to BAKOM on the Swiss Auction, noted that specific bids by individual bidders are not public and are confidential, which is a similar approach adopted in other auctions. With respect to the auction, DotEcon note that there were just three bidders (incumbent operators) and all the competition within the auction came from one or more bidders wanting larger packages of spectrum than they actually won.
- 4.40 In respect of Telefónica and eircom Group's concerns surrounding the pricing in the Swiss auction, DotEcon explain, by way of an example, how opportunity cost pricing easily can lead to bidders paying different amounts for similar spectrum packages. DotEcon also address another concern raised by both respondents as it explains with its example that the pricing difference between two bidders is not a disparity as the two bidders are not in symmetric positions.
- 4.41 DotEcon's example also shows how the outcome has not been distorted by strategic behaviour, and also highlights how a 'strategic demand reduction' strategy does not work in a CCA. DotEcon note that the second price rule is utilised to disincentivise gaming behaviour and encourage straightforward bidding. DotEcon states that the second price rule largely removes any need for a bidder to consider bidding strategies of other bidders, allowing a bidder to focus on expressing its own preferences on packages, which creates a large measure of predictability for bidders.
- 4.42 DotEcon note that ComReg's Auction Format benefits from improved activity rules relative to previous CCA's which should improve the extent to which prices in the final primary round are indicative of likely winning prices, which is detailed in Document 11/75.

- 4.43 After consideration of respondents' views, DotEcon maintains its view and recommendation that the CCA format is the most appropriate auction format given the particular circumstances of the Award Process.
- 4.44 In relation to the comments received on the detail of the winner and price determination mechanism, DotEcon, in considering the responses received to Document 11/75 and, in particular that from Telefónica, states that it has identified a deficiency in the detail of the pricing algorithm described in Document 11/75. DotEcon notes that at present, the Draft Information Memorandum suggests that the supply scenario in the pricing algorithm<sup>78</sup> *“should be re-optimised along with the winning bids in these hypothetical situations without any further constraint.”* DotEcon notes that this is incorrect as *“when recalculating the winning bidders, it is important that the supply scenario – the situation with regard to the allocation of party-specific lots, determining the total number of lots available – is not changed to an alternative scenario that was initially infeasible when the winning bids were originally determined.”*
- 4.45 DotEcon states that it has resolved this deficiency. In the interests of transparency, Annex A of the Issues Report presents a revised and detailed description of the winner determination and pricing method appropriate for an auction with party-specific lots addressing this deficiency. This description is set out in Document 12/24, and amongst other things, DotEcon:
- states that the price determination algorithm procedures presented in Annex A restricts *“attention to the initially feasible scenarios only when considering the exclusion of bidders as a counterfactual to determine opportunity cost.”*; and
  - provides two simple scenarios that show the procedures in operation.
- 4.46 DotEcon notes that it will finalise its view on the pricing methodology with party-specific lots in its report considering comments on the Draft Information Memorandum which will be submitted to ComReg for consideration in finalising the Information Memorandum.
- 4.47 Finally DotEcon notes that *“with the proposed adjustment, we do not believe that the example provided by Telefonica illustrates a deficiency in the pricing algorithm, nor do we believe that there is any deficiency in the procedures for determining whether or not liberalisation will occur.”*

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<sup>78</sup> The calculation of opportunity costs is achieved by the hypothetical elimination of one or more bidders and then the recalculation of the winning bidders.

### 4.3.6 ComReg's Consideration of Respondents' Views and DotEcon's Assessment and Recommendation on Auction Format

- 4.48 First, ComReg will address submissions relating to the specific rules of the auction (which includes a number of matters raised by Telefónica) in the context of the forthcoming Information Memorandum, which will follow the present document in due course.
- 4.49 ComReg notes the views and reasons put forward by certain respondents that a SMRA format would be more appropriate than the CCA approach recommended by DotEcon and proposed by ComReg (as summarised above).
- 4.50 ComReg also notes DotEcon's consideration of these views and the reasons put forward by it as to why it believes that the CCA auction format would be superior to the SMRA approach in the present circumstances. These include that it would:<sup>79</sup>
- remove aggregation risks;
  - mitigate common value uncertainty and address business continuity risks; and
  - have lower transparency (during the auction), thereby reducing the ability of bidders to use gaming strategies and/or tacitly collude.
- 4.51 ComReg agrees with DotEcon's assessment in this regard, as:
- interested parties have not questioned the substantive advantages of the CCA format cited by DotEcon;
  - the concerns raised about complexity of the auction are not convincing or insurmountable (see revised analysis in paragraph 4.52); and
  - the analysis carried out by DotEcon and summarised above is, in ComReg's opinion, reasonable and would, on balance, favour the use of a CCA format over SMRA in the present circumstances.
- 4.52 In relation to the concerns expressed regarding the complexity of the CCA format, ComReg notes that:
- it agrees with DotEcon's observation in section 8.3.1 of its latest report, (Document 12/24) in that ComReg is dealing with a specific situation in Ireland

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<sup>79</sup> As set out in detail by DotEcon in Section 6.3 of its Issue Report, Document 12/24.



(i.e. issuing new liberalised use licences and dealing with different expiry dates of existing GSM licences), and therefore proposals to deal with the given situation require some novel features and a certain unavoidable degree of complexity. In the interests of transparency and assisting bidders understanding of the rules, Annex A of DotEcon's Issues Report presents a revised and detailed description of the winner determination and pricing method appropriate with party-specific lots, and provides two simple examples to show these procedures in operation;

- ComReg does not agree that the auction format and detailed rules are more complex than is necessary to address the particulars of the Irish situation. ComReg has considered suggestions and submissions aimed at simplifying the CCA format and rules wherever possible so long as they are consistent with ComReg's statutory functions, objectives and duties;
- as noted by Telefónica, the CCA format has been used in a number of spectrum awards in Europe (including Austria, Denmark, the Netherlands, Switzerland and the UK) and is proposed for use in Australia, Switzerland and the UK. Indeed, ComReg also notes that Denmark, Sweden and Holland will use a CCA format in upcoming spectrum releases.<sup>80</sup> As such, ComReg would expect existing and prospective licensees to have some familiarity with the CCA format;
- as noted by DotEcon the second price rule can only reduce the price paid by a winning bidder from what it bid for the lots that it won, accordingly, while the results of the Swiss auction have been the subject matter of comments:
  - each of the winning bidders in that auction paid either what they bid or less for the lots that they won in the auction;
  - the second price rule is designed to:
    - promote straightforward bidding; and
    - require bidders only to pay what the bidder with the next best use for the spectrum that it wins would have been willing to pay; in essence, and as noted by DotEcon: *“the winning price reflects the minimum amount that the bidder needs to pay to win given competition from rivals”*

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<sup>80</sup> Please see Annex 13 for more information

- accordingly, the asymmetry in prices to which Meteor refers is a result of the bidding strategies adopted by bidders in the auction; and
  - finally, it is noted that existing licensees and likely prospective licensees are well-resourced organisations with the ability to obtain the relevant technical and other expertise required to properly participate in the proposed auction. In relation to Telefónica's concerns expressed in this regard, ComReg notes that Telefónica, as the second largest MNO in Ireland and as part of a large multinational organisation, should be well enough placed in this regard.
- 4.53 For these reasons, ComReg does not consider the SMRA approach to be more appropriate than the CCA format in the present circumstances.
- 4.54 ComReg notes that the specific bids in the Swiss auction from the three bidders are confidential and have not been made public. In this regard, any arguments on the pricing outcome of the auction do not provide any useful information on the value of spectrum in each band. The most useful factual information that was generated and made public was that there were three bidders, who won three non-identical packages of spectrum between the different bands, and each subsequently paid different prices.
- 4.55 In relation to the concerns expressed regarding outcome of the Swiss CCA, ComReg agrees with DotEcon's analysis which maintains that a CCA is the most appropriate Auction Format for ComReg's multiband spectrum release. In this regard, ComReg notes that the pricing from the Swiss auction is a function of opportunity cost pricing. ComReg accords with DotEcon that using a CCA will make a 'strategic demand reduction' strategy redundant, and ComReg's proposed format encourages straightforward bidding.
- 4.56 ComReg notes that Telefónica identified what it believed to be a "*fatal flaw*" in the winner and price determination mechanism of the auction (as proposed in Document 11/75), and that this flaw was caused by the inclusion of distinct lot categories to allow liberalisation of Existing GSM Licences.
- 4.57 The following sets out ComReg's consideration of the illustrative example provided by Telefónica<sup>81</sup>, having taken account of DotEcon's analysis on same as set out in Annex A of its Issues Report (Document 12/24).

**4.58 [Confidential Text Removed]**

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<sup>81</sup> Telefónica claimed that the example provided was confidential and ComReg is currently engaging with Telefónica with regard to this claim.

**4.59 [Confidential Text Removed]**

**4.60 [Confidential Text Removed]**

**4.61 [Confidential Text Removed]**

4.62 Given the above, ComReg is of the view that firstly, the examples provided by Telefónica behave as expected and secondly these examples do not identify a deficiency in the winner determination and pricing methodology rules as presented in Annex A of DotEcon's Issues Report.

4.63 In relation to the winner determination and pricing methodology with party-specific lots, ComReg notes that DotEcon has, in Annex A, identified and addressed a deficiency in the detail of the pricing algorithm described in Document 11/75. In particular, DotEcon notes that at present, the Draft Information Memorandum suggests that the supply scenario in the pricing algorithm *"should be re-optimised along with the winning bids in these hypothetical situations without any further constraint."* DotEcon states that this is incorrect as *"when recalculating the winning bidders, it is important that the supply scenario – the situation with regard to the allocation of party-specific lots, determining the total number of lots available – is not changed to an alternative scenario that was initially infeasible when the winning bids were originally determined."* DotEcon addresses this deficiency by adjusting the description of the price determination algorithm procedures to restrict *"attention to the initially feasible scenarios only when considering the exclusion of bidders as a counterfactual to determine opportunity cost."* On the basis of this proposed adjustment, DotEcon states that it does not *"believe that the example provided by Telefonica illustrates a deficiency in the pricing algorithm, nor do we believe that there is any deficiency in the procedures for determining whether or not liberalisation will occur."*

4.64 ComReg has carefully considered both Telefónica's submissions and the material in Annex A, and on the basis of this consideration, is of the view that the adjusted winner determination and pricing method appropriate for an auction with party-specific lots as described in Annex A functions correctly. ComReg does not therefore accept Telefónica's claims that the auction cannot proceed as planned and that ComReg should abandon the time slice<sup>82</sup> and party-specific lot approach.

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<sup>82</sup> The issue of Time Slices is discussed in section 4.4

- 4.65 In addition, interested parties and prospective bidders in particular should note that ComReg will be providing as much clarity as possible regarding its Award Process going forward, including by:
- considering and addressing views provided in response to Document 11/75 on the draft specific rules for the CCA format set out therein;
  - running auction workshop sessions to assist bidder understanding; and
  - providing a Question and Answers period in its indicative auction timelines (see Table 9 of Document 11/75).

### **4.3.7 ComReg's Final Position on Auction Format**

- 4.66 Having taken into account its statutory objectives, respondents' views and DotEcon's advice and recommendations, ComReg considers that a CCA with relative cap activity rule is the most appropriate auction format for this multi-band spectrum release. Accordingly, ComReg will use a CCA format (together with relative cap activity rules) for the Award Process.
- 4.67 Draft specific rules relating to the CCA format are set out in Document 11/75 and ComReg's final specific rules will be set out in the forthcoming Information Memorandum.

## **4.4 Time Slices**

### **4.4.1 Summary of ComReg's Position in Document 11/60 and Document 11/75**

- 4.68 In Document 11/60 and 11/60a,<sup>83</sup> ComReg noted that the possibility of making spectrum available in two "time slices" was initially proposed in Document 09/99 when ComReg was considering the release of the 900 MHz band only. With the proposed joint release of the 800 MHz band (as proposed in Document 10/71) and the 1800 MHz band (as proposed in Document 10/105), ComReg has re-evaluated its time slice proposal given the changed circumstances but maintained that the three spectrum bands should be made available in two time slices (with the proposed start date of Time Slice 1 being adjusted to reflect the passage of time and changed circumstances).

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<sup>83</sup> See paragraphs 4.61 to 4.66 of Document 11/60 and paragraphs A6.222 to A6.242 of Document 11/60a.

- 4.69 ComReg also noted that it had received diverging views from interested parties on its proposal. Whilst some interested parties expressed support, some did not and alternative proposals were provided, including an 800 MHz band-specific time slice and the release of all spectrum bands in a single time slice.
- 4.70 In addition, ComReg noted that DotEcon had, in section 8 of Document 11/58, provided its assessment of the submissions from interested parties, including its view of these alternative proposals. In summary, DotEcon recommended the use of the two time slice approach because it would provide bidders flexibility in terms of allowing them to switch demand between the three spectrum bands proposed for auction.
- 4.71 After careful consideration of the views of interested parties and DotEcon's analysis and recommendation, ComReg stated that it would be appropriate to apply a two time slice approach across the three spectrum bands proposed for auction, in order to reap the full benefits of a simultaneous multi-band auction of substitutable and complementary spectrum and, further, proposed the following dates for these time slices:
- Time Slice 1: 1 February 2013 – 12 July 2015; and
  - Time Slice 2: 13 July 2015 – 12 July 2030 ("2 Time Slice Proposal").
- 4.72 Additionally, ComReg proposed that, at the end of Time Slice 2, all Liberalised Licences for all three spectrum bands would expire and would not be renewed or extended.
- 4.73 ComReg's reiterated its Time Slice proposal, as presented in Document 11/60, in Section 2.2.2 of Document 11/75.

#### **4.4.2 Respondents' Views on Document 11/60**

- 4.74 Four respondents provided comments in relation to ComReg's 2 Time Slice Proposal in Document 11/60, being Vodafone, eircom Group, H3GI and Telefónica.
- 4.75 Three respondents, H3GI, eircom Group and Telefónica reiterated their view that ComReg should grant liberalised rights of use in the three spectrum bands by way of licences of indefinite duration. The issue of indefinite licences is discussed in Section 4.4.6 of this document.

4.76 Notwithstanding the above views, two respondents, Vodafone and eircom Group, agreed in principle with ComReg's two Time Slice Proposal. In that regard:

- Vodafone noted "*the adoption of our proposed alternative approach [Vodafone's "modified auction approach"<sup>84</sup>] at this late stage no longer appears to be feasible given the requirement to complete an award process without additional delay. In these circumstances ComReg's currently proposed auction format, including its approach to use of temporal lots, is an appropriate approach to implement despite its considerable complexity*"; and
- Despite favouring indefinite licences<sup>85</sup>, eircom Group stated that it agrees in principle with the proposal for two temporal lots.<sup>86</sup>

4.77 On the other hand, Telefónica opposed ComReg's two Time Slice Proposal and, in that regard, made submissions in relation to:

- The proposed commencement date of Time Slice 1;
- The two Time Slice structure; and
- An alternative approach to the two Time Slice Proposal.

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<sup>84</sup> See paragraphs A 6.250 – 6.254 of Document 11/60a

<sup>85</sup> On page 8 of its submission eircom Group note that "*The following comments in respect of section 3.3 of the draft Decision are without prejudice to our fundamental position that any solution requiring compulsory release of spectrum by existing licensees and an auction for the assignment of spectrum in the 900 MHz and 1800MHz bands based on arbitrary licence expiry dates that bear no relationship to the ongoing efficient use of the spectrum, would be unreasonable, disproportionate, and discriminatory and run contrary to the obligations of ComReg as set out in section 12 of the Communications Regulation Act, 2002 as amended to encourage efficient investment in infrastructure and promote innovation and to encourage the efficient use of radio frequencies.*"

<sup>86</sup> In addition eircom Group stated "*We note that it "is currently intended" for Temporal Lot 1 to commence on 1 February 2013. We strongly believe that the terms of the award process must be clearly defined in unambiguous terms. As such the text "which is currently intended to commence on" should be deleted and replaced with "From". In the event that the start date of Time Slice 1 is delayed, eircom Group wants ComReg to "clearly specify how Eligible Bidders will be compensated for any delay in access to the 800MHz spectrum. In our view impacted Eligible Bidders should be refunded the Spectrum Access Fee pro rata for the period of delay relative to the Temporal lot 1 time period".* ComReg notes eircom Group's submission to Document 11/60 and notes that ComReg has, subsequent to this submission, set out its proposals regarding potential rebates for delayed access to Liberalised Licences in Annex 4 of Document 11/75. Note: ComReg has set out its view on the availability of the 800 MHz spectrum and associated rebates in Annex 10 of this document.

#### 4.4.2.1 Proposed Commencement Date of Time Slice 1

4.78 Telefónica stated its belief that the earliest the proposed auction could happen is quarter 3 of 2012, meaning that the maximum amount of time likely to be left between auction end and proposed licence commencement (Time Slice 1) is 6 months or less. Telefónica submits that the proposed commencement date of Time Slice 1 *“is simply not workable, and must be substantially pushed out by ComReg”* for the following reasons:

- There is an obligation to select a licence start date that leaves sufficient time post-auction for all auction outcomes. In that regard, Telefónica identified the following factors:
  - insufficient lead time for relocation;
  - insufficient time to mitigate the risk of widespread consumer disruption caused by failure to win spectrum at auction; and
  - insufficient time to allow for a reduction in 900 MHz holding to 5 MHz, i.e. retuning; and
- the possibility of a delay in ASO.

4.79 In addition, Telefónica states that the earliest licences are likely to be able to start are late 2013 or early 2014, given the retuning and relocation time-lines.<sup>87</sup>

#### 4.4.2.2 Two Time Slice Structure

4.80 Telefónica also provided a number of comments in relation to the two Time Slice structure, including that:

- **Reduction in length of Time Slice 1 to 18 months:** Based on its assessment as detailed above, Telefónica considers that the Time Slice 1 licence term has shortened considerably to approximately 18 months. Further, Telefónica submits that no other NRA has issued such short licences nor had a similar Time Slice approach, and that Time Slice 1 must be reassessed due to its short duration;
- **Risk associated with an unnecessarily complex and untested format:** Telefónica submits that the two Time Slice Proposal increases the number of

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<sup>87</sup> These issues are addressed in the context of transitional issues in chapter 6 of this document.

outcomes greatly, thereby overcomplicating an already complex auction, and the untested proposal increases the risk of error;

- **Scope for gaming behaviour:** Telefónica considers that bidding for Time Slice 1 will likely have disproportionate impact on the auction outcome over the 17 year licence period and this could give rise to gaming behaviour, with bidders with lower demand bidding to increase the price of competitors with higher demand;<sup>88</sup>
- **6 month gap in 1800 MHz licences for Telefónica and Vodafone:** Telefónica also considers that ComReg's refusal to provide an interim 1800 MHz licence to bridge the gap engineered by the two Time Slice Proposal, in itself, renders the Auction Proposal legally non-compliant;
- **Scope for more refined bidding behaviour:** Telefónica considers that DotEcon's suggestion that two Time Slice Proposal would provide scope for "more refined bidding behaviour" indicates that operators might have demand for 900 GSM in Time Slice 1 but not Time Slice 2. In Telefónica's view, this is only correct if a change in demand for spectrum in any band happens to coincide with the transition from Time Slice 1 to Time Slice 2. Telefónica submits, however, that demand for GSM will not simply disappear in 2015, meaning that there is likely to be limited scope for such adjustment of demand for 900 MHz between the two time slices; and
- **Contiguity of spectrum across time lots cannot be guaranteed:** Telefónica also considers that contiguity of spectrum across Time Slice 1 and 2 cannot be guaranteed under the 2 Time Slice Proposal.

#### 4.4.2.3 Telefónica's Suggested Alternative Approaches

4.81 On the basis of the above submissions, Telefónica put forward three approaches as alternatives to the 2 Time Slice Proposal:

- **Approach 1:** One Time Slice with all blocks starting 12 months post-auction except for three 900MHz blocks starting in 2015 (being reserved for each of existing GSM operators). Under this approach, the three GSM operators would each release 2 x 2.2 MHz of their existing 900 MHz holdings, in return for an

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<sup>88</sup> In particular "Telefónica considers that there is a real risk of "gaming behaviour" by auction participants, whereby a bidder with lower demand can bid up the price for lots of spectrum for their competitors with greater demand, especially legacy demand which it is public knowledge must be met." See paragraph 6.5 of Telefónica's Response to Document 11/60.



extension to 2015 of 1 block each of 900 MHz spectrum. In Telefónica's view, this would enable ComReg to auction all but three blocks of 900 MHz with a licence start date of 12 months post-auction with the remaining 3 blocks being auctioned with a start date of 2015;<sup>89</sup>

- **Approach 2:** One Time Slice with licences starting from 2014<sup>90</sup> and licence buy out from Meteor. Telefónica notes that this approach is a variant of the modified auction format proposed by Vodafone in its response to Document 10/71, but would involve a "buy back" of only 12 months of the licence, and would give Meteor a longer buffer between auction end and licence start;<sup>91</sup> and
- **Approach 3:** One Time Slice with licences starting in 2015. This approach would involve ComReg extending existing licences so that they all co-terminate, allowing for a "straightforward auction of licences all with the same start date, without having to buy out any licences".<sup>92</sup>

<sup>89</sup> In Telefónica's view, Approach 1:

- meets ComReg's objectives of having sufficient time post-auction for relocation and retuning;
- avoids the risk of consumer disruption;
- avoids having to buy out Meteor in full, (seen by ComReg as more difficult to achieve);
- avoids the increased risk and complexity of the two time slices, while ensuring there is sufficient 900 MHz available for purchase for liberalised services as early possible after the auction is held;
- would provide competition for all categories of blocks, given that any of the existing GSM operators is as likely to want more than 1 of the 3 2015 900 MHz blocks or a second block starting from 2014, ensuring a competitive auction for all blocks; equally with 4 blocks starting as soon as possible post-auction, any new entrant wishing to purchase 900 MHz has as good a chance of doing so under this proposal, as it does under the current proposal;
- would include the advanced commencement and early liberalisation options;
- differs from ComReg's current proposal in terms of: 1 block of 900 MHz potentially being liberalised slightly later; and the overall start date shifts out by a number of months (being something Telefónica believes is a practical necessity caused by the later auction date).

<sup>90</sup> Although not made clear by Telefónica, ComReg can only infer that Approach 2 assumes that additional Interim GSM 900 MHz rights would be granted to Telefónica and/or Vodafone from February 2013 until July 2014.

<sup>91</sup> Telefónica states that it appreciates that Vodafone's proposal was rejected by ComReg on the basis that (a) the two lots did not cause any real problems and (b) it would be too difficult to negotiate licence buy back from Meteor. With regard to (a) Telefónica submits that the issues raised by the two temporal lots are, in fact, substantial, and make this a format that should be avoided if, as is the case, there are other less problematic alternatives available. With regard to (b), Telefónica states that Vodafone's proposal involved a buy back of 2.5 years of Meteor's licence with Meteor being left in the same position as Telefónica and Vodafone if it failed to win spectrum, of having insufficient time to make alternative arrangements. However, Telefónica submits that its proposal would involve buying back only 12 months of the licence, and would give Meteor a longer buffer between auction end and licence start.

<sup>92</sup> In Telefónica's view, Approach 3:

- is, in effect, the approach taken by a number of NRAs in auctioning spectrum;

### 4.4.3 Respondents' Views on Document 11/75

4.82 Although not directly solicited, two interested parties provided comments in relation to the two Time Slice Proposal in their respective submissions on Document 11/75, those interested parties being H3GI and Telefónica. In that regard:

- H3GI reiterates its view that ComReg should grant liberalised rights of use to the three spectrum bands by way of licences of indefinite duration. The issue of indefinite licences is addressed in Section 4.4.6 of this document;
  - Both Telefónica and H3GI express concerns regarding potential delays to the availability of spectrum rights won in the Auction. In particular:
    - H3GI expressed its concern about ComReg's reference to the possibility of delayed commencement of rights in Time Slice 1 and 2 and, further, that ComReg has not properly consulted on same;
    - Telefónica considers there to be an ongoing risk associated with analogue switch-off for the 800 MHz band, and the delayed completion of the auction process means there is growing uncertainty around the 900 MHz band;
    - Telefónica expressed its concern that the risk surrounding 800 MHz spectrum availability would distort valuations of spectrum and bidder behaviour. Telefónica also considers the compensation measures proposed in the event of delayed access to be inadequate, and that ComReg should do what is necessary and ensure the availability of what it is selling;
  - H3GI states that ComReg should ensure incumbent GSM licensees are held accountable for relocation activities, which should be completed as soon as
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- meets the requirement that there is sufficient time post-auction for orderly transition in and out of the 900 MHz band by an existing operator and new entrant. Realistically Telefónica considers that even without this issue, the earliest licences are likely to be able to start is late 2013/early 2014, given the retuning and relocation time-lines so that there is not a significant difference in start dates in effect;
  - removes the need for temporal lots and thereby eliminates the risks identified by it of error, manipulation and licence gaps. In that regard, Telefónica states that ComReg and DotEcon have themselves acknowledged that 800 MHz based services are unlikely to be feasible much before 2015, so that there is no actual delay in the rollout of advanced services;
  - has a disadvantage over the previous two, being that it delays the liberalisation of currently unused 900 MHz spectrum. In that regard, Telefónica states that ComReg has the discretion to liberalise existing licences, meaning that only the currently unused blocks would remain unliberalised.

possible after the award, and no later than the start of Time Slice 1. H3GI also requests that ComReg clarify when Time Slice 1 will start. H3GI also states that licences for Time Slice 1 should expire at the commencement of Time Slice 2, noting ComReg previously stated incumbent GSM licensees have enough time to plan and implement transitional activities across the Time Slices.

- Telefónica expressed concerns regarding the complexity it considered to be involved with the two Time Slice Proposal and, in particular:
  - the complexity created by having multiple bands, different time-slices, and party specific lots, all with different requirements to be solved through the auction mechanism. Telefónica submits that the flaw created by this complexity in the winner and price determination may fail to support efficient outcomes and fair market prices, could undermine straight forward bidding, result in an unfair rejection of liberalisation options and potentially offer no solution to the price determination;
  - the complexity of the new activity rule; and
  - the “*complex and unnecessary lot structure*”.
- Telefónica therefore expressed its preference for a single Time Slice approach and removal of party-specific lots. Telefónica also has concerns regarding the addition of a new activity rule to “*what is already a complex and unnecessary lot structure*”, and suggest this complexity could be removed by taking away the two Time Slices and party-specific lots from ComReg’s current proposal;
- Telefónica also did not agree with the compensation measures proposed by ComReg in Document 11/75 in the event of delayed availability of Liberalised Licences, whereas eircom Group, Vodafone and H3GI agreed with the principle of refunding Up-front Fees and SUFs for delayed availability on a pro-rata basis, and also provided views on the specific mechanics of the refund proposal (such as in relation to how and when the refund would be issued). ComReg will address these implementation issues in its response to Document 11/75 and in the final Information Memorandum.

#### 4.4.4 Further Submission from H3GI

4.83 On 22 December 2011, H3GI submitted a letter to ComReg discussing issues arising from ComReg’s Spectrum Strategy Statement (Document 11/89).<sup>93</sup>

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<sup>93</sup> Letter published in Document 12/21.

Whilst this letter addressed a number of issues, including spectrum trading and the 2.6 GHz spectrum band, of particular relevance to the present consultation is H3GI's submission that it is deeply disappointed and concerned that, in its view, ComReg has failed to take proper account of: (i) responses to ComReg's Spectrum Strategy Consultation Paper; and (ii) the research, analysis and recommendations contained in the report commissioned by H3GI from NERA Economic Consulting ("NERA") in relation to indefinite licences and mobile spectrum and provided to ComReg by H3GI on 7 October 2011 (the "NERA Report").

4.84 In its letter, H3GI provides a number of arguments in support of its position that ComReg should grant mobile spectrum licences with indefinite duration, including:

- its assertion that ComReg is influenced by uncertainty, delay and litigation with establishing an indefinite licence regime, and these concerns of ComReg's are things which it can control and obviate;
- indefinite licences have been introduced elsewhere (e.g. UK (2.1 GHz licences), New Zealand and United States), and H3GI is dismayed with the exclusion of discussion on the implementation of indefinite licences in these countries in ComReg's Spectrum Strategy. H3GI encourage ComReg to follow these countries lead so as to promote competition and ensure continuous investment in Next Generation Broadband (NGB);
- the electronic communications regulatory framework allows for withdrawal of spectrum for compliance reasons, hence ComReg could issue indefinite licences with a withdrawal clause. H3GI suggests that ComReg could include a minimum 5 years notice period before withdrawing spectrum;
- H3GI rejects the implication that NERA or H3GI has misled or sought to mislead either ComReg or third parties in relation to the liberalised nature of radio spectrum at an EU level for some harmonised, important bands;
- H3GI disagrees with the view that indefinite licences prevent the "seamless maintenance of the coordination of the most important bands";
- H3GI claims that the reduction of investment towards the end of a licence is due to the uncertainty of re-acquiring spectrum and terms associated with re-acquisition and, furthermore, that ComReg's position on indefinite licences threatens new and smaller operators to the disadvantage of competition; and

- H3GI states that ComReg cannot ensure the timely re-award of spectrum under its fixed term licence regime, and liberalised spectrum may not be available until 2015, affecting the Irish economy and society.

#### 4.4.5 DotEcon's View and Recommendation

4.85 DotEcon's assessment of respondents' views in relation to the two Time Slice proposal and its recommendation following same is presented in Section 8.3 of Document 12/24 (Issues Report), a summary of which is provided below.

4.86 In relation to the concerns expressed by respondents regarding the proposed commencement date of Time Slice 1, DotEcon notes that a delay would, of course, affect the utility of Time Slice 1. However, given ComReg's intention to speedily complete the auction in 2012, it maintains that proposals should not be formulated on the basis of delay without good reason.

4.87 In relation to the arguments put forward by Telefónica regarding the two Time Slice structure, DotEcon addresses these arguments individually and a summary of DotEcon's assessment is provided below:

- **Reduction in length of Time Slice 1 to 18 months:** DotEcon agrees that if there is a sufficient delay to the Award Process, then ComReg could be required to reconsider its proposal so as to ensure earliest possible availability of liberalised spectrum whilst allowing sufficient time for any retuning and relocation activities. DotEcon conclude, however, that Time Slice 1 is still expected to be 2.5 years in duration, which, in its opinion, is long enough to justify the proposed approach;
- **Risk associated with an unnecessarily complex and untested format:** DotEcon dispute Telefónica's assertion on the basis that the two Time Slice Proposal addresses the specific situation in Ireland (such as having to provide new liberalised licences and address the complications in the differing expiry dates of existing licences) and that the fundamental elements of the auction design have been successfully deployed in a number of previous spectrum auctions. Furthermore, DotEcon, refers back to its arguments in favour of the two time slice proposal in Document 10/71a and notes that (i) bidding for the same amount of spectrum in a band in both time slices involves no more than would otherwise be the case with a single Time Slice; and (ii) given package bidding, there is no risk inherent in the two Time Slice proposal that bidders risk winning a subset of these lots;

- **Scope for gaming behaviour:** DotEcon considers that the restrictions on bidders (notably spectrum caps, eligibility points and limited transparency in auction) limit the scope for gaming behaviour in the auction. Such gaming concern was one of the reasons for proposing the 900 MHz cap in Time Slice 1. DotEcon does not consider that the presence of two Time Slices are of themselves a reason to expect there to be greater opportunities for gaming behaviour;
- **Scope for more refined bidding behaviour:** DotEcon considers that the two Time Slice Proposal allows for one organisation of assignments across the bands until 2015 to address transitional issues arising from existing licences, and another organisation from 2015, which would allow operators to defragment their spectrum assignments as necessary;
- **Contiguity of spectrum across time lots cannot be guaranteed:** DotEcon states that the two Time Slice Proposal provides for contiguous spectrum assignments in each band in each Time Slice. If a bidder bids for and acquires the same quantum of spectrum in both Time Slices then, under the two Time Slice Proposal, it will have the same spectrum assignment in both Time Slices. DotEcon also notes that *“if a bidder does not receive the same amount of spectrum in both time slices (as in Telefónica’s example) there cannot be any guarantee that the frequency ranges received in the two time periods will overlap, though each will be a contiguous range. However, such a bidder will be able to express a preference through its bids for frequency ranges in each time period that overlap or when one includes the other.”*

4.88 DotEcon further considers the three alternative approaches presented by Telefónica and in summary considers that:

- Approach 1 would raise issues relating to the partial assignment of spectrum to incumbent operators because:
  - given that 4 lots in the band would be awarded on a liberalised basis 12 months post auction, there may be few potential buyers other than the incumbents of the three 900 MHz lots starting in 2015;
  - similarly, bidders without existing sub-1GHz spectrum holdings might consider unfavourably 900 MHz lots available at the later date of 2015 relative to 800 MHz spectrum;

- this option would remove the incentive for 900 MHz incumbents to phase out GSM services and transition to more advanced technologies as soon as practicable; and
  - this approach creates perverse incentives for bidders as they may be encouraged to bid for more 900MHz in an attempt to block competitors gaining access to liberalised sub-1GHz spectrum prior to 2015.
- Approach 2 is very similar to the modified format proposed by Vodafone in its response to Document 10/71 (and rejected by ComReg on the basis that, amongst other things, it would be difficult to negotiate a licence buy-back from Meteor), and Approach 2 is dependent on the assent of Meteor. Further, it would require agreement between the three existing operators in the 900 MHz and 1800 MHz bands and ComReg on the price that would be paid by ComReg, whereas there has been considerable disagreement in the consultation process to date as to how such prices might be determined. In addition, this proposal would involve the delay of availability of liberalised 900 MHz and 1800 MHz spectrum for a year relative to current proposals. This proposal also leaves open the issue of spectrum in the 800 MHz band: either this spectrum would be unallocated for a year relative to current proposals or it would be necessarily decoupled from the availability of 900 MHz spectrum. Either of these alternatives represents a considerable downside to this proposal.
  - Approach 3 raises concerns in terms of compliance with Commission Decision 2011/251/EU and in terms of consumer welfare because the licence period would not commence until 2015 and this approach unnecessarily delays liberalisation (as Telefónica itself notes). In addition, this proposal leaves open a number of further issues that have been contentious in the consultation process to date. In particular, it involves administrative assignment of spectrum in the 900MHz and 1800MHz spectrum bands to O2 and Vodafone until 2015. It also does not consider how to licence spectrum in the 800MHz band which is a long run substitute for 900MHz spectrum and is due to become available for licensing in February 2013.
- 4.89 In relation to the further material concerning the two Time Slice Proposal submitted by H3GI and Telefónica in their respective submissions to Document 11/75, DotEcon states that it understands from ComReg that there is not expected to be a significant delay to 800 MHz availability due to ASO<sup>94</sup> and, without any similar issues affecting availability of 900 MHz and 1800 MHz spectrum, DotEcon considers the refund proposal set out by ComReg in

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<sup>94</sup> In this regard, DotEcon notes the Minister's statement of 10 January 2012.

Document 11/75 to be more proportionate than delaying the entire auction process.

#### **4.4.6 ComReg's Consideration of Respondents' Views on the Two Time Slice Proposal**

4.90 ComReg welcomes and notes the views of interested parties on its two Time Slice Proposal and addresses these submissions as follows:

- whether spectrum rights in the three bands should be granted by way of licences of indefinite duration;
- proposed commencement date of Time Slice 1;
- two Time Slice structure;
- Telefónica's suggested alternative approaches;
- respondents' views on Document 11/75.

4.91 ComReg also notes DotEcon's assessment of these views and its recommendation following same.

##### **4.4.6.1 Licences of Indefinite Duration**

4.92 At paragraphs A10.58 – A10.61 of Document 11/60a, ComReg stated that the policy issue of indefinite licences was being addressed in the context of ComReg's spectrum strategy consultation (being the Draft Spectrum Strategy (Document 11/28) and, subsequent to publication of Documents 11/60 and 11/60a, the Response to Consultation 11/28 and Final Spectrum Strategy Statement 2011 – 2013 (being Documents 11/88 and 11/89, respectively)) were published.

4.93 ComReg's current position regarding indefinite Licences is set out in section 4.3 of Document 11/89. This position is informed by ComReg's extensive assessment of responses received to Document 11/28, as set out in section 3.4 of Document 11/88.

4.94 In summary, ComReg favours spectrum licences of finite duration because they facilitate the coordination of the most important bands by reducing the potential for licensees to resist changes in the coordination of such bands by engaging in strategic behaviour. Such strategic behaviour could have serious consequences for consumer welfare, for example in terms of delays to the deployment of new



services. In addition, ComReg set out its view that arguments made by operators regarding the uncertainty associated with the periodic release of spectrum after licences have expired are overstated and do not accord with the likely economic incentives of incumbent operators. ComReg noted that it would reconsider its policy on optimal licence duration if an unexpected development occurred.

- 4.95 ComReg notes that H3GI raised numerous issues in its letter to ComReg of 22 December 2011. In this letter, H3GI re-iterated many arguments supporting indefinite licences, that were contained in its submission (NERA report) to ComReg of 7 October 2011. ComReg addressed these arguments in its Spectrum Strategy Statement (see Section 3.4.2 of Document 11/88). Many of the arguments presented in its letter directly opposed ComReg's analysis and position on indefinite licences as presented in Document 11/88, without presenting sufficient new evidence to alter ComReg's position as set out in Document 11/88.
- 4.96 New arguments presented by H3GI included that indefinite licences have been issued elsewhere, ComReg's position threatens new and smaller operators and that liberalised spectrum may not be available until 2015.
- 4.97 In addition, ComReg recognises H3GI's argument that indefinite licences have been issued elsewhere; however there are very few examples of such usage. Indeed, the appropriateness of indefinite licences is dependent on the specific scenario faced in each jurisdiction. In this regard, ComReg does not deem indefinite licences appropriate in Ireland for the reasons set out in Document 11/88. Equally, ComReg does not agree with H3GI's assertion that liberalised spectrum will not be available until 2015. ComReg envisages that liberalised spectrum will be available on time in 2013. Finally ComReg considers that new and smaller operators are not disenfranchised by finite licences, and ComReg maintains that finite licences promote competition and spectrum efficiency for the reasons presented in Document 11/88 and 11/89. ComReg therefore maintains its position as expressed in Document 11/88 (Section 3.4.2) that finite duration licences is the most appropriate.
- 4.98 For the reasons set out in Documents 11/88, 11/89 and above, ComReg considers that it has not, in its view, been presented with any further evidence to suggest that liberalised rights of use in the three spectrum bands should be awarded by way of licences of indefinite duration. ComReg has not seen any reason to depart from the specific licence duration set out in Document 11/60, which results in all Time Slice 2 licences co-terminating in 2030.

#### **4.4.6.2 Proposed Commencement Date of Time Slice 1 (Time between Proposed Auction and Commencement Date of Time Slice 1)**

- 4.99 ComReg notes Telefónica's submission that there is an obligation to select a licence start date that leaves sufficient time post-auction for all auction outcomes (including relocation and retuning activities).
- 4.100 ComReg refers readers to Chapter 6 on transitional issues and the consideration therein on ensuring orderly transition in the 900 MHz band.
- 4.101 In relation to Telefónica's view regarding the possibility of delays to ASO, ComReg notes that ASO is currently on schedule as stated recently by the Minister<sup>95</sup> and, based on currently available information, ComReg anticipates that there will be no delay in the availability of 800 MHz spectrum. Annex 12 of Document 12/25A also discusses the availability date of 800 MHz.
- 4.102 Nevertheless, it would be remiss of ComReg to not to have in place mechanisms to address the scenario where delays arise (particularly where spectrum availability is dependent on circumstances outside ComReg's control). In that regard, ComReg notes that it has proposed a rebate mechanism to address any delayed access to liberalised spectrum rights, has received views on this mechanism and will finalise same in its response to Document 11/75 and the final Information Memorandum. In addition, ComReg does not consider there to be any legal impediment relating to the auction of 800 MHz rights of use.
- 4.103 Finally, and generally speaking, ComReg does not consider it appropriate to adopt an approach which would have, with certainty, a negative effect on consumer welfare (arising from delayed access to liberalised rights of use) on the basis of uncertain or unlikely events arising (e.g retuning or delays to ASO), particularly where mechanisms can be put in place to address and/or compensate for the latter should they arise.

#### **4.4.6.3 Two Temporal Lots Structure**

- 4.104 ComReg sets out its assessment of the arguments put forward by Telefónica below:

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<sup>95</sup> See Minister's statement of 10 January 2012 at <http://www.merrionstreet.ie/index.php/2012/01/minister-rabbitte-announces-community-outreach-digital-switchover-programme/?cat=> and Ministers statement of 1 March 2012 at <http://www.dcenr.gov.ie/Press+Releases/2012/Minister+Rabbitte+and+Gay+Byrne+welcome+Digital+TV+Outreach+Champions+at+Training+Seminar.htm>

- **Reduction in length of Time Slice 1 to 18 months:** ComReg notes Telefónica's view that the earliest licences are likely to be able to start is late 2013/early 2014, given its assessment of retuning and relocation timelines and that this would result in a corresponding reduction in length of Time Slice 1 to 18 months. In response, ComReg refers to the above points highlighted in paragraph 4.100 and to Chapter 6 generally regarding transitional issues. In summary, ComReg currently expects that liberalised lots would be available at the proposed commencement date for Time Slice 1, and that the duration for Time Slice 1 will be approximately 30 months. In ComReg's opinion, this would justify implementation of the two Time Slice Proposal, in the interest of achieving liberalisation and efficient usage of spectrum. ComReg also notes DotEcon's view in this regard. Finally, in the unlikely event of delayed access to some liberalised lots (noting also ComReg's preference that relocation/retuning of 900 MHz spectrum be given priority over 1800 MHz spectrum for the reasons stated in Chapter 6), ComReg has put forward proposals to fairly reimburse affected licensees for any delayed access;
- **Risk associated with an unnecessarily complex and untested format:** In relation to this submission, ComReg agrees with DotEcon's observation that *"In response to Telefónica's argument that the first time slice is now too short, and represents a complex and untested format, we note that this is due to the specific situation arising in Ireland where ComReg is aiming to provide new licences on a liberalised basis, and to deal with complications in the differing expiry dates of existing licences in both the 900MHz and 1800MHz bands. The proposals need to deal with this situation, which inevitably means that the auction process will need some novel features and have a certain unavoidable degree of complexity. Nevertheless, the fundamental elements of the auction design have been successfully deployed in a number of previous spectrum auctions"*. ComReg also notes and agrees with DotEcon's observation that *"where a bidder wishes to bid for the same amount of spectrum in a band in both time slices, relative to a single time slice approach, the two time slice approach involves no more than the requirement to bid on a given lot in two time slices rather than one; given package bidding there is no risk inherent in the two time slice proposal that bidders risk winning a subset of these lots"*. Furthermore, ComReg considers that the two Time Slice Proposal is no more complex than is necessary to address the particulars of the Irish situation, and that it has considered suggestions and submissions aimed at simplifying the proposal wherever possible so long as they are consistent with its statutory functions, objectives and duties. Finally, it is noted that existing licensees and likely prospective licensees are well-resourced organisations with the ability to obtain the relevant technical and other expertise required to properly

understand the proposed auction process and minimise the risk of error. In relation to Telefónica's concerns expressed in this regard, ComReg notes that Telefónica, as the second largest MNO in Ireland and as part of a large multinational organisation, should be well enough placed in this regard;

- **Scope for gaming behaviour:** In relation to this submission, ComReg agrees with DotEcon's observation in its latest report that the presence of two Time Slices is not of itself a reason to expect there to be greater opportunities for gaming behaviour. In addition, ComReg agrees that the possibility for such gaming is limited by the implementation of a number of bidding rules (including the proposed spectrum caps and eligibility points), and that the auction rules proposed are intended to control any such opportunities, for example through limited transparency.
- 6 month gap in 1800 MHz licences for Telefónica and Vodafone: This issue is addressed in Section 4.6 of this document
- **Scope for more refined bidding behaviour:** ComReg agrees with DotEcon's analysis<sup>96</sup> that the two Time Slice Proposal facilitates refined bidding behaviour. In particular, ComReg considers that the proposal allows for incumbents to address short-term GSM transitional issues, whilst also allowing operators the flexibility to shift their preferences for the period 2015 onwards in the auction based upon their specific requirements. With respect to Telefónica's statement that "*demand for GSM will not simply disappear in 2015, meaning that there is likely to be limited scope for such adjustment of demand for 900 MHz between the two time slices*", ComReg notes that this statement ignores the fact that demand for GSM spectrum will likely reduce greatly over the next three years and that new licences will be offered on a technology and service neutral basis, therefore regardless of whether an operator is successful in winning spectrum in Time Slice 1 and/or Time Slice 2, it has the freedom to utilise spectrum for GSM, UMTS and LTE (and other compatible systems in line with EC Decision 2011/267/EU) for the duration of its new licence.
- **Contiguity of spectrum across time lots cannot be guaranteed:** In response to this point, ComReg notes and agrees with DotEcon's observations that:
  - contiguous spectrum would be assigned to bidders in each time slice;

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<sup>96</sup> DotEcon states that "*this approach allows for one organisation of operators across 800MHz and 900MHz bands until 2015 to deal with transitional issues regarding GSM and then, potentially, a different one after 2015 if operators wish to defragment their holdings across the bands.*"

- if a bidder receives the same amount of spectrum in each band in each time slice, the frequency range will be the same for both time slices (i.e. will be contiguous across the 2 time slices);
- however, if a bidder bids for and wins different amounts of spectrum in the two time slices (as in Telefónica's example) there is no guarantee that the frequency ranges received in the two Time Slices will overlap, though each will be a contiguous range. That said, such a bidder will be able to express a preference through its bids for frequency ranges in each Time Slice that overlap or when one includes the other.

#### **4.4.6.4 Alternative Proposals from Telefónica O2**

4.105 ComReg acknowledges and welcomes the alternative approaches put forward by Telefónica. ComReg also notes DotEcon's assessment of and recommendations in relation to same. However, ComReg considers the two Time Slice Proposal to be the most appropriate structure to address the particular circumstances of the spectrum award (e.g. different licence expiry dates, promotion of switching opportunities for bidders, etc) in a manner most consistent with its statutory functions, objectives and duties. ComReg is of the view, as set out below; that Telefónica's proposed approaches do not have significant countervailing benefits that would justify delaying the entire process.

4.106 Firstly, for the reasons provided above, ComReg would not share the concerns expressed by Telefónica as justification for the alternative approaches (for example, in relation to the proposed commencement date of Time Slice 1 and issues raised in relation to the two Time Slice Structure) and would query the assumptions underlying same. ComReg has considered the transitional issues relating to existing GSM licensees in Chapter 6 of this document, additionally ComReg notes that there is increased certainty regarding 800 MHz availability.<sup>97</sup>

4.107 In relation to Approach 1, ComReg notes and agrees with DotEcon's observations summarised at paragraph 4.88 above. ComReg also observes that:

- whilst Telefónica's suggested approaches are put forward on the basis of addressing complexities it identifies with the two Time Slice Proposal, Approach 1 would result in four 900 MHz blocks being released 12 months post-auction

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<sup>97</sup> In this regard, ComReg refers to the Ministers statement of 10 January 2012 regarding the availability of 800 MHz spectrum, <http://www.merrionstreet.ie/index.php/2012/01/minister-rabbitte-announces-community-outreach-digital-switchover-programme/>

and three blocks released in 2015, thereby implicitly involving bidding on lots with different temporal dimensions which in itself introduces not insignificant complexities to the auction process. Moreover, assuming that this temporal dimension would only apply in respect of 900 MHz lots, then ComReg would have concerns about its effect on the flexibility of bidders to switch between 900 MHz lots, on the one hand, and 800 MHz and 1800 MHz lots on the other. For reasons previously identified by DotEcon and ComReg, ComReg believes that the benefits of providing bidders with the ability to switch between lots in the three spectrum bands are not insignificant;

- ComReg agrees with DotEcon's observation that this approach would require agreement between the three existing operators in the 900MHz and 1800MHz bands and ComReg on the price that would be paid by ComReg, whereas there has been considerable disagreement in the consultation process to date as to how such prices might be determined. In addition, this proposal would involve the delay of availability of liberalised 900MHz and 1800MHz spectrum for a year relative to current proposals. This proposal also leaves open the issue of spectrum in the 800MHz band: either this spectrum would be unallocated for a year relative to current proposals or it would be necessarily decoupled from the availability of 900MHz spectrum. ComReg agrees that either of these alternatives represents a considerable downside to this proposal;
- ensuring contiguous and continuous spectrum assignments in a spectrum band for each operator could become an issue with this proposal;
- as noted by DotEcon, this approach would, in ComReg's view, raise issues relating to the partial assignment of spectrum rights to Vodafone and O2 (until 2015) in circumstances where there may be more efficient users of such spectrum rights for the duration of the proposed administrative assignment. In that regard, reserving three 900 MHz blocks until 2015 reduces supply in the short term, and could represent an impediment to potential new entry; and
- it is very similar to the proposal put forward by Vodafone in response to Document 10/71, Vodafone's 'modified auction approach'. Vodafone's approach involved all licences being bought out by ComReg and all spectrum being made available in one Time Slice in 2013. In effect, Telefónica's proposal is the same as the 'modified auction approach', with the exception that three blocks of 900 MHz spectrum are reserved for the incumbent 900 MHz operators. ComReg considers that essentially the same reasons for dismissing the 'modified auction

approach' provided in paragraphs 4.80 – 4.85 of Document 11/60 apply equally to Telefónica's first proposal.<sup>98</sup>

4.108 In relation to Approach 2, ComReg firstly notes Telefónica's submissions that:

- Telefónica acknowledges that Approach 2 is similar to Vodafone's modified auction proposal and, further that, the latter was rejected by ComReg on the basis that (a) the two lots did not cause any real problems and (b) it would be too difficult to negotiate licence buy back from Meteor;
- in relation to (a), the issues raised by the two time slices are, in fact, substantial, and make this a format that should be avoided if, as is the case, there are other less problematic alternatives available; and
- in relation to (b), Vodafone's proposal involved a buy-back of 2.5 years of Meteor's licence with Meteor being left in the same position as Telefónica and Vodafone if it failed to win spectrum (of having insufficient time to make alternative arrangements). However, Telefónica submits that its proposal would involve buying back only 12 months of the licence, and would give Meteor a longer buffer between auction end and licence start.

4.109 ComReg notes and agrees with DotEcon's observations summarised at paragraph 4.88 above. ComReg makes the following specific observations regarding Approach 2:

- First, ComReg can only infer that this approach is put forward on the assumption that there would be a prolongation of existing interim GSM 900 MHz rights of use for each of Telefónica and Vodafone until 2014 and, furthermore, that such prolongation would represent an appropriate and ideal outcome in the context of ComReg's statutory functions, objectives and duties;

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<sup>98</sup> In Document 11/60, ComReg notes that: "The benefit would be simplification of the auction design. However this approach could only work if existing licensees in the 900MHz and 1800MHz bands agreed to return their current spectrum holdings to ComReg, so that the returned spectrum could then be released as liberalised spectrum from 2013. This raised the question of whether such bidders could return (or reduce) their current spectrum holdings. ...the existing GSM licensees are in very different situations. While Vodafone and O2 may be willing to accept the risks involved in selling their existing 1800MHz licences, Meteor is in a different position. In order to benefit from a simpler lot structure Meteor would have to sell or agree to ComReg "buying back" its 900MHz licences as well as its 1800MHz licences. Put simply, DotEcon considered that setting terms for a buy-back arrangement is problematic and if disputed it would lead to significant delay. "

- in relation to Telefónica's submission regarding (a), for the reasons set out previously in this section, ComReg does not believe that the two Time Slice Proposal raises the nature and level of issues and concerns claimed by Telefónica;
- in relation to Telefónica's submission regarding (b), ComReg does not consider that Approach 2 overcomes the concerns identified by ComReg and DotEcon in relation to the modified auction approach and by DotEcon in respect of Approach 2 (being that it would be difficult to negotiate a licence buy-back from Meteor, particularly in circumstances where the successful implementation of the approach is entirely dependent on the assent of one party (Meteor));
- In addition, ComReg notes that, in paragraph 4.87 of Document 11/60, a number of other concerns were identified in relation to Vodafone's modified auction approach, including that that it is unlikely that the approach could be implemented in the time available. In that regard, ComReg notes Vodafone's acknowledgment of this point in its submission to Document 11/60. ComReg also notes that implementation of Approach 2 would not be without significant delays to the current timetable (for instance, time involved with consultation on the substantive proposal and any prolongation of existing interim GSM 900 MHz rights of use and licence buy-back negotiations and consultation on same).
- Finally, ComReg agrees with DotEcon's observation that this approach would require agreement between the three existing operators in the 900MHz and 1800MHz bands and ComReg on the price that would be paid by ComReg, whereas there has been considerable disagreement in the consultation process to date as to how such prices might be determined. In addition, this proposal would involve the delay of availability of liberalised 900MHz and 1800MHz spectrum for a year relative to current proposals. This proposal also leaves open the issue of spectrum in the 800MHz band: either this spectrum would be unallocated for a year relative to current proposals or it would be necessarily decoupled from the availability of 900MHz spectrum. ComReg agrees that either of these alternatives represents a considerable downside to this proposal.

4.110 In relation to Approach 3, ComReg notes the factors put forward by Telefónica regarding this approach, including that it:

- i. Is in effect, the approach taken by a number of NRAs in auctioning spectrum;
- ii. meets the requirement that there is sufficient time post-auction for orderly transition in and out of the 900 MHz band by an existing operator and new



entrant. Realistically Telefónica considers that even without this issue, the earliest licences are likely to be able to start is late 2013/early 2014, given the retuning and relocation time-lines so that there is not a significant difference in start dates in effect;

- iii. removes the need for temporal lots and thereby eliminates the risks identified by it of error, manipulation and licence gaps. In that regard, Telefónica states that ComReg and DotEcon have themselves acknowledged that 800 MHz based services are unlikely to be feasible much before 2015, so that there is no actual delay in the rollout of advanced services; and
  - iv. has a disadvantage over the previous two approaches, being that it delays the liberalisation of currently unused 900 MHz spectrum. In that regard, Telefónica states that ComReg has the discretion to liberalise existing licences, meaning that only the currently unused blocks would remain unliberalised.
- 4.111 ComReg notes and agrees with DotEcon's observations summarised above. In particular, ComReg notes that Approach 3 raises concerns in terms of compliance with Commission Decision 2011/251/EU. Moreover, it appears to be incompatible with the proposed Radio Spectrum Policy Programme, which is expected to be adopted in the near future and in terms of consumer welfare because the licence period would not commence until 2015 which unnecessarily delays liberalisation (as Telefónica itself acknowledges). In addition, this proposal leaves open a number of further issues that have been contentious in the consultation process to date. In particular, it involves administrative assignment of spectrum in the 900MHz and 1800MHz spectrum bands to Telefonica and Vodafone until 2015. It also does not consider how to licence spectrum in the 800MHz band which is a long run substitute for 900MHz spectrum and is due to become available for licensing in February 2013.

4.112 In relation to the specific factors raised by Telefónica, ComReg would note:

- in relation to (i) above, ComReg notes that this argument ignores the fact that there may have been quite different circumstances leading the NRA to adopt such an approach. For instance, the duration of any delays to liberalisation of spectrum rights may have been considerably less than would be involved in Approach 3 if used in the circumstances. Moreover, co-termination of existing licences in those jurisdictions might not have involved the potential for distortions to competition that could be involved in implementing Approach 3 in Ireland. ComReg notes the limited prevalence of this approach elsewhere in Europe (see International update in Annex 13);

- in relation to (ii), ComReg refers readers to chapter 6 on transitional issues and the consideration therein on ensuring orderly transition in the 900 MHz band;
- in relation to (iii), for the reasons set out above, ComReg does not share Telefónica's concerns with the two Time Slice Approach. Moreover, whilst ComReg has noted the short term limitations on substitution between 800 MHz and 900 MHz spectrum (in particular, lack of GSM equipment availability for the 800 MHz band), ComReg does not believe that it or DotEcon have made any acknowledgment that "*800 MHz based services are unlikely to be feasible much before 2015*". Indeed, ComReg would refer to the recent developments in relation to the 800 MHz band,<sup>99</sup> e.g. the roll out of LTE in 800 MHz in Germany<sup>100</sup> (see International update in Annex 13 for more information);
- in relation to (iv), ComReg addresses this point below.

4.113 In addition, ComReg would observe that:

- it has assessed proposals that would involve an administrative assignment of spectrum rights to incumbent operators in the context of the RIA and refers readers there to the concerns identified by ComReg in that regard;
- this approach would also raise more specific concerns:
  - it would delay the availability of liberalised 900 MHz spectrum rights for non-incumbent GSM operators until 2015 with obvious negative effects on consumer welfare. ComReg would also have concerns about this approach in the context of the stated aims of the GSM Amendment Directive and EC Decisions. In addition, ComReg would have concerns insofar as this Approach would involve delayed liberalisation of 800 MHz and/or 1800 MHz spectrum rights. ComReg would also note DotEcon's assessment of Approach 3 in this regard;
  - in relation to Telefónica's suggestion that ComReg could liberalise GSM existing spectrum rights (being GSM 900 MHz and/or 1800 MHz rights), ComReg would have serious reservations about the distortions to competition that would likely arise from such an approach (vis-à-vis other existing mobile operators and potential entrants), particularly given

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<sup>99</sup> [www.gsacom.com](http://www.gsacom.com) provides updates on equipment availability and deployments of mobile networks, with 800 MHz activity in Europe and elsewhere increasing greatly recently.

<sup>100</sup> <http://www.fiercewireless.com/europe/story/germanys-regulator-gives-go-ahead-more-800mhz-lte-deployments/2011-09-16>

the size of the temporal advantage that would be provided to incumbent operators;

- the prolongation of Vodafone and Telefónica's interim GSM 900 MHz rights would likely alter the dynamic of the auction (this point is addressed in the RIA, which discusses why the administrative assignment of one block of 900 MHz spectrum changes the dynamics of the bids in the auction).

4.114 For all of the reasons presented above (including DotEcon's assessment as set out in Document 12/24), ComReg does not consider the different approaches proposed by Telefónica to be suitable for adoption in this particular award process.

4.115 On the basis of the above, ComReg considers the two Time Slice Proposal to be the most appropriate award structure to address the particular circumstances of the spectrum award (e.g. different licence expiry dates, promotion of switching opportunities for bidders etc) in a manner most consistent with its statutory functions, objectives and duties.

#### **4.4.6.5 Other Issues Raised by Respondents on Document 11/75**

4.116 ComReg notes the views of Telefónica and H3GI regarding potential delays to the availability of spectrum rights won in the Auction. In that regard, ComReg would respond as follows:

- In relation to H3GI's concern that ComReg has not consulted upon the possibility of delayed commencement of rights in Time Slice 1 and 2, ComReg notes that it has continually referred to the fact that there cannot be certainty in advance of the outcome of the auction. In addition, ComReg considers that it would be remiss not to put in place mechanisms to address the scenario where delays arise (particularly where availability of certain spectrum is outside ComReg's control);
- In relation to Telefónica's concern that the risk surrounding 800 MHz spectrum availability would distort valuations of spectrum and bidder behaviour, ComReg notes that the information currently available would not indicate a delay to 800 MHz availability, that ComReg has proposed a rebate mechanism for any such delay and that bidders can factor all these elements into their bidding strategies;
- ComReg will address Telefónica's submission regarding the adequacy of reimbursement measures proposed by ComReg in Document 11/75 in its response to Document 11/75 and the final Information Memorandum. ComReg

would note, at this juncture, that the other three respondents to Document 11/75 (Vodafone, eircom Group and H3GI) all supported the principle of pro-rata refund of fees in the event of delayed access to spectrum;

- ComReg addresses H3GI's submission regarding transitional/relocation activities in Chapter 6; and,
- ComReg considers that it has addressed Telefónica's stated concerns with the two Time Slice Proposal and its structure above.

#### **4.4.7 ComReg's Final Position on Time Slices**

4.117 ComReg's final position is that spectrum rights of use in the 800 MHz, 900 MHz and 1800 MHz bands will be released and awarded in two Time Slices, namely:

- Time Slice 1: 1 February 2013 – 12 July 2015; and
- Time Slice 2: 13 July 2015 – 12 July 2030.

4.118 In the event that the start date of Time Slice 1 is delayed, or that the availability of spectrum to one or more Bidders is delayed, ComReg intends to provide rebates to the affected Bidders as will be more particularly specified in the forthcoming Information Memorandum.

4.119 Additionally, the liberalised licenses issued on conclusion of the award process shall provide that on 12 July 2030 all Liberalised Licences in the 800 MHz, 900 MHz and 1800 MHz bands granted on foot of the auction shall expire and all spectrum rights of use granted there under shall cease to exist, shall not be renewed or extended in the case of any licensee and shall revert to ComReg. ComReg reserves the right to administer the entire spectrum that shall be released upon that date, at its absolute discretion and subject to its statutory remit.

## **4.5 Full Assignment Round**

### **4.5.1 Summary of ComReg's Position in Documents 11/60 and 11/75**

4.120 In Document 11/60 and 11/60a<sup>101</sup>, ComReg noted its ongoing preference for assigning spectrum rights in contiguous blocks as a means of ensuring the

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<sup>101</sup> See paragraphs 4.93 to 4.104 of Document 11/60 and paragraphs A6.289 to A6.315 of Document 11/60a.

efficient use of spectrum.<sup>102</sup> The importance of contiguous spectrum assignments has been echoed by many respondents to ComReg's consultations, and given that context, ComReg has been proactive in recognising that the location of the existing assignments in the 900 MHz and 1800 MHz bands raise co-ordination and spectrum contiguity issues.

4.121 In Section 11.1 of Document 11/58, DotEcon provided its updated views on the Assignment Stage of the Award Process and stated that:

- *“Respondents to Document 10/105 have not raised any real objections to the use of a ‘full assignment round’ in order to transition to locations in the band.”* and
- *“Therefore we recommend the adoption of this assignment round option, as described in DotEcon report 10/105 and herein.”*

4.122 Having assessed the various options and having taken into account the views of respondents to its consultations and of DotEcon, ComReg proposed in Document 11/60 to:

- require that every lot in the 900 MHz and 1800 MHz band be included in the proposed assignment round, including those lots currently occupied by existing licensees (“Full Assignment Round”);
- all lots assigned keep guard band requirements<sup>103</sup>, particularly in line with EC Decision 2009/766/EC, and;
- compensate licensees for “relocation” costs in two specific circumstances, being:
  - where an existing GSM licensee does not avail of early liberalisation in the first time slice and does not win spectrum in the second time slice, it would be appropriate to compensate the licensee for the specific relocation costs which it incurs in that regard, as it cannot remain where it is until expiry of its existing licence; and

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<sup>102</sup> For example, ComReg stated that “Contiguous blocks result in fewer co-ordination boundaries with neighbouring networks, which may give operators increased flexibility and allow them to use their spectrum more efficiently. Contiguous blocks also reduce the requirement for inter-operator co-ordination and reduce or remove the possibility of “stranded” and unused spectrum blocks. They can also ease interference management requirements for users of adjacent spectrum blocks.”

<sup>103</sup> See paragraphs 5.43 – 5.53 of Document 11/60 and Section 8.5 of Document 11/60a.

- where an existing GSM licensee does not avail of early liberalisation in the first time slice and wins spectrum in the second time slice, the licensee would be forced to bring forward its relocation which it otherwise could defer until the expiry of its existing licence. It would be appropriate to compensate the licensee for those aspects of the costs which result from it having to relocate earlier than would otherwise be necessary. However, the licensee would not be compensated for the relocation costs themselves as these would have to be borne in any event.

4.123 ComReg outlined its Assignment Round proposal in more detail<sup>104</sup> in Document 11/75. In this Document, ComReg stated that:

- spectrum would be assigned in contiguous lots for each bidder,
- existing GSM licensees would maintain GSM rights in the event it did not liberalise its existing assignment,
- unallocated spectrum would form a contiguous block within a given spectrum band,
- should a single bidder have rights to all the assigned spectrum in a spectrum band (in either Time Slice), It can choose its assignment (being either the highest or lowest range possible for the quantum of spectrum assigned),
- Winning Bidders compete in the Assignment Round with a single sealed bid for each spectrum band it is successful in winning spectrum in,
- Winning combination of bids (highest cumulative value of bid amounts) determines the winning assignments,
- Each Winning Bidder in the Assignment Round pays the opportunity cost for its assignments; and
- Rebate for relocation costs incurred as a result of the Assignment Round offered in line with process set out in Annex 4 of Document 11/75.

#### **4.5.2 Respondents' Views on Document 11/60**

4.124 Four respondents (Vodafone, H3GI<sup>105</sup>, eircom Group and Telefónica) provided comments on ComReg's assignment stage proposals.

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<sup>104</sup> See Section 3.6 and Annex 4 of Document 11/75

### 4.5.2.1 Full Assignment Round

- 4.125 Two respondents, eircom Group and Telefónica, broadly expressed support for the 'Full Assignment Round' proposal.
- 4.126 Telefónica's support was subject to appropriate compensation being made to an operator which incurs additional cost as a result of the proposal. In that regard, Telefónica stated that:
- ComReg should accept as a principle that if a network operator incurs additional costs as a result of the Full Assignment Round that they will be appropriately compensated; and
  - it believes there is a circumstance where the Full Assignment Round would cause an operator to incur network re-tuning or reconfiguration costs that would otherwise not occur.<sup>106</sup>
- 4.127 eircom Group raised concerns regarding the options available to it in the Full Assignment Round.<sup>107</sup> In addition, it raised specific comments on the wording of sections 3.3.5 and section 3.3.11 of the Draft Decision as set out in chapter 8 of Document 11/60.<sup>108</sup>

### The ability of parties interested in network sharing arrangements to obtain spectrum rights adjacent to one another in the assignment round

- 4.128 Four respondents, Vodafone, H3GI, eircom Group and Telefónica, provided comments on the ability of parties interested in network sharing arrangements to obtain spectrum rights adjacent to one another in the assignment round.

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<sup>105</sup> ComReg notes that H3GI stated that "*Block A should be reserved for a new entrant during the assignment round.*" As discussed in Chapter 3, ComReg is of the view that this proposal is inappropriate and will not therefore be adopted under this award process.

<sup>106</sup> Telefónica describe the circumstance in paragraphs 7.3 and 7.4 of its submission to Document 11/60.

<sup>107</sup> On page 11 of its submission to Document 11/60.

<sup>108</sup> Specifically, eircom Group stated that:

- Section 3.3.5: "*We recognise the merits in seeking to promote contiguous spectrum assignments across temporal lots. However we do not believe this should be limited to consider only the spectrum assignments won by Eligible Bidders.*" ... In order to eliminate unfair discrimination against Existing GSM Licensees section 3.3.5 should be amended as follows: "*...for Eligible Bidders winning with rights to the same amount equivalent quantities of spectrum rights blocks in Temporal Lot 1 and 2...*"
- "*eircom Group agrees in principle with the high level design proposal for a full assignment round and principles for compensation as set forth in section 3.3.11 provided our concerns expressed under section 3.3.6 regarding discriminatory constraints are addressed, and that mechanisms are incorporated to allow for the possibility of adjacent holdings as set out by us under section 3.3.5.*"

4.129 All four respondents urged ComReg to modify its assignment stage proposals to avoid the possibility that parties interested in networking sharing may not obtain spectrum adjacent to each other. Specifically:

- Vodafone stated that *“given the lack of transparency regarding bidder identities in current ComReg spectrum auction proposals, there is a significant probability that the final auction outcomes could mean that parties seeking to share or pool spectrum. (perhaps in the context where they may already be engaged in infrastructure sharing agreements) would find that their spectrum assignment would not be adjacent to one another and that resulting spectrum efficiency and particularly end user benefits from improved services and service availability would not be able to be realised.”*;
- eircom Group stated that *“In light of the Network Share Arrangement (NSA) entered into between Meteor Mobile Communications Ltd and Telefónica O2 Ireland Ltd since the last consultation appropriate measures should be incorporated to facilitate adjacent spectrum assignments for NSA partners in the interest of maximising the efficient use of spectrum.”*;
- Telefónica stated that *“Telefónica submits however that in the interests of facilitating efficient spectrum management ComReg should provide for contiguity of the spectrum allocated to Telefónica and eircom/Meteor following the auction. Under the current proposal, as Telefónica and eircom/Meteor or other network sharing bidders will not have information about each other’s bidding during the auction, it will not be possible for them to bid to ensure a contiguous allocation. However, given that contiguous spectrum obviously allows for more efficient network operation and spectrum use, and as such furthers a key objective of ComReg, Telefónica is requesting that ComReg structure the allocation round to facilitate this contiguous assignment.”*; and
- H3GI stated *“it is probable that as a result of the current design of the auction, some operators may not be in a position to spectrum share by virtue of their location within the spectrum bands to be auctioned. With a view to allowing for the possibility of spectrum sharing with all of its positive benefits, whilst also taking account of the potential competition concerns, H3GI urges ComReg and DotEcon to devise a solution to this problem.”*

4.130 eircom Group and Vodafone also suggested measures which ComReg could adopt to address this issue as follows:

- eircom Group outlined four approaches to accommodating network sharing agreements in the Assignment Stage as follows:



- Approach 1: Unconditional direct implementation: only assignments that realise the synergistic values created by network share arrangements (NSAs) are considered during the Assignment Stage.
  - Approach 2: Conditional direct implementation: all assignments are considered in the Assignment Stage, but assignments that realise synergistic values of NSAs are given a monetary bonus in the selection (representing an estimate of the realised social value).
  - Approach 3: Authorisation of communication and coordination among NSA partners but otherwise use the existing proposed rules for the Assignment Stage; and
  - Approach 4: Winners in a given band bid on the entire vector of allocations in the Assignment Stage (as opposed to bidding only on their own allocation).
- Vodafone suggested the addition of a negotiation stage after the conclusion of the assignment stage as proposed by ComReg, but prior to the announcement of the final auction outcome, which would provide successful bidders an opportunity to come to an agreement on the location of their respective spectrum assignments. It was proposed that the actual result of the assignment stage would be withheld from bidders during the proposed negotiation stage and, should an agreement be reached, ComReg would assign spectrum locations according to the agreement and bidders would pay the fee determined by the assignment round. If no agreement was reached, ComReg would implement the assignment stage outcome with bidders paying the fee determined by same.

### 4.5.3 Views of Respondents on Document 11/75

#### 4.5.3.1 Full Assignment Round

- 4.131 Telefónica provided its view on compensation<sup>109</sup> proposed by ComReg (as detailed in Annex 4 of Document 11/75) and considered ComReg's proposal to be inadequate in certain circumstances (i.e. in Telefónica's view there are more

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<sup>109</sup> Telefónica stated the following in paragraph 2.14 of its submission to Document 11/75, "The current proposal is not adequate in all circumstances (see response to 11/60), and ComReg must amend the proposal."

scenarios where compensation could be due than those scenarios presented by ComReg).<sup>110</sup>

- 4.132 H3GI supported ComReg's proposal not to provide compensation in the scenario where a successful Bidder relocated between the two Time Slices.<sup>111</sup> H3GI agreed<sup>112</sup> with ComReg's proposal to publish all relocation cost information and the "relocation" rebates determined on its website. H3GI also argue that it is not appropriate to use eircom's WACC as an industry standard.<sup>113</sup>

#### **The ability of parties interested in network sharing to obtain spectrum rights adjacent to one another in the assignment round**

- 4.133 H3GI stated that ComReg's proposal, as presented in Document 11/75, means that *"it is probable ...some operators may not be in a position to share spectrum by virtue of their location within the relevant 800 MHz, 900 MHz and 1800 MHz bands. H3GI again urges ComReg and DotEcon to devise a solution to this problem."*

#### **4.5.4 Additional Submission**

##### **The ability of parties interested in network sharing to obtain spectrum rights adjacent to one another in the assignment round**

- 4.134 H3GI submitted an additional document to ComReg on 24 February 2012, relating to the ability of parties to obtain spectrum adjacent to one another. This document contained a report from Copenhagen Economics entitled "Network Sharing Agreements and the Irish Spectrum Auction". H3GI proposed that ComReg adopt the recommendations (below) contained in the consultants' report.
- 4.135 Firstly, Copenhagen Economics outlines the necessity to facilitate NSA partners in adjacent spectrum, stating *"accommodating for NSAs should be a priority for ComReg"*, as this facilitates *"more efficient use of spectrum through less network costs incurred which will ultimately benefit the consumers in the market"*. Copenhagen Economics also states that there *"are good objective*

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<sup>110</sup> At paragraph 4.7 of its submission to Document 11/75, and in paragraphs 7.3 and 7.4 of its submission to Document 11/60.

<sup>111</sup> H3GI notes that *"ComReg will not provide a rebate to a Licensee in the scenario where it is required to relocate its spectrum assignments between Time Slice 1 and Time Slice 2, and would welcome the same."*

<sup>112</sup> See page 21 of H3GI's submission to Document 11/75.

<sup>113</sup> See page 27 of H3GI's submission to Document 11/75.

*reasons to modify the auction rules to allow for such considerations and there are simple ways of doing it”.*

- 4.136 Copenhagen Economics also addresses the four proposals suggested by eircom Group. Copenhagen Economics opines that the first three proposals favour operators engaged in existing NSAs over other operators. Copenhagen Economics also believes that the first and third proposal does not ensure efficiency whilst the second proposal is only efficient when the correct social value is determined. Copenhagen Economics considers that the fourth proposal has the best features, but the concern is that this proposal presents “*wide opportunities for harassing bidding*”.
- 4.137 Copenhagen Economics evaluate the proposals presented by Vodafone and eircom Group in submissions to Document 11/75. Copenhagen Economics states that the “*idea of letting all parties negotiate a set of assignments is attractive*” and agrees with the proposed negotiation stage. However, it deems the Vodafone proposal “*distorts the incentives to bid truthfully*”. Copenhagen Economics recommends ComReg adopt the Vodafone proposal but with one modification; being “*the prices paid in the negotiation outcome be whatever the bidders can agree on*”, and these fees could be payable to either ComReg or other bidders, or both.
- 4.138 In conclusion, Copenhagen Economics recommend that ComReg adopt Vodafone’s previous proposal with one modification being that the bidders can decide on the prices to be paid if there is a negotiated outcome.

## **4.5.5 DotEcon’s Assessment of Views Received and Recommendations**

### **4.5.5.1 Full Assignment Round**

- 4.139 In relation to Telefónica’s submission regarding the circumstances where the Full Assignment Round would cause an operator to incur network re-tuning or reconfiguration costs that would otherwise not occur, DotEcon considers that an operator, in such a scenario, would be required to make transitional arrangements at the end of the licence in any event. In this scenario, DotEcon considers ComReg’s assumption to be more reasonable, as releasing the end of an unliberalised licence simply brings forward the costs should a licensee not obtain its existing location in the assignment stage.

- 4.140 DotEcon note that there may be some situations that require further consideration. DotEcon evaluate the example presented by Telefónica in Section 7.3 & 7.4 of its submission to Document 11/60 (as published in Document 11/102). DotEcon state that if an incumbent operator is required to re-tune its GSM 1800MHz network in the first time slice as a result of the assignment round, the extent to whether this cost is new or simply brought forward depends on the operator's plans for the second time slice. However, as the frequencies that are currently operated on are incompatible with use of spectrum on a liberalised basis, any move to liberalised use would require one or more operators to move frequencies and this cannot be avoided. Therefore, it is perfectly possible that such costs of re-tuning are simply brought forward as opposed to being a new and otherwise avoidable cost.
- 4.141 In relation to eircom Group's uncertainty as to whether there would be specific constraints upon it in relation to Advanced Commencement options (i.e. in relation to winning blocks A and B of the 900 MHz band), DotEcon has clarified its position. In the event that a bidder has the same quantum of spectrum in both Time Slices, it should be assigned continuous spectrum in both Time Slices (and that eircom Group should not be precluded from bidding on blocks to which Advanced Commencement would apply).<sup>114</sup>

#### **4.5.5.2 The ability of parties interested in network sharing to obtain spectrum rights adjacent to one another in the assignment round**

- 4.142 In its latest Issues Report DotEcon has updated its analysis on the Full Assignment Round in light of submissions to Document 11/60. DotEcon recognised that allowing bidders in a NSA to express preferences in the assignment stage for contiguous spectrum could be advantageous in relation to encouraging spectrum efficiency.
- 4.143 In light of this assessment, DotEcon analysed the proposals presented by interested parties.

#### **eircom Group's proposals**<sup>115</sup>

- 4.144 In summary, DotEcon's view in relation to eircom Group's (Power Auctions) four proposed approaches is that:

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<sup>114</sup> Whether this quantum is all liberalised spectrum, or made up of a combination of liberalised and unliberalised spectrum.

<sup>115</sup> As set out in pages 4 to 8 of its submission to Document 11/60 and summarised above.

- i. DotEcon agrees that the disadvantage of Approach 1 is that *“the assignment stage will be inefficient in the case that the synergistic value of the NSA is relatively low in comparison with the value of different frequency alignments.”* DotEcon also note that this method ignores a range of options, which would raise a significant risk of inefficient assignment.<sup>116</sup> Accordingly, DotEcon does not consider Approach 1 to be superior to the current proposal and do not recommend this approach.
- ii. In relation to Approach 2, DotEcon did not find merit in this approach and stated that it does not rest well with the market-based approach taken in the Main Stage of the auction. Reasons supporting DotEcon’s analysis include:
  - a. that this approach relies heavily on an estimate of the NSA value determined by the auctioneer,
  - b. which in turn allows significant scope for regulatory error and an inefficient allocation of spectrum,
  - c. is not practical, and
  - d. could result in complaints of discriminatory treatment favouring NSA bidders or even claims of State Aid;
- iii. DotEcon considers that Approach 3 would provide a better balance between realising the value of contiguous spectrum assignments of operators in a NSA whilst ensuring that bidding in the assignment stage on entire band plans is avoided; and,
- iv. DotEcon considers Approach 4 to be impractical and problematic because it would, amongst other things it would:
  - permit much more complex bidding strategies than those required simply to address the question of NSA parties winning adjacent spectrum; and
  - involve a significant risk that it would lead to bidders trying to push certain competitors into potentially less favourable parts of the band.

4.145 In addition, DotEcon notes that it had considered the possibility of joint bid vehicles for the Full Assignment Round but discounted such an approach because the benefits for bidders were uncertain relative to the clear additional complexity that this would create. It would involve allowing different anti-collusion rules for the Main Stage and Assignment Stage. It would also likely require significant adjustments to the anti-collusion rules. This could result in significant additional complexity for the legal framework within which the award process functions.

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<sup>116</sup> See section 12.3 of Document 12/24

4.146 Accordingly, DotEcon considered that, with the exception of Approach 3, each of the above approaches encompassed significant disadvantages that could result in inefficient allocation of spectrum or facilitate gaming behaviour in the Assignment Stage and did not recommend the adoption of same.

#### Vodafone's proposal

4.147 DotEcon expressed a number of reservations in relation to Vodafone's proposal for a negotiation stage, including:

- the likelihood of negotiations taking place in a short timeframe;
- potential perverse incentives for at least one of the parties to 'hold up' the process even if others came to agreement;
- uncertainty regarding the price that winning bidders would pay in the Assignment Stage under its proposal (i.e. whether bidders would pay the bid associated with actual negotiated outcome (bearing in mind that they may not have submitted a bid for that outcome) or what would have been their winning bid had the Assignment Stage auction been run); and
- that bidders may be incentivised to submit a lower (or even zero) bid in the Assignment Stage if they consider that negotiation is likely to be fruitful. DotEcon therefore considered that Assignment Stage bids could cease to represent true preferences and may no longer provide a good basis for determining the band plan if negotiation is unsuccessful. In addition, DotEcon noted that there would be no further opportunity for re-allocation of spectrum despite a potentially inefficient allocation resulting from the Assignment Stage due to distorted valuations and bids submitted based on expectations about the results of the negotiation.

4.148 Nevertheless, DotEcon noted that there could be some merit in a modified approach similar to Vodafone's proposal, but with a different order of events to address its stated reservations. In particular, DotEcon recommends:

- the negotiation stage is carried out following completion of the Assignment Stage;
- to counteract perverse incentives in the Assignment Stage, the winning bids and additional prices to be paid (after the application of the second price rule), as determined by the Assignment Stage, would be released to all winners to form the starting point for negotiations with each other; and

- bidders are given a specific period to negotiate and notify ComReg of any re-organisation of the spectrum bands (as determined in the Assignment Stage).
- 4.149 Copenhagen Economics proposal is a variant of Vodafone's proposal presented above. DotEcon note that the Copenhagen Economics proposal is very similar to the modified proposal (see 4.148) in that "*negotiation is allowed to create an efficient outcome without distortion to the assignment stage auction*". The Copenhagen Economics proposal differs from the DotEcon proposal above as the DotEcon proposal results in the winners paying the additional prices determined in the assignment stage auction. DotEcon considers this approach appropriate "*in order to allow competition between operators for preferred frequencies*" and "*to the extent that particular frequencies provide an advantage in subsequent negotiation, this would create fair competition for those frequencies*".
- 4.150 In DotEcon's view, this modified approach could encourage bidders to submit bids based on their valuations, whilst still allowing the re-organisation of the band by private negotiation prior to the issuing of licences, and would also not require changes to the Assignment Stage (as proposed in Document 11/60). The approach recommended by DotEcon is complementary to eircom Group's Option 3, as discussed in paragraphs 4.142, 4.144 and 4.161.
- 4.151 On the basis of its assessment of the views of interested parties, DotEcon concludes that there may be benefits from allowing operators in a NSA to be in a position to express their preferences for contiguous spectrum. DotEcon believes there is merit to Vodafone's approach with a 'negotiation stage', however in order to mitigate negative consequences that may arise from distorted bidding incentives in the assignment round, or operators wishing to 'hold up' any re-organisation of allocations where there is need for all parties to agree on the final outcome, it recommends that this assignment stage is only carried out following the completion of the assignment round. A specific period, following the assignment round would be allowed for operators to negotiate re-organisation of the band and notify ComReg of revised frequency assignments. DotEcon also recommend an additional negotiation phase prior to the grant of licences, where some or all of the winning bidders could swap frequencies and making side-payments as agreed. This negotiation phase would only require the consent of the parties who wish to change frequencies, and "*unaffected winners from the assignment stage would have no power to block the negotiated outcome*".

#### **4.5.6 ComReg's Consideration of Respondent's Views on Full**

## Assignment Round

### 4.5.6.1 Full Assignment Round

- 4.152 ComReg notes and welcomes the views of interested parties on its Full Assignment Round proposal.
- 4.153 ComReg also notes DotEcon's consideration of same.
- 4.154 ComReg notes the concern expressed by Telefónica regarding the adequacy of compensation which could be issued to an incumbent operator required to relocate as a result of the Full Assignment Round. Telefónica is concerned that not all potential relocation possibilities are covered in ComReg's proposal, and are not opposed to the principle of compensation.
- 4.155 In this regard, ComReg notes that there are no dissenting views on the principle of compensation nor the level of compensation proposed<sup>117</sup> (as detailed in Annex 4 of Document 11/75). Taking this into account, ComReg maintains its compensation proposal as outlined in Annex 4 of Document 11/75.
- 4.156 In relation to Telefónica's submission that more relocation scenarios should be considered for compensation than those presented by ComReg in Document 11/60, ComReg would firstly state that, as a matter of principle, it will provide compensation if the events presented in Document 11/60 occur, or in like cases.
- 4.157 Turning now to the example provided by Telefónica, ComReg considers this to be a rather unlikely scenario as it depends on an existing 900 MHz and/or 1800 MHz operator not liberalising some or all of its existing 900 MHz and/or 1800 MHz spectrum rights under the proposed Early Liberalisation Option, not retaining the same location in the band in Time Slice 1, and for a change of technology to occur specifically on the date that Time Slice 2 commences.
- 4.158 Nevertheless, ComReg appreciates that this example may be one of other possibilities which ComReg has not specifically discussed to-date. In any case and as noted above, ComReg will provide compensation to incumbents if the events presented in Document 11/60<sup>118</sup> occur, and would also offer

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<sup>117</sup> Note, as a principle H3GI are opposed to applying eircom's WACC for rebates/compensation, as outlined in paragraph 4.131. However, ComReg's proposal in paragraph A 4.16 of Document 11/75 proposed the use of "an appropriate Weighted Average Cost of Capital (WACC)" to adjust for time-value-of-money, and did not propose to use eircom's WACC.

<sup>118</sup> See paragraph 4.115 of Document 11/60



compensation to an incumbent for other scenarios if it could demonstrate to ComReg's satisfaction that it has incurred relocation costs directly as a result of the Assignment Stage that it would not have otherwise incurred at some point in time.

- 4.159 For the avoidance of doubt, where additional costs result from a negotiated assignment (e.g. winning bidder(s) offers a financial incentive to other winning bidder(s) to agree to a negotiated assignment plan), ComReg considers that such costs are a matter for the winning bidders themselves and will not provide compensation.
- 4.160 In relation to eircom Group's concerns that an incumbent operator may have limited assignment options and ability to ensure continuous spectrum, ComReg agrees with both DotEcon and eircom Group that in the scenario where an incumbent operator wins access to the same number of blocks in a given spectrum band in Time Slice 2 that it occupied<sup>119</sup> in Time Slice 1, then the spectrum assignment should be contiguous and also continuous across Time Slices. In addition, ComReg has taken into account eircom Group's suggestions in relation to sections 3.3.5 and section 3.3.11 of the Draft Decision in preparing ComReg's Decision as set out in Chapter 8.

#### **4.5.6.2 The ability of parties interested in network sharing to obtain spectrum rights adjacent to one another in the assignment round**

- 4.161 ComReg notes the views of interested parties relating to modification of the proposed Assignment Stage to avoid the possibility that parties interested in networking sharing may not obtain spectrum adjacent to each other. ComReg also notes DotEcon's view that allowing bidders in a NSA to express preferences in the assignment stage for contiguous spectrum could be advantageous in relation to encouraging spectrum efficiency.
- 4.162 ComReg is, of course, happy to explore modifications and/or refinements to its proposals which have the potential to better the means by which they can meet its statutory functions, objectives and duties. In that context, ComReg welcomes and has carefully considered the proposals put forward by interested parties to facilitate parties interested in NSAs to obtain adjacent spectrum blocks in the Assignment Stage and DotEcon's analysis of same.
- 4.163 In relation to Approaches i, ii and iv put forward by eircom Group, ComReg agrees with DotEcon's assessment of same (see section 12.3 of Document

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<sup>119</sup> Occupied would include any blocks won for liberalised use licences plus any blocks retained for GSM use.

12/24 – DotEcon’s report). ComReg also notes DotEcon’s assessment of Approach iii and that this approach is similar to that put forward by Vodafone (i.e. allowing communication and coordination) within the context of the existing proposed rules for the Assignment Stage and Approach iii is therefore considered in the context of Vodafone’s proposal.

- 4.164 In relation to Vodafone’s negotiation stage proposal, ComReg has considered this proposal and would have the same reservations identified by DotEcon and summarised above. At the same time, ComReg considers that the modifications proposed by DotEcon would address the issues identified and allow the modified proposal to facilitate the attainment of the efficiency benefits of adjacent spectrum assignments for NSA partners in a manner not inconsistent with ComReg’s other statutory objectives and duties.
- 4.165 In relation to Copenhagen Economics proposal, ComReg agrees with DotEcon that this proposal does not improve on the current DotEcon proposal. ComReg agrees that DotEcon’s current proposal “*is appropriate in order to allow competition between operators for preferred frequencies*”, something which is not possible with Copenhagen Economics proposal, resulting in DotEcon’s current proposal being an overall superior proposal.
- 4.166 Accordingly, and noting that implementation of the negotiation stage as recommended by DotEcon would not require changes to the Assignment Stage (as already consulted upon), ComReg has decided to implement the Full Assignment Round and a negotiation stage as recommended by DotEcon and detailed below. ComReg notes that this approach should also deal with those concerns expressed by Telefónica and H3GI in this regard.

#### **4.5.7 ComReg’s Final Position on Full Assignment Round**

- 4.167 Having assessed the various options and having taken into account the views of respondents to its consultations and of DotEcon, ComReg has decided to:
- require that every lot in the 800 MHz, 900 MHz and 1800 MHz band be included in the proposed Assignment Stage, including those lots currently occupied by Existing Licensees (“Full Assignment Round”);
  - All lots retained must abide by GSM and 3G co-ordination rules as stipulated in EC Decision’s 2009/766/EC and 2011/251/EU;

- to allow, at the end of the assignment stage, successful bidders,<sup>120</sup> to come to an agreement between themselves on the location of their respective spectrum assignments in the band, where:
  - the winning bids, assignment plan and additional prices to be paid, as determined by the Assignment Stage, will be released to all successful bidders in a specific band to form the starting point for negotiations with each other;
  - successful bidders in a specific band will be given 2 weeks<sup>121</sup> at the end of the assignment stage, agree and notify ComReg of any re-organisation of the specific spectrum band (as determined in the Assignment Stage). For the avoidance of doubt, the 2 week period for each of the 800 MHz, 900 MHz and 1800 MHz bands will run concurrently with each other, and concurrently with the 2 week period for successful bidders to generate a transitional plan (see Section 6);
  - should all successful bidders, whose assignments would be varied by any such agreement, in a specific band generate and agree on an alternative assignment plan for that band, ComReg will adopt this assignment plan for that band and issue Liberalised-Used Licences on such a basis.;
  - Otherwise, ComReg will implement the Assignment Stage outcome.
  - At this point, ComReg will permit two or more agreeing bidders swap assignments between them providing it does so without affecting others. Unaffected bidders would not have a veto on such an agreement.
  - In any event, the additional assignment round fees payable by successful bidders will be those fees as determined by the Assignment Stage
- compensate licensees for “relocation” costs (methodology set out in Annex 4 of Document 11/75) in the following circumstances, being:
  - where an Existing GSM Licensee does not avail of early liberalisation in the first time slice and does not win spectrum in the second time slice;

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<sup>120</sup> For the purposes of this section the term “successful bidders” includes incumbent operators who have not won liberalised rights of use and consequently hold unliberalised rights of use in respect of the first time slice or part thereof.

<sup>121</sup> A 2 week period was chosen as this amount of time as it strikes the balance in providing sufficient time for successful bidders to reach agreement, whilst not unduly delaying the issuing of licences.

- where an existing GSM licensee does not avail of early liberalisation in the first time slice and wins spectrum in the second time slice. In this circumstance, ComReg will only compensate the licensee for those aspects of the costs, which result from it having to relocate earlier than would otherwise be necessary (but not for relocation costs themselves); and
- in other similar scenarios if a licensee can reasonably prove to ComReg that it has directly incurred “relocation” costs as a result of the Full Assignment Round that it would not have otherwise incurred at some point in time.

For the avoidance of doubt, where additional costs result from a negotiated assignment, ComReg considers that such costs are a matter for the winning bidders themselves and will not provide compensation.

4.168 The winner and additional price determination of the Assignment Stage will be settled in ComReg’s Information Memorandum.

## **4.6 Possibility of Interim GSM Rights of Use in the 1800 MHz Band**

### **4.6.1 ComReg’s Position in Document 11/60**

- 4.169 In Document 11/60, ComReg acknowledged the positions expressed by both Vodafone and Telefónica in relation to the potential impact of each of them not having GSM 1800 MHz rights of use in the period from expiry of their respective GSM 1800 MHz licences in December 2014 to the proposed commencement of Time Slice 2 in June 2015 (where the auction produced a particular outcome) and that these respondents would like ComReg to make a decision on this issue prior to the proposed auction (i.e. confirmation that ComReg would grant interim rights of use for the relevant period, should the proposed auction produce this outcome).
- 4.170 After having considered the views of these interested parties in the context of its statutory functions, objectives and duties, ComReg stated in Document 11/60 that it would:
- consider whether to grant interim GSM 1800 MHz licences (of approximately six and a half month duration) following the proposed auction but significantly prior to existing 1800 MHz licence expiry; and

- grant such interim licences only where it is justified, reasonable and proportionate to do so, having regard to the salient facts at that time and its statutory functions and objectives.

4.171 Factors informing this stated position included that:

- there is scope for considerable changes in 800 MHz, 900 MHz and/or 1800 MHz spectrum assignments for these operators in the period leading up to December 2014 and the nature of those changes will not be known until the award process is concluded. The large number of variables concerned<sup>122</sup> makes it very difficult to ascertain in advance of the auction the probability that the results of the auction would require the grant of interim GSM 1800 MHz rights of use to Vodafone and/or Telefónica;
- given the inherent uncertainty caused by the results of the proposed auction not being known, it would be inappropriate for ComReg to commit to granting any future interim GSM 1800 MHz rights of use at this time; and
- while ComReg identified a number of factors in Document 10/105 which would suggest that interim GSM 1800 MHz licences are unlikely to be required, certain respondents argued to the contrary and ComReg will take their views and any supporting material into account when making its final determination on this matter.

#### **4.6.2 Views of Interested Parties to ComReg's Position in Document 11/60**

4.172 ComReg received responses from Vodafone and Telefónica on this issue, both of whom disagreed with ComReg's position in Document 11/60.

4.173 Reasons cited by these respondents for their disagreement included that:

##### **Effects of not having access to GSM 1800 MHz spectrum rights in the relevant period**

- A. ComReg's stance is contrary to its obligations and objectives because, notwithstanding ComReg's obligation to manage the licensing of spectrum to facilitate the provision of mobile communications services to the public, its proposal creates a situation where there is likely to be a gap in such services for a six month period [Telefónica]. Such a gap would present significant risks of

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<sup>122</sup> See, for example, Section 2.5 of Document 10/105b.

disruption to the delivery of current standards of communications services [Vodafone] and **[Confidential Text Removed]** [Telefónica]<sup>123</sup>

- B. ComReg's view regarding the uncertainty of (a) whether Vodafone and/or Telefónica would, as a result of the auction, be placed in a position where they would seek the grant of interim GSM rights of use in the 1800 MHz band and (b) the consequences to Vodafone and/or Telefónica of not having such rights of use is incorrect. Factors informing Telefónica's view in this regard are that:
- a. Telefónica currently uses its 1800 MHz spectrum for GSM services only, **[Confidential Text Removed]**;
  - b. **[Confidential Text Removed]**;
  - c. Telefónica considers that the very high price for 1800 MHz spectrum **[Confidential Text Removed]**; and
  - d. the consequences of a loss of 1800 GSM spectrum for 6 months are not "very difficult" to assess. In Telefónica's opinion, **[Confidential Text Removed]**;
  - e. For ComReg to state, in the face of these submissions that it is "very difficult" to know whether it is likely that 1800 MHz spectrum will be kept for GSM is inexplicable. **[Confidential Text Removed]**.
- C. In addition, Telefónica submits that the exact same principles apply to the present situation as did when ComReg granted interim GSM 900 MHz licences in May 2011 to it and Vodafone and Document 11/11 set out all the reasons why such an interim licence is both necessary and justifiable (primarily to facilitate spectrum planning and allocation, and avoid consumer disruption caused by loss of licence). Telefónica further states that it is simply inexplicable that ComReg is not prepared to take similar steps (on a much smaller scale, for a much shorter period) to deal with the 1800 MHz 6 month gap created by its Time Slice proposal.

### **Effect of ComReg not making firm commitment to grant interim licences**

- D. It was also submitted that ComReg's position in Document 11/60 does not remove uncertainty for Vodafone and Telefónica as to whether the continuity of provision of current standards of services to their customers could be negatively impacted by a 6 ½ month restriction on the availability of sufficient spectrum usage rights in the 1800 MHz band.

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<sup>123</sup> [Confidential text removed]

- E. Telefónica states that ComReg is creating a situation where it and Vodafone are being put under pressure to hand back their existing licences and purchase more expensive liberalised spectrum [**Confidential Text Removed**]. [**Confidential Text Removed**].
- F. Vodafone considers that ComReg's unwillingness to make a firm commitment prior to the proposed auction to grant 1800 MHz Interim Licences to existing licensees where they apply for these to avoid a temporary loss of access to sufficient spectrum in this band is not objectively justified.

### Alternative proposals

- G. Telefónica submits it should be given the option to obtain a 6 month licence for continuity of services to customers prior to the start of new licences in the 1800 MHz band.
- H. Vodafone proposes that ComReg provide a firm advance commitment to grant interim 1800 MHz spectrum licences, where requested by it and/or Telefónica, where they were to acquire sufficient 1800 MHz spectrum in the second proposed time slice, but insufficient or no 1800 MHz spectrum in the proposed first time slice. In Vodafone's opinion, this is appropriate and necessary and would in large measure address the uncertainty and possible risk to quality of service for a period that otherwise arises under ComReg's current spectrum auction proposals.
- I. In addition, Vodafone reiterated its view that the opportunity cost of granting interim 1800 MHz licences is very low to nonexistent while the benefits would be considerable. Vodafone considers that its proposal would most effectively fulfil the statutory regulatory objectives of maximising the efficient use of spectrum and promoting the interests of end users.

### 4.6.3 ComReg's Final Position on Possibility of Interim GSM Rights of Use in the 1800 MHz Band

- 4.174 ComReg welcomes the views expressed by interested parties on this issue and sets out its consideration of these responses and its final position on this issue below.
- 4.175 In relation to point **A** above, Telefónica suggests that ComReg's proposal creates a situation where there is likely to be a gap in the provision of mobile communications services to the public for a six month period. However, such a

suggestion is based on the assumption that no interim 1800 MHz licences would issue irrespective of the outcome of the award process, which is clearly not what ComReg has proposed. Indeed, ComReg has already demonstrated through the granting of interim 900 MHz licences that it will grant interim GSM rights of use when the facts and circumstances warrant such measures. In addition, ComReg does not dispute the possibility that a 'gap' in the availability of 1800 MHz spectrum for a six and a half month period, were it to occur, could result in some disruption to the current standard of electronic communications services provided in certain urban locations at certain times (depending of course on other spectrum won by Vodafone or Telefónica in the auction). However, as noted above, any discussion on the effects of such a 'gap' is premised on the assumption that interim 1800 MHz licences would not issue irrespective of the outcome of the award process, which is clearly not the case. Furthermore, it is far from clear at this point in time that interim licences would even be required for the period in question (see discussion below).

4.176 In relation to point **B** above, ComReg does not believe that any evidence or material has been adduced to-date that would indicate, at this point in time, that there will be a requirement for interim GSM 1800 MHz rights of use at the end of 2014. **[Confidential Text Removed]** without producing any evidence as to the extent of that requirement or whether that requirement will have diminished over time. **[Confidential Text Removed]**. **[Confidential Text Removed]** in ComReg's view, does not sit well with the facts. For instance, in relation to the various factors identified by Telefónica in support of its claim that ComReg's view regarding this uncertainty is wrong, ComReg observes:

- **[Confidential Text Removed]**. However, the more relevant question is, of course, what equipment and devices for LTE services are likely to be available by December 2014. In that regard, ComReg notes that there has already been commercial deployment and consumer take-up of LTE devices and services at 1800 MHz in other countries (e.g. Poland).<sup>124</sup> Furthermore, a recent study indicated a very strong increase in LTE-enabled smart-phones (including operator and frequency variants) over the previous several months;<sup>125</sup>

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<sup>124</sup> See, for example, [http://www.gsacom.com/news/gsa\\_342.php4](http://www.gsacom.com/news/gsa_342.php4) . See also the International Update at Annex 13.

<sup>125</sup> For instance, ComReg notes that the GSA, in its October 2011 update to the Status of the LTE Ecosystem' report, ([http://www.gsacom.com/news/gsa\\_341.php4](http://www.gsacom.com/news/gsa_341.php4)) confirms that 48 manufacturers have announced 197 LTE-enabled user devices. ComReg further notes that this total is more than three times the number of products reported by GSA in its first LTE devices survey in February 2011. Alan Hadden, President of the GSA, said: "Our research confirmed that the number of LTE-enabled smartphones, including operator and frequency variants, has more than tripled over the past 3



- in addition, whilst it has been suggested that there would likely be a need for such interim rights of use at the end of 2014, ComReg would again note that there remains almost three years until the expiry of the relevant GSM 1800 MHz licences during which a number of factors would be expected to have considerably reduced or even extinguished reliance on GSM 1800 MHz spectrum rights by that point in time including possibly:
  - further development of equipment and devices for LTE services in the 1800 MHz band. Given that liberalisation activities of a large number of Member States in the 1800 MHz band would have been completed during this period, CPE manufacturers should be further incentivised to manufacture and make available LTE enabled devices during this period;
  - natural customer migration from GSM to 3G/4G services<sup>126</sup> driven in part by the current rapid growth in data traffic;<sup>127</sup> and
  - the completion of the proposed auction in Ireland over two years in advance of existing 1800 MHz licence expiry which will enable and incentivise the deployment of advanced services to consumers which would, in turn, encourage migration from GSM services to 3G/4G services over and above historic rates.
- furthermore, ComReg notes that any discussion on interim GSM 1800 MHz licences should not take place in isolation from the provisions of the European Commission Decisions 2009/766/EC and 2011/251/EU. The 2009 Decision makes it clear that the 1800 MHz band should be opened to other terrestrial

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months.” The report also considered the availability of devices by frequency band and likely required combinations, and is summarized as follows for the main LTE bands:

- 700 MHz (US Digital Dividend) 106 devices
- 800 MHz (EU Digital Dividend, Band 20) 42 devices
- 1800 MHz (Band 3) 41 devices
- 2600 MHz (Band 7) 52 devices
- 800/1800/2600 MHz 32 devices
- AWS (Band 4) 35 devices

<sup>118</sup> LTE devices also support HSPA technologies.

Moreover, ComReg notes in the Rethink Wireless update of 7 December where it is reported that US operators are demanding LTE enabled handsets from Apple and Microsoft:

<http://safemailer.safeserve.com/link.php?M=177451&N=4453&L=9605&F=H>

<sup>126</sup> See, for example, Financial Times 16 January 2012, Daniel Thomas, “*Drop in texting heralds industry shift*”.

<sup>127</sup> Ronan Dunne, the CEO of Telefónica’s sister company in the UK, has recently been quoted as saying that:

“O2 has been at the heart of the mobile data explosion over the last three years and our priority has always been to build ahead of the curve”, 14 November 2011, <http://www.technobuffalo.com/internet/o2-brings-4g-data-speeds-to-london/>

systems capable of providing electronic communications services that can coexist with GSM systems, whereas the current use of GSM in the 1800 MHz band should be protected as long as there is reasonable demand for the service. As noted above, it is likely that demand for GSM services will have diminished significantly over the next three years and it is far from clear that there will be “*reasonable demand for the service*” justifying the protection of GSM services through the issue of interim licences. As such, any premature grant of GSM 1800 MHz interim licences at this point in time risks conflicting with the provisions and spirit of the EC Decision. Notwithstanding this view, ComReg will consider whether there is a requirement for interim GSM 1800 MHz licences in light of the prevailing situation after the award process and will consult with industry on any proposal in this regard;

- finally, ComReg notes Telefónica’s view that the price for 1800 MHz spectrum is “*very high*” [**Confidential Text Removed**]. ComReg notes that it has discussed the level of minimum prices previously and in (Section 4.8 of this document) and does not propose to revisit this issue here. In addition, ComReg notes that it is not within its statutory functions, objectives or duties to consider the commercial decision-making of an individual undertaking. Any commercial decision taken by Telefónica to forego the opportunity to liberalise its existing assignment of GSM 1800 MHz spectrum and/or bid for additional liberalised spectrum in this band in the first time slice, is entirely a matter for Telefónica. Furthermore, ComReg notes that this is an issue which is entirely within Telefónica’s control. Any period during which Telefónica does not hold rights of use in the 1800 MHz band will have resulted from its own commercial decision making and it will not have been deprived of any spectrum for which it had a right of use.

4.177 In relation to point **C**, ComReg understands that very similar principles apply in respect of ComReg’s interim GSM 900 MHz decision and the potential situation in respect of 1800 MHz. Importantly, however, ComReg made its GSM 900 MHz interim decision at a point in time when the facts supporting its decision were known and could be considered and tested by interested parties. For instance, prior to making its interim licence decision in the 900 MHz band, ComReg could state with confidence and, if necessary, adduce facts to support the following conclusions:

- there were a large number of Vodafone and Telefónica customers reliant upon GSM services provided via 900 MHz spectrum rights;

- there would have been insufficient time for Vodafone and Telefónica to remediate (e.g. build out of additional 1800 MHz sites) and it would have been economically inefficient to do so in advance of the proposed auction;
- Vodafone and Telefónica not having access to GSM 900 MHz rights of use following licence expiry would create real and serious consequences for their customers; and
- Vodafone and Telefónica not having access to GSM 900 MHz rights of use would have resulted in real distortions to existing competition.

4.178 In contrast, and for the reasons identified above, ComReg does not believe that the material before it supports the conclusion that there will necessarily be a need by Vodafone and/or Telefónica at this time for interim GSM 1800 MHz rights of use at the end of 2014. Furthermore, it is far from clear that there would be real and serious consequences for customers in the absence of interim licences, particularly where the 1800 MHz band is used primarily for GSM capacity augmentation in urban areas, as confirmed by Telefónica in its response to 11/60. Indeed, it is possible that both Vodafone and Telefónica could have significant portfolios of valuable sub-1GHz and above 1-GHz spectrum post-auction, to alleviate any potential disruption that could otherwise result were they to choose not to liberalise existing GSM 1800 MHz rights of use. In light of the above, it is also far from clear that the absence of interim licences would result in real distortions to existing competition. Finally, and importantly, the auction will have taken place more than two years prior to licence expiry, allowing a not-insignificant period of time during which Vodafone and/or Telefónica could prepare for any short term 'gap' in access to 1800 MHz spectrum, were they to choose not to liberalise existing right of use in the 1800 MHz band.

4.179 Notwithstanding the obvious differences highlighted above, ComReg intends to consider whether there is a requirement for 1800 MHz interim licences in light of the prevailing situation after the award process and will consult with industry on any proposal in this regard.

4.180 To the extent that the remaining points **(D) to (I)** are not already addressed above, they are addressed under the following heading.

#### **Lack of objective justification of interested parties' proposals**

4.181 In light of the uncertainty regarding whether there will be a need by Vodafone and/or Telefónica for interim GSM 1800 MHz rights of use at the end of 2014

and whether there would be real and serious consequences for customers in the absence of interim licences, ComReg does not consider it to be objectively justified or proportionate to grant interim licences or commit to granting interim licences without having regard to the relevant facts and circumstances prevailing after the award process and closer to the time of licence expiry.

- 4.182 Moreover, taking cognisance of its statutory obligations, ComReg has a statutory discretion to grant a licence. It would be inappropriate for ComReg to fetter its discretion by setting out an inflexible policy that would not permit it to respond to the factual situation that exists following the auction and to ensure that any grant of interim rights of use is objective, transparent, non-discriminatory and proportionate, giving due weight to the achievement of its objectives set out in Section 12 of the 2002 Act and Regulations 16 and 17 of the Framework Regulations.
- 4.183 In relation to Vodafone's submission that the opportunity cost of granting interim GSM 1800 MHz licences is very low while the benefits would be considerable, ComReg would note that it remains unclear as to whether the opportunity cost may be low. On the basis that it is not possible to definitively say at this point whether Vodafone and/or Telefónica would require such interim rights at the relevant time, no conclusions can reasonably be reached about the benefits of such a course of action. In addition, and given the present uncertainty, it is not possible to conclude at this point in time whether the proposals put forward by interested parties would "*most effectively fulfil the statutory regulatory objectives of maximising the efficient use of spectrum and promoting the interests of end users.*"
- 4.184 Vodafone proposes that ComReg provide a firm advance commitment to grant Interim 1800 MHz Licences in "*relevant circumstances*" (where one or more of the existing licensees were to acquire sufficient 1800 MHz spectrum in the second proposed time slice, but insufficient or no 1800 MHz spectrum in the proposed first time slice). Whilst ComReg welcomes such a proposal, insofar as it purports to make the grant of an interim licence conditional on the facts and circumstances at a time closer to licence expiry, ComReg notes that there is considerable uncertainty in the terms used. In particular, it is uncertain what would constitute "insufficient" 1800 MHz spectrum in the first time slice and, moreover, ComReg notes that there is no mention of considering the likely effects upon consumer services, competition, nor the actions of the prospective licensee to reduce its reliance upon GSM 1800 MHz spectrum rights in the period between the proposed auction and the expiry of existing GSM 1800 MHz rights. ComReg considers that such a proposal without reference to an

examination of the facts and circumstances in the context of ComReg's statutory functions, objectives and duties is not appropriate.

- 4.185 For this reason, and noting the multitude of factors that ComReg took into account when coming to its interim GSM 900 MHz decision, ComReg does not consider it feasible to attempt to definitively set out, at this point in time, the factors it will take into account. Nor should ComReg seek to fetter its statutory discretion as to the substantive considerations it should seek to take into account when coming to a decision on this issue.
- 4.186 Accordingly, ComReg considers that the most appropriate, objectively justified and proportionate approach in the circumstances is to:
- commit to considering whether to grant interim GSM 1800 MHz rights of use (of approximately six and a half month duration) following the proposed auction but significantly prior to licence expiry; and
  - commit to grant such GSM 1800 MHz interim rights only where it is justified, reasonable and proportionate to do so, having regard to the salient facts at that time and ComReg's statutory functions, objectives and duties.
- 4.187 In contrast, ComReg does not consider that it would be appropriate, objectively justified or proportionate to remedy a problem that has not yet arisen and may never arise. Indeed, ComReg notes that it is not in possession of any information which would suggest that delaying a decision on this matter until after the award process is complete, would discriminate against the operators in question or necessarily adversely affect consumers. Instead, the intended approach to addressing the issue ensures that any decision ultimately taken on the matter is fully compliant with ComReg's statutory functions, objectives and duties.
- 4.188 In light of the discussion set out in this Section 4.6 and given the level of commitment offered by ComReg's approach, ComReg does not accept the view put forward by Telefónica that:
- ComReg is forcing or pressuring Vodafone and/or Telefónica to avail of the proposed early liberalisation option for existing 1800 MHz rights or otherwise acquire liberalised 1800 MHz rights in the first time slice [**Confidential Text Removed**]; and
  - ComReg's deliberate refusal to confirm it will provide interim licences creates a [**Confidential Text Removed**].

- 4.189 ComReg also does not accept the view that it is acting in a discriminatory fashion against Vodafone or Telefónica. In that regard, ComReg notes that this is an issue which is entirely within their control and that its decision to consult upon and make a decision on this matter after the results of the award process are known is objectively justified. ComReg also notes that any special provision for interim GSM 1800 MHz licences at this time could have a distortive effect within the auction.
- 4.190 In light of the above analysis, ComReg considers that its approach, relative to the alternative approaches put forward, is objectively justified and proportionate having regard to the distinct positions of Vodafone and Telefónica and the facts and circumstances at this point in time.

## **4.7 Early Liberalisation Option**

### **4.7.1 Early Liberalisation Option for Existing GSM Licence Holders**

- 4.191 In Document 11/60 ComReg restated its view that existing GSM licensees should be permitted to liberalise GSM 900 MHz and 1800 MHz spectrum holdings expiring after 1 February 2013 (referred to as the “early liberalisation option”) as part of the proposed auction – and specifically to Meteor’s existing 900 MHz assignment and all existing assignments in the 1800 MHz band.
- 4.192 The main reasons for proposing the early liberalisation option were as follows:
- to incentivise the earlier liberalisation of spectrum in the 900 and 1800 MHz bands to the benefit of consumers; and
  - to avoid potential distortions to competition that could otherwise arise. In particular, ComReg considered that Meteor’s access to liberalised 900 MHz spectrum should not be limited relative to other operators as a result of the later expiry of its existing GSM 900 MHz licence.
- 4.193 In earlier consultation documents ComReg stated its view that existing GSM licensees which opted for early liberalisation should be granted a rebate for the unused part of their licence to provide an appropriate incentives for early liberalisation. Equally, it was considered important that there should not be a risk that, as a result of the early liberalisation option, an existing licence would end up with less spectrum than it currently holds, as otherwise the early liberalisation option would be unlikely to be exercised.

4.194 The main principles underlying ComReg's proposed methodology for calculating an appropriate rebate were that it should be based on the original purchase price of the existing GSM licence and the remaining term of the existing GSM licence at the date the rebate is provided, assuming some amortisation schedule. In addition, DotEcon in Document 11/58 noted that the release of existing spectrum rights under the early liberalisation option must be linked with the re-award of liberalised spectrum (i.e. the grant of a rebate would be contingent on an existing licensee winning liberalised spectrum for the same time period). Also, existing licensees should not be given an unfair advantage in winning liberalised spectrum by virtue of holding their current licences. In other words, an operator should not benefit in the price it pays for liberalised spectrum relative to other bidders, and a rebate should be based only on the unexpired portion of the licence that it has returned to ComReg in exchange. In that context, it would not be appropriate to base the rebate on any notional market value of an existing GSM licence.

4.195 In setting out a methodology to calculate the rebate, DotEcon noted in Document 11/58:

*"..... the intention of the rebate is solely to place an existing licensee who gives up the residual term of a licence in a comparable situation to that it would have faced had it originally bought a licence of shorter duration. This places bidders with and without existing licences in comparable positions to allow fair competition.*

*294. This method is solely based on the actual price paid for the licence, not the profits that the current user can generate from the licence."* (page 82)

4.196 The inputs into ComReg's early liberalisation rebate calculation were (see Table 3 of Document 11/60):

- The original licence fee paid in Irish pounds converted into euro;
- The Euribor rate between the commencement date of the licence and the contemporaneous date; and
- The proportion of time that the licence would be curtailed as a proportion of the total 15 year licence period.

4.197 DotEcon set out an alternative methodology for calculating a rebate in its report (ComReg Document 11/58). This addressed some of the points raised by Meteor in its response to Documents 10/71 and 10/105 regarding how the rebate should be calculated. DotEcon's methodology used the following inputs:

- The original licence fee paid in Irish pounds converted into euro. In the case of Meteor, DotEcon also included a payment of IR£1.5 million by Meteor which was an administrative charge, and not a spectrum access or usage fee. This matter is addressed below;
- A discount factor. DotEcon assumed a discount factor of 10.21%, which is the weighted average cost of capital (WACC) calculated by ComReg for eircom in 2008. The discount rate was used to calculate the reduction in price due to the curtailed licence term as a proportion of the original 15-year licence fee, assuming a constant stream of annualised payment over the term of the licence;
- An inflation rate, using the consumer price index (CPI) between the commencement date of the licence and the contemporaneous date (i.e. the most recent CPI data at the date of publication of Document 11/58);
- A compounded interest rate, using the WACC, from the start date of the existing GSM licence to the date at which the rebate would be provided, to account for the opportunity cost of cash flows forgone on the additional amount committed for funding GSM licences for the curtailed period of the licence.

4.198 The calculated rebates using ComReg's and DotEcon's methodologies, as set out in Document 11/60 and Document 11/58 respectively, differed but not significantly.

#### **4.7.2 Responses to Document 11/60**

4.199 In response to Document 11/60, two interested parties, Vodafone and eircom Group, submitted comments on the early liberalisation proposal and rebate calculation.

4.200 Vodafone acknowledged ComReg's adoption of its recommendation that the rebate should take the form of a discount from the up-front and/or annualised spectrum usage fees that would otherwise be payable by the licensee.

4.201 eircom Group provided detailed commentary on the proposal and the calculation of rebates and submitted a report by Power Auctions on this issue. eircom group considers that the early liberalisation option is a critical component of ComReg's proposals. It agreed with the general principles but expressed its objection to the way in which the rebate is to be calculated. eircom Group also stated its view that *"the rebate should equal the market value of a technology specific GSM licence."*



4.202 The main points raised by Power Auctions on ComReg's rebate methodology were as follows:

- ComReg omitted an administrative fee of IR£1.5 million paid by Meteor when its GSM licences were issued; and
- ComReg did not use the appropriate commencement dates for the 900 and 1800 MHz licences, as there was a 6 month gap between the commencement of a portion of its GSM spectrum.

4.203 The main points raised by Power Auctions on DotEcon's rebate methodology were as follows:

- The figures included in DotEcon's report seem to be irreproducible;
- According to Power Auctions, the assumption of "*a constant stream of annualised payment over the term of the licence*" seems to be an absurd assumption to make for mobile telephone licences. It notes that the mobile telephone market has been considered to be one of the fastest-growing sectors of the economy, implying a high growth rate in the annualised value that can be imputed to spectrum licences; and
- Power Auctions query why DotEcon included both an adjustment for the time value of money and an adjustment for inflation. In its view, only an adjustment for the time value of money is appropriate, as the WACC of eircom set by ComReg in 2008 of 10.21%, is based on nominal euro, not on real euro.

4.204 In addition to these comments, Power Auctions recommended a different method for calculating the rebate based on DotEcon's and ComReg's approaches. In particular, Power Auctions include an estimate for the increase in value of spectrum over the period of the licence by accounting for growth in the wireless market. This yields rebates which would be significantly higher than those calculated using methodologies proposed by ComReg and DotEcon.

4.205 In its response to Document 11/75, Telefónica commented that the current early liberalisation proposal did not sufficiently incentivise existing GSM licensees to liberalise and that this could lead to a spectrally inefficient outcome.

### **4.7.3 DotEcon's View**

4.206 In its report, Document 12/24, DotEcon addresses a number of points raised by Power Auctions. As a result of the first two of these points listed below, DotEcon has made adjustments to its calculations, primarily in relation to the treatment of

inflation. No adjustments were considered by DotEcon to be necessary as a result of the latter two points however.

- i. Power Auctions were unable to reproduce DotEcon's calculations. As noted by DotEcon, this was due to the employment by DotEcon of annual streams for amortisation of the licence fee while Power Auctions employed monthly streams. In its updated calculations, DotEcon has adopted a monthly amortisation of the licence fee as this allows for a clearer treatment of partial years;
- ii. Power Auctions question why DotEcon included an adjustment for the time value of money and an adjustment for inflation in its calculations. DotEcon has now adjusted its methodology, noting that using a nominal WACC would already incorporate inflationary effects. Instead, to adequately address inflation, DotEcon has adjusted its earlier approach so as to extract the inflation rate from the nominal discount rate to calculate a real discount rate. This differs to the approach proposed by Power Auctions which does not account for inflation. The inclusion of inflation in this way results in a higher rebate than that proposed by DotEcon in Document 11/58;
- iii. The main difference between the approaches adopted by Power Auction and DotEcon (and ComReg) relates to the inclusion or exclusion of the value associated with an existing GSM licence in the rebate calculation. Power Auctions assumes a 10% annual growth rate in the value of an existing GSM licence and attributes part of this to the tail end of same. As DotEcon noted previously, changes in the market value of an existing licence should not be relevant to the rebate calculation, but rather the rebate should be based on the original purchase price paid, subject to appropriate adjustments. Accordingly, DotEcon did not alter its methodology on the basis of this submission; and
- iv. Power Auctions claimed that the period over which the rebate calculations are made should be shortened to the period during which Meteor was actually providing services, and similar adjustments should be made where appropriate for Vodafone and O2. Accordingly, Power Auctions adjusted the period of time over which the rebate is calculated to reflect when services were actually launched by Meteor. As noted by DotEcon, the period over which a licence was or was not used has no bearing on the licence price that was paid when the licence was issued.

Accordingly, DotEcon did not alter its methodology on the basis of this point.

- 4.207 As noted by Power Auctions, a rebate should be calculated for Meteor for each of the 900 MHz and 1800 MHz bands to cater for the situation where Meteor chose to avail of early liberalisation in only one of the bands. DotEcon has adjusted its calculations accordingly by separating out the IR£10 million original licence fee between the 900 MHz and 1800 MHz.
- 4.208 DotEcon has removed the administrative fee of IR£1.5 million from its calculations of the rebate for Meteor and this is discussed below.
- 4.209 DotEcon's updated rebate calculation, as set out in section 9.3.2 of Document 12/24, incorporates two main inputs: an annual discount factor and an annual inflation rate. As the actual WACC for each of the existing GSM licensees at the time of the issue of their respective licences is unknown, DotEcon used a discount factor of 10.21%, which is the nominal WACC calculated by ComReg for eircom in 2008. The nominal WACC incorporates an inflation rate. Over the period from 2000 to 2011, average annual inflation was 2.7%, based on CPI data from the CSO. This average annual inflation rate was netted from the annual nominal WACC to calculate a real discount rate. This real WACC is used as a real discount rate.
- 4.210 Table 3 below sets out the updated rebate calculations based upon the following assumptions:
- The rebate is paid in June 2012;<sup>128</sup>
  - Original licences end on 31 January 2013 (and new licences commence on 1 February 2013);<sup>129</sup> and
  - The licensee relinquishes the total spectrum allocation of its original GSM licence.<sup>130</sup>

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<sup>128</sup> This date is used for illustrative purposes only and does not necessarily reflect the month in which the rebate will be paid. This date will be determined by the overall auction timetable.

<sup>129</sup> A change to this date would be reflected in the final rebate issued.

<sup>130</sup> This would be adjusted on a pro-rata basis in circumstances where an existing licensee liberalises less than its entire GSM allocation in either the 900MHz or 1800 MHz band.

Operator	Licence start date	Original licence fee (m)	Discount Rate Adjustment <sup>131</sup>	Original licence fee with discount rate adjustment (m)	Proportion of Original licence fee forgone <sup>132</sup>	Rebate (m) <sup>133</sup>
Meteor 900 MHz <sup>134</sup>	Jul 2000	€3.17	318.5%	€10.11	9.7%	€0.98
	Jan 2001	€1.59	303.4%	€4.82	10.2%	€0.49
						Total: €1.47
Meteor 1800 MHz	Jul 2000	€9.52	318.5%	€30.33	9.7%	€2.92
O2 1800 MHz	Jan 2000	€7.22	334.4%	€24.16	7.5%	€1.82
Vodafone 1800 MHz	Jan 2000	€7.22	334.4%	€24.16	7.5%	€1.82

**Table 3. DotEcon's updated illustrative rebate calculations**

\* The figures in this table are rounded for illustrative purposes only.

4.211 In relation to Telefónica's submission that the current early liberalisation proposal does not sufficiently incentivise existing GSM licensees to liberalise and that this could lead to a spectrally inefficient outcome, ComReg notes that DotEcon does not consider the point to be valid given that the number of lots available in the auction to bidders other than Meteor, in the case of the 900 MHz band, is not affected by whether Meteor successfully liberalises or not.

<sup>131</sup> This adjustment is the cumulative nominal WACC (10.21% per annum) over the period from the commencement data of the licence until June 2012. This date is used for illustrative purposes only and does not necessarily reflect the month in which the rebate will be paid. This will be determined by the overall auction timetable. The actual rebate paid will therefore take into account the date in which the rebate is issued, and the adjustment factor will be amended accordingly.

The variation in the adjustment across the operators is due to the different start dates of their respective licences. Calculations are based on monthly changes, to fully account for the varying licence lengths.

<sup>132</sup> The methodology used to calculate the proportion of the licence fee forgone is set out in detail in Section 9 of Dotecon's Issues Report (12/24).

<sup>133</sup> The rebate is calculated as follows: Original licence fee with discount rate adjustment × Proportion of licence fee forgone.

<sup>134</sup> As Meteor's 900 MHz licence was granted in two separate tranches, each element is presented here separately, and the rebate associated with each element is aggregated to determine the rebate which Meteor would receive for its 900 MHz licence if it opts for early liberalisation.

#### 4.7.4 ComReg's Final Position

4.212 In addition to the points raised by eircom Group and addressed by DotEcon in its report, eircom Group raised a number of other issues in relation to the rebate calculation methodology, including that:

- i. ComReg excluded an administrative fee of IR£1.5 million from its calculations. As noted in a press release at the time, this fee was a once-off administrative fee associated with "*the costs of running the competition*".<sup>135</sup> It was not a "*spectrum access charge*" or a spectrum usage fee (referred to as "*annual Wireless Telegraphy fees*" at that time) both of which were separately referenced. Therefore this administrative fee was excluded from the rebate calculation by ComReg;<sup>136</sup>
- ii. the rebate calculations set out in ComReg's consultation documents are inaccurate as ComReg did not use the appropriate licence commencement dates for the Meteor 900 MHz licence, and ComReg has incorrectly attributed the original combined licence fee paid for 900 and 1800 spectrum to each of the bands.

4.213 In relation to (i), ComReg notes that DotEcon inadvertently included this administrative fee in its Document 11/58 calculations and has excluded it from its updated calculations in section 9.3.2 of Document 12/24.

4.214 In relation to (ii), ComReg has reviewed a number of relevant documents from the time of the award and notes:

- in July 2000, Meteor was granted a GSM 900 MHz licence (2 × 4.8 MHz) and a GSM 1800 MHz licence (2 × 14.4MHz), giving a total of 19.2MHz of spectrum. A fee of IR£10 million was paid;<sup>137</sup>
- in January 2001, Meteor was granted rights to an additional 2 × 2.4 MHz of 900 MHz spectrum, which was subject to payment of a fee of IR£1.25;<sup>138</sup>

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<sup>135</sup> [http://www.comreg.ie/\\_fileupload/publications/pres190698.pdf](http://www.comreg.ie/_fileupload/publications/pres190698.pdf)

<sup>136</sup> Similarly, when setting out a methodology for the calculation of fees for interim licences in the 900 MHz band, ComReg also excluded administration fees. See page 68 of Document 11/11: "*ComReg considers that this [IR£5m] fee is historical and relates to the once-off costs associated with the original competition for the licence, rather than the current usage value of GSM 900 MHz spectrum. It is therefore ComReg's opinion that this IR£5m administrative cost should not form part of the basis for calculating the spectrum fees for the interim licence.*"

<sup>137</sup> Press Release PR190698 ([http://www.comreg.ie/\\_fileupload/publications/pres190698.pdf](http://www.comreg.ie/_fileupload/publications/pres190698.pdf))

<sup>138</sup> See ComReg 01/04 - [http://www.comreg.ie/\\_fileupload/publications/odtr0104.pdf](http://www.comreg.ie/_fileupload/publications/odtr0104.pdf)

- it can therefore be seen that the price per 1 MHz of spectrum is the same in both cases;<sup>139</sup>
  - therefore, the fee associated with 900 and 1800 MHz was deemed by the ODTR at that time be equal.
- 4.215 Whilst ComReg notes the point made by Power Auctions that the relative fees that ComReg intends to set for liberalised rights in 900 MHz and 1800 MHz bands are substantially different from the 1:1 price ratio determined by the ODTR previously, this is not a persuasive argument because only the licence fee paid for the existing GSM licence is of relevance for the proposed rebate calculation. Indeed, if Power Auctions rationale was adopted, this would be akin to concluding that Meteor was undercharged for the additional 2 × 4.8 MHz of 900 MHz spectrum in January 2001 and should, as a result, have paid more than IR£1.25 million.
- 4.216 In calculating separate rebates for Meteor's 900 MHz and 1800 MHz GSM licences, DotEcon adopt the aforementioned 1:1 price ratio to attribute the licence fee paid of IR£10 million. Dotecon also accounts for the 6 month time difference between the start dates of Meteor's 900 MHz licence in its updated rebate calculations.
- 4.217 In addition, ComReg sees merit in the submission by Power Auctions that use of Euribor rates would not be an appropriate cost of capital for a mobile operator and therefore ComReg does not intend to use these figures in its rebate calculation.
- 4.218 ComReg notes and agrees with the views expressed by DotEcon in response to the matter raised by Telefónica in its response to Consultation 11/75 regarding the likely participation or otherwise by Meteor in early liberalisation in the 900 MHz band. As pointed out by DotEcon, the number of lots available to bidders other than Meteor is not affected by whether Meteor ultimately liberalises or not.
- 4.219 ComReg notes that the primary difference between the approach proposed by eircom Group/Power Auctions and that by DotEcon/ComReg is in relation to whether a rebate should incorporate the current value associated with an existing GSM 900 MHz licence. In that regard, ComReg notes and agrees with

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<sup>139</sup> The later spectrum award of 900 MHz spectrum was priced pro-rata on the price of the original spectrum allocation. The price of 1 MHz of 900 MHz spectrum was IR£520,833 (IR£1.25 million / 2.4 MHz). Similarly, the price of 1 MHz of spectrum as part of the 19.2 MHz awarded originally was also IR£520,833 (IR£10 million / 19.2 MHz).

DotEcon's view that the purpose of any rebate is not, as has been suggested, to compensate a GSM licensee for:

- the profits or otherwise that licensee can or would generate from the licence;
- any capital gains associated with any value that an unliberalised licence might have in excess of what the licensee paid for it; or
- the deprivation value of the unliberalised licence to the licensee in its current use.

4.220 Instead the purpose of any rebate should be to place an existing GSM licensee exercising the early liberalisation option in a comparable situation to that which it would have been in had it originally acquired a licence of shorter duration and that this would place bidders with and without an existing licences in a comparable position to allow fair competition in the proposed auction. It is for these reasons that ComReg believes that the relevant question for determining the rebate is whether the amount that a licensee paid for an existing licence should have been different if the term was different and to base the rebate on this difference. In this context, the rebate should only be based upon the actual price paid for the existing GSM licence. It would not be appropriate for a licensee to receive capital gains associated with any value that an unliberalised licence might have in excess of what the licensee paid for it, or be compensated according to the deprivation value of the unliberalised licence to the licensee in its current use.

4.221 On the basis of the above discussion and taking into account the changes made by DotEcon to its rebate calculation following consideration of views of interested parties, ComReg's final position is that the rebates for early liberalisation will be based on the methodology set out in DotEcon's Issues Report, which takes into account:

- the original amount paid for the licence;
- the original licence expiry date;
- the proportion of the original licence which would be forgone;
- the quantity of spectrum relinquished; and
- the date at which the rebate is issued by ComReg.

4.222 Using this methodology, Table 4 sets out the illustrative rebates based the scenario where:

- The rebate is paid in June 2012;<sup>140</sup>
- Original licences end on 31 January 2013 (and new licences commence on 1 February 2013);<sup>141</sup> and
- The licensee relinquishes the total spectrum allocation of its original GSM licence.<sup>142</sup>

Illustrative Rebates for Early Liberalisation		
Meteor	900 MHz	€1.47 million
Meteor	1800 MHz	€2.92 million
O2	1800 MHz	€1.82 million
Vodafone	1800 MHz	€1.82 million

**Table 4. Illustrative Rebates for Early Liberalisation**

## 4.8 Spectrum Fees

### 4.8.1 ComReg's Position in Document 11/60

4.223 In Document 11/60,<sup>143</sup> ComReg set out its then position in relation to the minimum price and structure of payments as follows:

- There would be a minimum price for liberalised rights of use to 800, 900 and 1800 MHz spectrum;
- A benchmark methodology and application of same by DotEcon would be used to inform ComReg's proposals, including a relativity analysis in relation to the setting of a minimum price for liberalised rights of use to 1800 MHz spectrum;
- Licence fees would be structured to include an upfront spectrum access fee ("SAF") and ongoing spectrum usage fees ("SUFs") and the minimum price would be split on a 50/50 basis between the two types of payments. Further, ComReg proposed that the SUFs should be indexed to inflation based on the consumer price index ("CPI"); and

<sup>140</sup> This date is used for illustrative purposes only and does not necessarily reflect the month in which the rebate will be paid. This date will be determined by the overall auction timetable.

<sup>141</sup> A change to this date would be reflected in the final rebate issued.

<sup>142</sup> This would be adjusted on a pro-rata basis in circumstances where an existing licensee liberalises less than its entire GSM allocation in either the 900MHz or 1800 MHz band.

<sup>143</sup> At paragraphs 4.192 to 4.206 of Document 11/60.



- The deferred payment proposal, set out in earlier consultations, would be withdrawn.

4.224 Further, ComReg proposed to break down the minimum prices as follows:<sup>144</sup>

- For a Liberalised Use Licence in Time Slice 1:
  - The reserve price would be €3.34 million with SUFs of €1.21 million per annum for each 2 × 5 MHz lot of liberalised rights of use to 800 or 900 MHz spectrum; and
  - The reserve price would be €1.67 million with SUFs of €0.60 million per annum for each 2 × 5 lot of liberalised rights of use to 1800 MHz spectrum.
- For a Liberalised Use Licence in Time Slice 2:
  - The reserve price would be €8.48 million with SUFs of €1.21 million per annum for each 2 × 5 MHz lot of liberalised rights of use to 800 or 900 MHz spectrum; and
  - The reserve price would be €4.24 million with SUFs of €0.60 million per annum for each 2 × 5 MHz lot of liberalised rights of use to 1800 MHz.

## 4.8.2 Overview of Respondent's Views

4.225 In the main, respondents to the above proposals welcome the reduction in the proposed minimum prices, from the previous levels<sup>145</sup> but remain of the view that the proposed minimum prices are too high. The principal reasons they put forward for this view relate to claimed errors or flaws in the approach to the benchmarking exercise (and, by implication, claimed errors in the how the relativity analysis for the setting of the 1800 MHz minimum prices is conducted). Concerns expressed include the following:

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<sup>144</sup> At paragraph 4.205 of Document 11/60.

<sup>145</sup> As discussed elsewhere and in particular in Document 11/60 the award has evolved since the initial proposal to award only rights for liberalised rights to use 900 MHz spectrum with a minimum price of €30 million per 2x5 MHz lot in Document 09/99. For the reasons set out in Documents 10/71 and 10/105, the minimum price was lowered to €25 million per 2x5 MHz lot of sub-1 GHz spectrum and 12.5 million per 2x5 MHz lot of 1800 MHz and, for the reasons set out in Document 11/60, the minimum price was lowered to €20m per 2x5 MHz lot of sub-1 GHz and €10 million per 2x5 MHz lot of 1800 MHz) at which it currently remains.

- the availability (or lack thereof) of suitable data to be applied to the proposed award;
- the difficulty of drawing meaningful conclusions from the pricing data, as Ireland has unique macroeconomic characteristics including a larger variation between Gross National Product (“GNP”) and Gross Domestic Product (“GDP”) per capita statistics than do other jurisdictions whose pricing data is used in the benchmark; and
- the sensitivity of the modelling to the winners to bidders’ ratio (“WtB ratio”) gives ComReg and DotEcon a ‘free-hand’ to adjust the output arbitrarily.

4.226 Accordingly, most respondents suggest that a more conservative approach to setting the level of the minimum price should be taken by ComReg. Vodafone however, maintains its position that a low but non-trivial minimum price should be adopted instead of a benchmarking approach.

4.227 Respondents continue to seek other clarifications including in relation to ComReg’s view that the minimum prices are not market values for the spectrum but starting points for the proposed auction. Related to this, respondents assert that ComReg overstates the significance of using the level of the minimum prices to address its concerns regarding the likelihood of collusion or tacit collusion occurring.

4.228 In particular, respondents express the view that other means for addressing ComReg’s concerns are not weighed appropriately by it and that ComReg’s proposals are not a proportionate response to its concerns. For example, respondents express the view that the proposed CCA auction format and threat of expulsion from the auction (or threat of legal action taken under the Competition Act 2002) would better deal with the concerns that ComReg raises.

4.229 Respondents also generally express the view that at the proposed minimum price levels there would be a risk of spectrum going unsold, which would be contrary to ComReg’s objectives for the proposed award.

### **4.8.3 ComReg’s Assessment and Final Position**

4.230 Given the volume and complexity of material submitted in relation to the above issues, ComReg sets out its detailed analysis and response in Annex 10, which should be read in conjunction with this Section 4.8.

4.231 In particular, Annex 10 sets out the following:

- a summary<sup>146</sup> of ComReg's previous proposals in relation to relevant issues;
- a summary of the latest views provided by interested parties in relation to those proposals;
- aof relevant views provided by DotEcon, ComReg's expert economic advisors;<sup>147</sup>
- ComReg's consideration of certain other relevant materials bearing on the issue; and
- ComReg's final position, having carefully considered respondents' and DotEcon's views as they relate to and address matters raised.

#### **4.8.4 Minimum Price and Benchmark Methodology and Application**

4.232 For the reasons set out in Annex 10, ComReg decides the following:

- to rely on a benchmarking exercise and relativity analysis in order to calculate a lower bound conservative estimate of the value of spectrum in the 800 MHz, 900 MHz and 1800 MHz bands for the purposes of setting the level of the minimum price for liberalised rights of use in those bands;
- to use a common minimum price for sub-1GHz spectrum;
- to structure minimum prices into an even division between an upfront reserve price and annual SUFs.
- to index SUFs using the Consumer Price Index (CPI).
- to calculate SUFs using a discount rate of 8% as set out in Section 10.3 of Annex 10.

4.233 The final price, taking account of any additional relevant data, will be set out in ComReg's Information Memorandum.

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<sup>146</sup> Where summaries are provided in Annex 10, whether of previous ComReg proposals, respondents' submissions or expert reports reference should be made to the original document for the definitive version thereof.

<sup>147</sup> See DotEcon reports, published as ComReg Document 12/23 and 12/24 alongside this Response to Consultation and Decision, which sets out DotEcon's detailed consideration of and response to respondents' views, and its recommendations on the relevant proposals.

## 4.8.5 Level of the Minimum Price

4.234 For the reasons set out in Annex 10, ComReg decides that the minimum prices will be €20m per 2 × 5 MHz lot of liberalised sub-1GHz spectrum and €10m per 2 × 5 MHz lot of liberalised 1800 MHz spectrum.

4.235 These prices break down as follows:

- For a Liberalised Use Licence in Time Slice 1:<sup>148</sup>
  - the reserve price would be €2.55 million with SUFs of €1.08 million per annum for each 2 × 5 MHz lot of liberalised rights of use in respect of 800 or 900 MHz spectrum; and
  - the reserve price would be €1.27 million with SUFs of €0.54 million per annum for each 2 × 5 MHz lot of liberalised rights of use in respect of 1800 MHz spectrum.
- For a Liberalised Use Licence in Time Slice 2:
  - the reserve price would be €8.26 million with SUFs of €1.08 million per annum for each 2 × 5 MHz lot of liberalised rights of use in respect of 800 or 900 MHz spectrum; and
  - the reserve price would be €4.13 million with SUFs of €0.54 million per annum for each 2 × 5 MHz lot of liberalised rights of use in respect of 1800 MHz spectrum.

4.236 As noted above, the final price, taking account of any additional market data that ComReg considers relevant, will be set out in ComReg's Information Memorandum.

## 4.9 Eligibility Points

### 4.9.1 ComReg's Position in Document 11/60

4.237 Document 11/60 set out ComReg's proposal to apply activity rules in the proposed auction by using eligibility points and setting the level of relative eligibility points. In this section ComReg sets out a summary of its proposals in 11/60, the views expressed by respondents to Document 11/60 and ComReg's final position.

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<sup>148</sup> Fee calculation based on licence commencing on 01/02/2013 and expiring on 31/07/2015.

- 4.238 Interested parties will recall that Document 11/75 set out the implementation and technical details in relation to this proposal, and ComReg will address submissions received relating to these implementation and technical details in its response to Document 11/75 and final Information Memorandum.
- 4.239 At paragraphs 4.216 to 4.222 of chapter 4 of Document 11/60, ComReg set out its proposals in relation to the use of activity rules including in relation to the assignment of eligibility points to lots for each spectrum band in the award. In particular, ComReg proposed to assign twice as many eligibility points to sub-1 GHz lots as compared to lots in the 1800 MHz band (or a “2:2:1 Eligibility Points Ratio”).
- 4.240 The reasons informing this view included that:
- activity rules govern the right of a bidder to continue bidding in future rounds of the auction contingent on the bidder’s activity in any given round;
  - assigning eligibility points is a common method of constraining a bidder’s activity in the auction in any given round;
  - DotEcon’s recommendation that a 2:2:1 Eligibility Points Ratio would be a reasonable reflection of the value of spectrum rights in each of the three bands. This includes DotEcon’s assessment that it would be reasonable to treat 800 MHz and 900 MHz on a par for setting minimum prices, and that spectrum rights in the 1800 MHz band should have a minimum price of 45-60% of that of sub-1 GHz spectrum rights; and
  - it would be unnecessary to set eligibility points that exactly reflect the relative values of spectrum in each of the different bands [emphasis added] (see paragraph 4.220 of Document 11/60).
- 4.241 In relation to the latter two points, other factors informing this view are set out in Section 7 of Document 11/58 and include: DotEcon’s view that the proposed relative values should be sufficient to neutralise the effect that one-to-one transferability of bidding across lots of different value may have on bidding behaviour, and its views on addressing the need to preserve the incentive for bidders to truthfully state their demand for lots in different spectrum bands. DotEcon believed that this would help to preserve the integrity of the information coming from bids in the primary rounds.
- 4.242 In addition, ComReg proposed that eligibility points would not be transferable between Time Slice 1 and 2, which would have the effect of prohibiting a bidder

from increasing its eligibility in one time slice as a result of reducing it in the other time slice. The reasons for this aspect of the proposal also derived from DotEcon's analysis regarding the conduct of the award and, particularly, the requirement to provide bidders with the ability to reduce demand (or transfer demand across lot categories) in response to price developments in a sensible way without risking the incentive for bidders to state their demand truthfully (see section 7 of Document 11/58 for DotEcon's discussion of these issues).

## 4.9.2 Document 11/75

- 4.243 In Document 11/75, ComReg provided details on how its Eligibility and Activity Rules Proposal would be implemented and operate.
- 4.244 In Annex 7 of Document 11/75, ComReg provided a worked example of activity rules for primary rounds and caps on supplementary bids. At paragraphs 4.76 to 4.94 of Document 11/75, ComReg introduced the concept of 'relaxed primary bids' and noted that the aim of this concept is to ensure that the choice of eligibility points for different lot categories should not have an undue influence on the auction outcome. Other details set out included specific criteria associated with a breach of the normal conditions on bid activity by, for example, allowing activity to exceed the specific eligibility of the bidder in a particular round in particular circumstances.

### 4.9.2.1 Views of Respondents

- 4.245 Two respondents submitted views on the principle of relative eligibility points set out in Document 11/60.
- 4.246 eircom Group states that it agrees, in principle, with the high level design proposal of eligibility points which are not transferable between time slices.<sup>149</sup>
- 4.247 Telefónica considers that ComReg's proposed eligibility points ratios are reasonable and that the decision to link minimum prices to eligibility points within time slices is prudent. It also identifies the need for caution when setting the level of the minimum price to avoid undermining the efficiency of the auction (this and other relevant points made in relation to the level of minimum prices

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<sup>149</sup> eircom Group noted that "*these high level design proposals are subject to detailed rules yet to be published for review by interested parties. We reserve the right to alter our expressed view should we find the detailed rules to be deficient in any respect*". In its response to Document 11/75, eircom Group proposes modifications to the rules and submits a report by its consultants Power Auctions LLC which includes alternative proposals in relation to implementing activity rules. These will be addressed in the response to Document 11/75 and final Information Memorandum.

are addressed separately at Annex 10 on Minimum Price and Structure of Payments). In addition, Telefónica states that setting the eligibility points between 1800 MHz and 800/900 MHz to facilitate switching in the auction is having an undue effect on the pricing of 1800MHz spectrum.

4.248 Three respondents to Document 11/75 provided views on specific technical details and mechanics of the activity rules and these submissions will be addressed in ComReg's response to Document 11/75 and final Information Memorandum.

### **4.9.3 DotEcon's Assessment and Recommendation**

4.249 At Section 7 of Document 12/24, DotEcon sets out its views on the eligibility points and activity rules and, in particular, provides commentary on respondents' views summarised here as follows:

- it notes that, overall, there was a broad measure of agreement with the proposed eligibility points for each lot category;
- in relation to Telefónica's submission regarding minimum prices, DotEcon notes that the eligibility points of spectrum blocks in the 800/900MHz and 1800MHz bands were set based on the estimated value difference between 1800MHz and sub-1GHz spectrum (using its benchmarking analysis) and not the other way around. DotEcon also notes that the proposed activity rules and auction format do not require the relative prices of 800/900MHz and 1800MHz spectrum to "remain locked in a 2:1 ratio". Accordingly, DotEcon does not consider that there to be reasonable grounds for Telefónica's stated concern; and
- DotEcon notes that the detailed activity rules described in Document 11/75 make provision for relaxed primary bids which assist significantly in ensuring that the choice of eligibility points for different lot categories should not have an undue influence on the auction outcome. Accordingly, the precise choice of relative eligibility points is not a critical aspect of the auction design and a reasonable approximation of relative value should be adequate.

### **4.9.4 ComReg's Assessment and Final Position**

4.250 ComReg has carefully considered the views of interested parties on its proposals to apply activity rules in the Award Process and to set the relative eligibility points between 800 MHz, 900 MHz and 1800 MHz bands at a ratio of 2:2:1. It has also considered DotEcon's assessment of same and the reasons provided by it supporting these activity rules.

4.251 ComReg considers DotEcon's assessment to be reasonable and believes it reasonably and satisfactorily addresses the points raised by interested parties. In particular, ComReg agrees with DotEcon's assessment that it is not necessary to set the eligibility points to exactly reflect the relative values of spectrum in each band and, indeed, that to do so would prove impossible and would undermine the award process.

4.252 In addition, ComReg notes that:

- relative eligibility points enable bidders to respond to price changes in lots for different spectrum bands and switch demand between such lots in accordance with their genuine preferences;
- setting the level of 2:2:1 Eligibility Points Ratio requires some judgement but is needed to reflect the difference in relative value of the spectrum bands in order to constrain switching options that might be used by bidders to hide preferences or manipulate demand on lot categories; and
- the use of activity rules is a common feature in recent comparable spectrum awards and is often a necessary step to incentivise truthful value revelation and bidding on most preferred packages/lots in the award.<sup>150</sup>

4.253 Having had regard to all relevant material before it, including the advice of its expert economic advisors, and on the basis of the reasoning set out above, ComReg has decided to implement activity rules on the basis of an eligibility points ratio of 2:2:1 that would be applied to spectrum lots in the 800 MHz, 900 MHz and 1800 MHz bands respectively, where such eligibility points would not be transferable between Time Slice 1 and 2.

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<sup>150</sup> Annex 13 presents an international update, which includes high level information on both previous and upcoming spectrum awards. To name but a few, countries where spectrum awards included activity rules are Denmark (900 MHz and 1800MHz spectrum award), Germany (800MHz, 1800 MHz, 2.1 GHz and 2.6 GHz spectrum award), Sweden (1800 MHz spectrum award), and such rules are being proposed in the UK (forthcoming 800 MHz and 2.6 GHz spectrum award, in which a relative eligibility points system dependent on lot size in the award is also proposed).



## Chapter 5

# 5 Licence Conditions

## 5.1 Introduction

- 5.1 ComReg set out its proposed licence conditions for liberalised licences in Chapter 5 of Document 11/60 and Annex 8 of Document 11/60a.<sup>151</sup>
- 5.2 In Document 11/75, ComReg set out its proposal for implementing those licence conditions as proposed in Document 11/60. In particular:
- Section 2.2 of Document 11/75 set out the proposed terms and conditions for a liberalised licence (referred to as a 'Liberalised Use Licence' in that document);
  - The Draft Regulations, in Annex 2 of Document 11/75, set out ComReg's proposed text to provide for the issuing of liberalised licences following the award process. The Draft Regulations specified a number of matters related to a liberalised licence including, amongst other things:
    - the duration and procedures for renewal (Regulation 5);
    - conditions of a licence (Regulation 6); and
    - the geographical and technical conditions associated with an indicative liberalised licence (Schedule 1: Part 1 to 3).
  - Annex 3 of Document 11/75 specified other conditions associated with the indicative liberalised licence schedule (i.e. Part 4 of liberalised licence). Amongst other things, this Annex set out the:
    - General conditions of the licences;
    - Technical conditions associated with the spectrum bands;
    - Roll-out and Coverage Requirements; and,

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<sup>151</sup> In these sections the following Licence conditions aspects were discussed:

- technology and service neutrality conditions;
- adjacent spectrum bands and existing users in the band;
- technical conditions (including conditions to be attached to terminal stations);
- coverage and roll-out conditions;
- quality of service ("QoS") conditions;
- miscellaneous licence conditions; and
- the draft Licence.

- Quality of Service (QoS) obligations.

5.3 This chapter sets out the views of the respondents to Documents 11/60 and 11/75 and other relevant information, it then sets out ComReg's final position on the licence conditions to be attached to liberalised licences. These licence conditions are considered under the following headings:

- technology and service neutrality conditions;
- adjacent spectrum bands and existing users in the band;
- technical conditions (including conditions to be attached to terminal stations);
- coverage and roll-out conditions;
- quality of service ("QoS") conditions;
- miscellaneous licence conditions;
- additional items raised by respondents to Document 11/75:
- the Regulations and
- Part 4 to the Liberalised-Use Licence.

## 5.2 Technology and Service Neutrality

### 5.2.1 ComReg's Position in Document 11/60

5.4 Paragraphs 5.8 to 5.17 of Document 11/60 and paragraphs A8.424 to A8.434 of Document 11/60a set out ComReg's then consideration of the technology and service neutrality licence conditions to be attached to all new licences issued in this Award Process.

5.5 ComReg noted that a technology- and service-neutral approach in accordance with the relevant EC Decisions had been proposed throughout its consultation process<sup>152</sup> and, in this regard, ComReg maintained its view that it was not necessary to mandate a particular technology or service in any of the relevant spectrum bands.

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<sup>152</sup> This issue was discussed in, amongst other places, section 7.4 of Document 08/57, section 6.1 of Document 09/14, section 15.4 of Document 09/99, section 4.6.2 of Document 10/71 and section 3.10.2 of Document 10/105.

5.6 In the situation where an operator terminates the provision of services using one technology in favour of the continued provision of these services using another technology, ComReg noted that consumers may experience a disruption in services. To minimise the potential for such disruption, ComReg proposed to include a licence condition requiring a licensee to give six months notice of its intention to terminate the provision of services using one technology in favour of another.

### **The 900 and 1800 MHz bands**

5.7 For the 900 MHz and 1800 MHz bands, ComReg noted that the relevant EC Decisions are Decision 2009/766/EC<sup>153</sup> and Decision 2011/251/EU.<sup>154</sup>

5.8 Pursuant to Articles 3, 4 and 5 of Decision 2009/766/EC, ComReg noted that:

- Member States must make these bands available for terrestrial systems listed in the Annex to the Decision; and
- Member States may make these bands available for other terrestrial systems not listed in the Annex to the Decision, provided such terrestrial systems can co-exist with the listed systems.

5.9 Having regard to discussions in previous consultations,<sup>155</sup> ComReg proposed licence conditions that would:

- make the 900 MHz and 1800 MHz bands available for all technologies listed in the Annex to Decision 2009/766/EC (as amended); and
- allow ComReg to consider submissions from operators interested in deploying other technologies provided such operators could show, to ComReg's satisfaction, that such technologies could co-exist with those technologies listed in the Annex to Decision 2009/766/EC (as amended).

### **The 800 MHz band**

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<sup>153</sup> EC Decision 2009/766/EC of 16 October 2009 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

<sup>154</sup> EC Decision 2011/251/EU of 18 April 2011, amending Decision 2009/766/EC 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. Decision 2011/251/EU amended Decision 2009/766/EC by replacing the Annex thereto and thereby listing LTE and WiMAX as systems that can be used in these bands alongside UMTS and GSM.

<sup>155</sup> In particular section 6.1 of Consultation 09/14 and section 3.10.2 of Consultation 10/105.

- 5.10 For the 800 MHz band, ComReg noted that the relevant EC Decision is Decision 2010/267/EU,<sup>156</sup> and that Decision 2010/267/EU and the Annex thereto sets out the technical parameters that are to be applied in the 800 MHz band in the form of frequency arrangements and a Block Edge Mask (BEM).
- 5.11 Having regard to discussions in previous consultations,<sup>157</sup> ComReg proposed licence conditions that would make the 800 MHz band available for any terrestrial systems that are capable of providing ECS in compliance with the technical parameters for the 800 MHz band as set by ComReg.

### 5.2.2 ComReg's Position in Document 11/75

- 5.12 Document 11/75 set out ComReg's proposal for implementing the licence conditions proposed in Document 11/60 in its Liberalised-Use Licensing regime. In relation to the technology- and service-neutrality aspects of this proposal:
- Section 2.2.1 of Document 11/75, the Draft Regulations (Annex 2) and an indicative Licence Schedule (Annex 3) set out the conditions of use of a liberalised licence including that "*all Wireless Telegraphy Act apparatus licensed under a Liberalised-Use Licence are required to comply with the relevant European Commission (EC) decisions for the spectrum band(s).*"; and
  - Section 2.2.3 of Document 11/75 (paragraphs 2.40 to 2.41) and Regulation 6(12) of the Draft Regulations (Annex 2) set out ComReg's proposal to require a licensee to notify ComReg of its intention to terminate the use of a technology. In these sections, ComReg specified that, where an operator intends to terminate the use of a technology (e.g. GSM), it would be obliged to:
    - notify ComReg of this intention at least 6 months in advance of its proposed termination date; and
    - comply with any direction given by ComReg in relation to extending the timescale associated with the proposed termination of the use of a technology.

### 5.2.3 Views of Respondents

- 5.13 Respondents to Documents 11/60 and 11/75 submitted comments on one aspect of ComReg's technology and service neutrality proposals, namely the

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<sup>156</sup> EC Decision 2010/267/EU of 6 May 2010 on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union

<sup>157</sup> In particular section 4.6.2 of Consultation 10/71

obligation to notify the termination of technology at least 6 months in advance. No comments were received on any other aspect of ComReg's proposals.

### **Obligation to notify the termination of technology 6 months in advance**

- 5.14 Three respondents, H3GI, eircom Group and Vodafone, provided comments on ComReg's proposal.
- 5.15 H3GI stated that it did not agree with ComReg's proposal. H3GI believes that ComReg's proposal is disproportionate and contrary to Regulation 10(2) of the Authorisation Regulations.<sup>158</sup> Additionally, and in relation to ComReg's proposal as contained in Regulation 6(12) of the Draft Regulations (see Annex 2 to Document 11/75), H3GI believed that under this regulation ComReg is giving itself the power to determine how companies change technology. H3GI believed that *"in the absence of any objective justification for this, regulation 6 (12) of the Proposed Regulations is ultra vires."*
- 5.16 eircom Group, in its response to Document 11/75, stated that it had no objection to the notification element of ComReg's proposal. However it took exception with Regulation 6(12)(b)<sup>159</sup> of the Draft Regulations. eircom Group believed that this clause should be deleted and noted that *"ComReg has not set out any explanation as to the justification for this obligation or the factors that ComReg may consider relevant when making a determination on timescales. It is not clear to us why ComReg is seeking to restrict a licensee's commercial freedom in this respect."*
- 5.17 Vodafone in its response to Document 11/75 also commented on Regulation 6(12)(b) and stated that *"there is no objective justification for this measure as it is potentially discriminatory and it fails to take account of the provisions of the General Authorisation in respect of withdrawal of service."*<sup>160</sup>

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<sup>158</sup> In addition, H3GI stated that *"companies in all sectors change technologies every day. They do so without the actual or perceived need for regulation."*

<sup>159</sup> Regulation 6(12)(b) of Annex 2 to Document 11/75 states that *"It shall be a condition of the Licences to which these Regulations apply, that the Licensee shall comply with any direction given by the Commission in relation to the extension of the timescale for the proposed cessation in subparagraph 12(a) above."*

<sup>160</sup> By way of example, Vodafone stated *"For example consider two Licensees, one who initially supports GSM services and another whose "lowest" technology level is UMTS. The second Licensee can decide to implement a combined UMTS/LTE network without ComReg's approval. However in order for the first Licensee to move from a combine GSM/UMTS network to an equivalent UMTA/LTE network they find themselves subject to ComReg's veto on this"*.

## 5.2.4 ComReg's Final Position

5.18 ComReg notes that its technology- and service-neutrality proposals were broadly welcomed by the respondents to Documents 11/60 and 11/75 and that comments were received on only one aspect, namely the obligation to notify the termination of technology 6 months in advance.

5.19 Having reviewed the comments received, ComReg notes that Regulation 18 of the General Authorisation ("GA") (Document 03/81R3) sets out a number of consumer protection rules that apply to Authorised Persons in the event of a "cessation of service". Amongst other things, Regulation 18 obliges an Authorised Person to:

- notify ComReg of an actual or anticipated cessation of service affecting a substantial number of consumers (Condition 18.2);
- provide ComReg with information which it deems necessary, where ComReg forms the view that there is a reasonable probability of a cessation of service (Condition 18.4); and
- at all times use reasonable endeavours to ensure the effect of any cessation of service is minimised (Condition 18.5).

5.20 ComReg notes that cessation of services caused by termination of the use of one technology in favour of another is not within the scope<sup>161</sup> of the consumer protection provisions of Condition 18 of the GA, and therefore believes that it cannot rely upon the provisions of the GA.

5.21 ComReg is of the view that it is appropriate to maintain a notification obligation in the Liberalised Licence. However ComReg has amended Regulation 6(12)(b) to be in line with the provisions set out in Condition 18 of the GA, namely that a licensee uses reasonable endeavours at all times to ensure that the effect on consumers of a cessation of use of a terrestrial system is minimised.

### 5.2.4.1 Summary of ComReg's final position: Technology and Service Neutrality

5.22 Given the consideration of the respondent's views above and having regard to ComReg's position on this issue as discussed in Documents 11/60 and 11/75,

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<sup>161</sup> See Documents 07/45, 08/27 and 08/87.

ComReg's final position on the technology and service neutrality conditions to be included in a liberalised licence is that:

- All WT apparatus licensed under a liberalised licence will be required to comply with the following EC Decisions relevant to the spectrum band(s).
  - for the 800 MHz band, the relevant EC Decision is Decision 2010/267/EU;
  - for the 900 MHz and 1800 MHz bands, the relevant EC Decisions are 2009/766/EC and Decision 2011/251/EU.
- In the 900 MHz and 1800 MHz bands, a liberalised licence will allow a licensee to deploy:
  - terrestrial systems listed in the Annex to EC Decisions 2009/766/EC and 2011/251/EU; and
  - other terrestrial systems not listed in the Annex to EC Decisions 2009/766/EC and 2011/251/EU, provided the licensee can show to ComReg's satisfaction that such terrestrial systems can co-exist with those terrestrial systems listed in those EC Decisions, prior to implementation of those systems.
- In the 800 MHz band, a liberalised licence will allow a licensee to deploy terrestrial systems that are capable of providing ECS in compliance with the technical parameters for the 800 MHz band as set out in Part 4 of the Schedule to the Liberalised-Use licence as set out in Annex 8 of this document.

5.23 ComReg is maintaining a 6 month notification obligation in the Liberalised Licence in relation to cessation of a technology. However ComReg has amended Regulation 6(12)(b) to be in line with the provision set out in Condition 18 of the GA, namely that a licensee uses reasonable endeavours at all times to ensure that the effect on consumers of a cessation of use of a terrestrial system is minimised.

## **5.3 Adjacent Bands and Existing Users in the Band**

### **5.3.1 ComReg's Position in Document 11/60**

5.24 In order to assist potential licensees in understanding the use of the 800 MHz, 900 MHz and 1800 MHz spectrum bands in Ireland, paragraphs 5.18 to 5.34 of Document 11/60 and paragraphs A8.435 to A.8.464 of Document 11/60a

presented an overview of the adjacent spectrum bands and the existing usage of these spectrum bands.

5.25 In discussing each spectrum band, ComReg set out its preliminary position on whether additional mitigation techniques would be required in that spectrum band, or in the adjacent spectrum bands, to avoid harmful interference. In setting out this view, ComReg considered factors such as:

- the existing technical conditions set out for that spectrum band; and
- the sharing and compatibility studies that had been carried out by CEPT in relation to the provision of ECS in the 800 MHz, 900 MHz and 1800 MHz bands.

### **The 800 MHz band and adjacent spectrum bands**

5.26 In relation to the 800 MHz band, ComReg discussed three matters:

- broadcasting services below 790 MHz;
- the 800 MHz Duplex Gap (i.e. 821-832 MHz); and
- Short Range Devices (SRDs) in the adjacent 863–867 MHz band.

5.27 For broadcasting services below 790 MHz, ComReg noted that the co-existence of services in the 800 MHz band with those in the broadcasting band was discussed separately in Annex 10 of Document 11/60a and that Annex set out ComReg’s mitigation proposals to facilitate such co-existence.

5.28 For the 800 MHz Duplex gap, ComReg noted that any Programme Making and Special Events apparatus (PMSE) licensed in the 821-832 MHz spectrum band would be required to comply with ECC Decision 09(03)<sup>162</sup>, including any future amendments to same. ComReg did not consider any further mitigation conditions to be necessary.

5.29 For the SRDs, ComReg noted that there are numerous different types of SRDs deployed in the 863–870 MHz band with permitted powers varying from 5mW ERP for non-specific devices to 2W for Radio Frequency Identification (RFID) applications.<sup>163</sup> Due to the combination of frequency separation and very low transmit powers, ComReg believed that SRDs in the 863–870 MHz band are

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<sup>162</sup> ECC Decision 09(03) of 30 October 2009 on harmonised conditions for Mobile, Fixed Communications Networks (MFCN) operating in the band 790 – 862 MHz.

<sup>163</sup> See Document 02/71R5 “Permitted Short Range Devices in Ireland” for more information.



unlikely to cause interference in the 800 MHz band.<sup>164</sup> ComReg did not consider any further mitigation conditions to be necessary.

### **The 900 MHz band and adjacent spectrum bands**

5.30 In relation to the 900MHz band, ComReg discussed five matters:

- GSM-Railways (GSM-R);
- Wide Band Digital Mobile Data Systems (WDMDS);
- Aeronautical Distance Measuring Equipment (DME);
- Mobile Communications services on vessels (MCV services); and
- Existing GSM licences in the 900 MHz band.

5.31 For GSM-R, ComReg proposed to implement a 300 kHz guard band in the GSM-R spectrum to ensure that the required carrier separation is achieved between the respective services. ComReg did not consider any further mitigation conditions to be necessary.

5.32 For WDMDS, ComReg noted that there is currently a 2 MHz guard band in place separating existing GSM services from WDMDS services. ComReg did not consider any further mitigation conditions to be necessary.

5.33 For DME, ComReg noted that no interference is expected from the UMTS base stations to DME airborne receivers above 972 MHz. ComReg did not consider any further mitigation conditions to be necessary.

5.34 For MCV services, ComReg noted that, provided that the conditions set out in the relevant ECC<sup>165</sup> and CEPT<sup>166</sup> reports are complied with, there should not be any interference to land-based GSM and UMTS networks operating in the 900 MHz frequency band. ComReg did not consider any further mitigation conditions to be necessary.

5.35 For existing GSM licences in the 900 MHz band, ComReg noted that that the full assignment round will determine the location of all licences (existing GSM

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<sup>164</sup> It should be noted that, in general, Short Range Devices operate on a non-interference, non-protected basis.

<sup>165</sup> See ECC Report 122 on the Compatibility between GSM Use Onboard Vessels and Land-based Networks, Vilnius, September 2008.

<sup>166</sup> See CEPT Report 28 of 26 June 2009 - Report from CEPT to the European Commission in response to the Mandate "Mobile Communication Services on Vessels (MCV)".

licences and new liberalised licences) in the 900 MHz band. In the case of any spectrum right of use that is retained by an incumbent licensee, the location and amount of spectrum that is assigned must comply with the co-existence conditions detailed in Decision 2009/766/EC and Decision 2011/251/EU. ComReg did not consider any further mitigation conditions to be necessary.

### **The 1800 MHz band and adjacent spectrum bands**

5.36 In relation to the 1800 MHz band, ComReg discussed five matters:

- Meteorological Satellite (METSAT) and Digital Enhanced Cordless Telecommunications (DECT);
- The 1785–1805 MHz Wireless Access Platform for Electronic Communications Services Licence (“All Island Licence”):
- Mobile communication services on aircraft (MCA services);
- Mobile Communications services on vessels (MCV services); and
- Existing GSM licences in the 1800 MHz band.

5.37 For METSAT and DECT, ComReg noted that these systems have been studied in ECC Report 96<sup>167</sup> and CEPT Report 41.<sup>168</sup> ComReg did not consider any further mitigation conditions to be necessary.

5.38 For the “All Island Licence”, ComReg noted that a number of technical conditions<sup>169</sup> were placed on the “All Island Licence” to ensure compatibility with existing GSM 1800 MHz deployments in the adjacent band. ComReg did not consider any further mitigation conditions to be necessary.

5.39 For MCA services, ComReg noted that, provided the conditions set out in the relevant ECC and CEPT Reports<sup>170</sup> and Exemption Order<sup>171</sup> are complied with,

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<sup>167</sup> ECC Report 96: Compatibility between UMTS 900/1800 and systems operating in adjacent bands, Krakow, March 2007.

<sup>168</sup> CEPT Report 41 of 12 November 2010: Report from CEPT to the European Commission in response to Task 2 of the Mandate to CEPT on the 90/1800 MHz bands: “Compatibility between LTE and WiMAX operating within the bands 800 – 915 MHz/ 925 – 960 MHz and 17010 – 1785 MHz/ 1805 – 1880 MHz (900/1800 MHz bands) and systems operating in adjacent bands”.

<sup>169</sup> The technical conditions in the “All Island Licence” are set out in Section 4 of ComReg Information Notice 06/65R, [http://www.comreg.ie/\\_fileupload/publications/ComReg0665r.pdf](http://www.comreg.ie/_fileupload/publications/ComReg0665r.pdf)

<sup>170</sup> See: ECC Report 93 - Compatibility Between GSM Equipment On Board Aircraft and Terrestrial Networks, Lubeck, September 2006, Revised Nicosia, May 2008; CEPT Report 16 of 12 June 2007 - Report from CEPT to the European Commission in response to the EC Mandate on Mobile Communication Services On Board Aircraft (MCA)

there should not be any interference to land based GSM and UMTS networks operating in the 900 MHz or 1800 MHz frequency bands. ComReg did not consider any further mitigation conditions to be necessary.

- 5.40 For MCV services, ComReg noted that, provided that the conditions set out in the relevant ECC<sup>172</sup> and CEPT<sup>173</sup> reports are complied with, there should not be any interference to land-based GSM and UMTS networks operating in 1800 MHz frequency band. ComReg did not consider any further mitigation conditions to be necessary.
- 5.41 For existing GSM licences in the 1800 MHz band, ComReg noted that the full assignment round will decide the location of all licences (existing GSM licences and new liberalised licences) in the 1800 MHz band. In the case of any spectrum right of use that is retained by an incumbent licensee, the location and amount of spectrum that is assigned will comply with the co-existence conditions detailed in Decision 2009/766/EC and Decision 2011/251/EU. ComReg did not consider any further mitigation conditions to be necessary.

### 5.3.2 ComReg's Position in Document 11/75

- 5.42 Document 11/75 set out ComReg's proposal for implementing the licence conditions as proposed in Document 11/60. Section 2.2.4 of Document 11/75 and the indicative liberalised licence (Annex 3 of Document 11/75) set out the technical licence conditions which are applicable to specific spectrum bands in a liberalised licence.

### 5.3.3 Views of Respondents

- 5.43 Comments were provided on two aspects of ComReg's proposed mitigation conditions aimed at facilitating the co-existence of services in a liberalised licence with those services in adjacent bands or with services provided under a GSM licence in the 900 MHz and 1800 MHz bands. These were:
- One respondent, HKC, provided comments on the co-existence of the 800 MHz band with intruder alarms (a SRD) operating in the 868–869 MHz band; and

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<sup>171</sup> Wireless Telegraphy Act 1926 (Section 3) (Exemption of Apparatus for Mobile Communications Services on Aircraft) Order 2008, S.I. No. 178 of 2008, [http://www.comreg.ie/\\_fileupload/publications/ComRegSI178of2008.pdf](http://www.comreg.ie/_fileupload/publications/ComRegSI178of2008.pdf)

<sup>172</sup> See ECC Report 122 on the Compatibility between GSM Use Onboard Vessels and Land-based Networks, Vilnius, September 2008.

<sup>173</sup> See CEPT Report 28 of 26 June 2009 - Report from CEPT to the European Commission in response to the Mandate "Mobile Communication Services on Vessels (MCV)".

- Five respondents, RTÉ and RTÉNL (“RTÉ”), TG4, Arqiva, H3GI and eircom Group, provided comments on the co-existence of the 800 MHz band with the broadcasting band below 790 MHz. These comments and ComReg’s consideration of this issue is set out in Annex 9 of this document.
- 5.44 HKC believed that LTE user equipment in the 800 MHz is likely to cause interference to intruder alarms operating in the 868–869 MHz band and it suggested that ComReg should only permit LTE user equipment on the basis of better filtering, i.e. filtering that lowers the proposed out of band interference by at least 40dB. In submitting this view, HKC referred ComReg to the results of CEPT Report 30<sup>174</sup> and specifically to Figure 5 of that report.

### 5.3.4 Updated Information

5.45 Since Document 11/60 was published, ComReg has published:

- Document 02/71R6<sup>175</sup> updating the permitted SRDs in Ireland in line with Decision 2011/829/EU,<sup>176</sup> and
- Document 11/90<sup>177</sup> which sets out ComReg’s final position on a licensing regime for GSM-R services in Ireland. Section 2.4.2 of this document discusses the co-existence of GSM-R services with public mobile networks in the adjacent 900 MHz band. In order to ensure successful coexistence between GSM-R Systems and other systems in the adjacent 900 MHz band, ComReg decided that an additional guard channel be used to create a carrier separation of 2.8 MHz between carriers in both bands.

### 5.3.5 ComReg’s Final Position

- 5.46 ComReg notes that the respondents commented on two aspects of ComReg’s proposal:
- The co-existence of LTE user equipment in the 800 MHz band with intruder alarms in the 868-869 MHz band. ComReg’s consideration of this issue is set out below; and

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<sup>174</sup> <http://www.erodocdb.dk/Docs/doc98/official/pdf/CEPTREP030.PDF>

<sup>175</sup> [http://www.comreg.ie/\\_fileupload/publications/ComReg0271R6.pdf](http://www.comreg.ie/_fileupload/publications/ComReg0271R6.pdf)

<sup>176</sup> “Commission Decision of 8 December 2011, amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices”.

<sup>177</sup> [http://www.comreg.ie/\\_fileupload/publications/ComReg1190.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1190.pdf)

- The co-existence of the ECS services in the 800 MHz band with the broadcasting band below 790 MHz. This is considered in Annex 9 of this document;
- 5.47 Aside from the above two aspects, no comments were received on the remaining mitigation conditions discussed and proposed in Document 11/60. Consequently, ComReg's final position on these matters remains the same as that set out in Document 11/60 (summarised above).

### **The co-existence of LTE user equipment in the 800 MHz band with intruder alarms in the 868-869 MHz band**

- 5.48 In relation to the co-existence of LTE user equipment in the 800 MHz band with intruder alarms in the 868-869 MHz band, ComReg firstly notes that intruder alarms in the 868–869 MHz band are SRDs and, as such, are required to operate on a non-interference, non-protected basis. Non-interference means that these devices cannot cause interference to other users, while non-protected means that these devices cannot expect protection from interference from properly licensed users operating in nearby frequencies. Given this, ComReg notes that it is not obliged to consider protection measures for intruder alarms in the 868-869 MHz band. Instead, users of such devices are required to ensure that they do not cause interference to other users.
- 5.49 Nevertheless, ComReg has investigated HKC's comments and notes that:
- no country in Europe has proposed technical conditions (beyond those set out in Decision 2010/267/EU) to protect SRDs from interference from LTE;
  - this issue has not been considered in the SRD Maintenance Group ("SRD/MG") of CEPT.<sup>178</sup> As the 800 MHz band has already been made available for licensing in other European countries, if this issue was a potential cause for concern, it should have been raised and discussed in the SRD/MG;
  - if ComReg were to adopt national conditions on LTE user equipment specific to Ireland (as proposed by HKC) then this would result in a considerably more restrictive deployment regime for LTE user equipment in Ireland than in any other country in Europe. This could increase costs for both operators and consumers and limit the roll-out of LTE services in Ireland. Such measures would be inconsistent with ComReg's objective to contribute to the development of the internal market. Furthermore, it is questionable whether such a national condition could work, as the implementation of such a condition would seem

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<sup>178</sup> See <http://www.cept.org/ecc/groups/ecc/wg-fm/srdmg>

impractical given issues such as the use of roaming LTE user equipment in Ireland and the ability of consumers to purchase LTE user equipment from other countries;

- the UK regulator, Ofcom, recently published a report on the use of SRDs alongside mobile broadband services operating in the 800 MHz band.<sup>179</sup> This report studied the potential for interference from LTE user equipment to the SRDs operating in the 863-870 MHz band, including social alarms, and concluded that the likelihood and extent of interference from LTE will be low and there are a wide range of alternative approaches available to users or manufacturers if they still have concerns.<sup>180</sup> Given this, Ofcom is of the provisional view that it is not appropriate to impose conditions on licensees operating in the 800 MHz band to protect SRDs; and
- CEPT Report 30 does not address the matter of adjacent band compatibility between LTE systems in the 800 MHz band and intruder alarms in the 868-869 MHz band.

5.50 Given the above, ComReg is of the view that it is not appropriate to include a technical condition in the 800 MHz band licences (beyond those conditions set out in Decision 2010/267/EU) to protect SRDs (including intruder alarms) in the 863-870 MHz band.

### **5.3.5.1 Summary of ComReg’s final position: Adjacent Spectrum Bands and Existing users in the band**

5.51 Having considered the respondents’ submissions and having regard to ComReg’s position on this issue as discussed in Documents 11/60 and 11/75, ComReg final position on the mitigation conditions to be included in a liberalised licence to facilitate co-existence with adjacent spectrum bands and existing users in the same spectrum band is as follows:

- in the 1800 MHz band, no further mitigation conditions are required to facilitate the co-existence of services provided by licensees in the 1800 MHz band with METSAT and DECT, the “All Island Licence”, MCA services, MCV services or Existing GSM licences in the 1800 MHz band;

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<sup>179</sup>“Use of Short Range Devices alongside mobile broadband services operating in the 800 MHz band”, *Ofcom, 30 November 2011*, [http://stakeholders.ofcom.org.uk/binaries/consultations/tlc/annexes/Update.pdf?utm\\_source=updates&utm\\_medium=email&utm\\_campaign=1st-tues-short-range-update](http://stakeholders.ofcom.org.uk/binaries/consultations/tlc/annexes/Update.pdf?utm_source=updates&utm_medium=email&utm_campaign=1st-tues-short-range-update)

<sup>180</sup> ComReg refers interested parties to the Ofcom report for details of the simulated effects of ECS services in the 800 MHz band on SRDs

- in the 900 MHz band, no further mitigation conditions are required to facilitate the co-existence of services provided by licensees in the 900 MHz band with GSM-R, WDMDS, DME, MCV services or Existing GSM licences in the 900 MHz band;
- in the 800 MHz band, no further mitigation conditions are required to facilitate the co-existence of services provided by licensees in the 800 MHz band with PMSE services in the 800 MHz Duplex gap or SRDs in the 863-870 MHz band; however
- the mitigation conditions as discussed and set out in Annex 9 to this document, (and as summarised below) are appropriate to facilitate the co-existence of services provided by licensees in the 800 MHz band with services in the broadcasting band below 790 MHz.

5.52 In summary, the mitigation conditions in Annex 9 state that in line with Decision 2010/267/EU and given the co-existence issues that may arise due to the introduction of new services in the 800 MHz band, ComReg is of the view that it is appropriate to:

- apply the 'Case A' Block Edge Masks ("BEMs") as a licence condition for all spectrum blocks in the 800 MHz band; and
- set a maximum mean in-block Equivalent Isotropically Radiated Power ('EIRP') limit for all 800 MHz base stations at 59 dBm/5 MHz. ComReg may review the maximum mean in-block EIRP limit in the future, if required.

5.53 In addition, ComReg, in conjunction with RTÉNL and the Broadcasting Authority of Ireland ('BAI'), has planned the Irish DTT spectrum requirements such that the first six DTT multiplexes are planned on the basis of using UHF channels 21 – 59 only (i.e. using frequencies from 470 – 782 MHz only). If a 7th or 8th DTT multiplex is required, then UHF channel 60 may be required in certain areas. As UHF channel 60 has been avoided for the provision of six DTT multiplexes, in practice this will give a 9 MHz separation between the uppermost DTT channel (i.e. UHF channel 59) and the lower 800 MHz block (i.e. Block A). The avoidance of the use of UHF channel 60 in the licensing of the first six DTT multiplexes is a preventative measure to mitigate against coexistence issues between 800 MHz and DTT services below 790 MHz.

5.54 In relation to the possible degradation of DTT services from user terminals operating in the 800 MHz band, ComReg is of the view that this is manageable

and does not require the specification of additional mitigation measures to be included in the 800 MHz Liberalised Use licensing regime.

5.55 In relation to Signal to Interference plus Noise Ratio ('SINR') degradation matters, ComReg is of that view that:

- few (if any) SINR degradation issues are likely to be experienced in Ireland, given the 800 MHz licence conditions above and the DTT spectrum planning in Ireland where UHF channel 60 is not being used or planned for use in the first six DTT multiplexes;
- filters at the DTT receiver are the most appropriate mitigation technique in the first instance to address SINR issues. ComReg also notes from international studies that no one mitigation technique is exclusively or entirely successful at eliminating all possible co-existence issues which may arise between 800 MHz band ECS services and DTT;
- SINR degradation issues may arise in the future, but these are likely to be small in scale; and
- it is appropriate for ComReg to deal with SINR degradation issues in keeping with its statutory obligations.

5.56 In relation to receiver overload, ComReg is of the view that:

- receiver overload issues are a function of the receiver systems and are best addressed via the use of appropriate antennas and appropriate filtering at the receiver;
- it is the responsibility of consumers to ensure that their television reception system is installed in such a way that it has sufficient levels of protection so as not to receive radio signals from outside of the television frequency bands that may be expected at some point in the future;
- for consumers to be in a position to avoid receiver overloading, it is incumbent upon RTÉ (and by extension, 'Saorview') to properly inform DTT consumers and the TV installer community of the issue and how this can be resolved in simple, easy-to-understand terms; and
- DTT consumers should be advised by RTÉ (and the DTT community), in simple-to-understand language, to check that their current DTT receiver systems are likely to function correctly in the presence of ECS signals in the



800 MHz band and, in particular, that any such receiver systems do not receive signals above 790 MHz and, if they do, to contact a suitably qualified installer to remedy any likely problem.

5.57 While the above sets out ComReg's view in relation to the loss of broadcast reception matters, it should be noted that under the EMC Directive,<sup>181</sup> the operators of both DTT systems and future ECS services in the 800 MHz band have a duty to ensure that the electromagnetic disturbance generated does not exceed the level above which radio and telecommunications equipment or other equipment cannot operate as intended and that equipment sold, or installations constructed, by them are appropriately immune to electromagnetic interference. In this regard, ComReg notes that:

- the DTT community and future licensees in the 800 MHz band have an incentive to co-operate with each other in order to minimise the possibility of interference or electromagnetic disturbances occurring into each other's services; and
- information regarding the licensed technical parameters of the DTT network in Ireland have been published on ComReg's website<sup>182</sup> and details of the Wireless Telegraphy apparatus associated with a 800 MHz licensee is to be captured in its licence.<sup>183</sup> DTT and 800 MHz licensees should take such information into consideration when deploying their networks and considering whether additional mitigation measures (e.g. at a base station level it may be appropriate to use reduced power, additional filtering or polarisation discrimination) are required.

5.58 ComReg notes that the Saorview Specification<sup>184</sup> is implemented as additions and clarifications to a previous version of the NorDig specification.<sup>185</sup> However both the Saorview specification<sup>186</sup> and the current version of the NorDig

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<sup>181</sup> "Directive 2004/108/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC" <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:390:0024:0037:en:PDF>

<sup>182</sup> Licensed technical parameters of broadcasting services in Ireland  
[http://www.comreg.ie/radio\\_spectrum/technical\\_parameters.542.1071.html](http://www.comreg.ie/radio_spectrum/technical_parameters.542.1071.html)

<sup>183</sup> It is ComReg's intention that details of the Liberalised Use Licences in the 800 MHz, 900 MHz and 1800 MHz bands will be published on its website.

<sup>184</sup> "Saorview Minimum Receiver Requirements: Digital Terrestrial Television Additions and clarifications to NorDig Unified Requirements 2.2", [http://www.rtenl.ie/wp-content/uploads/2011/Minimum\\_Receiver\\_Requirements\\_5.pdf](http://www.rtenl.ie/wp-content/uploads/2011/Minimum_Receiver_Requirements_5.pdf)

<sup>185</sup> The current NorDig specification is v 2.2.1, [http://www.nordig.org/pdf/NorDig-Unified\\_ver\\_2.2.1.pdf](http://www.nordig.org/pdf/NorDig-Unified_ver_2.2.1.pdf), the Saorview specification is based on v 2.2.

<sup>186</sup> At table 1.

specification<sup>187</sup> require operation across all of UHF Band V (606 to 862 MHz). ComReg notes that this specification was issued prior to Decision 2010/267/EU and the “*Notification of Change to TV Standards in Ireland*” document<sup>188</sup> on the www.goingdigital.ie website from 10 November 2011. ComReg is of the view that RTÉ, as a member of NorDig, should seek to have the standard specification modified so that it no longer specifies as mandatory for receivers to operate in the portion of the UHF Band V from 790 – 862 MHz.

5.59 Finally, it should be noted that ComReg may amend the rights, obligations and procedures relating to wireless telegraphy licences from time to time in accordance with the Authorisation Regulations.

## 5.4 Technical Conditions

### 5.4.1 ComReg’s Position in Document 11/60

5.60 Paragraphs 5.35 to 5.59 of Document 11/60 and paragraphs A8.465 to A.8.512 of Document 11/60a set out ComReg’s consideration of the technical conditions to be attached to a liberalised licence. Four matters were considered in this regard, namely:

- the 800 MHz band;
- the 900 MHz and 1800 MHz band;
- compliance with International Memorandums of Understanding (MoUs) on the spectrum band; and
- Terminal Stations.

5.61 Aside from terminal stations which ComReg proposed to address via separate legislation, Part 3 of the draft Schedule to the liberalised licence (see Annex 8.6 of Document 10/60a) set out ComReg’s proposed text for implementing these technical conditions in a liberalised licence.

### The 800 MHz band

5.62 In relation to the 800 MHz band, ComReg proposed to:

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<sup>187</sup> At table 3.5.

<sup>188</sup> ‘*Notification of Change to TV Standards in Ireland*’ – DCENR, 10 November 2011.

- assign the 800 MHz band on a FDD duplex mode arrangement in 2x5 MHz block sizes (see Annex 3 for details of band plans and Annex 9 of Document 11/60a for ComReg's discussion of band plans);
- allow terrestrial systems compatible with EC Decision 2010/267/EU to be deployed in the 800 MHz band; and
- oblige all licensees in the 800 MHz band to comply with:
  - the 'Case A' Block Edge Mask (BEM) as set out in EC Decision 2010/267/EU (see Table 19 to 22 of Document 11/60a); and
  - a maximum mean in-block Equivalent Isotropically Radiated Power (EIRP) of 59 dBm/5MHz.

5.63 ComReg noted that the technical conditions proposed for the 800 MHz band would comply with EC Decision 2010/267/EU.

### **The 900 MHz and 1800 MHz bands**

5.64 In relation to the 900 MHz and 1800 MHz bands, ComReg proposed:

- to assign the 900 MHz band and the 1800 MHz band on a FDD duplex mode arrangement in 2 x 5 MHz block sizes (see Annex 9 of Document 11/60a for ComReg's discussion of band plans);
- to allow terrestrial systems compatible with EC Decision 2009/766/EC and Decision 2011/251/EU to be deployed in the 900 MHz band and/or the 1800 MHz band; and
- in the absence of bilateral or multilateral agreements between neighbouring licensees, to oblige a licensee deploying a GSM system to meet the guard band obligation as set down in EC Decision 2009/766/EC and EC Decision 2011/251/EU.<sup>189</sup>

5.65 ComReg noted that the technical conditions proposed for the 900 MHz band and the 1800 MHz band would comply with EC Decision 2009/766/EC and EC Decision 2011/251/EU.

### **Compliance with International MoUs on the spectrum bands**

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<sup>189</sup> See paragraphs A8.483 to A8.500 of Document 10/60 for ComReg's consideration of who should bear the guard band responsibility in the 900 MHz and 1800 MHz bands.

5.66 ComReg proposed that licensees would be obliged to comply with all MoUs agreed between ComReg and the UK Regulator, Ofcom or its successor, affecting its licence(s):

- For the 800 MHz band, ComReg noted that there is one MoU applicable to this band (this MoU was being considered by ComReg and OfCom, and the current draft was presented in Annex 12 of Document 11/60a); and
- For the 900 MHz and 1800 MHz bands, ComReg noted that there are four MoUs applicable to these bands (ComReg Documents 11/50c, d, e and f<sup>190</sup>).

### Terminal stations

5.67 ComReg noted that it is necessary to update legislation to licence exempt terminal stations in the 800 MHz, 900 MHz and 1800 MHz bands for the technologies that can be deployed under a liberalised licence:

- For the 800 MHz band, ComReg noted that Decision 2010/267/EU sets an in-block emission limit of 23 dBm for terminal stations. ComReg proposed to licence exempt terminal stations in the 800 MHz band which comply with the in-block limits as set out in Decision 2010/267/EU.
- For the 900 MHz and 1800 MHz bands, ComReg noted that the current exemptions are only for GSM technology. ComReg proposed to update legislation to licence exempt terminal stations in the 900 MHz and 1800 MHz bands in line with Decision 2009/766/EC and Decision 2011/251/EU.

### 5.4.2 ComReg's Position in Document 11/75

5.68 Document 11/75 set out ComReg's proposal for implementing the licence conditions as proposed in Document 11/60. Section 2.2.4 of Document 11/75 and Part 3 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the technical conditions associated with each of the spectrum bands in a liberalised licence.

### 5.4.3 Views of Respondents

5.69 Comments were received on the following aspects of ComReg's proposed technical conditions.

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<sup>190</sup> [http://www.comreg.ie/\\_fileupload/publications/ComReg1150c.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1150c.pdf) ,  
[http://www.comreg.ie/\\_fileupload/publications/ComReg1150d.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1150d.pdf) ,  
[http://www.comreg.ie/\\_fileupload/publications/ComReg1150e.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1150e.pdf) and  
[http://www.comreg.ie/\\_fileupload/publications/ComReg1150f.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1150f.pdf)

## The 800 MHz band

5.70 Five respondents, RTÉ and RTÉNL (“RTÉ”), TG4, Arqiva, H3GI, and eircom Group provided comments on the technical conditions proposed for the 800 MHz band. These comments and ComReg’s consideration of the technical conditions appropriate to facilitate the co-existence of the 800 MHz band with the services in the broadcasting band below 790 MHz are set out in Annex 9 of this document.

## The 900 MHz and 1800 MHz bands

5.71 Two respondents, eircom Group and H3GI, provided comments on the technical conditions proposed for the 900 MHz and 1800 MHz bands and both indicated their support for ComReg’s proposal.

## Compliance with International MoUs on the spectrum bands

5.72 Two respondents, Arqiva and eircom Group, provided comments on the proposed condition that licensees would be obliged to comply with the terms of the International MOU applicable to its spectrum bands.

5.73 Arqiva and eircom Group both commented upon the text of the draft MOU for the 800 MHz band as set out in Annex 12 of Document 11/60a:

- Arqiva believed that the text of the draft MOU on the 800 MHz band could allow mobile network operators to operate at higher power levels than those agreed in the MoU.<sup>191</sup> It noted that this is not the intent of the MOU and Arqiva suggested that the MOU should be amended to avoid this possibility.
- eircom Group noted that the electric field strength parameters proposed in the draft MoU for the 800 MHz band are correctly aligned with Annex 1 of ECC/Rec/(11)04. While eircom Group agreed with this proposal, it recommended that the draft MoU be amended to include the option of dividing Physical Layer Cell Identities (PCI) between operators at and across the border

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<sup>191</sup> To explain this viewpoint, Arqiva stated the following:

*“At face value the MoU would appear to constrain the extent to which power levels of LTE services might be increased excessively as agreement between Administrations would be unlikely if increased LTE inter-network interference were likely to arise. However, this would appear to ignore a situation where identical spectrum frequencies are held by the same operator in Northern Ireland and the Republic of Ireland. It would then be potentially possible for the services being deployed in the Republic of Ireland border region to be afforded higher operating power levels than those permissible to its sister organisation in Northern Ireland. In addition, irrespective of the operating power level, sites could be built very close to the border with the agreement of the sister organisation which, would lay down far higher cross-border field strengths than the levels specified in para. 3.2 of the MoU.”*

or, alternatively, indicate that the other remedies identified in the ECC/Rec/(11)04 may also be used where necessary.

## Terminal stations

- 5.74 One respondent, eircom Group, provided comments on ComReg's terminal stations proposal to licence exempt terminal stations in the 800 MHz band which comply with the in-block limits as set out in Decision 2010/267/EU (i.e. 23 dBm).
- 5.75 While noting that a 23 dBm transmitted power (EIRP) is a reasonable level for mobile devices, eircom Group believed that this limit would preclude the licence exemption of terminal equipment with external antennas. eircom Group appreciated that ComReg cannot, at this point in time, create a blanket exemption for externally mounted antenna. However it believed that ComReg should clearly set out how it intends to approach the licensing of fixed terminal stations in rural areas with an EIRP greater than 23 dBm.<sup>192</sup>

### 5.4.4 ComReg's Final Position

#### The 800 MHz band

- 5.76 Annex 9 of this document sets out ComReg's consideration of the appropriate measures necessary to facilitate the co-existence of services in the 800 MHz band with services in the broadcasting band below 790 MHz. As discussed in Annex 9, ComReg is of the view that it is appropriate to oblige the licensee to comply with:
- the 'Case A' Block Edge Mask (BEM) as set out in Decision 2010/267/EU (see Tables 1 to 4 of the Licence Schedule as set out in section 5.10 of this document); and
  - a maximum mean in-block Equivalent Isotropically Radiated Power (EIRP) of 59 dBm/5MHz.

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<sup>192</sup> eircom Group noted that:

*"Unlike EC Decision 2010/267/EU, ComReg document 11/60 makes no reference to relaxing the limit for fixed terminal stations in rural areas. Hence it is not clear if ComReg will allow the use of terminals with external antennas by some licensing regime or if it will simply preclude the use of external antennas, thereby reducing the potential of the 800 MHz band to contribute towards the provision of ubiquitous broadband to the benefit of all citizens. Over time as practical experience grows it may be possible to extend the licence exempt scheme to fixed terminal stations in rural areas with a maximum transmitted power (EIRP) limit greater than 23 dBm. If terminal with an EIRP greater than 23 dBm can only be allowed through a licensing scheme, then this licensing process must be fast, cost effective and with little administrative overhead."*

## The 900 MHz and 1800 MHz bands

5.77 ComReg notes that no concerns were raised in relation to this proposal, and two respondents (H3GI and eircom Group) indicated support for the proposal. ComReg is therefore of the view that its proposal as set out in Document 10/60 remains appropriate.

## Compliance with International MoUs on the spectrum bands

5.78 ComReg notes the comments received from Arqiva and eircom Group on the text of the draft MoU for the 800 MHz band. In relation to both of these comments:

- ComReg saw some merit in eircom Group's suggestion that the PCI methodology be added to the draft MOU, as this methodology is complementary to the approach currently proposed.<sup>193</sup> With the agreements of Ofcom the PCI methodology has been included in the recently agreed MoU on the 800 MHz band as set out in Annex 14 of this document;
- ComReg does not believe it is necessary to modify the text of the draft MOU to address Arqiva's observation that a mobile operator may operate at higher powers than those agreed in the MoU. In relation to setting aside national licence conditions which limit the maximum permissible output power, Article 4.1 of the draft MOU states that the planning arrangements between mobile operators are subject to the agreement of the Administrations.<sup>194</sup> Therefore if a mobile operator wishes to exceed the levels permitted in the MOU, it would require the agreement of both administrations before it could do so.

## ComReg's final position – Terminal stations

5.79 ComReg notes eircom Group's suggestion that a licensing regime for fixed terminal stations with an EIRP greater than 23 dBm may be required in the

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193 In this regard, ComReg notes that the PCI methodology is not critical in co-ordination and is technology specific (i.e. LTE only), whereas the approach currently proposed is more technology neutral. In addition, ComReg notes that a PCI methodology is consistent with the technologically specific methods of preferred channels and codes already adopted in the existing GSM and 3G (2100 MHz) MoUs.

194 Article 4.1 states "An Agreement between the administrations of the Republic of Ireland and the United Kingdom, which enables planning arrangement between mobile operators, subject to agreement of the Administrations, was brought into force on 01 May 2005. The administrations of the Republic of Ireland and the United Kingdom agree to extend the applicability of this Agreement to all operators of systems in the frequency bands 791-832 MHz."

future and its suggestion that ComReg should set out how it intends to licence such devices.

5.80 At this point in time, ComReg does not consider it appropriate to exempt such terminal stations with an EIRP greater than 23 dBm in rural areas, nor, for the reasons outlined below, does it consider it appropriate to put in place a licensing scheme for such terminal stations.

5.81 ComReg notes that allowing an increase in EIRP, as proposed by eircom Group, for fixed terminal stations (Users Equipment) in rural areas, could lead to an increased possibility of electromagnetic disturbance to other services in certain scenarios. Furthermore, it is not clear to ComReg whether:

- such devices currently exist for the 800 MHz band, and if so whether there is an actual demand for the deployment of these devices in Ireland or if this demand could be met by other existing means; and
- specific mitigation methods would be required for these devices in order to facilitate their coexistence with neighbouring users in the 800 MHz band or in adjacent bands.

5.82 ComReg reserves the right to reconsider this position in the future when greater clarity emerges regarding the above factors.

#### **5.4.4.1 Summary of ComReg's Final Position: Technical Conditions**

5.83 Given the consideration of the respondents' views above and having regard to ComReg's position on this issue as discussed in Documents 11/60 and 11/75, this section sets out ComReg final position on the technical conditions to be included in a liberalised licence.

5.84 ComReg notes that the technical conditions specified below would fully comply with the respective EC Decision relevant to each of the spectrum bands (i.e. Decision 2010/267/EU for the 800 MHz band, and Decisions 2009/766/EC and 2011/251/EU for the 900 MHz and 1800 MHz bands).

#### **The 800 MHz band**

5.85 The 800 MHz band will be assigned on a FDD duplex mode arrangement in 2 x 5 MHz block sizes.

5.86 A liberalised licence for a spectrum block(s) in the 800 MHz band will:



- allow terrestrial systems compatible with Decision 2010/267/EU to be deployed in the 800 MHz band;
- oblige the licensee to comply with:
  - the ‘Case A’ Block Edge Mask (BEM) as set out in Decision 2010/267/EU (see Tables 1 to 4 of Part 4 to the Schedule of the Liberalised-Use Licence as set out in Annex 8 of this document); and
  - a maximum mean in-block Equivalent Isotropically Radiated Power (EIRP) of 59 dBm/5MHz.

### **The 900 MHz and 1800 MHz bands**

5.87 The 900 MHz and 1800 MHz bands will be assigned on a FDD duplex mode arrangement in 2x5 MHz block sizes.

5.88 A liberalised licence for a spectrum block(s) in the 900 MHz and 1800 MHz bands will:

- allow terrestrial systems compatible with Decision 2009/766/EC and Decision 2011/251/EU to be deployed in the 900 MHz band and/or the 1800 MHz band; and
- in the absence of bilateral or multilateral agreements between neighbouring licensees, oblige a licensee deploying a GSM system to meet the guard band obligation as set down in Decision 2009/766/EC and Decision 2011/251/EU.

### **Compliance with International MoUs on the spectrum bands**

5.89 A liberalised licence will oblige the licensee to comply with all MoUs agreed between ComReg, or its successor, and the UK Regulator, Ofcom or its successor, affecting its licence(s):

- For the 800 MHz band: The MoU on the 800 MHz band as set out in Annex 14 of this document is applicable;
  - ComReg notes that eircom Group’s suggestion regarding PCI’s has been incorporated into the MoU; and

- For the 900 MHz and 1800 MHz bands: There are four MoUs currently applicable to these bands - ComReg Documents 11/50c, d, e and f.<sup>195</sup>

## Terminal stations

5.90 In tandem with ComReg's activities to release the 800 MHz, 900 MHz and 1800 MHz bands on a Liberalised-Use basis, ComReg will take steps to ensure that terminal stations in the 800 MHz, 900 MHz and 1800 MHz bands for the technologies that can be deployed under a liberalised licence comply with the requirements of the Wireless Telegraphy Act. Specifically:

- to allow the deployment of technologies in the 900 MHz and 1800 MHz bands in accordance with Decision 2009/766/EC and Decision 2011/251/EU, ComReg will, by way of order under the Wireless Telegraphy Act (which may be revoked or amended by a further order), declare terminal stations operating in these bands to be a class or description of apparatus for wireless telegraphy to which section 3 of the Wireless Telegraphy Act would not apply (insofar as they are in line with internationally recognised technical standards and compliant with all other relevant legal obligations);
- to allow the deployment of technologies in the 800 MHz band in accordance with Decision 2010/267/EU, ComReg will, by way of order under the Wireless Telegraphy Act (which may be revoked or amended by a further order), declare terminal stations operating in this band to be a class or description of apparatus for wireless telegraphy to which section 3 of the Wireless Telegraphy Act would not apply (insofar as they are in line with internationally recognised technical standards and compliant with all other relevant legal obligations); and
- all such terminal stations will be required to comply with the In-Block requirements set out in Table 5 below.

Maximum mean in-block power	23 dBm (1)
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<sup>195</sup> [http://www.comreg.ie/\\_fileupload/publications/ComReg1150c.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1150c.pdf) ,  
[http://www.comreg.ie/\\_fileupload/publications/ComReg1150d.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1150d.pdf) ,  
[http://www.comreg.ie/\\_fileupload/publications/ComReg1150e.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1150e.pdf) and  
[http://www.comreg.ie/\\_fileupload/publications/ComReg1150f.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1150f.pdf)

(1) This power limit is specified as EIRP for terminal stations designed to be fixed or installed and as Total Radiated Power (TRP) for terminal stations designed to be mobile or nomadic. EIRP and TRP are equivalent for isotropic antennas. It is recognised that this value is subject to a tolerance of up to + 2 dB, to take account of operation under extreme environmental conditions and production spread.

**Table 5. In-block Requirements for 800 MHz Terminal Stations**

## 5.5 Coverage and Roll-out

5.91 Paragraphs 5.60 to 5.106 of Document 11/60 and paragraphs A8.1 to A8.208 of Document 11/60a set out ComReg's then consideration of the coverage and roll-out conditions to be attached to liberalised licences issued in this Award Process.

5.92 Various issues associated with the coverage and roll-out obligation were discussed in these documents and this chapter discusses these issues in terms of the:

- General issues related to a coverage and roll-out obligation;
- Coverage and Roll-out obligation; and
- Additional considerations.

5.93 In addition, Annex 11 of this document sets out ComReg's final 'coverage' RIA.

### 5.5.1 General Issues Related to a Coverage and Roll-out Obligation

5.94 A number of general issues associated with coverage and roll-out obligations were considered by ComReg in Document 11/60 and Document 11/60a.<sup>196</sup>

5.95 In relation to whether it would be appropriate to set a coverage and roll-out obligation, ComReg noted that:

<sup>196</sup> In Documents 11/60 and 11/60a, the following general issues were considered :

- a) Should ComReg impose a coverage and roll-out obligation (paragraph 5.63 to 5.71 of Document 11/60 and paragraphs A8.5 to A8.23 of Document 11/60a);
- b) Symmetric or Asymmetric coverage and roll-out obligations (paragraph 5.72 to 5.79 of Document 11/60 and paragraphs A8.24 to A8.45 of Document 11/60a);
- c) Whether multiple frequencies should count towards the coverage obligation (paragraph 5.88 to 5.92 of Document 11/60 and paragraphs A8.77 to A8.86 of Document 11/60a);
- d) Whether national roaming should count towards coverage obligations (paragraph 5.93 to 5.95 of Document 11/60 and paragraphs A8.87 to A8.95 of Document 11/60a);

- it is entitled to attach coverage requirements to spectrum rights of use, as Part B of the Authorisation Regulations 2011<sup>197</sup> specifically mentions ‘coverage’ requirements as one of the requirements which can be attached;
  - even in competitive markets there is no guarantee that competition will deliver and maintain an acceptable level of coverage across the country, as operators may choose to ‘cherry-pick’ the market focusing on the most profitable market segment only. If ComReg wants to ensure that consumers enjoy services in at least the minimum specified percentage level of the country, then regulatory intervention is required in the form of a licence condition specifying a certain minimum level of coverage.
- 5.96 ComReg was therefore of the view that there were reasonable grounds for setting coverage and roll-out conditions in future licences for liberalised spectrum as a safeguard against ‘cherry picking’ and to ensure that consumers are provided with a reasonable level of coverage which is maintained.
- 5.97 ComReg also considered whether it would be appropriate to set symmetric or asymmetric coverage and roll-out obligations, and set out its view that it was appropriate to set the same coverage requirement for all categories of licensee but with asymmetric roll-out periods to facilitate market entry.
- 5.98 In relation to whether multiple frequency bands should count towards the coverage obligation, ComReg maintained its view that the benefits of allowing the use of multiple frequency bands to count towards a coverage obligation would outweigh the drawbacks. ComReg therefore proposed to allow the use of other frequency bands (namely the 2100 MHz band) to count towards meeting a proportion of the proposed coverage obligation.<sup>198</sup>
- 5.99 In discussing this issue and noting that a licence may contain multiple spectrum blocks, ComReg clarified its view that the coverage obligation would apply per licence and not per spectrum block.
- 5.100 Finally, in relation to whether national roaming should count towards coverage obligations, ComReg maintained its proposal that coverage via national roaming would not be allowed to count towards the coverage and roll-out obligation.

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<sup>197</sup> See S.I. No. 335/2011 — European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011, Part B.

<sup>198</sup> Specifically, ComReg proposed that the “*other frequency bands (namely the 2100 MHz band) could count towards the 70% coverage obligation, provided that a minimum of half of the 70% coverage level (i.e. 35% population coverage) is provided via spectrum in the 800/900/1800 MHz spectrum bands.*”

### 5.5.1.1 Views of Respondents

5.101 Two respondents, eircom Group and Vodafone provided comments relevant to these general issues.

5.102 eircom Group stated that it “*remains of the view that the “asymmetric roll-out targets are not adequately justified”*” and it believed that the term ‘New Entrant’ in the proposed licence conditions needs to be correctly defined. eircom Group maintained that the term ‘New Entrant’ as set out in the Draft Decision would encompass H3GI, and eircom Group was of the view that it would be “*unjustifiably discriminatory if it [H3GI] was afforded a longer roll-out period.*”

5.103 Vodafone<sup>199</sup> was of the view that:

- a symmetric roll-out obligation on all licensees to meet the coverage obligation within 3 years of licence award is the most appropriate and proportionate approach to use. Vodafone believed that an asymmetric roll-out obligation risks distorting the basis of competition in the market,<sup>200</sup> but it also added that ComReg’s interim milestone obligation (namely that a new entrant would have to reach half the coverage target within 3 years) somewhat mitigates its previously expressed concerns. It believed that this “*modified proposal should therefore be incorporated into the finalised licence conditions where asymmetric roll-out licence conditions are adopted.*”
- coverage via other frequency bands should count towards the coverage obligation, provided half of the coverage obligation is met by spectrum in the 800/900/1800 MHz bands;
- coverage via national roaming should not count towards the coverage and roll-out obligations.

### 5.5.1.2 DotEcon’s Updated View

5.104 DotEcon’s updated view on coverage and roll-out obligations is set out in section 14.3 of Document 12/24.

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<sup>199</sup> For further detail, see paragraphs 43-47 of Vodafone’s response to Document 11/60 as set out in Document 11/102.

<sup>200</sup> Amongst other things, Vodafone believed that it could delay the use of liberalised spectrum by ‘new entrants’ and could undermine the integrity of the auction process as two bidders would be effectively competing for different but mutually exclusive lots.

5.105 Overall, DotEcon states that its “*recommendations on coverage obligations remain unchanged relative to those outlined in ComReg document 11/58*” and in relation to the issue of asymmetric roll-out obligations, DotEcon:

- considers that “*these are necessary to allow new entrants sufficient time to build their network and a period over which they can improve and expand their network to reach the proposed coverage levels. However, in order to ensure a sufficiently high coverage level for provision of voice and advanced data services we should set a shorter time period for operators with a network already in place.*”
- does not believe that this creates two classes of lot that in some way ‘pollutes’ the auction due to lots being valued on a different basis. It believes that the “*lots are clearly defined and it is for each bidder – entrant or incumbent – to value these lots on the basis of the coverage obligations applying to that bidder, which are clearly identified.*”

### **5.5.1.3 ComReg’s Final Position**

5.106 The following set out ComReg’s final position in relation to each of these general issues.

#### **Should ComReg impose a coverage and roll-out obligation?**

5.107 ComReg firstly notes that no comments were received on the issue of whether it would be appropriate to include a coverage and roll-out obligation in liberalised licences or not.

5.108 In line with the Authorisation Regulations, ComReg remains of the view that it is entitled to attach coverage requirements to a spectrum right of use, and as set out in Annex 13, ComReg notes that many European administrations have attached coverage obligations to the spectrum rights of use issued in their jurisdictions.

5.109 Furthermore, ComReg maintains its view that even in competitive markets there can be no guarantee that competition will deliver and maintain an acceptable level of coverage across the country, as operators may choose to ‘cherry-pick’ the market focusing on the most profitable market segment only and this may destabilise competition.

5.110 Given the above, and ComReg’s analysis as set out in Document 11/60 and 11/60a, ComReg remains of the view that there are reasonable grounds for setting coverage and roll-out conditions in liberalised licences as a safeguard

against 'cherry picking' and to ensure that consumers are provided with a reasonable level of coverage which is maintained.

### **Symmetric or asymmetric coverage and roll-out obligations**

- 5.111 ComReg notes that two respondents, eircom Group and Vodafone, submitted comments in relation to ComReg's proposal to have a asymmetric roll-out obligation.
- 5.112 In relation to eircom Group's comment ComReg agrees that the asymmetric roll-out obligation applicable to a 'new entrant' does not apply to mobile operators with existing network infrastructure, such as H3GI, as such operators can use their existing networks and infrastructure towards meeting their coverage obligations. This is discussed further below. ComReg has therefore amended the text of the Liberalised Licence (see Annex 8) to clarify this issue.
- 5.113 In relation to Vodafone's comment, ComReg notes DotEcon's view that:
- it is necessary to allow new entrants sufficient time to build their network and a period over which they can improve and expand their network to reach the proposed coverage levels; and
  - asymmetric roll-out obligations do not create two classes of lot and in some way 'pollute' the auction.
- 5.114 ComReg agrees with the views of DotEcon and does not believe that an asymmetric roll-out obligation risks distorting competition in the market or risks 'polluting' the award process. ComReg believes that the coverage and roll-out obligations are clearly defined and that it is up to each bidder (new entrant or incumbent operator) to value these lots on the basis of the obligations applying to that bidder.
- 5.115 Furthermore, ComReg believes that setting an asymmetric roll-out obligation for a new entrant without existing mobile infrastructure is justified, as a new entrant<sup>201</sup> will require additional time to build out its network and reach the coverage obligation than an existing mobile network operator. In this regard, ComReg notes that an existing mobile operator can:

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<sup>201</sup> Within the meaning of the amended and clarified definition discussed above.

- use its existing networks where appropriate (e.g. its GSM network in the 900 MHz or 1800 MHz bands or its 3G network in the 2100 MHz band)<sup>202</sup> towards meeting the coverage obligation; and/or
- leverage its existing infrastructure (e.g. re-use mobile sites<sup>203</sup> in a network roll-out) towards meeting the coverage obligation.

5.116 In light of the above, DotEcon's updated assessment and ComReg's own analysis as set out in Document 11/60 and 11/60a, ComReg will set:

- the same overall coverage obligation for all categories of licensee; and
- asymmetric roll-out obligations which provide for the time in which operators are obliged to achieve the coverage obligations. The existing mobile network operators will have a different roll-out obligation to that of new entrants without a mobile network.

5.117 Furthermore, to ensure that a reasonable level of coverage is achieved by any new entrants in the early years of their licences, ComReg believes that it is appropriate to set an interim milestone.

### **Whether multiple frequency bands should count towards the coverage obligation;**

5.118 ComReg notes that no respondent objected to ComReg's proposal to allow coverage provided by other frequency bands to count towards the overall coverage obligation and that one respondent Vodafone expressly supported it.

5.119 Given the above, and ComReg's analysis as set out previously in Document 11/60 and 11/60a, ComReg is of the view that other frequency bands (namely the 2100 MHz band) can count towards meeting a proportion of the proposed coverage obligation.

<sup>202</sup> This is where coverage from other frequency bands (namely the 2100 MHz band) can be used towards meeting the coverage obligation in the 800 MHz 900 MHz and 1800 MHz bands.

<sup>203</sup> The number of 2G (i.e. GSM) and 3G sites of the existing mobile operators were set out in Table 2 of Document 11/11 (see below):

Operator	Share of total number of subscribers in Ireland (incl. HSDPA)	No of 2G Sites	No of 3G sites
H3GI	6.2%	N/A	719
Meteor	20.1%	1106	714
O2	33.2%	1591	979
Vodafone	40.5%	2152	1268



5.120 ComReg notes that aside from the 2100 MHz band, it may be appropriate to add other bands in the future. ComReg retains the right to amend licences in line with the provisions of the Authorisation Regulations.

### **Whether national roaming should count towards coverage obligations**

5.121 ComReg notes that no respondent objected to ComReg's proposal not to allow national roaming to count towards the overall coverage obligation and that one respondent Vodafone expressly supported it.

5.122 Given the above, and ComReg's analysis as set out previously in Document 11/60 and 11/60a, ComReg is of the view that coverage via national roaming will not be allowed to count towards the coverage and roll-out obligation.

## **5.5.2 The Coverage and Roll out obligation**

### **5.5.2.1 ComReg's Position in 11/60**

5.123 Paragraphs A8.1 to A8.208 of Document 11/60a and paragraphs 5.60 to 5.106 of Document 11/60 set out ComReg's consideration of the coverage and roll-out obligation.

5.124 In considering this issue, ComReg first set out its draft 'coverage' RIA which assessed the appropriate minimum level of coverage that should be set as part of the coverage licence condition for new liberalised licences issued in this Award Process.

5.125 In this draft 'coverage' RIA, ComReg considered five regulatory options,<sup>204</sup> and these options were analysed in terms of their impact on stakeholders and competition. On the basis of this draft RIA analysis, ComReg's was of the view that Option 3 (a coverage level between 50% and 70% of the population) would be the best option on competition grounds, and by extension, in the best interest of consumers, as it is unlikely to have a significant impact on the potential for market entry, all other things being equal, and at the same time, would be unlikely to destabilise the current equilibrium in relation to the cross subsidisation of rural coverage by urban coverage.

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<sup>204</sup> Option 1: Impose no obligation on coverage;

Option 2: Impose a coverage obligation which would require all new licensees to provide a minimum level of area coverage sufficient to serve less than or equal to 50% of the population;

Option 3: Impose a coverage obligation which would require all new licensees to provide a minimum level of area coverage sufficient to serve 50%-70% of the population;

Option 4: Impose a coverage obligation which would require all new licensees to provide a minimum level of area coverage sufficient to serve 71%-90% of the population; and

Option 5: Auction high coverage and low coverage blocks.

- 5.126 Additionally, ComReg was of the view that it favoured the top end of this range, 70%, as this would be in the best interest of consumers. Further, a longer roll-out period should be provided to a new entrant to the mobile market, as this would reduce the likelihood of the 70% demographic coverage level deterring new entry.
- 5.127 Having considered the draft RIA analysis, the views of the respondents and the reports prepared by its consultants, ComReg proposed that the 70% population coverage obligation should be applied to all liberalised licences.
- 5.128 Noting that a new entrant to the mobile market does not have an existing mobile network, ComReg considered it appropriate to allow it a longer roll-out timeframe. In this regard, ComReg proposed that the 70% population coverage obligation should be met within:
- 3 years for an existing mobile operator; and
  - 7 years for a new entrant to the mobile market.
- 5.129 To ensure that a reasonable level of coverage is achieved by a new entrant to the mobile market in the early years of its licence, ComReg proposed an interim coverage obligation of 35% population coverage within 3 years.
- 5.130 In line with ComReg's position on the use of multiple frequency bands, ComReg proposed that coverage provided via other frequency bands (namely the 2100 MHz band) could count towards the coverage obligation, provided a minimum of half of the 70% coverage level (i.e. 35% population coverage) was provided via spectrum in the 800/900/1800 MHz spectrum bands.

### **5.5.2.2 ComReg's Position in 11/75**

- 5.131 Document 11/75 set out ComReg's proposal for implementing the licence conditions as proposed in Document 11/60. Section 2.2.3 of Document 11/75 and Part 4, sub-section 1 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the minimum coverage and roll-out conditions associated with a Liberalised Use licence.

### **5.5.2.3 Views of Respondents**

- 5.132 Three respondents, eircom Group, Stephen Minch and Vodafone, provided comments on the coverage and roll-out obligations.

- 5.133 eircom Group stated that it agrees with “ComReg’s proposal to set a symmetric coverage target of 70% demographic coverage.”
- 5.134 Vodafone<sup>205</sup> was of the view that a 70% population coverage requirement is reasonable and consistent with ComReg’s key objectives, but, in its view, a 70% geographic coverage requirement would strike a superior balance.
- 5.135 Stephen Minch was of the view that ComReg should
- *“Maintain or increase the current level of 92% mandated coverage of the national area for voice and text.*
  - *Evaluate the benefits of a mandatory shared rural or national network.*
  - *Subject to 2 [the bullet above] above, require data coverage in 92% of national area within 5 years.”*
- 5.136 In his response to Document 11/60, Stephen Minch made a number of detailed comments<sup>206</sup> on ComReg’s coverage and roll-out proposals. These are summarised below:

#### **A) ‘Option 3’ in the draft ‘Coverage’ RIA:**

- Paragraphs A8.164 and A1.65 of Document 11/60a appear to have omitted towns in the population range 1001-1500;
- ComReg would need to specify how it plans to measure that group to ensure provider’s compliance; and
- It should be possible for ComReg to produce a representative coverage map of its own, that meets but does not exceed the minimum licence obligations as proposed under Option 3.

#### **B) Terminology:**

- ComReg uses the terms town and townland interchangeably. It should clarify what exactly it means and what CSO data it is using.

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<sup>205</sup> For further detail, see paragraph 42 of Vodafone’s response to Document 11/60 as set out in Document 11/102.

<sup>206</sup> For further details, see Stephen Minch’s response to Document 11/60 as set out in Document 11/102.

- ComReg should clarify that terms such as ‘level of area coverage sufficient to serve 50% - 70% of the population’ and ‘demographic coverage’ means population coverage only.

### **C) Electoral Divisions; Population coverage vs Area Coverage; and Minimum Coverage required by new licences:**

- An alternative method to represent potential coverage would be to use electoral divisions instead of towns, and 938 out of 3400 electoral divisions would amount to 70.06% of the population and 12.9% of the national area.

### **D) Roll-back**

- *“Coverage may be given prominence in advertising, but that is hardly an indicator of the accuracy of the claims made” and “ComReg has been delegated the task by ASAI of bringing realism to MNO advertising in a related topic; ‘up to’ or peak data download speeds.”*
- *“One trend that could emerge is that city-based consumers contract their main service from a low cost new entrant while maintaining a PAYG service from an incumbent to cover usage while in rural areas. ... The cost/revenue implications for incumbents if such a trend became established would be unsustainable and roll-back would be inevitable. Eventually there would be no rural provider remaining or just one, who was extracting a monopolistic rent.”*

### **E) Safety consequences for citizens and for the State:**

- *“There are obvious disadvantages to consumers from ‘roll-back’ but some safety issues arise also, mostly related to the inability to summon help or receive warnings in remote locations.”*
- *“It would be an open question as to whether liability would attach to the State in the above circumstances, where injury or death had occurred, and where a policy had been pursued that had foreseeable consequences such as ‘roll-back’.”*
- Under Regulation 17(6) of the Framework Regulations, the regulator is obliged under Irish and EU Law to have regard, amongst other things, for the safety of EU citizens.

### **F) Consumer Participation**

- *“While ComReg has a statutory role as guardian of the public interest, its responses to consultations have been for the most part to balance the interests of potential new market entrants as against incumbents, and to ensure the integrity of the auction process so as to maximise the value of the licences to the State. Its obligation to consumers has manifested only in an assumption that efficient allocation will be maximised through the auction process and that consumers’ interests will thereby be balanced with other stakeholders.”*

### **G) Miscellaneous:**

- Weighing of factors: *“It appears that there has been no scheme put in place for the systematic weighing and weighting of factors.”*
- Choice & Innovation: *“Small countries, particularly where there is high dispersion and low density do not have the luxury of sampling everything at an infrastructural level. It is extremely wasteful. Realistically Ireland is a ‘technology taker’ in this field at least”*
- Market Entry & Exit: *“much is made of low barriers-to-entry being uncontroversially a good thing. ComReg should consider if there is a desirable upper limit to the number of MNOs, and if there are not tools to ensure competition other than a continuing dilution of licence conditions in the hope of attracting new entrants, who are then required to build out yet another physical network? Any new network will inevitably cover the same high density areas (or some subset thereof) as the incumbents.”*

### **5.5.2.4 Updated Developments Relevant to Coverage**

- 5.137 This section sets out information on updated developments related to coverage.
- 5.138 At a European level, on 15 February 2012 the European Parliament adopted the five-year Radio Spectrum Policy Programme (RSPP),<sup>207</sup> and the RSPP is expected to come into force in due course.
- 5.139 The aim of the RSPP is to establish a multi-annual radio spectrum policy programme for the strategic planning and harmonisation of the use of spectrum in the EU in relation to spectrum policy areas such as electronic communications, research, technological development and space, transport, energy and audiovisual policies.<sup>208</sup> Amongst other things, the RSPP contains

<sup>207</sup> <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P7-TA-2012-0043+0+DOC+XML+V0//EN&language=EN>

<sup>208</sup> <http://register.consilium.europa.eu/pdf/en/11/st16/st16226.en11.pdf>

provisions related to the spectrum needs of wireless broadband communications and it is expected that the RSPP will oblige Member States:

- to make the bands covered by Decision 2008/411/EC (3.4–3.8 GHz), Decision 2008/477/EC (2.5–2.69 GHz), and Decision 2009/766/EC (900/1800 MHz) available under terms and conditions described in those decisions and to carry out the authorisation process by the end of 2012,
- to carry out the authorisation process in order to allow the use of the 800 MHz band for electronic communications services by 1 January 2013; and
- in cooperation with the Commission, to promote access to broadband services using the 800MHz band in remote and sparsely populated areas, where appropriate.

5.140 Across Europe, other countries have taken steps or completed the award processes for spectrum in the 800 MHz, 900 MHz or 1800 MHz bands and Annex 13 of this document sets out relevant information on these developments. As highlighted in that Annex, many different coverage obligations have been set or proposed across Europe, and each country has tailored its coverage obligation in light of the specific situations in that country.

5.141 With regard to the 800 MHz band, different coverage obligations have been set or proposed by different countries. For example:

- some countries (e.g. Germany, Italy, Spain) have set a coverage obligation which obliges the licensee to cover the rural areas first;
- a number of countries (e.g. Denmark, France, Italy, Portugal, Sweden, the UK) have focussed on addressing coverage in areas with poor coverage or no coverage i.e. the 'not-spot' areas. These countries have set or proposed coverage obligations such that the 'not spot' areas are covered first. The detail of these 'not spot' type coverage obligations vary per country. For example:
  - Some of these countries (e.g. Sweden, UK) have set or proposed to place this coverage obligation in one licence, while other countries (e.g. Denmark, Portugal, France, Italy) have set or proposed to place this obligation in multiple licences;
  - Some of these countries (e.g. Sweden, UK) have set or proposed to set aside funding or a proportion of the fees committed in relation to the 'not spot' coverage areas, while others have not (Denmark, Italy);

- Some of these countries (e.g. Denmark, France, Sweden) allow other technologies (e.g. cable, fibre, DSL) and/or national roaming to count towards meeting the coverage obligation; and
- Other countries (e.g. Finland, Norway, the Netherlands, Switzerland, the UK) have proposed obligations that do not specifically include a ‘not spot’ or a condition that rural coverage is provided first. The coverage obligation proposed in each country varies. For example the UK is considering a 98% population obligation on one licensee, Norway is proposing a 97% population obligation, Finland is proposing a 95% population obligation on one licensee and a 70% population obligation on the remaining licences, Switzerland is proposing a 50% population coverage obligation and the Netherlands is proposing a geographic coverage obligation of 3,080 km<sup>2</sup> (approx 7.4% of the country<sup>209</sup>).

5.142 Finally, within Ireland, the Rural Broadband Scheme (‘RBS’) is progressing and it is currently processing the 3700 (approx.) applications which have qualified under the terms of the scheme.<sup>210</sup> The RBS is a follow-on scheme to the National Broadband Scheme (‘NBS’) and by the end of 2012 it aims to provide broadband to the remaining small percentage of premises that have not been able to procure a broadband service in Ireland.<sup>211</sup>

### 5.5.2.5 DotEcon’s Updated View

5.143 DotEcon’s updated view is set out in ComReg 12/24 and overall DotEcon states that its “*recommendations on coverage obligations remain unchanged relative to those outlined in ComReg document 11/58.*”<sup>212</sup>

<sup>209</sup> The area of the Netherlands is 41,543 km<sup>2</sup>

Source: <https://www.cia.gov/library/publications/the-world-factbook/geos/nl.html>

<sup>210</sup> <http://www.dcenr.gov.ie/Communications/Communications+Development/Rural+Broadband+Scheme>

<sup>211</sup> <http://www.dcenr.gov.ie/Press+Releases/2011/Rural+Broadband+Scheme+Progress+Update.htm>

<sup>212</sup> Paragraph 460, 461 and 467 of Document 11/58 state:

- “460. We believe that the obligation for a symmetric 70% of population coverage requirement (though with differing roll-out periods (3 years for incumbents and 7 years for entrants)) proposed by ComReg is sufficient to ensure that cherry picking solely of high-density urban areas could not occur. It is also modest enough to avoid any risk of forcing the build-out of competing networks to low population density areas where cost efficiency would be best achieved by reducing network duplication.
- 461. We consider that the precise level of coverage is not especially critical, as a wide range of alternative levels would probably equally well achieve these two objectives (i.e. stopping cherry picking without forcing inefficient duplication).”

- 5.144 Dotecon noted that Document 11/58 set out in specific detail its views on a higher coverage obligation and it refers readers to Section 13 of that report in particular.
- 5.145 In relation to the proposal that data coverage should also be required to reach 92% of national area, DotEcon repeats a number of previously made points.
- *“in order to achieve very high coverage levels, it is in fact typical to use ‘not spot’ obligations instead. These obligations specify particular locations where services should be available.*
  - *The Rural Broadband Scheme can be considered to tackle this issue and is provided in addition to the National Broadband Scheme, which aim to ensure the availability of broadband to all households in Ireland.*
  - *In addition, we considered that the precise level of coverage is not especially critical, as a wide range of alternative levels would probably equally well achieve the objectives of ensuring that ‘cherry picking’ of solely high-density urban areas does not occur, without enforcing inefficient duplication of rural networks.”*
- 5.146 DotEcon does not consider *“the risk of roll-back of voice coverage to be significant for the reasons outlined in Section 13.1.3 of ComReg document 11/58.”* In this regard, DotEcon notes that *“coverage obligations are an important competitive differentiator, and all operators have an incentive to provide coverage to as many customers as possible. This can also be shown by the fact that operators are exceeding existing coverage obligations, which are already set at a relatively high level.”*
- 5.147 Finally, DotEcon notes that setting the coverage obligation on the basis of a population figure *“should ensure coverage for the majority of the population, and in the areas where it is most likely that mobile phone usage will be prevalent.”*

### 5.5.2.6 ComReg’s Final Position

#### The Coverage obligation

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- *“467. As such, there is a good case for not setting coverage obligations at very high levels and addressing coverage issues if and when they arise. In particular, if there turns out to be a rural data coverage issue it is difficult to know in advance what the root cause of the problem might be and, therefore, what the best corrective intervention should be. Under this approach, where such a coverage issue were to arise, policy makers in Ireland and/or ComReg would be able to tailor the remedy taking into account the factors underlying the problem.”*



- 5.148 From the views of respondents ComReg notes that one respondent, eircom Group, supported ComReg's proposed 70% population coverage obligation, while two respondents, Vodafone<sup>213</sup> and Stephen Minch, proposed a higher coverage obligation.
- 5.149 ComReg has considered these comments in the final 'coverage' RIA as set out in Annex 11 and is of the view that the preferred coverage option is a 70% population obligation. As discussed in the final 'coverage' RIA, ComReg is of this view, as:
- existing operators are likely to prefer a medium to high level of coverage while prospective new entrants are likely to prefer a minimum level to aid market entry and maximise flexibility.
  - a high coverage level could act as a barrier to entry, as it would entail a major own-build network rollout.
  - any option that could deter entry would clearly be bad for competition and consumers whilst an option that could potentially de-stabilise the current urban / rural cross-subsidisation equilibrium might also negatively impact consumers.
  - setting a minimum coverage obligation at an appropriate level requires finding the balance between these factors including the likely preference of prospective new entrants and consumers.
  - In ComReg's view a minimum coverage level in the 50-70% population range seems unlikely to significantly deter entry or to result in inefficient infrastructure investment.
  - the higher the point adopted in this range the less risk of the current equilibrium level of coverage being distorted through a destabilising effect on the cross-subsidisation model. For this reason and in the best interests of consumers, ComReg believes it is preferable to adopt a cautious approach and choose a point at the top end of this range i.e. 70% of the population.
- 5.150 In addition, ComReg notes that the views of respondents have also been considered by DotEcon in Document 11/58 and Document 12/24; and

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<sup>213</sup> Vodafone considers that a minimum 70% geographic coverage requirement would strike a superior balance between the relevant objectives such as promoting competition, investment, and consumer welfare.

- DotEcon believes that a 70% of population coverage requirement is sufficient to ensure that cherry picking solely of high-density urban areas could not occur and is also modest enough to avoid any risk of forcing the build-out of competing networks to low population density areas where cost efficiency would be best achieved by reducing network duplication.
- DotEcon notes that the risk of roll-back of voice coverage appears quite limited and there is a good case for not setting coverage obligations at very high levels but addressing coverage issues if and when they arise.
- In relation to high coverage proposals such as the proposal that data coverage should be required to reach 92% of the population, DotEcon notes that 'not spot' obligations have generally been used to address this issue and the RBS and NBS in Ireland can be considered as tackling the availability of broadband to all households in Ireland.

5.151 In considering the coverage obligations set out elsewhere in Europe, ComReg notes that a number of countries have set 'not' spot obligations or high coverage obligations in excess of 70% population coverage.

- In relation to the 'not spot' or rural area coverage obligations, ComReg notes that Ireland is different to many other European countries, as in Ireland the availability of broadband to all households has already been addressed via the RBS and NBS.<sup>214</sup> Given this, ComReg believes that a further 'not spot' coverage obligation is not necessary in Ireland.
- In relation to a coverage obligation in excess of 70% population coverage, ComReg notes that this option was considered and dismissed in the 'coverage' RIA, as, amongst other things, this option could deter entry and reduce competition in the market and prevent an efficient auction outcome. Given these concerns, ComReg does not believe it appropriate to consider this option further.

5.152 In setting a coverage obligation ComReg believes that there are a number of considerations to be taken into account.

5.153 ComReg is of the view that a coverage obligation should safeguard against 'cherry picking' destabilising competition. In this regard, ComReg agrees with DotEcon that a 70% of population coverage requirement is sufficient to ensure against the 'cherry picking' of high-density urban areas, as this coverage level

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<sup>214</sup> As noted earlier, by the end of 2012 the RBS aims to provide broadband to the remaining small percentage of premises that have not been able to procure a broadband service in Ireland.

ensures that an operator cannot, for example, simply 'cherry pick' the five most populated cities in Ireland as this coverage would be less than 70% of the population.

5.154 ComReg believes that a coverage obligation should be modest enough to avoid inefficient network infrastructure investment such as unnecessary duplication of network infrastructure in low population density areas. ComReg believes that a 70% population obligation facilitates this objective and ComReg notes that DotEcon also agrees with this view.

5.155 ComReg is also of the view that a coverage obligation should ensure that consumers are provided with a reasonable level of coverage and this coverage is maintained. In this regard, ComReg notes that coverage is an important competitive differentiator, and one that is often given prominence in advertising and marketing. Given this importance, ComReg believes that:

- competition between networks is likely to drive coverage in excess of the 70% population obligation, and in this regard ComReg notes that each of the GSM and 3G licensees have exceeded the coverage obligations as set out in their existing GSM and 3G licences;
- the risk of roll-back of coverage from the existing levels appears quite limited as on the basis of competition between networks the first MNO to roll back voice coverage would create significant opportunities for rivals to win its customers;
- new technologies such as public access femtocells could provide an economically justifiable mechanism for operators to provide access to small rural population clusters;<sup>215</sup> and
- furthermore, ComReg notes that the higher obligations in the 3G licences also act as a deterrent to roll-back and these obligations are effective until the 3G licences expire (2022 and 2027).

5.156 Given the above, ComReg is of the view that the 70% population obligation is proportionate, reasonable and appropriate having regard to ComReg's statutory objectives, for the following reasons:

- actual coverage levels are expected to exceed this 70% population obligation by a considerable margin given the competitive nature of the market and the limited risk of roll-back of coverage from the existing levels;

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<sup>215</sup> See: <http://iteworld.org/news/37-femtocell-deployments-23-countries>

- a 70% population coverage level is sufficient to provide coverage in all the townlands in Ireland with 50 inhabited houses or more. At the same time mobile network operators will have both the opportunity (through substantially reduced costs) and the incentive (through strong competition on coverage) to provide a service over a greater area;
- the existing GSM and 3G mobile networks have higher levels of coverage than 70%, meaning that these operators could leverage their existing network infrastructure enabling them to offer coverage levels in excess of 70% of the population;
- the level is without prejudice to the possibility of legitimate operator co-operation (such as network sharing) arising in the future. This has the potential to be a more efficient means of serving sparsely populated areas. So long as there remains effective competition between networks, such co-operation allows operators to minimise their costs and avoid any inefficient infrastructure duplication; and
- this level seems unlikely to deter new entrants or incumbents from entering into the auction and competing for spectrum.

5.157 ComReg's final position is that a minimum coverage obligation of 70% of the population should be applied to all liberalised licences.

### **The Roll-out obligation**

5.158 As discussed earlier, ComReg is of the view that it is appropriate to set a symmetric coverage obligation of 70% of the population with asymmetric roll-out obligations to facilitate market entry. In addition ComReg is of the view that an interim milestone should be set for new entrants to the mobile market.

5.159 In relation to specifics of the roll-out obligation, ComReg believes that:

- a 3 year time period is appropriate for existing mobile operators to meet the 70% population obligation, as amongst other things, these operators can leverage their existing infrastructure and use their existing networks to meet this coverage obligation. In addition ComReg notes these operators have previously exceeded similar coverage and roll-out obligations in relation to their 3G licences;
- a 7 year time period is appropriate for a new entrant to the mobile market to meet the 70% population obligation. In this regard, ComReg notes that previous

new entrants to the mobile market (e.g. H3GI and Meteor) have met or exceeded a similar coverage and roll-out obligation when rolling out their networks; and

- a 3 year time period is appropriate for a new entrant to the mobile market to meet the interim 35% population obligation. Similar to the above, ComReg notes that previous new entrants to the mobile market (e.g. H3GI and Meteor) have met or exceeded a similar coverage and roll-out obligation when rolling out their networks.

5.160 ComReg's final position is that

- for an existing mobile operator, the 70% population coverage obligation is to be met within 3 years; and
- for a new entrant to the mobile market, the 70% population coverage obligation is to be met within 7 years and the 35% population coverage obligation is to be met within 3 years.

### **Use of other frequency bands to meet the coverage obligation**

5.161 ComReg is of the view that it is appropriate to allow other frequency bands (namely the 2100 MHz band) could count towards the coverage obligation.

5.162 In relation to the specifics of this obligation, ComReg notes that no respondent objected to ComReg's proposal as set out in Document 11/60, and ComReg is of the view that this proposal remains valid.

5.163 In relation to the other frequency bands that can count towards the coverage obligation, ComReg is of the view that the 2100 MHz band is the only other frequency band that can currently provide a seamless service to those services that can be provided in the 800 MHz, 900 MHz and 1800 MHz bands. Given this, ComReg believes that the 2100 MHz band is the only other frequency band that can currently be specifically listed in the liberalised licence. However ComReg notes that other frequency bands (e.g. the 2300 MHz band, 2600 MHz band, the 3600 MHz band, etc.) may offer seamless services in the future and ComReg therefore retains the right to amend the liberalised licences as appropriate in this regard.

5.164 Given the above, and the reasoning as set out in Document 11/60 and Document 11/60a, ComReg's final position is that other frequency bands (namely the 2100 MHz band) can count towards the coverage obligation,

provided a minimum of half of the 70% coverage level (i.e. 35% population coverage) is provided via spectrum in the 800/900/1800 MHz spectrum bands.

### **Other issues raised**

5.165 ComReg notes that Stephen Minch raised a number of detailed issues in his response to Document 11/60. ComReg's final position on these matters is set out below.

#### **A) 'Option 3' in the 'Coverage' RIA:**

5.166 Option 3 in the 'coverage' RIA as set out in Annex 11 of this document has been amended to include the townlands in the population range 1001-1500.

5.167 In relation to the measurements required by the licensee to assess compliance, ComReg's view on this issue is set out in section 5.5.3.

5.168 It is not appropriate for ComReg to produce a representative map of its own as ComReg does not set the exact areas which a licensee will cover. Rather, licensees are free to choose their service areas provided the 70% population coverage is met.

#### **B) Terminology:**

5.169 Consistent terminology has been used in this document in relation to 'townlands' and '70% population' obligation.

#### **C) Electoral Divisions; Population coverage vs Area Coverage; and Minimum Coverage required by new licences:**

5.170 ComReg notes that electoral divisions are another way of representing potential coverage and that 938 out of 3400 electoral divisions would amount to 70.06% of the population and 12.9% of the national area. As discussed above, ComReg is of the view that a 70% population obligation would amongst other things be sufficient to prevent 'cherry picking'.

#### **D) Roll-back**

5.171 As discussed above and in the final 'Coverage' RIA as set out in Annex 11, ComReg believes that the likelihood of roll-back is limited.

5.172 In relation to the assertion that "*ComReg has been delegated the task by ASAI of bringing realism to MNO advertising in a related topic; 'up to' or peak data download speeds,*" ComReg would point out that it was not delegated a task by

the Advertising Standards Authority of Ireland (ASAI) on the advertising of broadband speeds, nor would it be appropriate. The ASAI has in the past sought technical input from ComReg and ComReg has worked closely with the ASAI in relation to this matter, resulting in the ASAI issuing an Advice Note on Broadband Advertising in March 2008. The matter of advertising is the responsibility of ASAI, however, ComReg is of the view that the availability of transparent, consumer friendly, information in respect of the actual speeds experienced by consumers when using broadband products is an important factor and that it would help to inform consumer choice.

### **E) Safety consequences for citizens and for the State:**

5.173 ComReg notes the comments on the safety consequences for citizens or for the State and would point out that mobile services are not a designated universal service as defined in Regulation 3 of the Universal Service and User's Rights Regulations 2011.<sup>216</sup> Furthermore, as discussed in section 5.2 of this document, liberalised licences are to be issued on a technology and service neutral basis and the licensee is not obliged to provide a specific service. Notwithstanding this, ComReg notes that it also has powers under the Universal Service and User's Rights Regulations and the General Authorisation concerning the provision of emergency services.

### **F) Consumer Participation**

5.174 Annex 12 of this Document considers the comments in relation to this issue.

### **G) Miscellaneous:**

5.175 Weighing of factors: Annex 12 of this Document considers the comments in relation to this issue.

5.176 Choice & Innovation: ComReg notes the comments and generally agrees that Ireland is a 'technology taker' in this regard.

5.177 Market Entry & Exit: These issues have been considered in Chapter 3 and Chapter 4.2 of this document. ComReg does not believe that it is necessary to consider if there is a desirable upper limit to the number of MNOs and considers this argument essentially equivalent to the arguments advanced by H3GI in relation to minimum spectrum portfolios.

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<sup>216</sup> As defined in Regulation 3 of the Universal Service and User's Rights Regulation 2011, S.I. No. 337 of 2011 which states that 'a designated undertaking shall satisfy any reasonable request to provide at a fixed location connection to a public communications network'.

## Summary of ComReg's final position

5.178 In light of the above, ComReg's final position is that a 70% population coverage obligation is to be set in all liberalised licences and:

- for an existing mobile operator, the 70% population coverage obligation is to be met within 3 years; and
- for a new entrant to the mobile market, the 70% population coverage obligation is to be met within 7 years. In addition, the new entrant to the mobile market will be obliged to meet a 35% population coverage obligation within 3 years.

5.179 Other frequency bands (namely the 2100 MHz band) can count towards the coverage obligation, provided a minimum of half of the 70% coverage level (i.e. 35% population coverage) is provided via spectrum in the 800/900/1800 MHz spectrum bands.

### 5.5.3 Additional Considerations Related to the Coverage and Roll-out Obligations

5.180 Two additional considerations related to the coverage and roll-out obligations were considered in Document 11/60, namely the :

- coverage measurement metrics; and
- performance guarantees and reporting on compliance;

#### 5.5.3.1 The Coverage Measurement Metrics

##### ComReg's position in Document 11/60

5.181 Paragraphs 5.96 to 5.101 of Document 11/60 and paragraphs A8.96 to A8.119 of Document 11/60a set out ComReg's then view of the coverage measurement metrics associated with a liberalised licence.

5.182 In setting out these specifications, ComReg firstly noted the suggestion of measuring coverage via the availability of a service. While ComReg understood the principle, and agreed that linking coverage to a service is a good aim which is particularly relevant when advertising a service to customers, ComReg noted that there were some difficulties with this approach.<sup>217</sup> Given these difficulties

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<sup>217</sup> For example, a recognised quality standard would be needed for every service offered by a licensee, such as voice, broadband, etc. and it is not always clear what the internationally recognised quality standard is. Even where such an internationally recognised quality standard exists, it is likely that this



and noting that the field strength approach for measuring coverage in the existing licences for the GSM and 3G technologies has worked well in the past, ComReg proposed to set coverage measurement metrics on a per technology basis.

- 5.183 Having considered the coverage practices associated with the existing GSM and 3G licences and other relevant international studies and standards, ComReg proposed that coverage using the GSM, UMTS or LTE technologies would be measured using either a Field Strength ('FS') measurement (dB( $\mu$ V/m)) or a Carrier to Noise Ratio ('CNR') measurement, namely the ratio of the received energy per chip and the interference level (' $E_c/I_o$ ') or the Block Error Ratio ('BLER').
- 5.184 In Part 4, sub-section 2 of Annex 8.6 of Document 11/60a (i.e. the draft licence schedule), ComReg set out its FS and  $E_c/I_o$  or BLER coverage measurement metrics proposals on a, per technology (namely the GSM, UMTS and LTE technologies) and spectrum band basis. In proposing these coverage measurement metric specifications, ComReg noted, amongst other things that these specifications should provide a good proxy for the availability of services to users.
- 5.185 ComReg noted that other measurement standards and/or technologies may emerge in the future and in line with the Authorisation Regulations, ComReg therefore retained the right to specify coverage measurement metrics for these other technologies (e.g. WiMAX, etc.) and to specify different coverage measurement metrics or specifications as appropriate.

### **ComReg's position in Document 11/75**

- 5.186 Document 11/75 set out ComReg's proposal for implementing the licence conditions as proposed in Document 11/60 and Part 4, sub-section 2 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the coverage measurement metrics.

### **Views of respondents**

- 5.187 Three respondents, H3GI, eircom Group and Vodafone, provided comments on the proposed coverage measurement metrics.

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quality standard will actually be translated into a received signal level or some other technical parameter in order to measure it in the field.

- 5.188 In its response to Document 11/60, eircom Group stated that it remained “concerned that there is some ambiguity in the methodology applied for conversion Electric Field Strength per 5MHz and Electric Field Strength per MHz metrics”. It believed the proposed Electric Field Strength per MHz figures are unrealistically high<sup>218</sup> and it requested ComReg to re-consider the matter. In addition, eircom Group stated that it has “no objection to the proposed Block Error Rate metrics.”
- 5.189 In its response to Document 11/75, Vodafone was of the preliminary view that the coverage measurement metrics may constitute a significantly higher standard than that required in order to offer a reasonable and commercially attractive service from both a consumer and supplier perspective. It stated that it “is undertaking some internal modelling using the proposed metrics and will submit further views on this matter in the near future.”
- 5.190 H3GI submitted a comment specific to paragraph A8.113 of Document 11/60a<sup>219</sup>, where it stated that it did “not agree with this proposal on the basis that it would involve the disclosure of confidential and information not designed for these purposes.”

### ComReg’s final position

- 5.191 ComReg notes that two respondents, Vodafone and eircom Group, provided comments on the coverage measurement metrics, while H3GI submitted a comment specific to presentation of maps to consumers.

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<sup>218</sup> eircom Group was of the view that “ComReg has converted (ComReg 11/60a, Paragraph A8.116) a value of  $48\text{db}\mu\text{V}/\text{m}$  for a 5MHz bandwidth to a  $62\text{db}\mu\text{V}/\text{m}/\text{MHz}$  figure. ComReg appears to have added  $20\log(5)$  to 48 to get a value of 62. eircom Group believes the correct conversion is to subtract  $10\log(5)$  to get  $41\text{db}\mu\text{V}/\text{m}/\text{MHz}$ . We note that other administrations, for example Finland and Sweden appear to apply a methodology consistent with our own view (<http://www.pts.se/upload/Ovrigt/Radio/Koordavtal-Finland-2500-2690MHz.pdf>). Similarly, this methodology is also recommended within ECC/Rec/(11)04 (in cases of other frequency block sizes  $10 \times \log(\text{frequency block size}/5\text{MHz})$  should be added to the field strength values”).

<sup>219</sup> Paragraph A8.113 of Document 11/60a stated “As there is no practicable way in which indoor coverage can be verified on a large scale, all coverage obligations should be taken as the percentage of population coverage achieved with the target field strength level measured outdoors. ComReg notes that MNOs typically have coverage maps on their web sites showing both indoor and outdoor coverage. ComReg believes that these maps are of limited value, particularly with products such as Mobile Broadband (HSDPA) and would be best replaced by similar colour coded maps where signal differences are noted by six dB drops (i.e. with maybe four to six different intensities of colour, representing a 24 to 30dB range in signal) and text explaining the relationship between the colour intensities and the service expected.”

- 5.192 In relation to H3GI's comment that paragraph A8.113 of Document 11/60a would involve the disclosure of confidential and information not designed for these purposes, ComReg notes that all of the Irish MNOs provide coverage maps with varying degrees of granularity on their publicly available websites, and therefore information on coverage is already in the public domain. In relation to the information provided in such maps, ComReg considers that MNOs should provide sufficiently graduated and detailed coverage information to consumers in order to enable such consumers to make an informed decision about the service they can expect to receive.
- 5.193 In relation to coverage measurement metrics, ComReg has carefully considered the views of the respondents and outlines ComReg's final position on the coverage measurement metrics. In relation to the respondents views that the coverage measurement specifications may be too high, amongst other things:
- Vodafone has not submitted the results of any further internal modelling on this matter and therefore ComReg did not have any information from Vodafone to analyse against its preliminary view that the coverage measurement metrics may constitute a significantly higher standard than that required in order to offer a reasonable and commercially attractive service from both a consumer and supplier perspective;
  - For the reasons as set out in Annex 6 ComReg is of the view that it would be incorrect to adjust the coverage measurement metric specifications set out in Document 11/60 as per eircom Group's suggestion.
- 5.194 As set out in Annex 6, ComReg's final position is that the coverage measurement metrics as set out in Document 11/60 which are in any event now specified with a measurement bandwidth equal to the nominal channel size in respect of LTE and UMTS signals, are appropriate. For clarity and ease of comparison reasons, these coverage measurement metrics are now being presented in tabular format, as set out in Table 6 below, and the liberalised use Licence (see Annex 8 of this Document) has been updated to include this table.

Terrestrial System and bandwidth	800MHz FS (dB(µV/m))	800MHz Ec/Io or BLER	900MHz FS (dB(µV/m))	900MHz Ec/Io or BLER	1800MHz FS (dB(µV/m))	1800MHz Ec/Io or BLER
GSM (0.2MHz)	45	N/A	46	N/A	54	N/A
UMTS (5MHz)	49	-8	50	-8	57	-8

LTE (5MHz)	47	10 <sup>2</sup>	48	10 <sup>2</sup>	55	10 <sup>2</sup>
LTE (10MHz)	44	10 <sup>2</sup>	45	10 <sup>2</sup>	52	10 <sup>2</sup>
LTE (15MHz)	42.5	10 <sup>2</sup>	43.5	10 <sup>2</sup>	50.5	10 <sup>2</sup>
LTE (20MHz)	41	10 <sup>2</sup>	42.5	10 <sup>2</sup>	49.5	10 <sup>2</sup>

**Table 6. The Coverage Measurement Metrics for a Liberalised Use Licence**

5.195 In relation to the assessment of coverage, ComReg notes eircom Group's comment regarding the measurement of an "average pilot signal field strength or Block Error Rate". ComReg is of the view that both the FS and the Ec/Io or BLER parameters will be measured and compared to the coverage measurement metrics specified in the above table, and:

- where both a FS and an Ec/Io or BLER metric are specified in Table 6 for a particular technology (i.e. UMTS and LTE), an area will be deemed to have coverage where the Ec/Io or BELR exceeds the levels as set out in Table 6, even if the Field Strength is less than the value shown in Table 6.
- where a FS metric is the only metric specified in Table 6 for a particular technology (i.e. GSM), an area will be deemed to have coverage where the Field Strength in Table 6 is met.

5.196 ComReg notes that other measurement standards and/or technologies may emerge in the future and in line with the Authorisation Regulations, ComReg retains the right to specify coverage measurement metrics for these other technologies (e.g. WiMAX, etc.) and to specify different coverage measurement metrics or specifications as appropriate.

### **5.5.3.2 Performance Guarantees and Reporting on Compliance**

#### **ComReg's position in Document 11/60**

5.197 Paragraphs 5.102 to 5.106 of Document 11/60 and paragraphs A8.120 to A8.130 of Document 11/60a set out ComReg's then view on the performance guarantees to be associated with the coverage and roll-out obligations in a liberalised licence.

5.198 Given the importance of coverage and roll-out conditions for the provision of services to consumers, ComReg stated that it proposed to include a

performance guarantee of €2 million in respect of the coverage and roll-out obligations.

5.199 In relation to reporting on compliance, Part 4, sub-section 3 of the draft liberalised licence set out in Annex 8.6 of Document 11/60a stated that the licensee shall submit a compliance report every 6 months.

### **ComReg's position in Document 11/75**

5.200 Document 11/75 set out ComReg's proposal for implementing the licence conditions as proposed in Document 11/60. With regard to the coverage and roll-out conditions within a Liberalised Use licence:

- Paragraph 2.37 of Document 11/75 and Part 4, sub-section 4 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the performance guarantee condition; and
- Part 4 sub-section 3 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the reporting on compliance condition.

### **Views of respondents – Performance Guarantees**

5.201 Three respondents, eircom Group, H3GI and Vodafone, provided comments on ComReg's proposal for the provision of performance guarantees in respect of the coverage and roll-out conditions.

5.202 In its response to Document 11/75, eircom Group first noted that the performance guarantees must be maintained for the duration of the Liberalised Use Licence. Given this information, and eircom Group's assumption that the costs of a financial instrument could be in the region of 2% of the sum guaranteed:

- eircom Group noted that the proposed performance guarantees total of €3m (for both the coverage and roll-out obligation and the QoS obligations) would equate in its view to a financing cost of circa €60k per annum (approx. €1m over the licensing period under consideration); and
- eircom Group believed that "*this is a non-trivial sum that could be better invested in rolling out network services.*"

- 5.203 In light of this information, and having considered the issue further since it submitted its response to Document 11/60,<sup>220</sup> eircom Group asserted that “a more pragmatic and cost effective approach to maintaining financial guarantees would be to establish that the Licence may be suspended or withdrawn in the event that a Licensee fails to pay sums due on demand within 30 days of the demand being issued, in the event of failing to achieve either the coverage or quality of service obligations.”
- 5.204 In its response to Document 11/75, H3GI objected to ComReg’s proposal to include a €2 million performance guarantee in respect of coverage and roll-out obligations. It believed that a performance guarantee was not necessary to ensure compliance.<sup>221</sup>
- 5.205 Vodafone, in its response to Document 11/75, believed that the “performance guarantees amount to a process for imposing an administrative fine other than in accordance with the Authorisation Regulations.”<sup>222</sup>

### Views of respondents – Reporting on Compliance

- 5.206 One respondent, eircom Group, provided comments on the proposed reporting on compliance condition.
- 5.207 eircom Group, in its response to Document 11/75, believed that ComReg’s proposal to assess compliance every six months would place a considerable burden on the licensees and on ComReg itself. Given this, eircom Group suggested that that compliance assessment should be carried out annually.

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<sup>220</sup> See page 26-28 (Licence, Part 4, Roll-out and Coverage Requirements’) of eircom Group’s response to Document 11/60, as published in Document 11/102.

<sup>221</sup> In addition, and as per its response to Document 11/60, H3GI stated that it is “inappropriate and disproportionate for an operator to forfeit the entire amount of the Performance Guarantee in respect of coverage and roll-out, and QoS obligations, without any facility / mechanism for the degree of non-performance to be reflected in the amount forfeited.”

<sup>222</sup> Specifically, Vodafone stated that:

- “the proposed performance guarantee, both in its nature and proposed application, amounts to an alternative enforcement mechanism which seeks to circumvent the requirements of the Authorisation Regulations.”;
- “the quantum of the performance guarantee is such that it amounts to a fine. Fines of this quantum could, in the normal course, only be imposed by a Court of competent jurisdiction. Vodafone cannot identify any legislative basis which would allow ComReg specify a regime for administrative fines which circumvents this requirement.”; and
- “even in circumstances where ComReg demonstrates its ability to impose such a fine we are of the view that the conditions under which the fine can be imposed and the appeal process must be more clearly defined. We are also of the view that there must be some degree of proportionality in the penalty.”

5.208 In addition, eircom Group noted ComReg’s proposal that the licensee should measure and submit a compliance report for each assessment and further queried ComReg’s intentions in respect of the compliance assessment requirements. eircom Group stated that “*a proportionate scheme for assessing coverage compliance would be for licensees to submit coverage statistics from their RF planning tools and ComReg can, to the extent it believes it is necessary, compare these to the results of its own drive test surveys.*”<sup>223</sup>

### **ComReg’s final position – Performance Guarantees**

5.209 In relation to ComReg’s proposal to apply performance guarantees in respect of the coverage and roll-out obligations, ComReg notes that both high-level and detailed concerns were raised.

5.210 In relation to the high-level issues raised, ComReg notes:

- Vodafone’s comment that “performance guarantees are a process for imposing an administrative fine other than in accordance with the Authorisation Regulations” and
- H3GI’s comment that performance guarantees are unnecessary.

5.211 In considering these issues, ComReg generally observes that its experience with performance guarantees in spectrum licensing (e.g. current GSM 900 MHz and 1800 MHz and 3G 2.1 GHz regimes) indicates that they provide a real and positive incentive to comply with primary licence conditions (e.g. coverage and roll-out and QoS).

5.212 In relation to the detailed comments, ComReg notes that:

- each of eircom Group, H3GI and Vodafone expressed concerns regarding the proportionality of ComReg's proposal;
- eircom Group submitted comments on the costs associated with submitting and maintaining a performance guarantee over the duration of a Liberalised Use Licence and suggested that this may be in the region of 2% of the sum guaranteed or approximately €1m over the licensing period for both the Coverage and QoS performance guarantees; and

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<sup>223</sup> Note, eircom Group stated that “*in the course of our business we measure and monitor coverage and network quality of service using our calibrated RF planning tool in respect of coverage and our network management systems in respect of quality of service.*”

- eircom Group suggested an alternative approach whereby the failure of a licensee to meet a licence obligation would act as a trigger to ComReg 'in essence' activating the financial guarantee.
- 5.213 In relation to the first issue, ComReg appreciates the submissions received and agrees that there is scope for the proposal to better reflect the particulars (e.g. extent) of the licence compliance failure.
- 5.214 In relation to eircom Group's comments on the costs associated with submitting and maintaining a performance guarantee and its suggested alternative approach, ComReg firstly notes that bidders in the auction can, of course, factor such costs into their bidding strategy. In relation to eircom Group's argument that costs associated with performance guarantees could be better spent on other things (such as network investment), in ComReg's view, this argument, unduly focuses upon the costs of such a scheme without considering the potential countervailing benefits (which, ComReg acknowledges may be difficult to quantify insofar as they incentivise actions to not occur).
- 5.215 These submissions have, nevertheless, given reason for ComReg to further consider its proposal and, following same, ComReg notes that:
- the benefits that would be obtained with a performance guarantee system in present circumstances are likely to be lower than those that accrued with existing licensing regimes given that the coverage and roll-out obligation of 70% population is significantly lower than those previously set. Moreover, ComReg's previous experience would suggest that the likelihood of non-compliance with a 70% obligation should be reasonably low;<sup>224</sup>
  - in that context, ComReg appreciates that the costs of submitting and maintaining a performance guarantee may appear higher than what a licensee may reasonably expect (particularly given the current macro-economic environment) and ComReg notes that the removal of such costs could also encourage greater participation in the spectrum award, particularly by new entrants.
- 5.216 Given the above factors, ComReg has decided to not further consider attaching performance guarantee obligations in respect of the coverage and roll-out obligations associated with a Liberalised Use Licence.

## ComReg's final position – Reporting on Compliance

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<sup>224</sup> ComReg notes that a similar argument would apply to the QoS obligation, as past experience suggest that the likelihood of non compliance with QoS obligations is quite low.



5.217 In relation to ComReg's reporting on compliance proposal, ComReg notes that one respondent, eircom Group, provided comments and it:

- submitted that compliance assessments be carried out annually instead of every six months; and
- requested clarifications on ComReg's assessment requirements.

5.218 In relation to the appropriate period for carrying out compliance assessment, ComReg notes eircom's submission and agrees that it would be reasonable to carry out compliance assessments on an annual basis instead of on a six monthly basis. As set out in Annex 8 of this document, this annual compliance report is to be submitted each calendar year within 31 days of the anniversary of the commencement date of the Liberalised Use licence.

5.219 In considering the coverage assessment requirements, ComReg believes that the coverage compliance assessment reports should in the main be based upon the licensee's radio frequency planning tools with appropriate evidence of spot checks to verify same. Any coverage maps submitted with these reports should have sufficient detail and granularity (e.g. showing field strength in dB ( $\mu\text{V}/\text{m}$ ) with 12dB contours) to allow ComReg to verify these measurements and in this regard ComReg retains the right to request this information in electronic format.

5.220 In addition to the submission of coverage maps produced via its own radio frequency tools, when a licensee is claiming to have met the 70% population or the 35% population coverage obligations for the first time ComReg is of the view that the compliance report should also contain drive test measurements, carried out by the licensee at its own expense and to a standard as agreed with ComReg. Furthermore ComReg retains the right to require a licensee to carry out drive test measurements at its own expense. Over the duration of the licence, ComReg does not envisage drive test measurements being required on a frequent basis, but notes that such measurements may be appropriate in circumstances where:

- a licensee is submitting a coverage assessment report for the first time;
- ComReg's own verification checks, drive test measurements or other information suggests that there may be discrepancies in the coverage assessment report or the licensee may not be meeting its coverage obligation.

5.221 Should ComReg require such a drive test measurement, ComReg will notify the licensee in writing outlining its reasons for requiring same. Furthermore, any

drive test specifications are to be agreed between the licensee and ComReg in advance of any such drive test measurements.

5.222 In relation to the above compliance reports and drive test measurements, ComReg reserves the right to publish details of the above, subject to the provisions as set out in Document 05/24.

5.223 Furthermore, for the avoidance of doubt, ComReg will enforce licence conditions in conformity with the Authorisation Regulations 2011.

## **5.6 Quality of Service (“QoS”)**

### **5.6.1 Introduction**

5.224 Paragraphs 5.107 to 5.140 of Document 11/60 and paragraphs A8.209 to A8.326 of Document 11/60a set out ComReg’s then consideration of the Quality of Service (“QoS”) conditions to be attached to all new liberalised licences issued in this Award Process.

5.225 Various issues associated with the QoS obligation were discussed in these documents and this chapter discusses these issues in terms of the:

- General issues related to QoS obligations;
- The QoS obligations (namely the ‘Availability of the Network’ QoS obligation and the ‘Voice Call’ service QoS obligation); and
- Additional considerations related to the QoS obligations (namely, reporting on compliance, performance guarantees, and a review of QoS obligations in the future).

5.226 In addition, Annex 11 of this document sets out ComReg’s final ‘Availability of the Network’ RIA and final ‘Voice Call QoS’ RIA.

### **5.6.2 General Issues Related to QoS Obligations**

#### **5.6.2.1 ComReg’s Position in Document 11/60**

5.227 Paragraphs 5.107 to 5.116 of Document 11/60 and paragraphs A8.209 to A8.247 of Document 11/60a set out ComReg’s then consideration of the general issues associated with QoS obligations.

5.228 ComReg firstly noted that:

- Part B of the Schedule to the Authorisation Regulations specifically mentions 'quality requirements' as one of the requirements which can be attached to spectrum rights of use;
- even in competitive markets there are situations where, due to information asymmetries, the setting of minimum QoS standards may be necessary in order to protect consumers; and
- the setting of QoS obligations can benefit all users.<sup>225</sup>

5.229 Having regard to the views of respondents, the recommendations of DotEcon and ComReg's analysis of these issues as presented in Annex 8 of Document 11/60a, ComReg stated that it remained of the view that it is appropriate to impose QoS obligations on new liberalised licences in the 800 MHz, 900 MHz and 1800 MHz frequency bands.

5.230 In relation to this proposal, ComReg:

- noted that attaching QoS conditions to licences may result in compliance costs for licensees and regulatory costs for ComReg, and therefore ComReg endeavoured to ensure that QoS conditions would only be imposed where they were necessary, proportionate and objectively justified;
- proposed that the QoS obligations would apply to all relevant services of the licensee and those relevant services provided by any third party/s via contractual or other arrangements;<sup>226</sup>
- noted that as Wireless Telegraphy (WT) licences only permit the use of specific frequencies, any QoS obligations in a licence would apply only to the services provided on these licensed frequencies;
- stated that it did not intend to specify what services can be deployed in the bands for award. However where ComReg sets a QoS obligation for a particular service and an operator then chooses to provide that service, then the QoS obligation would take effect and it would have to be met; and

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<sup>225</sup> See paragraph A8.243 of Document 11/60a and paragraph 5.115 of Document 11/60

<sup>226</sup> In addition, paragraph A8.245 of Document 11/60a stated that "*ComReg considers that all consumers, including those obtaining a service via an MVNO, are entitled to services that meet a minimum QoS standard. It is not reasonable for some consumers to enjoy a lesser QoS in respect of voice quality and network availability as a result of a commercial agreement between a host MNO and an MVNO.*"

- reserved the right to apply QoS conditions in relation to new services during the term of the licences.

### 5.6.2.2 ComReg's Position in 11/75

5.231 Document 11/75 set out ComReg's proposal for implementing the licence conditions as proposed in Document 11/60. Section 2.2.3 of Document 11/75 and Part 5 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the QoS conditions associated with a Liberalised Use licence.

### 5.6.2.3 Views of Respondents

5.232 Two respondents, H3GI and Vodafone, commented upon ComReg's proposal that QoS obligations would apply to all relevant services of the licensee and those relevant services provided by any third party/s via contractual or other arrangements.

5.233 In its response to Document 11/60, Vodafone stated that it "*strongly disagree[s] with this position as it is not tenable for ComReg to expect licensees to feasibly monitor and ensure that the minimum QoS standards are being observed by third parties such as MVNOs hosted on licensed operator's network when many factors that determine the QoS experienced by the customers of those MVNOs are not under the control of the licensee.*" In addition it:

- provided examples of situations where the decision of a MVNO or a national roaming (NR) partner influences the QoS experienced by its customers,<sup>227</sup> and
- believed that continuing robust competition and contract negotiations between hosts and MVNO/NR partners (as have already taken place) should address any concerns ComReg has in respect of QoS issues.

5.234 In its response to Document 11/75, Vodafone reiterated this view, and stated that "*MVNOs and National Roaming partners can only be controlled to a certain extent. We cannot be held accountable for the quality of service of third parties using our network. In circumstances where it does apply it should only apply to the extent that any quality of service is caused as a result of the Licence holder's default.*"

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227 See paragraphs 49 and 51 of Vodafone's response to Document 11/60 for further detail

5.235 In its response to Document 11/75, H3GI noted ComReg's proposed obligation as set out in Regulation 6(1)(b) of the Draft Regulations (Annex 2 of Document 11/75) and stated that:

- It is "*unclear whether a licensee is obliged to ensure that an MVNO complies with all or just the quality of service obligations contained in Part 4 of Schedule 1 to a Liberalised Use Licence.*"
- "*ComReg should conduct a separate consultation in relation to the obligations of MVNOs*"; and
- It is "*not appropriate to make licensees responsible for the actions of MVNOs. It places too high and unfair a burden on licensees. For monitoring and compliance purposes, especially in the case of emergencies, ComReg should have a direct relationship with MVNOs.*"

#### **5.6.2.4 ComReg's Final Position**

5.236 ComReg notes that H3GI and Vodafone expressed concerns about ComReg's proposal that the proposed QoS obligations would apply to all third parties on a Licensee's network and, amongst other things, these respondents believed that:

- it is not tenable for ComReg to expect Licensees to monitor and ensure that the minimum QoS standards are being observed by third parties, such as MVNOs;
- MVNOs and national roaming partners can only be controlled to a certain extent and the Licensee cannot be held accountable for the quality of service of third parties using the network; and
- it is not appropriate to make Licensees responsible for the actions of MVNOs and it places too high and unfair a burden on the Licensee.

5.237 In considering this issue, ComReg firstly believes that it is appropriate that all consumers, including those obtaining a service via a third party, are entitled to services that meet the minimum QoS standard and, furthermore, it is not reasonable, in that context, for some consumers to enjoy a lesser QoS as a result of a commercial agreement between a Licensee (host MNO) and third party provider (MVNO).

5.238 Given this particular context, ComReg would respond to the issues raised by eircom Group and Vodafone as follows.

- 5.239 Firstly, ComReg does not agree with the argument that it is not possible or appropriate for a Licensee to be accountable for the actions by MVNOs on its network. In particular, ComReg believes that such issues (e.g. QoS to be provided by MVNO and consequences for MVNO not meeting such QoS standards) can readily be addressed contractually between the Licensee and an MNVO. Indeed, Vodafone itself alludes to that at paragraph 51 of its response to 11/60.<sup>228</sup>
- 5.240 Furthermore, ComReg does not agree with the argument that its proposal places "too high and unfair a burden on the Licensee". In that regard, ComReg notes that, firstly, existing licensees and likely prospective licensees are well-resourced organisations with the ability to obtain the relevant technical, economic and legal expertise required to address issues that arise in relation to MVNO or other third party arrangements. Furthermore, ComReg notes that this line of argument clearly disregards the benefits (financial and otherwise) that Licensees can stand to obtain from entering into MVNO arrangements.
- 5.241 In terms of measuring QoS obligations associated with Liberalised Use Licences, ComReg is of the view that it is the aggregate total that is relevant (i.e. the QoS provided to the licensee's customers plus the QoS provided to the third party customers by the licensee). In this regard, ComReg believes that the QoS being provided by the licensee is likely to be primarily determined by the service being provided to licensee's own customers as currently the market share of MVNOs in Ireland is low<sup>229</sup> and national roaming agreements are only provided in certain elements of the country.
- 5.242 In light of the above, and ComReg's consideration of this issue as set out in Documents 11/60 and 11/60a, ComReg remains of the view that Licensees should be obliged to ensure that all relevant services provided using the Spectrum Blocks licensed in Part 1 of its Licence comply with the QoS conditions identified below. For the avoidance of doubt, this will include all relevant services of the Licensee and those provided by any third party/s via contractual or other arrangements with the Licensee that use those Spectrum Blocks.

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<sup>228</sup> Vodafone notes that "*It is Vodafone's view that continuing robust competition and contract negotiations between hosts and MVNO/WNR partners (as have already taken place) should address any concerns ComReg has in respect of QoS issues*".

<sup>229</sup> In Q3/2011, Tesco Mobile's market share for example was 2.1% of the mobile market (based on subscriptions), 2.4% of the mobile market excluding mobile broadband (based on subscriptions) and 1% of the market (based on revenue). Source: ComReg's Quarterly Key Data Report for Q3/11, Document 11/98.

5.243 ComReg notes that no comments were received on the remaining general issues, and given this and ComReg's consideration of the issues as set out in Documents 11/60 and 11/60a, ComReg remains of the view that:

- as Wireless Telegraphy (WT) licences only permit the use of specific frequencies, any QoS obligations in a liberalised licence would apply only to the services provided on these licensed frequencies; and
- it is not appropriate to specify what services can be deployed in the bands for award. However, where ComReg sets a QoS obligation for a particular service and the licensee (or a third party on the licensee's network) then chooses to provide that service, the QoS obligation would apply to that service.

5.244 Finally, ComReg reserves the right to amend the QoS obligations as set out in Liberalised Use Licences during the term of such licences, in accordance with the provisions of the Authorisation Regulations. Such amendments could include the application of new QoS conditions in relation to new or existing services provided in the liberalised use spectrum bands.

### **5.6.3 QoS Obligation 1 – the Minimum 'Availability of the Network' Standard**

#### **5.6.3.1 ComReg's Position in 11/60**

5.245 Paragraphs A8.279 to A8.302 of Document 11/60a and paragraphs 5.117 to 5.122 of Document 11/60 set out ComReg's consideration of the minimum 'availability of the network' QoS obligation.

5.246 In considering this issue, ComReg first set out its draft RIA on the imposition of an 'availability of the network' QoS obligation. In this draft RIA, ComReg considered two regulatory options<sup>230</sup> and analysed these options in relation to its impact on stakeholders and its impact on competition. On the basis of this draft RIA analysis, ComReg stated that its preferred option was to set an 'availability of the network' QoS obligation. ComReg notes that network availability is fundamental to consumers, as no network means no service.

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<sup>230</sup> Option 1 – set no QoS conditions in respect of the availability of the network;  
Option 2 – Set minimum QoS conditions in respect of the availability of the network, based on current GSM licence conditions, such that each licensee shall ensure that service unavailability shall be less than 35 minutes (based on weighting factors) per six month period.

5.247 Having considered the draft RIA analysis, the views of respondents and the reports prepared by its consultants, ComReg considered it appropriate to set an 'availability of the network' QoS obligation, and proposed that:

- each licensee shall be required to keep a log of network availability;
- each licensee shall be required to ensure that network unavailability is less than 35 minutes per six month period; and
- the calculation of network unavailability shall be subject to weighting factors that take account of traffic load variations (as set out in Table 12 of Document 11/60a).

### **5.6.3.2 ComReg's Position in 11/75**

5.248 Document 11/75 set out ComReg's proposal for implementing the licence conditions as proposed in Document 11/60. Section 2.2.3 of Document 11/75 and Part 5, sub-section 1 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the 'availability of the network' QoS condition associated with a Liberalised Use licence.

### **5.6.3.3 Views of Respondents**

5.249 eircom Group in its response to Document 11/60 stated that it had no objections to the proposed QoS metrics.

### **5.6.3.4 ComReg's Final Position**

5.250 The final 'availability of a network' RIA, as set out in Annex 11 of this document, sets out ComReg's preferred option as Option 2, namely to set minimum QoS conditions in respect of the availability of the network, based on current GSM licence conditions, such that each licensee shall ensure that network unavailability shall be less than 35 minutes (based on weighting factors) per six month period.

5.251 ComReg believes that this preferred option is also in line with its statutory objectives as set out in Annex 2 as, amongst other things:

- setting a licence condition relating to network performance would protect consumers against unreasonable levels of disruption to their mobile service and would safeguard the interests of consumers against operators who might otherwise have unacceptably high levels of network unavailability; and



- attaching maximum levels of network unavailability to future licences for liberalised spectrum would ensure a minimum QoS standard that is in line with current expectations as these standards have been in place for over 15 years and appear to have served consumers well over this period.

5.252 In addition, ComReg notes that it has not received any information to suggest that the proposed maximum overall duration of network unavailability, which is equivalent to those standards which were attached to GSM licenses, is inappropriate or places a disproportionate burden on new licensees.

5.253 Given the above, and ComReg’s consideration of this issue in Documents 11/60 and 11/60a, ComReg believes that it is appropriate to set an ‘availability of the network’ QoS licence condition in line with Option 2 of the final ‘availability of a network’ RIA.

5.254 ComReg is of the view that this obligation should be the same as that set out in Document 11/60 and, in this regard, the obligation to be attached to Liberalised Use licences shall ensure that:

- each licensee keeps a log of network availability;
- each licensee ensures that network unavailability is less than 35 minutes per six month period; and
- the calculation of network unavailability is subject to weighting factors that take account of traffic load variations, as set out in Table 7 below.

Network Unavailability, Weighting Factors (divide duration of each network event by weighting factor)			
	Monday to Friday	Saturday	Sunday
For periods between 07.00 and 24.00	1	2	4
For periods between 00.00 and 07.00	4	8	16

**Table 7. Weighting factors associated with the ‘Availability of the Network’ QoS obligation.**

5.255 In line with ComReg’s position as set out in section 5.6.2 above, all relevant ‘availability of the network’ services provided to the licensee’s customers and provided to third party customers by the licensees are to be captured under this QoS obligation. ComReg’s assessment of this obligation will be made against the aggregate total.

## 5.6.4 QoS Obligation 2 – the Minimum ‘Voice Call’ Standard

### 5.6.4.1 ComReg’s Position in 11/60

5.256 Paragraphs A8.250 to A8.278 of Document 11/60a and paragraphs 5.117 to 5.122 of Document 11/60 set out ComReg’s consideration of the minimum ‘Voice Call’ QoS obligation.

5.257 In considering this issue, ComReg first set out its draft RIA on the imposition of a ‘voice call’ QoS obligation. In this draft RIA, ComReg considered two regulatory options<sup>231</sup> and analysed these options in relation to its impact on stakeholders and its impact on competition. On the basis of this RIA analysis, ComReg stated that its preferred option was to set a reasonable ‘voice call’ QoS obligation. ComReg noted that setting a ‘voice call’ obligation in line with that currently set out in the GSM licences would not seem to place a disproportionate burden on operators, and ComReg noted that this would be in the best interests of consumers, as:

- given the manner in which voice calls are transmitted a ‘voice call’ QoS obligation can safeguard the interests of consumers; and
- consumers now reasonably expect standards for their voice calls that are in line with the standards imposed by past and current GSM licences. Attaching similar standards to future licences for liberalised spectrum is therefore appropriate and in the interest of consumers.

5.258 Having considered the draft RIA analysis, the views of respondents and the reports prepared by its consultants, ComReg considered it appropriate to set a ‘voice call’ QoS obligation. ComReg proposed that each licensee would be required to meet the specifications as set out in Table 10 of Document 11/60a in relation to the:

- maximum permissible blocking rates;
- maximum permissible dropped call rates; and
- transmission quality.

5.259 In the case of VoIP calls, ComReg considered it inappropriate to include such calls in the ‘voice call’ QoS obligation, and noted that ComReg set out its

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<sup>231</sup> Option 1 – no QoS conditions on any voice service;  
Option 2 – QoS conditions on non-VoIP voice services in line with the existing GSM license standards for sound quality, dropped calls and blocked calls.

position in relation to VoIP services in its Information Notice 10/91<sup>232</sup>, “*ComReg agrees with Analysys Mason’s view (R14 and R17) [as set out in its Report 10/91a<sup>233</sup>] that monitoring the Next Generation Voice (NGV) market situation is the correct approach at this time, including monitoring customer complaints. This approach could change if BEREC or the European Commission publishes conclusions that intervention should be undertaken in some respect.*”

#### **5.6.4.2 ComReg’s Position in 11/75**

5.260 Document 11/75 set out ComReg’s proposal for implementing the licence conditions as proposed in Document 11/60. Section 2.2.3 of Document 11/75 and Part 5, sub-section 2 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the ‘voice call’ QoS condition associated with a Liberalised Use licence.

#### **5.6.4.3 Views of Respondents**

5.261 Two respondents, eircom Group and Vodafone, commented upon ComReg’s proposed ‘voice call’ QoS obligation.

5.262 eircom Group, in its response to Document 11/60, stated that it had no objections to the proposed QoS metrics.

5.263 Vodafone, in its response to Document 11/60, believed that vigorous competition exists in the mobile market and this negates the requirement for QoS obligations in relation to voice services. In addition, Vodafone stated that “*If ComReg is minded to include such obligations, then those proposed by ComReg can only be viewed as proportionate and justified if they apply to the licence holders own customers and not those of 3rd parties such as MVNOs and national roaming partners.*”

#### **5.6.4.4 ComReg’s Final Position**

5.264 In considering this issue, ComReg notes that one respondent, Vodafone, objected to this proposal as it believed that vigorous competition in the mobile market negates this requirement, while another respondent, eircom Group, raised no objections.

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<sup>232</sup> Future Regulatory Framework for Next Generation Voice Services including VoIP, ComReg Information Notice 10/91.

<sup>233</sup> *Review of the regulatory framework for VoIP in Ireland*, Report for ComReg, ComReg Document 10/91a.

5.265 ComReg has considered these comments in the final 'voice call' RIA, as set out in Annex 11 of this document, and is of the view that the preferred option is Option 2 namely to Impose QoS conditions on non-VoIP mobile voice services provided using liberalised spectrum in the 800 MHz, 900 MHz and 1800 MHz spectrum bands, in line with existing GSM license standards, with specific standards relating to:

- transmission quality;
- maximum level of dropped calls; and
- maximum level of blocked calls in a defined period.

5.266 ComReg believes that this option is also in line with its statutory objectives as set out in Annex 2, as, amongst other things:

- The interests of consumers would be safeguarded against operators who might not otherwise maintain acceptable levels of voice call QoS. If this were permitted to occur, it could in turn reduce the incentives for other operators to maintain their existing quality levels.
- attaching similar QoS standards for voice calls to future licences for liberalised spectrum to those that currently apply to GSM licenses would ensure a minimum QoS standard for mobile voice calls that is in line with current expectations. These standards have been in place for over 15 years and appear to have served consumers well over this period.
- ComReg has not received any information to suggest that the QoS licence conditions for voice calls that were proposed in Document 11/60, which are equivalent to those standards which were attached to GSM licenses, would place a disproportionate burden on new licensees.
- the presence of high levels of competition in the market, as noted by Vodafone, does not negate the rationale for setting minimum QoS standards for voice calls, given:
  - the inability for individual operators to isolate the quality levels provided by their individual networks; and
  - that a consumer who experiences poor voice call quality cannot determine whether the problem relates to his/her own network or to the network of the person on the other end of the line.

- 5.267 In addition, ComReg notes that no respondent objected to its proposal to exclude VoIP calls from this ‘voice call’ obligation and ComReg therefore remains of the view that it is not appropriate, at this time, to set QoS conditions for VoIP voice call services.
- 5.268 Given the above, and ComReg’s consideration of this issue in Documents 11/60 and 11/60a, ComReg believes that it is appropriate to set a ‘voice call’ QoS licence condition in line with Option 2 of the final ‘voice call’ RIA.
- 5.269 ComReg is of the view that this obligation should be the same as that set out in Document 11/60 and, in this regard, Table 8 below sets out the non- VoIP ‘voice call’ standards to be included in a Liberalised Use licence.

	Average	Worst Case
<p>Maximum Permissible Blocking Rates</p> <p>This refers to the maximum percentage of total call attempts which are unsuccessful during the time consistent busy hour.<sup>234</sup></p>	2%	4%
<p>Maximum Permissible Dropped Call Rates</p> <p>This refers to the maximum percentage of total originating calls which are prematurely released by the network within 3 minutes of the call being made.</p>	2%	4%
<p>Transmission quality</p> <p>The Licensee shall ensure that the speech transmission quality is as good or better than the speech quality associated with the GSM Standard and GSM Technical Specifications of ETSI. The Licensee shall ensure that appropriate echo treatment equipment is used and that it is properly configured.</p>		

**Table 8. The ‘voice call’ QoS obligation.**

- 5.270 In line with ComReg’s position as set out in section 5.6.2 above, all relevant non-VoIP ‘voice call’ services provided to the licensee’s customers and

<sup>234</sup> “Time consistent busy hour” means the period of one-hour starting at the same time each day for which the average traffic of the network concerned is greatest over the days under consideration. The time consistent busy hour shall be determined from an analysis of traffic data obtained from the service and be subject to ComReg’s approval. The ‘Time consistent busy hour’ is determined from the operator’s voice traffic. It is the one-hour period during which there is the highest level of traffic. The blocked call rates are measured for the same one-hour period during each review period (i.e. 6 months). The one-hour period is determined by the operator and is subject to ComReg’s approval.

provided to third party customers by the licensees are to be captured under this QoS obligation. ComReg's assessment of this obligation will be made against the aggregate total.

## 5.6.5 Additional Considerations Related to the QoS Obligations

### 5.6.5.1 ComReg's Position in Document 11/60

5.271 Paragraphs 5.123 to 5.131 of Document 11/60 and paragraphs A8.303 to A8.326 of Document 11/60a set out ComReg's view of additional considerations related to the proposed QoS obligations, namely:

- performance guarantees;
- reporting on compliance; and
- the review of QoS obligations in the future.

#### Performance Guarantees

5.272 Given the importance of ensuring that consumers are provided with the minimum QoS standards (i.e. the 'availability of the network' and 'voice call' standard), ComReg proposed to include a performance guarantee of €1 million against the QoS obligations in any new liberalised licences issued.

#### Reporting on Compliance

5.273 To enable ComReg to ensure that licensees are complying with their QoS obligations and accurately reporting on their compliance, ComReg proposed to include a reporting on compliance provision in any new licence issued.

#### Review of QoS Obligations

5.274 ComReg noted that Regulation 15 of the Authorisation Regulations makes provision for amendments to the conditions attached to rights of use for radio frequencies.<sup>235</sup> This existing provision would enable ComReg to conduct a review of QoS obligations in conditions attached to liberalised licences in the 800 MHz, 900 MHz and 1800 MHz bands, and, given this, ComReg did not

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<sup>235</sup> "The Regulator may amend the rights, conditions and procedures concerning the general authorisation, rights of use for radio frequencies and rights of use for numbers provided that any such amendment may only be made in objectively justified cases and in a proportionate manner, taking into consideration, where appropriate, the specific conditions applicable to transferable rights of use for radio frequencies."

propose to include a specific licence provision in any new liberalised licence issued.

### **5.6.5.2 ComReg's Position in 11/75**

5.275 Document 11/75 set out ComReg's proposal for implementing the licence conditions as proposed in Document 11/60. With regard to the QoS conditions attached to a Liberalised Use licence:

- paragraph 2.39 of Document 11/75 and Part 5, sub-section 4 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the performance guarantee condition; and
- part 5 sub-section 3 of the indicative liberalised licence (Annex 3 of Document 11/75) set out the Reporting on Compliance condition;
- section 2.2.10 of Document 11/75 discussed ComReg's view on review of licences.

### **5.6.5.3 Views of Respondents**

#### **Performance Guarantees**

5.276 Three respondents, eircom Group, H3GI and Vodafone, provided comments on ComReg's proposal to include performance guarantees in the QoS licence condition. These comments are the same as those set out in section 5.5.3, where the performance guarantee condition is discussed in relation to the coverage and roll-out obligation.

#### **Reporting on Compliance**

5.277 One respondent, eircom Group, provided comments on ComReg's reporting on compliance proposal. eircom Group's comments are the same as those set out in section 5.5.3, where the reporting on compliance condition is discussed in relation to the coverage and roll-out obligation.

#### **Review of QoS Obligations**

5.278 Three respondents, H3GI, Vodafone and Stephen Minch, provided comments on ComReg's proposals in relation to a review of QoS obligations:

- Stephen Minch noted that “the incumbents are all well-resourced multinationals capable of sustaining prolonged High Court actions to prevent or at least delay intervention by ComReg to alter licence conditions.”<sup>236</sup>
- H3GI noted ComReg’s proposal in paragraph 5.131 of Document 11/60 where it proposed that it was not necessary to impose a licence condition for a regular review of QoS obligations. H3GI agreed with this proposal.
- Vodafone, in its response to Document 11/60, stated that it would have serious concerns regarding ComReg’s suggestion that it may make the QoS obligations attached to licences subject to periodic review. It believed that:
  - this position “creates significant uncertainty for potential bidders at this time”; and
  - material changes to licence conditions “should only be applied if they are objectively justified and are the result of a full consultation process.” In addition, it added that “there should also be provision for rebates to licence holders.”

#### **5.6.5.4 ComReg’s Final Position**

##### **Performance Guarantees**

5.279 ComReg notes that the comments submitted by eircom Group, H3GI and Vodafone in relation to performance guarantees are the same as those considered in section 5.5.3 of this document. ComReg’s consideration of these comments is therefore the same as that set out in section 5.5.3.

5.280 Given this, ComReg is of the view that it is not appropriate to further consider attaching a performance guarantee obligation in respect of the QoS obligations associated with a Liberalised Use Licence. Instead, ComReg will enforce compliance with licence conditions via the provisions of the Authorisation Regulations.

##### **Reporting on Compliance**

5.281 ComReg notes that the comments submitted by eircom Group in relation to reporting on compliance are the same as those considered in section 5.5.3 of

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<sup>236</sup> In addition, Stephen Minch believed that ComReg should “*seek and publish legal opinion on its right to alter licence conditions of compliant licence holders.*”



this document. ComReg's consideration of these comments is therefore the same as that set out in section 5.5.3.

5.282 Given this, ComReg's final position on the reporting on compliance condition in respect of a QoS obligation is that:

- compliance assessment for QoS obligations is to be carried out on an annual basis rather than a six monthly basis. As set out in Annex 8 of this document, this annual compliance report is to be submitted each calendar year within 31 days of the anniversary of the commencement date of the Liberalised Use licence.
- the QoS compliance assessment reports should in the main be based upon the licensee's radio frequency tools. Any information submitted in these should have sufficient detail and granularity to allow ComReg to verify these measurements and, in this regard, ComReg retains the right to request this information in electronic format.
- in addition to the submission of QoS reports produced via its own radio frequency tools, ComReg retains the right to require a licensee to carry out drive test measurements at its own expense. Over the duration of the licence, ComReg does not envisage drive test measurements being required on a frequent basis, but notes that such measurements may be appropriate in circumstances where:
  - a licensee is submitting a QoS assessment report for the first time; and
  - ComReg's own verification checks, drive test measurements or other information suggests that there may be discrepancies in the QoS assessment report or that the licensee may not be meeting its QoS obligations.
- should ComReg require such a drive test measurement,, ComReg will notify the licensee in writing outlining its reasons for obliging same. Furthermore, any drive test specifications are to be agreed between the licensee and ComReg in advance of any such drive test measurements.
- in relation to the above compliance reports and drive test measurements, ComReg retains the right to publish details of the above, subject to the confidentiality provisions set out by ComReg in Document 05/24.
- furthermore, for the avoidance of doubt, ComReg will enforce licence conditions in conformity with the Authorisation Regulations.

## Review of QoS Obligations

- 5.283 ComReg notes that three respondents, H3GI, Stephen Minch and Vodafone, provided comments on ComReg's review of QoS Obligations.
- 5.284 ComReg notes Stephen Minch's comment but does not share his view that it would be appropriate to publish a legal opinion on the right to alter licence conditions of compliant licence holders. In this regard, ComReg notes that the provisions for amending licences are clearly set out in the Authorisation Regulations.
- 5.285 In relation to Vodafone's comments, ComReg points out that Document 11/60 did not specify the inclusion of a specific condition in the Liberalised Use licences in relation to this matter. In any case, ComReg notes that any amendment to licence conditions would be carried out in accordance with the Authorisation Regulations.
- 5.286 Overall, ComReg remains of the view that it is not necessary to include a specific review condition in the Liberalised Licence as relevant provisions are already set out in the Authorisation Regulations, and among other things, these provisions state that "*any such amendment may only be made in objectively justified cases and in a proportionate manner...*".

## 5.7 Miscellaneous Licence Conditions

### 5.7.1 ComReg's Position in Document 11/60

- 5.287 In Document 11/60, ComReg noted that in previous consultations it had proposed to include licence conditions for:
- non-Ionising Radiation ('NIR');
  - international roaming capability;
  - access to emergency services;
  - billing; and
  - broadband.
- 5.288 Paragraphs 5.132 to 5.140 of Document 11/60 and paragraphs A8.327 to A8.432 set out ComReg's consideration of these proposed licence conditions.

As discussed in those paragraphs, ComReg proposed not to include these conditions in a liberalised licence.

### **5.7.2 ComReg's Position in Document 11/75**

5.289 Document 11/75 set out ComReg's proposal for implementing the licence conditions as proposed in Document 11/60. In line with ComReg's position in Document 11/60, the above miscellaneous licence conditions were not included in Document 11/75.

### **5.7.3 Views of Respondents**

5.290 One respondent, Vodafone, provided comments on ComReg's miscellaneous licence conditions proposal.

5.291 Vodafone supported ComReg's proposal to remove licence conditions in relation to international roaming, billing obligations (being addressed as a separate process), non-ionising radiation and access to emergency services as these matters are already provided for or will be provided for by the General Authorisation.

### **5.7.4 ComReg's Final Position**

5.292 ComReg notes that no views were submitted objecting to ComReg's miscellaneous licence conditions proposal and Vodafone supported it. Consequently, ComReg does not believe it is appropriate to alter its miscellaneous licence conditions position as set out in Document 11/60.

5.293 Given the views of respondent's set out above and having regard to ComReg's position on this issue as discussed in Documents 11/60 and 11/75, a liberalised licence will not include conditions on:

- non-Ionising Radiation ("NIR");
- international roaming capability;
- access to emergency services;
- billing; and
- broadband.

## **5.8 Additional Items Raised by Respondents to Document**

## 11/75

5.294 Subsequent to the publication of Document 11/75, a number of additional items related to the terms and conditions of a Liberalised Use Licence<sup>237</sup> (not discussed elsewhere in this document) were raised by the respondents, namely:

- the non-exclusive nature of a Liberalised Use Licence;
- renewals within the duration of a Liberalised Use Licence;
- assignment of the rights and obligations of a Liberalised Use Licence;
- enforcement actions – Compliance with licence conditions, Licence suspension, licence withdrawal;
- amendment of a Liberalised Use Licence; and
- spectrum pooling and sharing.

5.295 This section considers, the views expressed by respondents in relation to each of the above issues and sets out ComReg’s consideration of and final position in relation to these issues.

### 5.8.1 The Non-exclusive Nature of a Liberalised Use Licence

#### 5.8.1.1 ComReg’s Position in Document 11/75

5.296 In Document 11/75 section 2.2.1 set out the scope of the Liberalised Use Licence and stated that this licence “*is a non-exclusive Licence for the national territory of the Republic of Ireland.*” Footnote 16 of Document 11/75 provided an explanation of non-exclusive and stated that “*non-exclusive in the present context means that ComReg retains the right to authorise other Wireless Telegraphy apparatus in these spectrum bands which do not cause unacceptable interference to the Licensee.*”

5.297 No other references to non-exclusive use were contained in Document 11/75 or its annexes.

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<sup>237</sup> The term “*Liberalised Use*” Licence is used in this chapter and refers to the name of the specific licences that may be issued following the completion of this Award Process. In previous consultations and other sections of this document, the term “*Liberalised*” licence is also used. Both terms have the same meaning.

### 5.8.1.2 Views of Respondents

- 5.298 Three respondents, eircom Group, Telefónica and Vodafone provided comments on ComReg's statement on the non-exclusive nature of a Liberalised Use Licence.
- 5.299 Telefónica queried whether it would be possible for other licences to be issued for operation in a geographical area where the Liberalised Use licensee does not have a service at that particular point in time.<sup>238</sup> Telefónica believed that if further clarity was not provided, then ComReg's statement on non-exclusivity makes it impossible for a bidder to define what rights are being sold in the auction. It believed that ComReg should provide further clarity and stated that "*if ComReg's intention is that the licences will be exclusive within certain boundaries, then this needs to be clearly stated, with the boundaries defined.*"
- 5.300 eircom Group noted that the possibility of other wireless telegraphy apparatus being authorised in the auctioned bands would significantly affect spectrum value and stated that this "*is a matter where absolute clarity is required.*"<sup>239</sup>
- 5.301 Vodafone noted that while paragraph 2.19 and footnote 16 of Document 11/75 describes the non-exclusive nature of a Liberalised Use licence, the draft Statutory Instrument (Annex 2 to Document 11/75) was silent on this point. Vodafone stated that:
- "*the Statutory Instrument should explicitly set out that a further Licence can not be granted if it would cause unacceptable interference with existing Licences on the same spectrum bands*"; and
  - "*the basis on which unacceptable interference is to be determined should also be set out in the Statutory Instrument as what is unacceptable to one party might be perfectly acceptable to another.*"

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<sup>238</sup> Telefónica believed that "*this is a significant limitation to the licence, one which cannot be easily quantified, and one which is specified in no other mobile licence issued by ComReg to date. Neither is Telefonica aware of such a condition being included in any other licence for mobile services issued in Europe.*"

<sup>239</sup> eircom Group added that "*the possibility that other wireless telegraphy apparatus be authorised in the auctioned bands would significantly affect spectrum value and is a matter where absolute clarity is required. That ComReg would retain such a right does not appear compatible with the essence of the auction award process, unless such a right is limited to facilitating the Test and Trial Licence Regime. If this is the case, then this should clearly specified in the terms and conditions of the licences. If it is not, we do not believe that it is appropriate that ComReg retains this right.*"

### 5.8.1.3 ComReg's Final Position

- 5.302 ComReg notes the concerns expressed by the respondents and their view that further clarification is required as otherwise bidders may not have adequate comfort on the spectrum rights being sold.
- 5.303 In considering these views, ComReg firstly notes that Wireless Telegraphy licences in Ireland are issued on a non-exclusive basis. It is standard practice that many spectrum bands licensed to particular licensees are also made available to other Wireless Telegraphy apparatus on a non-interference and non-protected basis. For example, while spectrum in the 900 MHz and 1800 MHz bands has been assigned to a number of GSM licensees, some or all of these spectrum bands have also been made available to other wireless telegraphy apparatus, such as Short Range Devices (Document 02/71R6<sup>240</sup>), Mobile Communications on Aircraft (MCA) services, and Test and Trial apparatus.
- 5.304 In addition, ComReg notes that across Europe it is standard practice for spectrum bands to be made available to other Wireless Telegraphy apparatus, provided such apparatus is operated on a non-interference and non-protected basis. For example:
- there are a number of EC Decisions which oblige Member States to designate and make available certain spectrum bands on a non-interference and non-protected basis. See, for example, Decision 2006/771/EC<sup>241</sup>, Decision 2007/131/EC<sup>242</sup>, Decision 2008/294/EC<sup>243</sup>, and Decision 2010/166/EU<sup>244</sup> and

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<sup>240</sup> [http://www.comreg.ie/\\_fileupload/publications/ComReg0271R6.pdf](http://www.comreg.ie/_fileupload/publications/ComReg0271R6.pdf)

<sup>241</sup> Decision 2006/771/EC "COMMISSION DECISION of 9 November 2006 on harmonisation of the radio spectrum for use by short-range devices"

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:312:0066:0070:EN:PDF>

<sup>242</sup> Decision 2007/131/EC "COMMISSION DECISION of 21 February 2007 on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community"

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:055:0033:0036:EN:PDF>

<sup>243</sup> Decision 2008/294/EC "COMMISSION DECISION of 7 April 2008 on harmonised conditions of spectrum use for the operation of mobile communication services on aircraft (MCA services) in the Community"

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:098:0019:0023:EN:PDF>

<sup>244</sup> Decision 2010/166/EU "COMMISSION DECISION of 19 March 2010 on harmonised conditions of use of radio spectrum for mobile communication services on board vessels (MCV services) in the European Union"

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:072:0038:0041:EN:PDF>

- other European countries have made potential spectrum users aware of this possibility in spectrum awards. See for example, Denmark<sup>245</sup> and Sweden<sup>246</sup>
- 5.305 Given the above, ComReg is of the view that it is appropriate, particularly in the context of promoting regulatory certainty, that the final Information Memorandum suitably informs prospective bidders about the non-exclusive nature of Liberalised Use Licences, and in this regard, it should be noted that ComReg does not presently foresee any material change in its policy on non-exclusivity over and above that already applied in other licensing regimes. However, ComReg maintaining its current policy is without prejudice to any further legal obligations imposed on the State in respect of the allocation or use of the spectrum frequencies concerned. ComReg also believes that providing further clarification on the meaning of non-exclusive is appropriate and it does so below.
- 5.306 Noting that the phrase “*on a non-interference and non-protected basis*” is defined in European legislation, ComReg notes that the final Information Memorandum and the final Regulations (see Annex 7 of this document for the draft Regulations) will be amended in accordance with same, thus clarifying that:
- "Non-exclusive", in relation to a Licence, means that the Commission is not precluded from authorising the keeping and possession by other persons of other apparatus for wireless telegraphy on a Non-Interference and Non-Protected Basis in one or more of the 800 MHz, the 900 MHz and the 1800 MHz bands; and
  - "Non-Interference and Non-Protected Basis" means a basis on which no harmful interference may be caused to any Radiocommunication Service, and on which no claim may be made for the protection of apparatus operating on this basis against harmful interference originating from Radiocommunication Services.
- 5.307 Furthermore, and for the avoidance of doubt, it should be noted that the requirement to operate on a Non-Interference and Non-Protected Basis is an on-going obligation for equipment authorised on this basis, and rights to protection will not be acquired with use. Specifically if the holder of a Liberalised

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245 See Section 2.5 of Denmark's draft Information Memorandum "800 MHz Auction, Auction of frequencies in the frequency bands 791-821 MHz and 832-862 MHz, November 2011"

<http://en.itst.dk/spectrum-equipment/Auctions-and-calls-for-tenders/800-mhz/filarkiv/IM.pdf>

246 See technical condition 17 of the 800 MHz licences in Sweden

<http://www.pts.se/upload/Beslut/Radio/2011/10-10534-appendix-a-to-decision-800mhz.pdf>

Use Licence commences transmissions in a location at any time during the term of the Liberalised Use Licence, in accordance with the conditions of the Liberalised Use Licence, equipment operating on a “Non-Interference and Non-Protected Basis” will not be permitted to cause interference to the Licensee and will not be entitled to protection from interference by the Licensee.

## 5.8.2 Renewals Within the Duration of a Liberalised Use Licence

### 5.8.2.1 ComReg’s Position in Document 11/75

5.308 In Document 11/75, ComReg set out its then position that a Liberalised Use Licence once granted would be subject to a series of annual renewals of one year duration. Paragraphs 2.26 to 2.32 of Document 11/75 outlined the renewal process and amongst other things, stated that:

- *“on the first grant of a Liberalised Use Licence, ComReg will issue a Licence with a Licence duration of up to one (1) year, to ensure that this Licence expires on 12 July of the first year.”*
- *“to annually renew the Liberalised Use Licence on the 13 July renewal date, the Licensee will be required, amongst other things, to:*
  - *submit to ComReg information specified by ComReg, in advance of the renewal date of the Liberalised Use Licence. Such information could include information to update the Schedules to the Liberalised Use Licence and submit information to the siteviewer database ([www.siteviewer.ie](http://www.siteviewer.ie)); and*
  - *pay the Spectrum Usage Fees (SUFs) associated with the renewal period.”*
- *“in the normal course ComReg expects it will grant an annual renewal on each 13 July anniversary, subject to the submission of information and payment of SUFs mentioned above and to the Licensee’s compliance with its Licence conditions and any applicable laws, including the Regulations pursuant to which the relevant Licence was granted.”*

5.309 Regulation 5 of the draft Regulations (Annex 2 to Document 11/75) sets out ComReg’s proposed text to implement the above in legislation.



### 5.8.2.2 Views of Respondents

- 5.310 Four respondents, eircom Group, H3GI, Telefónica and Vodafone, commented upon the annual renewal within the duration of a Liberalised Use licence.
- 5.311 eircom Group noted that while it is the intention that licences would be valid until 12 July 2030, the wording of Regulation 5(2) and 5(4) of the draft Regulations does not offer any certainty of tenure to Interested Parties. To address this issue, eircom Group believed that *“Regulation 5(2) should be amended to clearly acknowledge that licensees have a legitimate expectation that licences will be renewed annually to 2030 provided only that the licensee is in compliance with its licence obligations.”*
- 5.312 H3GI objected to the ‘annual licence’ structure of the proposed Liberalised Use Licences and stated that *“it is unnecessary, adds to uncertainty and deters investment”*.
- 5.313 Telefónica noted that ComReg’s proposal did not guarantee that a renewal will be granted or granted on time. Telefónica believed that the wording in paragraph 2.30<sup>247</sup> and (draft Regulation 5(2)(d) [sic] ) is not good enough as bidders must know that if they buy lots in the auction, then they will have the right to a licence for the relevant duration, subject to whatever conditions as are required. Telefónica also believed that *“the process should be reversed so that winning bidders are guaranteed to be granted an initial licence and renewal for the duration of their licence term (e.g. to 2030) unless the licence is withdrawn or fees are unpaid.”*
- 5.314 Vodafone believed that the renewal process as outlined in paragraphs 2.26 to 2.30 of Document 11/75 contradicted ComReg’s position on the duration of a Liberalised Use licence as specified in paragraph 2.21<sup>248</sup> of Document 11/75.

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<sup>247</sup> Paragraph 2.30 of Document 11/75 states *“the granting or renewal of an annual Licence by ComReg shall not be construed as warranting, representing or otherwise holding out that the Licence will necessarily be renewed at any time in the future, or renewed for any particular period or on any particular terms, in the normal course ComReg expects it will grant an annual renewal on each 13 July anniversary”*.

<sup>248</sup> Paragraph 2.21 of Document 11/75 states that

- *“Where a Winning Bidder wins Lot/s in Time Slice 1 only, the duration of its Liberalised Use Licence will be 2 years, 5 months and 12 days where the Liberalised Use Licence commences on 1 February 2013;*
- *Where a bidder wins Lots in Time Slice 2 only, the duration of its Liberalised Use Licence will be 15 years where the Licence commences on 13 July 2015; and*
- *Where a bidder wins Lots in both Time Slice 1 and Time Slice 2, the duration of its Liberalised Use Licence will be 17 years, 5 Months and 12 days where the Licence commences on 1 February 2013.”*

Vodafone provided a number of observations<sup>249</sup> and suggested that “a Licence in accordance with Paragraph 2.21 with no renewals required is the appropriate position to adopt.”

### 5.8.2.3 ComReg’s Final Position

5.315 ComReg notes the views of respondents above and their belief that the annual renewal of a Liberalised Use Licence within the duration of a licence creates unnecessary uncertainty whereby a licensee would not know whether it would have use of its licence for the full duration or not.

5.316 In considering these views, ComReg firstly notes that the annual renewal process as set out in Document 11/75 is similar to the annual renewal process currently used for the renewal of the GSM and 3G Licences, and therefore the annual renewal process is not a new process specific to a Liberalised Use licence. Given this, bidders for a Liberalised Use Licence should have a certain degree of certainty that their licences will be renewed as the annual renewal process of the existing GSM and 3G licences has functioned well.

5.317 However ComReg also notes that the environment of spectrum licensing is continually evolving and the annual renewal process may not be the optimal approach for a Liberalised Use Licence when wider issues are considered, such as incentives for investment, the possibility of spectrum trading, pooling or sharing, etc.

5.318 Given this, ComReg is of the view that it is more appropriate to issue a Liberalised Use Licence for the duration of the licence (i.e. with no licence renewals), whereby:

- the duration of the Liberalised Use Licence will be determined in line with paragraph 2.21 of Document 11/75; and

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<sup>249</sup> Vodafone stated that:

- “In circumstances where Licence holders are required to reapply for an extension each year it devalues the licence and makes it difficult if not impossible to trade the licences.
- The requirement to extend licences on an annual basis does not give operators the comfort they require for investment in network roll out. It creates uncertainty for operators and their Group companies may be reluctant to commit spend on capital expenditure if there is uncertainty over the licence period.
- Annual renewals serve as a means for ComReg to circumvent the procedures set out in the Authorisation Regulations for breach of Licence conditions. The Authorisation Regulations provide for the procedures which must be applied when there is a breach of Licence conditions. In circumstances where ComReg can refuse to renew a Licence for unspecified reasons this merely serves as a means to get around the Licence procedures.”

- it will be a condition of the Liberalised Use licence that each year by the anniversary of the commencement date of the Liberalised Use Licence, the Licensee shall have
  - paid the SUF for relevant period; and
  - submitted information to ComReg to update Part 2 and Part 3 of the Liberalised Use Licence.

5.319 ComReg will therefore amend the text of the final Information Memorandum and the final Regulations (see Annex 7 of this document) in line with the above.

### **5.8.3 Assignment of Rights and Obligations of a Liberalised Use Licence**

#### **5.8.3.1 ComReg's Position in Document 11/75**

5.320 Paragraphs 2.43 to 2.44 of Document 11/75 set out ComReg's then position on the assignment of rights and obligations of a Liberalised Use licence.

#### **5.8.3.2 Views of Respondents**

5.321 Two respondents, Telefónica and Vodafone commented on this section.

- While Telefónica stated that ComReg had moved in the right direction by stating that spectrum trading in these bands will be permitted, it believed that "*The rules or restrictions that will apply to spectrum trading should be provided by ComReg together with the final Information Memorandum.*"
- Vodafone noted that ComReg's proposal of annual licence renewals creates a very significant uncertainty as to the value that might be ascribed to the spectrum and in the longer term the extent to which there is any right of use capable of being traded going forward.

#### **5.8.3.3 ComReg's Final Position**

5.322 While ComReg notes Telefónica's comment, ComReg is of the view that it is not required to finalise the procedures relating to the assignment of rights and obligations of a Wireless Telegraphy licence together with the publication of the final Information Memorandum. These are two separate issues subject to their own consultation processes.

5.323 ComReg notes Vodafone's comment is related to the annual renewal of a Liberalised Use Licence. This issue has been addressed above.

5.324 Given the above, ComReg is of the current view that no changes are required to the text of the Information Memorandum (i.e. paragraphs 2.43 and 2.44 of Document 11/75).

## **5.8.4 Enforcement Actions – Compliance with Licence Conditions, Licence Suspension, Licence Withdrawal**

### **5.8.4.1 ComReg’s Position in Document 11/75**

5.325 Section 2.2.7 (paragraph 2.83 – 2.86) of Document 11/75 set out ComReg’s position on the enforcement actions which ComReg may take and amongst other things, ComReg noted that an enforcement action may result in a licence being suspended or withdrawn (or foreshortened) in accordance with the Authorisation Regulations.

### **5.8.4.2 Views of Respondents**

5.326 Vodafone stated that it *“is of the view that the annual licensing regime proposed by ComReg together with the unbounded reservation of rights of renewal to ComReg appear to circumvent procedures under Authorisation Regulations for enforcement, suspension and withdrawal.”*

5.327 H3GI noted paragraph 2.85 (in relation to a Liberalised Use Licence) and paragraph 2.107 (in relation to a Preparatory Licence) of Document 11/75 where ComReg stated that in the event of an enforcement action the licence or part thereof may be suspended or withdrawn (or foreshortened). H3GI reiterated its view that *“ComReg does not have the power to foreshorten licences.”*

### **5.8.4.3 ComReg’s Final Position**

5.328 ComReg notes Vodafone’s comment is related to the annual renewal of a Liberalised Use Licence. This issue has been addressed in section 5.8.2 above.

5.329 In relation to H3GI’s submission regarding foreshortening, ComReg would observe that the concepts of *“foreshortening”* and *“withdrawal”* are very similar in nature for the purposes of Regulation 17 of the Authorisation Regulations. In addition, ComReg notes that Regulation 16 is non-exhaustive regarding the nature of the orders that may be sought by ComReg and granted by the High Court, respectively for non-compliance with licence conditions.

5.330 Given the above, ComReg's is of the current view that no changes are required to the text of the Information Memorandum (i.e. Section 2.2.7 of the Document 11/75).

## 5.8.5 Amendment of a Liberalised Use

### 5.8.5.1 ComReg's Position in Document 11/75

5.331 Section 2.2.8 of Document 11/75 (paragraph 2.87) set out ComReg's view on the Amendment of a Liberalised Use Licence and stated that "*ComReg may amend the rights, obligations and procedures relating to a Liberalised Use Licence from time to time in accordance with the Authorisation Regulations.*"

5.332 In addition, section 2.2.10 of Document 11/75 noted that a Liberalised Use licence may be amended following a review of spectrum management and use. Paragraph 2.91 of Document 11/75 stated that "*It is ComReg's policy to conduct, at regular intervals, reviews of spectrum management and use and, as a consequence of these reviews, amendments to licences may be proposed and implemented. ComReg may amend the rights, obligations and procedures relating to a Liberalised Use Licence from time to time in accordance with the Authorisation Regulations.*"

### 5.8.5.2 Views of Respondents

5.333 Two respondents, H3GI and Vodafone, provided comments related to paragraph 2.91 of Document 11/75.

- H3GI stated that while it understood this to mean that "*any amendments proposed by ComReg will only be made following due and transparent industry consultation ... H3GI would welcome ComReg's acknowledgement that this will be the case.*"
- Vodafone stated its view that an amendment can only take place with the consent of the Minister and it asked ComReg to confirm its view of whether this is in fact the case.<sup>250</sup>

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<sup>250</sup> In addition, Vodafone stated that "*the mechanism suggested by ComReg is by way of an amendment to the Regulations once they are effective. As this would require an amendment to the Statutory Instrument we would suggest that any such amendment can only take place with the consent of the Minister.*"

### 5.8.5.3 ComReg's Final Position

5.334 In relation to the above comments, ComReg re-iterates its view that any amendment would be considered and decided upon in accordance with its statutory powers, functions, objectives and duties generally. ComReg also notes that the draft Regulations expressly provide that ComReg may amend licences in accordance with the Authorisation Regulations. As such, and assuming that the final Regulations retain this provision, an amendment to the Regulations would not be required.

### 5.8.6 Spectrum Pooling and Sharing

#### 5.8.6.1 ComReg's Position in Document 11/75

5.335 Section 2.2.10 of Document 11/75 (paragraphs 2.93 to 2.94) set out ComReg's view on spectrum pooling and sharing and stated that "*Having regard to its statutory functions, objectives and duties, it is not possible for ComReg to guarantee that individual spectrum sharing and pooling agreements will be permitted as the details of any such agreements would have to be assessed in the context of relevant electronic communications and competition law (for which the competition authority also has responsibilities), and it is only possible to make such an assessment on a case-by-case basis having seen the details of a proposed arrangement.*"

#### 5.8.6.2 Views of Respondents

5.336 Three respondents, Telefónica, H3GI and Vodafone, provided comments on ComReg's spectrum sharing and pooling position set out in Document 11/75.

5.337 Telefónica believed that Document 11/75 introduces uncertainty in relation to whether, how, or under what conditions spectrum pooling / sharing would be permitted and it stated that ComReg needs to "*confirm for example that (subject to competition law) the licence will allow licensee A to have their apparatus transmit on the spectrum assigned to operator B without a requirement for any kind of prior permission.*"

5.338 Vodafone believed that paragraph 2.93 would be more appropriately worded as follows '*spectrum sharing and pooling are allowed in principle, subject to a competition assessment finding that they would not significantly harm competition*'

5.339 H3GI requested confirmation that the proposed Liberalised Use Licences will permit spectrum sharing and provided a specific comment in relation to Regulation 6(4).<sup>251</sup>

### 5.8.6.3 ComReg's Final Position

5.340 ComReg notes that the issue of spectrum sharing and pooling has been considered in ComReg's consultation process on finalising ComReg's "Strategy for Managing the Radio Spectrum: 2011 – 2013". Documents 11/88<sup>252</sup> and Document 11/89<sup>253</sup> present ComReg's Response to Consultation and Strategy Statement on this topic and also present ComReg's position on spectrum sharing and pooling.

5.341 ComReg notes that ComReg's position in Document 11/88 and Document 11/89 addresses the issues raised by the respondents above.

5.342 With regard to arrangements such as sharing or pooling of radio frequencies ComReg's view as expressed in its Spectrum Strategy Statement (Document 11/89) is that spectrum sharing and pooling can, in principle, bring benefits such as reduced costs and improved quality of service. At the same time, ComReg is aware of the potential policy concerns, particularly in relation to competition. In addition, it is not possible for ComReg to give blanket assurances that spectrum sharing and pooling agreements will be permitted because the benefits and disadvantages arising from any particular agreement will depend on the specifics of the arrangement and the application of relevant electronic communications and competition law to those specifics.

5.343 Interested parties will be aware that ComReg's examination of a collaboration proposal will, of course, occur within the context of its statutory functions, objectives and duties and given this, interested parties should be in a position to identify for themselves the types of potential issues and concerns that could be raised by collaboration. For example, potential issues and concerns such as in relation to:

- competition issues arising from proposed collaboration between actual and potential competitors;

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<sup>251</sup> This comment, and ComReg's final position on it, is set out in section 5.9 of this document.

<sup>252</sup> "Response to Consultation: Review of the Period 2008 – 2010 & Proposed Strategy for Managing the Radio Spectrum: 2011 – 2013." [http://www.comreg.ie/\\_fileupload/publications/ComReg1188.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1188.pdf)

<sup>253</sup> "Strategy Statement: Strategy for Managing the Radio Spectrum: 2011 – 2013." [http://www.comreg.ie/\\_fileupload/publications/ComReg1189.pdf](http://www.comreg.ie/_fileupload/publications/ComReg1189.pdf)

- the impact of collaboration proposals on efficient spectrum use and efficient spectrum management; and/or
  - whether any potential restriction on competition (and other potential drawbacks) would be more than compensated for by the cost savings and other benefits which would be passed on to final consumers
- 5.344 Given that the nature and extent of such issues will clearly depend on the specifics of the proposed collaboration, ComReg cannot be said to have a firm view on the issue of spectrum rights sharing or pooling other than that it would look more favourably on agreements that do not overly restrict competition and deliver demonstrable benefits that are shared with final consumers.
- 5.345 Furthermore ComReg notes that its position as set out in Document 11/75, published subsequent to Document 11/60, is aligned with the position set out in Document 11/88 and 11/89.
- 5.346 Given the above, ComReg is of the current view that no changes are required to the text of the Information Memorandum (i.e. Section 2.2.10 of the Document 11/75).

## 5.9 The Regulations

- 5.347 Annex 2 of Document 11/75 set out the draft Regulations associated with a Liberalised Use and a Preparatory Licence. The draft Regulations contained nine Regulations<sup>254</sup> and two Schedules.<sup>255</sup>

### 5.9.1 Views of Respondents

- 5.348 Four respondents, eircom Group, H3GI, Telefónica and Vodafone commented on specific aspects of the draft Regulations. These views are set out below in respect of each Regulation or Schedule commented upon.

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<sup>254</sup> The Regulations were: 1: Citation; 2: Interpretation; 3: Licences to which these Regulations apply; 4: Application for the Grant and Form of Licences; 5: Duration and Renewal of Licences; 6: Condition of Licences; 7: Enforcement, Amendment, Withdrawal and Suspension; 8: Licence Fees; and 9: Licensee to satisfy all Legal Requirements.

<sup>255</sup> Schedule 1 was the “*Liberalised Use Licence for terrestrial systems capable of providing Electronic Communications Services*” and consisted of four Parts: 1: No title; 2: The Apparatus to which this Licence applies; 3: Apparatus Location and Details; and 4: Licence Conditions (see Annex 3 of Document 11/75).  
Schedule 2 was the “*Preparatory Licence for terrestrial systems capable of providing Electronic Communications Services*” and consisted of two Parts: 1: Licence Conditions; and 2: Statement of Authorised Apparatus.



## Regulation 2: Interpretation

5.349 H3GI proposed changes to the “Auction Rules” and “CPI Adjustment” definitions as set out in Regulation 2(1). Specifically, H3GI:

- noted that section 5.2.10 of the draft Information Memorandum (Document 11/75) provides for the continuance in effect of certain auction rules beyond the outcome of the auction, and thus the “Auction Rules” definition in the draft Regulations was restricted. H3GI proposed the following alternative definition:
  - *“Auction Rules” means the rules set out in the “Information Memorandum”; and*
- proposed an alternative definition for “CPI Adjustment” as follows:
  - *“CPI Adjustment” means a negative or positive percentage adjustment of the SUF, calculated using the CPI according to the methodology as set out by the Commission in the Information Memorandum”.*

## Regulation 5: Duration and Renewal of Licences

5.350 As set out and addressed above, four respondents, eircom Group, H3GI, Telefónica and Vodafone, commented upon the annual renewal of a licence within the duration of a Liberalised Use licence.

## Regulation 6: Licence Conditions

5.351 Regulation 6(1)(b): As set out in section 5.6.2 two respondents, Vodafone and H3GI, submitted comments related to this proposed Regulation.

5.352 Regulation 6(4): eircom Group and H3GI submitted the following comments:

- eircom Group noted that Regulation 6(4) requires that Apparatus is used only on the specified frequencies in the Liberalised Use Licence. It believed that *“it is entirely feasible, practical and efficient that use of the Apparatus could be shared with other frequencies, for example frequencies specified under a 3G licence. As such Regulation 6(4) is too restrictive and should be deleted.”*
- H3GI noted Regulation 6(4) and requested that ComReg amend this Regulation *“to permit the use of Apparatus on such radio frequency spectrum as specified in the Liberalised Use Licence or another Licensee’s Liberalised Use Licence with that licensee’s consent.”*

- 5.353 Regulation 6(5): H3GI sought clarity on how ComReg proposes to measure spectrum efficiency and it considered that *“the proposed regulation (as currently drafted) is contrary to the principles of proportionality and regulatory predictability as set out in Regulation 16(2) of the Framework Regulations”*
- 5.354 Regulation 6(6): Telefónica believed that ComReg has created significant uncertainty by building in a requirement to comply with a future requirement regarding spectrum hoarding that is as yet undefined, but could potentially require the surrender of spectrum.
- 5.355 Regulation 6(12): As discussed and addressed in section 5.2 four respondents, eircom Group, H3GI, Telefónica and Vodafone submitted comments related to this proposed Regulation.
- 5.356 Regulation 6(14): H3GI believed that ComReg should publicly consult in respect of any future international agreements relating to the use of apparatus or the frequencies to which they are assigned.
- 5.357 Regulation 6(15): H3GI requested ComReg to amend the regulation to permit the purchase and sale of licenses pending the introduction by ComReg of the procedures in relation to spectrum trading, etc.. H3GI suggested the following wording *“(15) Assign the rights and obligations of a Liberalised Use Licence, including the transfer, lease or other form of trading of spectrum rights attached to a Liberalised Use Licence, subject to any procedures specified by the Commission from time to time”*

### **Regulation 8: Licence Fees**

- 5.358 Comments on the level of the Licence fees are discussed in section 4.8 of this document.
- 5.359 In relation to the proposed Regulation:
- H3GI stated that *“Regulation 8 (Licence Fees) needs to be amended to reflect refunds.”*; and
  - Regulation 8(4) and 8(5): eircom Group noted that both proposed Regulations refer to the outcome of the Auction as a determinant of the base price. eircom Group believed that it is the outcome of the Qualification Stage that is the appropriate determinant and that the proposed Regulations should be amended accordingly.

### **Schedule 1: Liberalised Use Licence for terrestrial systems capable of providing Electronic Communications Services**

- 5.360 eircom Group believed that the Liberalised Use Licence should “*authorise the Licensee to keep and have possession of the relevant wireless telegraphy apparatus subject to such apparatus being installed, maintained, worked and used in accordance with the terms and conditions set out in the Licence.*”
- 5.361 H3GI proposed that paragraph 1 of Schedule 1 be amended to “*Authorisation to keep, have possession of, install, maintain, work and use apparatus for wireless telegraphy as specified ...*”

### **Schedule 2: Preparatory Licence for terrestrial systems capable of providing Electronic Communications Services**

- 5.362 H3GI proposed that ComReg should amend the authorisation to include “*installation and maintenance*”, and the reference in the authorisation to “*Part 1*” should be a reference to “*Part 2*”. H3GI also queried why ComReg has adopted a different approach to the ‘Parts’ of the proposed Preparatory and Liberalised Use Licences.

## **5.9.2 ComReg’s Final Position**

- 5.363 As noted above, a number of the comments relevant to the draft Regulations have already been discussed in other sections of this document and ComReg’s final position on each of these matters has been set out in those sections.
- 5.364 This section sets out ComReg’s final position on the remaining comments raised above.

### **Regulation 2: Interpretation**

- 5.365 ComReg agrees with the proposed changes to the “Auction Rules” and “CPI Adjustment” definitions and has amended the Regulations in with line these suggestions.

### **Regulation 6: Licence Conditions**

#### *a) Regulation 6(4)*

- 5.366 ComReg notes eircom Group’s comment that the same wireless telegraphy apparatus could be used under two or more wireless telegraphy licences (e.g. under a Liberalised Use Licence and a 3G Licence). ComReg believes this is

possible under the proposed licensing regime, as the same apparatus can be listed on multiple wireless telegraphy licences.

5.367 ComReg understands that a licensee, with apparatus associated with its licence, may wish to use such apparatus on a frequency or frequencies assigned to another licensee (and vice versa) in respect of which the two parties may enter into a commercial arrangement, such as an assignment or lease. ComReg notes that the proposed Regulation 6(4), as set out in Annex 2 of Document 11/75, would prevent this possibility as it stated that such apparatus is to be used only on the radio frequency spectrum identified in the Liberalised Use Licence.

5.368 ComReg has amended the text of Regulation 6(4) to allow the Licensee to use the apparatus on radio frequency spectrum:

- as specified in the Liberalised Use Licence; or
- to which the Licensee has a right of use pursuant to an agreement entered into with a holder of a licence under the Act of 1926 in accordance with procedures specified by the Commission, if any, from time to time;

5.369 In relation to spectrum sharing and pooling, this issue has been discussed in section 5.8.6 above and ComReg's final position is that, which such arrangements are not prohibited by Regulation 6 (4), the details of any such agreements would have to be assessed in the context of relevant electronic communications and competition law (for which the competition authority also has responsibilities), and it is only possible to make such an assessment on a case-by-case basis having seen the details of a proposed arrangement.

*b) Regulation 6(5)*

5.370 ComReg notes the comment by H3GI in relation to the difficulty of outlining a measure to specify spectrum efficiency and believes that it is not appropriate to include this proposed Regulation. ComReg has amended the Regulations to remove this proposed Regulation.

*c) Regulation 6(6)*

5.371 While ComReg notes that the rules on spectrum hoarding are as yet undefined, Regulation 6(6) states that any such rules would be laid down in accordance with the Framework Regulations.

- 5.372 ComReg notes that Regulation 17(10) of the Framework Regulations is the relevant Regulation, and ComReg is of the view that Regulation 17(10) of the Framework Regulations provides clarifying information on the spectrum hoarding rules that may be laid down and the application of such rules. Regulation 17(10) of the Framework Regulations states that *“The Regulator may, having regard to its objectives under section 12 of the Act of 2002 and Regulation 16 and its functions under the Specific Regulations, lay down rules in order to prevent spectrum hoarding, in particular by setting out strict deadlines for the effective exploitation of the rights of use by the holder of rights and by withdrawing the rights of use in cases of non-compliance with the deadlines. Any rules laid down under this paragraph shall be applied in a proportionate, non-discriminatory and transparent manner.”*
- 5.373 Given the above, ComReg does not believe that the inclusion of this proposed Regulation lends any uncertainty to a Liberalised Use Licensee, as this provision is already set out in the Framework Regulations. Indeed, one could argue that the inclusion of Regulation 6(6) increases regulatory predictability by putting actual and prospective Licensees on notice that Liberalised Use Licences may be subject to the rules envisaged by Regulation 17(10) of the Framework Regulations.
- 5.374 ComReg would also draw interested parties’ attention to Regulation 9(11) of the Authorisation Regulations which provides *“The Regulator shall ensure that radio frequencies are efficiently and effectively used having regard to section 12(2)(a) of the Act of 2002 and Regulations 16(1) and 17(1) of the Framework Regulations. The Regulator shall ensure that competition is not distorted by any transfer or accumulation of rights of use for radio frequencies. For this purpose the Regulator may take appropriate measures such as mandating the sale or the lease of rights of use for radio frequencies”*.
- 5.375 Accordingly, ComReg considers that it is appropriate to maintain the proposed Regulation 6(6).

*d) Regulation 6(14)*

- 5.376 ComReg notes H3GI’s view that it should publicly consult in respect of any future international agreements relating to the use of apparatus or the frequencies to which they are assigned.
- 5.377 ComReg acknowledges the underlying principle that a licensee should be aware of the international agreements that it is required to comply with and it should be afforded the opportunity to comment on such international

agreements where practicable. For example, in respect of MoUs agreed between ComReg and Ofcom, ComReg has sought comments from the affected licensees before such MoUs were finalised, and with the draft 800 MHz MoU comments were sought from all interested parties through an open consultation process.

- 5.378 For the avoidance of doubt, however, ComReg notes that it may not always be appropriate, possible or practical to follow this approach, as the rules and procedures associated with the formulation of new international agreements (e.g. changes to the International Radio Regulations at a World Radiocommunication Conference) may not permit or facilitate this approach.
- 5.379 Given the above, ComReg considers that it is appropriate to maintain the proposed Regulation 6(14).

*e) Regulation 6(15)*

- 5.380 In considering H3GI's comment, ComReg firstly notes that the sale and purchase of licences is currently permitted under many Wireless Telegraph Regulations (including the GSM and 3G Regulations), subject to the approval of ComReg (which shall not be unreasonably withheld).
- 5.381 While it is the intention of ComReg to have in place finalised procedures relating to the transfer or lease of rights and obligations of a Wireless Telegraphy licence by the time a Liberalised Use licence would be issued, ComReg notes that there is a possibility that this may not occur as the finalisation of these procedures is a separate work item with its own open consultation processes.
- 5.382 In order to address this matter, ComReg believes that it is appropriate to amend the Regulations to provide for the possibility of the transfer or lease of spectrum rights of use attaching to a Liberalised Use Licence prior to the finalisation of ComReg procedures, subject to the approval of ComReg which shall not be unreasonably withheld (see amended Regulation 6(15) and new Regulation 6(B)

*Regulation 8: Licence Fees*

- 5.383 In considering H3GI's suggestion that this Regulation should also provide for the refund of licence fees ComReg notes that the refund of licence fees was detailed in section 2.2.6 of Document 11/75. As it is ComReg's intention that the final Information Memorandum will also set out ComReg's view on the refund of fees, ComReg believes that it is appropriate for the Regulations to reflect refunds and has amended Regulation 8 accordingly.

5.384 In relation to eircom Group's comment on Regulation 8(4) and 8(5), ComReg notes that it is the Qualification Stage of the auction that determines whether there is excess demand in any category. However, ComReg also notes that this information is set out in the Information Memorandum. Given this ComReg is of the view that the draft Regulations should not refer to this detailed rule and Regulations 8(4) and 8(5) have been deleted..

### **Schedule 1: Liberalised Use Licence for terrestrial systems capable of providing Electronic Communications Services**

5.385 ComReg is of the view that it is appropriate to modify the text of Schedule 1 in line with both H3GI's and eircom Group's suggested changes.

### **Schedule 2: Preparatory Licence for terrestrial systems capable of providing Electronic Communications Services**

5.386 ComReg is of the view that it is appropriate to modify the text of Schedule 2 in line with H3GI's suggested change, and thus indicate that the authorisation also allows the 'installation and maintenance' of or Wireless Telegraphy apparatus equipment which is specified in 'Part 2' of the Preparatory Licence.

5.387 In relation to H3GI's query on why ComReg has adopted a different approach in relation to the 'Parts' of the proposed Preparatory and Liberalised Use Licences, ComReg points out that the rights and obligations associated with each of these licences are different. For example, a Liberalised Use licence allows the working and use of apparatus, whereas a Preparatory Licence does not and different information is therefore required in the 'Parts' of the respective licences.

#### **5.9.2.1 Summary of ComReg's Final Position – the Regulations**

5.388 In light of the above and ComReg's final position as set out in other sections of this document, the draft Regulations set out in Annex 2 of Document 11/75 have been further refined and amended, and Annex 7 of this document sets out ComReg's advanced<sup>256</sup> position on the text of the Regulations for Liberalised Use and Preparatory Licences.

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<sup>256</sup> ComReg's position is final to the extent that the text relates to a Decision made in Chapter 8 of this document.

## 5.10 Part 4 of Schedule 1 to the Regulations – the Licence Conditions Attached to a Liberalised Use Licence

5.389 Annex 8.6 of Document 11/60a and Annex 3 of Document 11/75 set out the draft Licence Conditions that ComReg proposed to attach to a Liberalised Use Licence. This comprised of 5 Parts, namely:

- Part 1: Licence Commencement and Termination Date;
- Part 2: General;<sup>257</sup>
- Part 3: Technical Conditions;<sup>258</sup>
- Part 4: Roll-out and Coverage Requirements;<sup>259</sup> and
- Part 5: Quality of service obligations.<sup>260</sup>

### 5.10.1 Views of Respondents

5.390 Three respondents, eircom Group, H3GI and Vodafone commented on specific aspects of the draft Licence Conditions to be attached to a Liberalised Use Licence. These views are set out below in respect of each Part commented upon.

#### Part 1: Licence Commencement and Termination Date

5.391 eircom Group noted that a licensee may obtain a different quantity of spectrum in each time slice and it believed that the duration of a licence should therefore be expressed on a per frequency block basis.

#### Part 2: General

5.392 eircom Group stated that “*it is content with the proposed content and drafting of Part 2.*”

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<sup>257</sup> Part 2 consisted of five sub sections: namely 1) The Frequency Bands; 2) The Licensed Frequency Blocks; 3) The Licensed Terrestrial System and Services; 4) Termination of a terrestrial system deployed in the Licensed Frequency Block(s); and 5) Provision of Maps and Data.

<sup>258</sup> Part 3 consisted of two sub sections: namely 1) The 800 MHz band; and 2) The 900 MHz & 1800 band.

<sup>259</sup> Part 4 consisted of four sub sections: namely 1) Minimum Coverage and Roll-out Requirement; 2) Definition of Coverage; 3) Reporting on Compliance; and 4) Performance Guarantees.

<sup>260</sup> Part 5 consisted of three sub sections: namely 1) The Minimum “Availability of the Network” Standard; 2) The Minimum “Voice Call” Standard; and 3) Compliance, Reporting and Performance Guarantees.



5.393 In relation to the “Provision of Maps and Data” obligation for the purposes of carrying out coverage and quality of service compliance checks, H3GI noted that the licensee is required to provide “*a mechanism for identifying the base station that is handling a call at any given time*”. H3GI requested confirmation from ComReg that “*RAN statistics which log circuit-switched traffic are sufficient for this purpose.*”

### **Part 3: Technical Conditions**

5.394 Section 5.4 above sets out the views of respondents received in relation to the technical conditions of a Liberalised Use Licence. ComReg’s consideration of these comments and its final position are set out in that section.

5.395 Aside from those comments, ComReg notes that:

- eircom Group stated that it “has no objection to what is proposed”; and
- H3GI noted that Condition (11) obliges the licensee to comply with all MoUs agreed between ComReg and the national regulatory authority responsible for communications matters in the UK, Ofcom. For the purposes of ensuring effective management and efficient use of spectrum, H3GI requested “*ComReg to publicly consult in respect of any future MoUs to be agreed between ComReg and Ofcom or its successor in relation to the 900 MHz and 1800 MHz band.*”

### **Part 4: Roll-out and Coverage requirements**

5.396 Section 5.5 above sets out the views of respondents received in relation to the coverage and roll-out requirements of a Liberalised Use Licence. ComReg’s consideration of these comments and its final position is set out in that section.

5.397 Aside from those comments, ComReg notes that eircom Group believed that the term “New Entrant” in the draft licence should be correctly defined to exclude operators with an existing mobile network. As discussed in section 5.5.1, ComReg has amended the text of the Liberalised Licence (see Annex 8) to clarify that a ‘new entrant’ does not apply to mobile operators with existing network infrastructure, such as H3GI.

### **Part 5: Quality of Service (QoS) Obligations**

5.398 Section 5.6 above sets out the views of respondents received in relation to the QoS obligations of a Liberalised Use Licence. ComReg’s consideration of these comments and its final position on these is set out in that section.

5.399 Aside from those comments, ComReg notes that Vodafone commented upon the “voice call” definition noting that the exclusion of VoIP is not explicit in the proposed Regulations as the term “voice calls” is not defined. It called upon ComReg to clarify this matter.

## 5.10.2 ComReg’s Final Position

5.400 As noted above, a number of the comments relevant to the draft Licence Conditions have already been discussed in other sections of this document and ComReg’s final position on each of these matters has been set out in those sections.

5.401 This section sets out ComReg’s final position of the remaining comments raised above.

5.402 Firstly, ComReg notes that the term ‘Parts’ is used at the two different levels in the Schedule to the Liberalised Use Licence in Document 11/75 (e.g. the ‘coverage and roll-out requirements’ are set out in Part 4 of Part 4 to Schedule 1 of the Regulations). To avoid confusion, ComReg will use the term “Section” as outlined below. ComReg has also amended Part 4 to Schedule 1 of the Regulations accordingly (see Annex 8).

### Section 1: Licence Commencement and Termination Date

5.403 As a licensee can obtain a different quantity of spectrum in each time slice, ComReg agrees with eircom Group’s comment that the duration of a licence should be expressed on a per frequency block basis. ComReg has therefore also amended Part 1 of the Liberalised Use Licence (i.e. Schedule 1 to the Regulations) to show the commencement and expiry date of a licence on a per frequency block basis.

5.404 Furthermore, ComReg notes that the information contained in Section 1 of Part 4 to Schedule 1 of the Regulations is no longer necessary, as the licence commencement and termination date are set out on the first page of the Liberalised Use Licence (see Annex 7 of this document). ComReg has therefore deleted this section from Part 4 to Schedule 1. However, for the purposes of the discussion below, ComReg uses the original section numbers.

### Section 2: General

5.405 ComReg notes H3GI’s request for clarity on the obligation to provide “a *mechanism for identifying the base station that is handling a call at any given time*”. Upon further review of this obligation, ComReg notes that this information

is not required for the purposes of carrying out coverage and quality of service compliance checks, and therefore this obligation has been removed from Part 4 of Schedule 1.

### **Section 3: Technical Conditions**

- 5.406 In relation to H3GI's comments that ComReg should publicly consult on any future MoUs to be agreed in relation to the 900 MHz and 1800 MHz bands, ComReg points out that its standard practice is to seek views of the relevant stakeholders prior to making such agreements. For example, ComReg has given stakeholders the opportunity of commenting on the draft MoU for the 800 MHz band as this was published for comment in Annex 12 of Document 11/60a.
- 5.407 However as discussed in section 5.9 above in relation to Regulation 6(14), it should also be noted that it may not always be possible or practical for ComReg to follow this approach. Therefore while ComReg notes H3GI's comment, ComReg is of the view that it is not appropriate to modify this condition in Part 4 of Schedule 1.

### **Section 4: Roll-out and Coverage requirements**

- 5.408 ComReg agrees with eircom Group's comment that the definition of a "new entrant" should be amended to clarify that this only applies to an entity without an existing mobile network. This section has been amended accordingly.

### **Section 5: Quality of Service (QoS) Obligations**

- 5.409 ComReg agrees with Vodafone's comment that the definition of a "voice call" should exclude VoIP calls.

#### **5.10.2.1 Summary of ComReg's Final Position - Part 4 of the Liberalised Use Licence**

- 5.410 In light of the above and ComReg's final position as set out in the other sections of this document, Part 4 of the Liberalised Use Licence set out in Annex 3 of Document 11/75 has been further refined and amended, and Annex 8 of this document sets out ComReg's advanced position<sup>261</sup> on the text of Part 4 of Schedule 1 to the Regulations, namely the Licence Conditions to be attached to a Liberalised Use Licence.

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<sup>261</sup> ComReg's position is final to the extent that the text relates to a Decision made in Chapter 8 of this document.

## Chapter 6

# 6 Transitional Issue

## 6.1 Introduction

6.1 This chapter presents:

- a summary of ComReg's views on transitional issues set out in Document 11/60 and, to the extent relevant, Document 11/75;
- a summary of respondents submissions on those issues;
- a summary of updated advice received from ComReg's consultants<sup>262</sup> and
- ComReg's final position in relation to the transitional issues that may arise in the 800 MHz, 900 MHz and 1800 MHz bands as a result of the Award Process. The transitional issues are discussed in three categories:
  - those that could arise from the time of the joint award until the commencement of liberalised licences in Time Slice 1;
  - those that could arise between the two time slices; and
  - finally, whether to grant preparatory licences to winners of liberalised spectrum rights of use.

## 6.2 Possible Transitional Issues Between the Award and the Commencement of Liberalised Licences in Time Slice 1

### 6.2.1 Summary of ComReg's Position in Document 11/60

6.2 In Document 11/60 and Document 11/60a<sup>263</sup>, ComReg noted that many transitional scenarios are possible as a result of the auction and the details of the required transitions will only become known after the Award Process has been completed.

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<sup>262</sup> Red-M Wireless Limited and Vilicom Limited.

<sup>263</sup> See chapter 6 of Document 11/60 and Annex 7 of Document 11/60a.

6.3 Furthermore, having regard to the views of respondents and expert technical advice<sup>264</sup> from Red-M Wireless Limited (Red-M) and Vilicom Limited (Vilicom), ComReg set out its then view, in relation to two of the potential transitional scenarios that could arise. These scenarios were:

- **Scenario 1 – ‘Relocation’ activities in the 900 MHz and 1800 MHz bands:** In this scenario an existing GSM licensee would be required to ‘relocate’ its existing spectrum assignments in one or both spectrum bands; and
- **Scenario 2 – ‘Retuning’ activities in the 900 MHz and 1800 MHz bands:** In this scenario, an existing GSM licensee would be required to ‘retune’ its network to a spectrum assignment which is smaller than its existing spectrum assignment. While ‘retuning’ activities are possible in both the 900 MHz and 1800 MHz bands, the Scenario 2 quantitative analysis focused on the 900 MHz band,<sup>265</sup> and the situation of an existing GSM licensee winning a single 2 × 5 MHz block of 900 MHz spectrum as a result of the auction.

#### 6.2.1.1 Scenario 1: ‘Relocation’ activities in the 900 MHz and 1800 MHz bands

6.4 Paragraph 6.9 of Document 11/60 set out ComReg’s then view on Scenario 1 ‘relocation’ activities in the 900 MHz and 1800 MHz bands and stated that “*at this point in time, ComReg remains confident that there would be sufficient time for Scenario 1 activities to be completed by all existing GSM licensees in both the 900 MHz and 1800 MHz bands between the completion of ComReg’s proposed joint award process and proposed commencement of liberalised licences in early 2013.*”<sup>266</sup>

6.5 In light of this and in order to ensure and encourage timely completion of Scenario 1 activities, prior to the proposed commencement of liberalised licences in early 2013, paragraphs 6.10 to 6.17 of Document 11/60 set out ComReg’s ‘relocation’ Project Plan proposals. These included that:

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<sup>264</sup> Red-M/Vilicom Reports, Document 10/105b, Document 10/71c and Document 11/57.

<sup>265</sup> While ‘retuning’ activities in the 1800 MHz band are also possible, no attempt at providing a quantitative analysis of this scenario has been made in advance of the auction outcome “given the increased number of potential scenarios involving reduction of available spectrum at 1800 MHz as compared to 900 MHz and the lower ‘scarcity factor’ of 1800 MHz spectrum compared to 900 MHz.” (c.f. page 6 of Document 10/71c).

<sup>266</sup> In addition, ComReg noted that “there was relatively little comment and no disagreement with Red-M/Vilicom’s assessment of the likely timescales involved for a Scenario 1 transition for the 900 MHz and 1800 MHz bands, singularly and combined.”

- a relocation 'Project Plan' would be established and published after the completion of the Award Process, and this plan would clearly identify project milestones and related deliverables;
- whilst ComReg would hope that all affected parties would come to an agreement on such matters, ComReg would play a mediating role in the first instance and would reserve the right to make a final and binding decision on any disputed matters that could not be mediated;
- the 'relocation' Project Plan would include liquidated damages payable by parties where such parties fail to discharge their obligations in accordance with the milestones set out in the 'relocation' Project Plan. ComReg envisaged that such liquidated damages would relate to the loss of the spectrum usage fees (SUFs) associated with the affected liberalised spectrum blocks; and
- prospective bidders seeking to participate in the proposed joint award process would agree to comply with a final decision in respect of the project plan and to the regime of liquidated damages.

6.6 In addition to the above, ComReg considered that, where appropriate, and in order to facilitate transitional activities and ensure the effective management of the radio spectrum, it should retain its discretion to consider requests to vary an existing GSM licence by the holder of that licence and from other parties.

#### **6.2.1.2 Scenario 2: 'Retuning' activities in the 900 MHz and 1800 MHz bands**

6.7 Paragraph 6.6 of Document 11/60 set out ComReg's then view in relation to Scenario 2 'retuning' activities in the 900 MHz and 1800 MHz bands, and proposed that ComReg would "*adopt a flexible approach to any Scenario 2 occurrence particularly so as to avoid undue negative effects on consumer disruption during any transition period.*"

6.8 ComReg noted that an existing GSM licensee facing a Scenario 2 transition has the incentive to seek to retain spectrum for as long as possible under these circumstances (and potentially longer than would be necessary). In light of these likely incentives ComReg saw merit in adopting the following approach:

- "*the setting of milestones for specific retuning tasks;*
- "*a sufficiently robust and transparent mechanism to monitor compliance with milestones;*

- *appropriate financial measures to dissuade non-compliance with milestones; and*
- *that the process adopted by ComReg reasonably includes the involvement of affected third parties, having regard to the protection of commercially sensitive information.”*

## 6.2.2 Summary of ComReg’s Position in Document 11/75

6.9 In Document 11/75, ComReg provided further details on the transitional issues associated with the GSM Licensees and the Transition Rules that ComReg proposed to adopt in the Award Process.<sup>267</sup>

6.10 In section 2.4.3 of Document 11/75, ComReg stated that an existing GSM licensee, would be obliged to participate in the Assignment Stage of the Award Process, to participate in the formulation of the Relocation Project Plan following the Assignment Stage, and would be bound by the Transition Rules of the Award Process.

6.11 Section 3.8 of Document 11/75 outlined ComReg’s proposed Transition Rules and stated that:

- Existing GSM licensees would be provided with a 2 week period immediately following the Assignment Stage to collectively formulate and submit a Relocation Project Plan for the 900 and 1800 MHz bands.
- ComReg envisaged that this Relocation Project Plan would satisfactorily address the following matters:
  1. identify the relocations to be undertaken;
  2. set milestones;
  3. identify any relocations that are consequential on another party, such that consequential delays can be clearly attributed to the responsible party;
  4. have a robust and transparent mechanism to allow interested parties to monitor compliance; and
  5. include the attribution and acceptance of liability for liquidated damages to be paid by existing GSM licensee(s) to ComReg, in the event of non-compliance with the milestones in the Relocation Project Plan.

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<sup>267</sup> See sections 2.4.3 and 3.8 of Document 11/75.

- Following receipt of a Relocation Project Plan proposal or in the event of a Relocation Project Plan proposal not being submitted by the stipulated times, ComReg proposed to progress the matter with a view to finalising the plan.
- ComReg reserved the right to make a final and binding decision on any and all matters following appropriate consultation.
- Once the Relocation Project Plan is finalised, it would be published on ComReg's website.
- The total amount of liquidated damages payable by existing GSM Licensees would be based on the refunds of Licence Fees that ComReg pre-estimated<sup>268</sup> that it may have to make to Winning Bidders in the event that ComReg was unable to make Lots available in the 900 MHz and/or 1800 MHz band for use by the commencement date of Time Slice 1.

6.12 ComReg noted that there may also be transitional and relocation activities between Time Slice 1 and Time Slice 2. To manage any such transition, ComReg noted that a similar process and system may be adopted to that proposed above, and it reserved the right to apply the Transition Rules as set out in Document 11/75 to such transitions.

### 6.2.3 Views of Respondents

6.13 In their responses to Document 11/60 and their responses to Document 11/75, four respondents, eircom Group, H3GI,<sup>269</sup> Telefónica and Vodafone, provided comments on the transitional issues that may arise from the time of the joint award until the commencement date of Liberalised Licences in Time Slice 1. These views are set out below in terms of the:

- timing issues related to transition and the potential for delay to commencement of Liberalised Licences; and

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<sup>268</sup> Section 2.2.6 of Document 11/75 set out details on ComReg's proposed refunds in the event that Lots in the 800 MHz, 900 MHz and/or 1800 MHz bands are delayed. It stated that such refunds shall be calculated as follows:

- "a pro-rata portion of the Upfront Fees already paid by the Winning Bidder on a daily basis for each whole day following the commencement date of Time Slice 1 that ComReg does not make the Lot available for Liberalised Use; and/or
- a pro-rata portion of SUFs already paid by Winning Bidder on a daily basis for each whole day following the commencement date of Time Slice 1 that ComReg does not make the Lot available for Liberalised Use."

<sup>269</sup> In addition, ComReg has noted H3GI's views as set out in its further submission, dated 23 January 2012, as published in Document 12/21.



- specific issues related to the transition process and rules.

### 6.2.3.1 Timing issues related to transition:

- 6.14 All four respondents provided comments on the time available for transition and sought clarity from ComReg on the consequences this may have, in relation to various auction outcome scenarios and whether this would result in any consequent delays for the commencement date of Liberalised Licences.
- 6.15 Vodafone provided comments in relation to Scenario 1 and Scenario 2.
- in relation to Scenario 1, Vodafone stated that it *“agrees with ComReg that the relocation activities associated with a Scenario 1 outcome are likely to be less problematic and more readily amenable to a commonly agreed approach.”*
  - in relation to Scenario 2, Vodafone welcomed ComReg’s intention to be flexible in its approach to any Scenario 2 occurrence *“so as to avoid undue negative effects on consumer services during any transition period”*. However Vodafone noted that ComReg gave no indication of what it would consider undue negative effects to be and therefore it believed that it would be incumbent on ComReg to *“conduct a rigorous analysis as to the scope and extent of consumer disruption” .. “before obliging any forced spectrum vacating under a Scenario 2 occurrence.”*
  - furthermore, in relation to a Scenario 2 outcome, Vodafone stated that ComReg cannot depend on the Red-M/Vilicom minimum relocation times. Instead it was of the view that *“ComReg is obliged to take utmost account of the evidence given by Vodafone (and other respondents as well as being addressed in the Red-M/Vilicom report) of the timeframes reasonably required by operators who have to accommodate a reduced allocation of GSM900 spectrum.”*
- 6.16 eircom Group noted that the time period available for the transitional activities is unknown and *“it is entirely possible that there could be nine or less months for the transitional activity to be completed.”*
- 6.17 Telefónica speculated that the earliest an auction can take place is Q3 2012 meaning that the maximum amount of time likely to be left between auction end and proposed licence commencement is 6 months. Given this, it believed that there would be insufficient time available for retuning and relocation and it submitted that *“the proposed licence start date is simply not workable, and must be substantially pushed out by ComReg.”*<sup>270</sup>

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<sup>270</sup> In addition Telefónica O2 submitted:

6.18 In relation to the timing associated with the various transition scenarios:

- for Scenario 2, Telefónica stated that *“the proposed start date of T1 leaves insufficient time after the auction to allow an operator who might have had its holding of 900MHz reduced from 2x7.2 MHz to 2x5 MHz to make the necessary adjustments to their network before licence commencement. This has implications not just for that operator, but also for the new licensee coming in to the spectrum block being vacated.”*
- for the scenario involving the possibility of an auction outcome where an existing GSM Licensee fails to win any spectrum, Telefónica believed that ComReg must plan for this outcome by leaving sufficient time post-auction for an orderly transition.

6.19 H3GI noted that the relocation and retuning activities of the existing GSM licensees should not take as long as claimed by the incumbent operators. In addition, it noted ComReg’s preliminary position on transition set out in Document 11/60 and requested further clarity from ComReg on Scenario 1 and Scenario 2.

- for Scenario 1, H3GI sought clarity on whether ComReg remains *“confident that there will be sufficient time for scenario 1 activities to be completed by all existing GSM licensees in both the 900 and 1800 MHz bands in advance of the proposed commencement of liberalised licences in early 2013?”*; and
- For Scenario 2, H3GI sought clarity on ComReg’s preliminary proposal to *“adopt a flexible approach”* in relation to a Scenario 2 outcome.

### **The potential for delay to the commencement of Liberalised Licences**

6.20 The potential for delay to the commencement of Liberalised Licences caused by transitional activities was raised by Telefónica and H3GI.

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- *“ComReg is obliged to address the risks outlined above, by leaving sufficient time after the auction and before licence commencement to cover all potential scenarios of spectrum re-location, re-tuning, reduction or loss outlined above, in order to ensure that regardless of auction outcome there will be an orderly transition from the current licensing regime to the new regime after the auction without customer disruption.”*

See Section 4.4 of this document for ComReg’s view of the appropriate start date of a Liberalised Licence.

- 6.21 As outlined above, Telefónica maintained that *“the proposed licence start date is simply not workable, and must be substantially pushed out by ComReg.”*<sup>271</sup>
- 6.22 H3GI, in its response to Document 11/60, sought ComReg’s view on what would happen if the proposed auction was delayed or transitional activities take longer than expected, and it called on ComReg to *“address the consequences of delay for the commencement of the proposed licences, including the refund of spectrum fees pro rata for any delay.”*
- 6.23 In its response to Document 11/75, H3GI provided further comments on what it maintained was the potential for delay to Liberalised Licences and H3GI stated that the *“potential delay in the commencement of Liberalised Licences creates a completely unacceptable level of uncertainty.”* H3GI recommended that ComReg:
- *“Specifies a robust framework for transitional activities, including milestones and timetable for completion with penalties that deter non-compliance;*
  - *Ensures that liberalised spectrum is available as soon as practicable after the award process, and in any event no later than 1 February 2013; and*
  - *Reserves Lot A of the 900 MHz band and unassigned 1800 MHz in both time slices for a new band entrant.”*
- 6.24 In addition, H3GI expressed the view that ComReg has *“failed to carry out a proper consultation and has improperly chosen to introduce fundamental issues to the award process, not previously consulted upon, into the draft IM.”*<sup>272</sup>
- 6.25 H3GI asserted that ComReg *“has failed to take a sufficiently pro-active approach towards the design and management of the award process (including, the adoption of a robust framework) so as to avoid further delays in the process”* Amongst other items, H3GI stated;
- without substantiation, that ComReg’s approach towards liberalisation and notably, the commencement date for the Liberalised Use Licences *“is contrary to the principles in the European Commission’s Spectrum Decision”*<sup>273</sup> and the

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<sup>271</sup> In its response to Document 11/60, Telefónica is of the view that for practical and legal reasons the earliest the new licences can start is 2014/2015.

<sup>272</sup> In this regard, H3GI noted, at page 15 of its response, the possibility of delayed commencement in respect of Time Slice 1 and Time Slice 2.

<sup>273</sup> Decision 2009/766/EC.

*principle set out in the GSM Amendment Directive - being the earliest liberalisation of the 900 MHz band without creating distortions of competition”;*

- that *“the recognition of possible delay is an entirely unacceptable starting point” and “it is imperative that where ComReg does envisage the potential for delays, the reasons for / circumstances in which delays might arise should be clearly defined in advance so as to ensure transparency and regulatory predictability.”;*
- that *“In D03/11 (Interim Licences for the 900 MHz Band), ComReg placed great emphasis on the fixed duration of GSM interim licences and H3GI relied on this, inter alia, in its decision to refrain from appealing that decision. In light of ComReg’s change in position and the considerable uncertainty that it has now created, H3GI reserves all rights in respect of this matter.”;* and
- provided further specific comments in relation to the Transition Rules (as discussed below).

### **6.2.3.2 Specific issues related to the transition process and rules**

#### **The formulation of a framework to ensure a timely transition**

- 6.26 One respondent, H3GI, provided comments on the formulation of a framework to ensure timely transition.
- 6.27 In its response to Document 11/60, H3GI welcomed ComReg’s statement as set out in paragraph 6.19 of Document 11/60<sup>274</sup> and called on ComReg to *“provide a firm commitment and specific details of the types of milestones and financial measures that ComReg proposes to adopt in respect of transitional issues.”* In relation to the relocation project plan, H3GI was of the view that;
- *“ComReg needs to set out in its decision a concrete timetable in relation to the establishment and publication of its proposed Project Plan;*

<sup>274</sup> Paragraph 6.19 of Document 11/60 stated that:

*“ComReg also sees merit in incorporating aspects of H3GI’s suggested approach to transitional issues, such as:*

- the setting of milestones for specific tasks;
- a sufficiently robust and transparent mechanisms to monitor compliance with milestones;
- appropriate financial measures to dissuade non-compliance with milestones; and
- that the process adopted by ComReg reasonably includes the involvement of affected third parties, having regard to the protection of commercially sensitive information.”

- *parties that fail to discharge their obligations in accordance with the milestones set out in the proposed Project Plan should pay exponential penalties as delays increase; and*
- *in order for the proposed auction to be legally certain, ComReg must address the consequences of delay for the commencement of the proposed licences, including the refund of spectrum fees pro-rata for any delay.”*

6.28 In its response to Document 11/75, H3GI was concerned by ComReg’s approach towards the design and management of the requisite transitional activities that must be completed by the Existing GSM Licensees. It believed that ComReg needs to:

- *“take the lead in relation to the design and management of the award process and specify a robust framework for transitional activities, including milestones and timetable for completion with penalties that deter non-compliance; and*
- *ensure that liberalised spectrum is available as soon as practicable after the award process, and in any event no later than 1 February 2013.”*

6.29 In addition, H3GI noted that ComReg’s transition rules proposal did not specify a deadline date for the completion of transitional activities.

### **The timeframe for formulating a relocation project plan**

6.30 Two respondents, eircom Group and H3GI, provided comments on ComReg’s proposed timeframe for formulating a relocation project plan.

6.31 eircom group, in its response to Document 11/60, was of the view that that it may be prudent for ComReg to undertake preparatory technical discussions and commence more generic technical planning activities in advance of the award process as such transitional considerations may require a degree of negotiation and mediation and will therefore consume some of the transitional period.

6.32 In its response to Document 11/75, eircom Group noted ComReg’s proposal of two weeks to collectively formulate and submit a Relocation Project Proposal and it believed that this did not appear to be sufficient to finalise such discussions. It suggested that ComReg should retain the right to extend this time period for a short period subject to ComReg being comfortable that good progress is being made in formulating the plan.

- 6.33 H3GI, in its response to Document 11/75, was concerned that the draft Information Memorandum did not state a timeframe for when the project plan for relocation activities would be established and published. While it noted and welcomed ComReg proposal to consult on such activities with Winning Bidders, it stated that it *“would be concerned that the consultation is carried out in as expeditious a manner as possible so as to avoid unnecessary / further delay to the award process.”*
- 6.34 In addition, H3GI was concerned that ComReg’s proposal would leave the drafting of the Relocation Project Plan to the Existing GSM Licensees for ComReg’s approval, with ComReg only intervening where the Existing GSM Licensees are unable to reach agreement within two weeks. It questioned *“how ComReg proposes to safeguard [against] such discussions leading to a significant distortion of competition post-the award process”* and called on ComReg to *“provide details of the relevant safeguards to be put in place by ComReg to avoid the risk of tacit collusion arising out of such ‘collective’ discussions.”*

### **The obligation to agree to the transition rules including liquidated damages**

- 6.35 Two respondents, eircom Group and Telefónica, provided comments on ComReg’s proposed obligation that the existing GSM Licensees agree in advance to the Transition Rules, including liquidated damages.
- 6.36 eircom Group, in its response to Document 11/60, and while understanding the rationale for ComReg’s ‘relocation’ Project Plan proposal, questioned whether it will achieve the desired objective of a timely and orderly transition. Specifically eircom Group:
- *“would question an obligation on a prospective bidder to agree in advance with a final decision, before the circumstances of such decision are known. This would appear to be seeking to circumvent an entity’s right to object to an unreasonable decision.”;*
  - *“would question whether the threat of liquidated damages will ensure a timely transition. The threat of liquidated damages would incentivise existing GSM licensees to build headroom into their estimated project milestones in order to reduce the risk of being penalised. This could lead to protracted debates over the reasonableness or otherwise of project milestones”; and.*
  - *believed that “a co-operative and participative approach which encourages parties to make best endeavours is more likely to achieve the desired outcome.”*

- 6.37 In its response to Document 11/75, eircom Group stated that its view on transition remained the same as those provided in its response to Document 11/60 and in particular it continued to disagree with the suggestion that participation in the auction would be subject to agreeing in advance with the decision of ComReg regarding the Relocation Plan and Transitional Activities. It believed that *“this is not something which can be reasonably expected of applicants.”*
- 6.38 Telefónica, in its response to Document 11/60, asserted that ComReg’s proposal that prospective bidders seeking to participate in the proposed auction must first agree to comply with the terms of a project plan:
- *“is contrary to ComReg’s obligation as a Regulator to promote regulatory predictability and certainty.”*<sup>275</sup>
  - *“is clearly in breach of the principles of natural justice, by seeking to impose penalties on successful bidders for non-compliance with obligations yet to be determined.”*<sup>276</sup> and
  - *“is a measure which would have significant impact on the relevant market. It must form the basis of a separate consultation prior to the auction.”*<sup>277</sup>

### **The calculation of liquidated damages (or other financial penalties)**

- 6.39 Three respondents, eircom Group, Vodafone and H3GI, provided comments on ComReg’s proposed liquidated damages (or other financial penalties) payable in the event of non-compliance with milestones and delivery dates of the Relocation Project Plan.
- 6.40 As outlined above, eircom Group in its response to Document 11/60 questioned *“whether the threat of liquidated damages will ensure a timely transition.”*
- 6.41 Vodafone, in its response to Document 11/75, stated that ComReg’s liquidated damages proposal *“needs to be much more explicit. It is simply not acceptable to base this on ambiguous paragraphs where the stakes are so high.”*

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<sup>275</sup> Telefónica noted that “This is particularly the case in circumstances where the details and obligations arising from such a project plan will not become clear until after completion of the auction.”

<sup>276</sup> Telefónica added that “ComReg has a statutory obligation under section 10 of the Communications Regulations Act 2002 to promote the provision of clear information.”

<sup>277</sup> Telefónica stated that “The Framework Directive (2002\21\EC) (as amended by 2009\140\EC) provides that where ComReg intends to take measures which have a significant impact on the relevant market, it shall give interested parties the opportunity to comment on the draft measure within a reasonable period.”

6.42 H3GI, in its response to Document 11/75, stated that *“liquidated damages of €1.2 million or €0.6 million per block per annum are not a sufficient deterrent.”* It expressed the view that ComReg’s approach does not adequately address / protect against the harm to society of delayed access and it reiterated its previous submission *“that parties should pay exponential amounts as delays increase.”* [Emphasis original].

6.43 Specifically, H3GI was of the view that:

- *“Failure to meet the relevant milestones should be subject to enhanced financial penalties, which are separate from the estimated refunds payable to operators for delayed commencement.”*<sup>278</sup> and
- *“in order to ensure sufficient deterrent effect / incentive to Existing GSM Licensees to complete transitional activities as soon as possible, the Existing GSM Licensees should not be liable solely where their actions / omissions have “caused” a delay, but also where such actions / omissions have “contributed” to a delay.”* [Emphasis original].

### **Amendment of existing GSM licences to facilitate transition**

6.44 One respondent, eircom Group, commented on the process to amend existing GSM licences to facilitate transition. It noted ComReg’s proposal that ComReg could consider such request from the holder of the licence or another party<sup>279</sup> and stated that:

- *“under Regulation 6 of SI 339 of 2003 and Authorisation Regulations, SI 335 of 2011, Regulation 15, Meteor’s licence can only be amended either on its request or alternatively, where objectively justifiable and in a proportionate manner and/or where in the interest of the efficient and orderly use of apparatus for wireless telegraphy or the radio frequency spectrum.”* and

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<sup>278</sup> In addition, H3GI stated that:

- *“the imposition of liquidated damages alone is inconsistent with the proper discharge of ComReg’s statutory obligations in section 12 of the Act, and in particular, its obligation to promote competition.” In particular, H3GI questioned “how can the proposed liquidated damages be properly considered by ComReg to constitute “appropriate financial measures to dissuade non-compliance with milestones”?”*

<sup>279</sup> Paragraph 6.16 of Document 11/60 and A7.34 of Document 11/60a states

- *“In addition, ComReg considers that, where appropriate to facilitate transition activities, it should retain its discretion to consider requests to vary an existing GSM licence by the holder of that licence and from other parties.”*



- *“Any amendment must be in accordance with the Authorisation Regulations, SI 335 of 2011, Regulation 15 of which similarly provides that any amendment may only be made in objectively justifiable cases and in a proportionate manner and that ComReg must seek and have regard to representations.”*

## 6.2.4 Red-M/Vilicom’s Updated Position

- 6.45 In Document 12/22, Red-M Wireless Limited (Red-M) and Vilicom Limited (Vilicom) set out a review of their expert technical advice on the transitional issues associated with the 900 MHz and 1800 MHz bands<sup>280</sup>, following a review and analysis of the relevant comments received from respondents in relation to Documents 11/60 and 11/75.
- 6.46 Section 2 of this report analyses the comments submitted by Vodafone, Telefónica, eircom Group and H3GI. Amongst other issues raised, it notes that:
- the Joint Technical Reports do not propose a transition period of 5 months for a Scenario 2<sup>281</sup> outcome,
  - under Advanced Commencement Scenario 1, ComReg states that it believes that advanced commencement could not occur where an existing GSM 900 MHz licensee won a paired 5 MHz block, being block A or B<sup>282</sup>,
  - in relation to Scenario 2, the *“outcome as presented in report 10/71c, can be considered a ‘worst case analysis’ since it analysed only the option of building new GSM900 sites” and the joint technical reports “did not assume the use of any of the mitigation techniques outlined above, as there was no operator information available on which to base realistic assumptions”*,
  - *“national roaming agreements are temporary and subject to review by both parties. Should one of the operators decide not to renew their contract, then Vodafone<sup>[283]</sup> would have significantly extra capacity to deal with the transitional activities required following a Scenario 2 outcome.”* .... “Scenario 2 of 10/71c did not assume any capacity, was released from or added to, incumbent

<sup>280</sup> Joint Technical Reports, Documents; 10/71c, 10/105b and 11/57.

<sup>281</sup> In Scenario 2, an existing GSM licensee would be assigned 2 x 5MHz in the 900 MHz band (Retuning) and Red-M/Vilicom note that “In Scenario 2 of 10/71c, it is estimated that 90% of the additional sites required could be completed by the end of year 2, allowing the GSM900 spectrum to be relinquished at the end of the 2 year period, with minor additional disruption to network subscribers”.

<sup>282</sup> Document 11/60, paragraph 7.26.

<sup>283</sup> This would also apply to other operators who provide national roaming services.

operators GSM900 networks due to the future evolution of such roaming agreements”,

- *“There is still sufficient time available to hold a multiband auction and allow a timeframe of 5 months for band reassignment activities before the proposed start date of February 2013 under the ‘Scenario 1’ assumption analysed in 10/71c”,*
- *in both hypothetical assignment round outcome examples<sup>284</sup>, “blocks A and B are available for liberalised use immediately under the hypothesis that the right to use them is won by an existing operator so there is no need for these blocks to be occupied in a transitory manner by another operator to facilitate the sequential relocation and re-tuning of the remaining 900MHz lots. These examples therefore follow the Advanced Commencement Scenario 1 proposal in ComReg document 11/60 paragraphs 7.25 to 7.30.”*
- *in relation to eircom Group’s suggestion that generic planning activities could take place prior to the proposed auction, that it would be reasonable to assume that “these ‘generic technical planning activities’ will then feed into the ‘Project Plan’, that will take place after the auction and include the winners of the liberalised 900MHz and 1800MHz licenses as well as the existing GSM licensees”,*
- *in relation to the H3GI citation of the Elisa and O2 (UK) cases in support of its argument that relocation and retuning can be done in a shorter timescale “when applying case studies from one country to the circumstances of another, account should be taken of significant differences in the circumstances between the two countries”;*

6.47 Red-M/Vilicom’s view on the transition rules and project planning are given in section 3 of its report and these are summarised as follows;

- *“At a strategic level one could assume that an operator, wishing to minimise disruption to its customers, would have a high level ‘strategic plan’ which would identify what actions it would take in relation to a number of auction outcomes.”*
- *“There are several possible outcomes to the spectrum auction and to enter into preparatory bilateral or multilateral discussions before the results are known would appear premature. However, there is merit in each of the existing GSM*

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<sup>284</sup> One outcome was presented by Telefónica in paragraph 11.3 of its response to Document 11/60, and the other outcome was presented by Red-M/Vilicom in Figure 2 of the Joint Technical Report.

*licensees starting to prepare its own 'Project Plan', which would consider all of the different possible scenarios that could result from the award process."*

- In relation to a Scenario 1 outcome, "*planning activities that an existing GSM licensee could initiate in advance of the auction include:*
  - *Identifying parts of the data-fill that relate to the frequency of operation, which will need to be modified,*
  - *Identifying parts of the GSM900, GSM1800 and UMTS data-fill, which will need to be modified to ensure handover between the networks,*
  - *Identifying all radio equipment that cannot be modified, such as band selective repeaters and source replacement equipment, if required,*
  - *Ensuring correct landlord contact details for sites are available in case sites visits are required; and*
  - *Producing a staff and resource plan for Implementation and Verification phases."*
- In relation to a Scenario 2 outcome, and in addition to the planning activities listed in relation to a Scenario 1 outcome, it is suggested than an existing GSM licensee:
  - carry out technical activities including: identifying and documenting the strategic approach it would use to prepare for the scenario of reduced GSM 900 MHz spectrum; preparing a new GSM network frequency plan base on 5 MHz; offloading traffic to alternative frequencies; implementing AMR; and determining which 900MHz sites to which new 1800 MHz and 2100MHz base stations could be added to; and
  - could consider other planning activities including: the identification of the partners (e.g. subcontractors, consultants, etc.) it may need during the transition process; and the identification of any non-technical arrangements (e.g. network sharing, roaming agreements, etc.) that might ease the transition period provided such discussion comply with competition law and the auction rules.
- "*It is therefore likely that some time could be saved in the overall four month planning activity estimated in the Reports. Arguably the greatest benefit for generic advance planning, would be advantage in certainty that would be*

*achieved by the operators being able to commit to a detailed and coherent plan within two weeks of the auction outcome being known.”*

6.48 Red-M/Vilicom’s conclusions are set out in section 4 of its report, and in summary they state that:

- *“The comments received do not lead us to believe that any update or re-write of the Reports [namely ComReg report 10/71c or 10/105b] is required.”*

### **Transitional timeframes set out in Document 10/71c and 10/105b**

6.49 Document 10/71c sets out Red-M/Vilicom’s views on the relocation and retuning activities associated with the 900 MHz band and considers three possible transitional scenarios:

- Scenario 1 considers the case of all three existing GSM licensees obtaining 2 x 10 MHz of 900 MHz spectrum and being required to relocate their networks to this new spectrum assignment;
- Scenario 2 considers the case of an existing GSM 900 MHz licensee obtaining 2 x 5 MHz of 900 MHz spectrum and being required to relocate and retune its network to this new spectrum assignment; and
- Scenario 3 considers the case of Meteor maintaining its existing spectrum bandwidth of 2 x 7.2 MHz and being required to relocate its network to a position 200 kHz lower in the 900 MHz band.

6.50 For Scenario 1 and Scenario 3, Red-M/Vilicom note that these scenarios have similar relocation activities as the existing GSM 900 MHz licensees are not required to adjust their network to operate with a reduced spectrum assignment.

- For Scenario 1, Red-M/Vilicom are of the view that the existing GSM 900 MHz licensees can modify their networks to take account of revised spectrum assignment in a timeframe of approximately 5 months;<sup>285</sup> while

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<sup>285</sup> For Scenario 1 in the 900 MHz band, Red-M/Vilicom state that:

- *“This study concludes that all of the GSM 900 MHz licensees should be able to modify their networks to take account of revised 900 MHz frequency assignments in a timeframe of approximately 5 months consisting of a planning phase of approximately four months, and an implementation phase of approximately 1 month. The implementation period is relatively short, generally overnight during a weekend. The subsequent verification activity of approximately 2 months occurs after the spectrum has been reassigned, and does not occur on the critical path.”*  
(c.f. page 3 of Document 10/71c)

- For Scenario 3, Red-M/Vilicom are of the view that this activity could be achieved in a timeframe of approximately 4 months.<sup>286</sup>
- 6.51 For Scenario 2, Red-M/Vilicom note that the impact of requiring a GSM 900 MHz licensee to operate its network with a 2 × 5 MHz 900 MHz spectrum assignment is more difficult to estimate as *“it is very dependent upon the details of the existing network, its intrinsic capacity and the interaction of the GSM900 layer with the GSM1800 layer and 3G networks of the operator.”*
- 6.52 Red-M/Vilicom note that an operator can take a number of actions<sup>287</sup> to mitigate a Scenario 2 outcome and model the implementation of such actions in a sample rural and urban area. Based upon this study, Red-M/Vilicom are of the view that a period of 2 years would be a sufficient period of time for an operator with a Scenario 2 outcome.<sup>288</sup>
- 6.53 Document 10/105b sets out Red-M/Vilicom’s views on the relocation and retuning activities associated with the 1800 MHz band. One transitional scenario is considered, Scenario 1, which is the case of all three existing GSM licensees obtaining 2 × 15 MHz (or more) of 1800 MHz spectrum and being required to relocate their networks to a new spectrum assignment.
- 6.54 For Scenario 1, Red-M/Vilicom note that the overall timescale for the three existing GSM 1800 MHz operators to complete their band reassignment activity will depend on the amount of inter-operator dependency. Red-M/Vilicom conclude that this activity could be completed in:

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<sup>286</sup> For Scenario 3 in the 900 MHz band, Red-M/Vilicom state that:

- *“The timescale for Scenario 3, when considered in isolation, would be approximately four months consisting of a planning phase of approximately four months, and an implementation phase of approximately 1 week. The subsequent verification activity of approximately 2 months occurs after the spectrum has been reassigned, and does not occur on the critical path.”* (c.f. page 4 of Document 10/71c)

<sup>287</sup> Red-M/Vilicom note that an operator might take the following mitigating steps:

- *“Increase the use of AMR (Adaptive Multi-Rate) coding at 900 MHz and 1800 MHz, especially during the busy hour*
- *Offload capacity to existing 1800 MHz and 2100 MHz cells where possible*
- *Add new 1800 MHz & 2100 MHz cells on existing 900 MHz sites where essential*
- *Add new 1800/2100 MHz sites where absolutely necessary, and add new 900 MHz sites if completely unavoidable”* (c.f. page 5 of Document 10/71c)

<sup>288</sup> For Scenario 2 in the 900 MHz band, Red-M/Vilicom state that:

- *“It is therefore likely that GSM900 spectrum could be relinquished at the end of the 2 year period, although there may be minor additional disruption to network subscribers. This additional disruption would be localised to areas where the remaining sites that are required have not been completed.”* (c.f. page 8 of Document 10/71c)

- *“4 months for planning and implementation for the ‘two independent relocations’*
- *Approximately 4.5 months for planning and implementation for the ‘three relocations, one of which is interdependent’ scenario*
- *Approximately 5 months for planning and implementation for the ‘four relocations, three of which are interdependent’ scenario.”*

6.55 In addition, Red-M/Vilicom consider the circumstance where an operator is required to relocate its spectrum assignments in both the 900 MHz and 1800 MHz bands. Red-M/Vilicom note that such relocations could be carried out simultaneously or separately although they also note that *“typically, an operator might prefer not [to] undertake such tasks simultaneously due to the workload involved and the increased risks to the network performance. Also, a period of three or four weeks might be planned between the changes to each band to allow for monitoring of each band independently.”*

- For a simultaneous relocation by all existing GSM Licensees, Red-M/Vilicom are of the view that this *“would require an estimated minimum of one additional month compared to retuning / relocating one band only”*
- For separate relocations<sup>289</sup>, Red-M/Vilicom are of the view that *“this would effectively double the time required for retune / relocation in both bands compared to the case of one band only.”*

## 6.2.5 ComReg’s Final Position

6.56 This section sets out ComReg’s final position of the transitional issues that may arise in the time period prior to the commencement of Liberalised Licences in Time slice 1.

6.57 ComReg’s final position is presented in two parts. The first part sets out ComReg’s views on the timing issues associated with transition and the possibility of transition delaying the commencement of Liberalised- Licences in Time Slice 1. The second part sets out ComReg’s views on the transition process and rules.

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<sup>289</sup> The 900 MHz band changes would first be implemented by all operators and then the 1800 MHz changes would be implemented.

### 6.2.5.1 Part A: Timing issues related to Transition and the possibility of the delayed commencement of Liberalised Licences in Time Slice 1.

- 6.58 As set out above, four respondents commented on the timing issues associated with the transition of the existing GSM Licensees in the 900 MHz and 1800 MHz bands.
- 6.59 ComReg notes that these comments have been considered by Red-M/Vilicom in their updated report (Document 12/22) and it is their view that no update or re-write of Documents 10/71c and 10/105b is required.
- 6.60 As set out in Document 10/71c and 10/105b, the timeframes for relocation and retuning activities in the 900 MHz and 1800 MHz bands have been considered by Red-M/Vilicom, and :
- For relocation activities, Red-M/Vilicom are of the view that:
    - in the 900 MHz band, approximately 5 months is required;
    - in the 1800 MHz band, 4 to 5 months is required, depending upon the inter-dependency between operators; and
    - in both the 900 MHz and 1800 MHz bands, 6 months is required in the case of simultaneous relocations and 9-10 months in the case of sequential relocations.
  - For retuning activities, Red-M/Vilicom considered the scenario of an operator having to retune its 900 MHz network to a spectrum bandwidth of 2 × 5 MHz. Red-M/Vilicom are of the view that a period of 2 years is sufficient for an operator to take mitigating steps, based on “*the worst case scenario*”<sup>290</sup> of re-engineering the existing 900 MHz network and deploying additional 1800 MHz GSM base stations.
- 6.61 Having reviewed and analysed the responses received to Documents 11/60 and 11/75, ComReg agrees with Red-M/Vilicom that no update or re-write of Documents 10/71c and 10/105b is required. ComReg remains of the view that the relocation and retuning timeframes of the worst case scenarios<sup>291</sup> put forward in these reports are robust, and that the reports provide the basis for

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<sup>290</sup> Red-M/Vilicom’s updated report, Document 12/22, Section 3.

<sup>291</sup> For example, in the event of a retuning scenario ComReg notes that there are a range of 'non-technical' measures (e.g. agreeing/amending national roaming agreements, network sharing, etc.) available to existing GSM licensees that would reduce the time required for retuning.

ComReg to assess whether there is sufficient time to carry out relocation and retuning activities in advance of the commencement date of Time Slice 1.

6.62 To make this assessment, ComReg recognises that the exact nature of transitional activities in the 900 MHz and 1800 MHz bands cannot be known in advance of the auction outcome and therefore ComReg's analysis of the potential transitional scenarios is presented in terms of:

- auction outcome scenarios which only involve relocation activities; and
- auction outcome scenarios which involve both retuning<sup>292</sup> and relocation activities.

6.63 **For auction scenarios which only involve relocation activities** (i.e. those outcomes where the existing GSM licensees obtain the same amount of spectrum or more spectrum in the 900 MHz and 1800 MHz bands), ComReg is of the view that relocation activities in the 900 MHz band should be prioritised over relocation activities in the 1800 MHz band but that relocation activities should, as far as possible, take place simultaneously. Given, this, and taking the worst-case relocation timeframes as set out by Red-M/Vilicom in Document 10/71c and 10/105b, ComReg notes that

- in the 900 MHz band there would be sufficient time to carry out relocation activities provided the outcome of the auction is known by 1 September 2012, i.e. 5 months in advance of 1 February 2013. Given that this five month period is based on worst case scenarios, ComReg is confident that these relocation activities could also be carried out in a shorter period; and
- in the 1800 MHz band and where simultaneous relocation activities are carried out in both the 900 MHz and 1800 MHz bands, there would be sufficient time to carry out relocation activities provided the outcome of the auction is known by 1 August 2012, i.e. 6 months in advance of 1 February 2013. Given that this six month period is based on worst case scenarios, ComReg is confident that the relocation activities could also be carried out in a shorter period.

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<sup>292</sup> In this document for simplification purposes:

- 'retuning' refers to the situation where an existing GSM licensee obtains less or no spectrum in the 900 MHz and 1800 MHz bands, and has to retune its network to this new spectrum bandwidth.
- 'relocation' refers to the situation where an existing GSM licensee obtains an equal amount or more spectrum in the 900 MHz and 1800 MHz bands, and has to relocate its network to this new spectrum location.



- 6.64 ComReg currently anticipates that the outcome of the auction is likely to be known before the end of July 2012. With this target timescale for completion of the auction, ComReg is of the view that there would be sufficient time for relocation activities in the 900 MHz band to be carried out in advance of 1 February 2013. Even if the outcome of the auction is not known until a slightly later date, then, given that the estimated relocation times are based on worst case scenarios and that operators can commence some of their planning activities in advance of the auction, relocation could still be achievable before 1 February 2013. In relation to relocation activities in the 1800 MHz band, the timetable for these will be challenging but not insurmountable if operators schedule the work involved in an efficient manner and this relocation might also be achieved in less than six months assuming worst case scenarios do not arise. The ten month period noted above for sequential relocations is clearly a worst case scenario and ComReg notes Red-M/Vilicom's comment in Document 10/105b that "*a retuning / relocating program for GSM900 and GSM1800 'simultaneously' for all operators would require an estimated minimum of one additional month compared to retuning / relocating one band only*" (i.e. six months or less from the date the outcome of the auction is known). In this regard, ComReg also notes that, in the main, incumbent MNOs have expressed a wish to use any liberalised spectrum won in the auction as soon as possible.
- 6.65 Given the above and assuming the auction process does not experience any unexpected delays, ComReg is satisfied that the commencement date of the Liberalised Licences for both the 900 MHz and 1800 MHz bands (namely 1 February 2013) provides sufficient time for existing operators to carry out relocation activities in the 900 MHz and 1800 MHz bands.
- 6.66 **For auction scenarios which involve both retuning and relocation activities** (i.e. those outcomes where one or more of the existing GSM licensees obtain no spectrum or less spectrum in the 900 MHz and 1800 MHz bands), ComReg notes that a number of parties<sup>293</sup> acknowledged that the timeframes associated with a retuning scenario are more difficult to estimate than those with a relocation-only scenario. ComReg is also of the view that it is more difficult to estimate the timeframes associated with a retuning scenario as, not only do these timeframes vary by the specifics of the retuning scenario, they

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<sup>293</sup> Red-M/Vilicom, in considering Scenario 2 in the 900 MHz band, noted that the time frames associated with this scenario are more difficult to estimate; and Vodafone in its response to Document 11/60 stated that it believed that the relocation activities associated with a Scenario 1 outcome are likely to be less problematic than those with a retuning activity.

vary by the specific characteristics of each operator's network, including, amongst other things:

- the network's intrinsic traffic capacity; and
- its dependency upon a specific frequency band for both coverage and traffic loading in a given area.

6.67 These factors, as detailed above, influence the extent to which mitigation activities are required. In coming to this view, ComReg notes that this connection was noted by:

- Red-M/Vilicom when they expressed the view Document 10/71c that the timeframes associated with a scenario 2 outcome are "*very dependent upon the details of the existing network, its intrinsic capacity and the interaction of the GSM900 layer with the GSM1800 layer and 3G networks of the operator*", and
- Some respondents in their response to Document 11/60, and in particular Vodafone, who stated that "*ComReg is obliged to take utmost account of the evidence given by Vodafone (and other respondents as well as being addressed in the Red-M/Vilicom report) of the timeframes reasonably required by operators who have to accommodate a reduced allocation of GSM900 spectrum.*"

6.68 Given the above, it is ComReg's view that it would be inappropriate at this stage to set a detailed retuning timeframe, as details pertinent to ComReg's assessment of the timeframes necessary for such a situation, namely the operator who is affected and the specifics of the retuning scenario, would only become available once the outcome of the auction is known. However, should a retuning scenario arise as a result of the auction, ComReg is of the view that it would be appropriate to set a retuning timeframe at that stage in light of updated information.

#### Process for determining the retuning timeframe

6.69 As a general principle, in determining the appropriate timeframes required to complete any necessary retuning activities, ComReg will take into consideration, amongst other things, the expert advice of Red-M/Vilicom, the views of the operators concerned and the risk of consumer disruption.<sup>294</sup>

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<sup>294</sup> In determining the appropriate timeframe, ComReg will of course have regard to its statutory functions, objectives and duties as set out in Annex 2 of this document.

6.70 As discussed further in the Transition Rules section below, any operator affected by a retuning scenario would be obliged to submit a retuning proposal to ComReg within 2 weeks of the Award Process concluding. Furthermore, ComReg notes that there are a range of technical<sup>295</sup> and non-technical (e.g. national roaming agreements, network sharing agreements, etc.) mitigation techniques available to an operator. In the event of a retuning scenario, ComReg would expect an operator to consider and document all mitigation techniques available to it, in submitting its retuning proposal.<sup>296</sup> Following receipt of this proposal, ComReg would, amongst other things:

- publish this information (subject to the provisions of ComReg's guidelines on the treatment of confidential information) and allow third parties to submit comments which ComReg would consider;
- seek the expert advice of Red-M/Vilicom;
- have regard to its statutory objectives including the interests of all users of the spectrum;
- work with the relevant 900 MHz incumbents, in reaching agreement on the final retuning required and the transitional project plan; and
- then enforce these plans.

### **The potential for retuning to cause delays to Liberalised spectrum blocks**

6.71 ComReg recognises that an auction outcome that produces a retuning scenario may have consequences for the commencement date of one or more spectrum blocks in the 900 MHz and 1800 MHz bands.

6.72 Considering each band in turn, ComReg is of the view that retuning activities in the 1800 MHz band cannot cause a delay to the commencement date of Liberalised Licences in Time Slice 1. This is due to the fact that ComReg's auction design (as discussed in chapter 4 and Document 11/75) does not reduce the amount of spectrum assigned to a GSM 1800 MHz licensee in Time

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<sup>295</sup> See section 3.8 of Document 10/71c and section 3 of Document 12/22

<sup>296</sup> Among other things, ComReg notes that Telefónica has a network sharing agreement with Meteor, and Vodafone has national roaming agreements with Meteor and H3GI. ComReg would expect Telefónica and Vodafone to have considered these agreements in submitting any retuning proposal.

Slice 1, but instead honours the full term of each existing GSM 1800 MHz licence, whether liberalised or not.<sup>297</sup>

- 6.73 In relation to the 900 MHz band, ComReg notes that the auction design does not reduce the amount of spectrum assigned to Meteor in Time Slice 1 but instead honours the full term of the existing GSM 900 MHz licence, whether liberalised or not.<sup>298</sup> This means that Meteor will not be required to carry out retuning activities as a result of the auction for spectrum blocks, in the 900 MHz band in Time Slice 1, and the 900 MHz band retuning issue is only applicable to the existing interim GSM 900 licences of Vodafone and Telefónica, which, in aggregate, occupy only 3 blocks of 900 MHz spectrum.
- 6.74 While ComReg recognises that the outcome of the auction may require Vodafone and Telefónica to carry out retuning activities in the 900 MHz band, ComReg has no reason to believe that this is likely to occur and, in any case, believes that the auction has been designed to minimise the negative effects of such an outcome, should it arise.
- 6.75 Firstly, ComReg is of the view that there is a limited likelihood of Vodafone and Telefónica not obtaining 2 × 10 MHz of 900 MHz spectrum in Time Slice 1. While ComReg recognises that ultimately this is a matter for Vodafone and Telefónica in their auction bidding strategies, ComReg highlights once again that it has taken reasonable steps to design the auction such that it minimises the risk of any bidder inadvertently failing to win their desired amount of 900 MHz spectrum. For example:
- the CCA auction format with the relative cap activity rule and the caps on bids in the supplementary round, mean that bidders should not fail to win spectrum blocks due to the structure of the auction, rather any failure to win spectrum blocks should arise from an unwillingness to bid a sufficiently large amount to win the spectrum blocks; and
  - the 2 × 10 MHz sub-cap in the 900 MHz band in Time Slice 1 ensures that there is sufficient spectrum for four or more licensees in the 900 MHz band in Time Slice 1.
  - the nature of the package bidding to be employed in the auction (no sub division of bids), is such that an operator would have to bid for less than 2 × 10 MHz in

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<sup>297</sup> The GSM 1800 MHz licences of Vodafone and Telefónica are valid until 31 December 2014, and the GSM 1800 MHz licence of Meteor is valid until 12 July 2015.

<sup>298</sup> The GSM 900 MHz licence of Meteor is valid until 12 July 2015.

the 900 MHz band, in order to be awarded same, i.e. bid for 2 × 5 MHz in the band or bid for no 900 MHz spectrum at all.

6.76 Secondly, should the outcome of the auction result in a retuning scenario, ComReg believes, that the auction has been designed to handle such an eventuality. In this regard, ComReg notes that:

- in the Assignment Stage of the auction, winning bidders of spectrum in the 900 MHz band, will have the opportunity to obtain spectrum blocks which will not be affected by a possible retuning outcome:
  - Winning bidders and the existing licensees have the opportunity of formulating an industry agreement and presenting this to ComReg. If the winning bidders and existing licensees can reach such an agreement, then this would clearly identify the spectrum blocks subject to retuning activities and the milestone dates for release of this spectrum by the existing GSM licensee, to a winning bidder.
  - If the winning bidders and existing licensees cannot reach agreement on the assignment of spectrum blocks in the 900 MHz band, then the results of the bids in ComReg's Assignment Round will decide the spectrum blocks that are assigned to each winning bidder. As discussed in Chapter 7, two Advanced Commencement Scenarios for the 900 MHz band have been identified by ComReg and the commencement date of the Spectrum Blocks in these Advanced Commencement Scenarios would not be impacted by the retuning or relocation activities of the existing operators. This therefore, gives a bidder the opportunity to obtain spectrum blocks that will not be impacted by a retuning activity.
- As discussed above, once the outcome of the auction is known ComReg has identified the process to be used to promptly determine the retuning timeframe and the spectrum blocks affected.
- Where the licence commencement date of a spectrum block is affected, ComReg proposes a pro-rata refund of the licence fees. As discussed in section 4.4 of this document, ComReg will set out its final view on the rebate mechanism in its Response to Document 11/75 and the final Information Memorandum.

6.77 Overall, ComReg will be calling upon the industry to fully cooperate on transitional issues, ensuring the early conclusion of all related matters, so that

Irish consumers can enjoy, at the earliest opportunity, the full breadth of enhanced telecommunications services facilitated by the spectrum release.

The remaining comments from respondent's on the timing issues associated with Transition and the potential for delay to Liberalised Licences.

- 6.78 With the exception of H3GI's comments on Document 11/75, addressed below, ComReg believes that the section above addresses all the respondent's comments received on the timing issues associated with transition and the potential for this to delay the start date of a Liberalised Licence in Time Slice 1. In responding to Document 11/75, H3GI raised a number of additional issues.
- 6.79 Firstly, ComReg notes H3GI's view that the potential delay to Liberalised Licences creates an unacceptable level of uncertainty and, amongst other things, it recommends that ComReg reserve Lot A of the 900 MHz band and unassigned spectrum in the 1800 MHz band in both time slices for a new band entrant .
- 6.80 ComReg considers that it would be inappropriate to reserve Lot A of the 900 MHz band and the unassigned spectrum in the 1800 MHz band. In coming to this view, ComReg notes that:
- With the possible exception of a maximum of 3 spectrum blocks in the 900 MHz band, ComReg's final position on relocation and retuning activities endeavours to provide as much certainty as possible in relation to its position on the commencement date of Liberalised Licences in the 900 MHz and 1800 MHz bands;
  - While ComReg recognises that a maximum of 3 spectrum blocks in the 900 MHz band may possibly be subject to retuning activities, the likelihood of this occurring is limited and, in any event, the auction has been designed to cater for this issue;
  - The Transition Rules as specified by ComReg below are designed to incentivise the timely completion of transitional activities and include provisions that deter non-compliance. This is in keeping, not only with ComReg's statutory obligations, but also accords with the wishes of most respondents to this consultation process, who have stressed the importance of earliest possible access to these liberalised bands.
  - ComReg has considered and rejected the option of reserving spectrum for new entrants (see Chapter 3 and Annex 4 of this document); and

- As discussed in Document 11/60 and again in Chapter 7, reserving Lot A for a new band entrant would prevent ComReg from offering the Advanced Commencement Scenario 1 in the Award Process.
- 6.81 Secondly, ComReg notes H3GI's claim that ComReg has improperly introduced the possibility of the delayed commencement of Liberalised Licences in Document 11/75 by failing to carry out a proper consultation on this fundamental issue.
- 6.82 ComReg refutes this claim and amongst other things, ComReg notes that:
- The possibility of the delayed commencement of Liberalised Licences was discussed in Document 11/60.<sup>299</sup>
  - Respondents to Document 11/60 and Document 11/75 have had the opportunity to comment on ComReg's preliminary proposal. In this regard, ComReg notes that H3GI itself has provided comments on this issue in its response to each of these Documents. Indeed, ComReg rejects the assertion implicit in H3GI's claim that ComReg is somehow required to carry out multiple phases of consultation on a particular matter in order to discharge its consultation obligations under the regulatory framework.
- 6.83 Finally, in relation to H3GI's remaining comments,
- ComReg believes that the Award Process proposal, as set out in this document, is in line with Decision 2009/766/EC and the GSM Amendment Directive and ComReg notes H3GI's unsubstantiated comments in this regard<sup>300</sup>
  - ComReg believes that if there is the possibility of delayed access to one or more spectrum blocks, then in the interests of transparency and regulatory certainty it is important for ComReg to acknowledge and address this possibility. ComReg believes that its final position, as set out in this chapter addresses this issue; and
  - furthermore, in relation to H3GI's comments on D03/11<sup>301</sup> and the issue of interim GSM900 licences, ComReg notes that any action that it has taken or

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<sup>299</sup> For example, see paragraph 6.13 of Document 11/60

<sup>300</sup> See page 6 of H3GI's submission to Document 11/75 contained in Document 12/21.

<sup>301</sup> See ComReg Response to Consultation Document 11/29 and Decision D03/11 on Interim Licences for the 900MHz band.

may take in relation to interim GSM900 licences, is entirely in accordance with its statutory functions, objectives and duties.

### 6.2.5.2 Part B: The Transition Rules<sup>302</sup> and Associated Processes

6.84 As set out above, four respondents commented on the Transition Rules and associated processes that ComReg proposed in Documents 11/60 and 11/75. ComReg notes that all four respondents agreed with the need for ComReg to set down clear rules on the transitional processes, although respondents had varying views on the details of these rules.

6.85 In considering these views, ComReg notes that Red-M/Vilicom have reviewed and analysed the respondent comments in their updated report<sup>303</sup> (Document 12/22) and it is their view that:

- *“there are several possible outcomes to the spectrum auction and to enter into preparatory bilateral or multilateral discussions before the results are known would appear premature. However, there is merit in each of the existing GSM licensees starting to prepare its own ‘Project Plan’, which would consider all of the different possible scenarios that could result from the award process.”*
- *“the collation and discussion of these project plans could be the initial activity commencing the two week period immediately following the announcement of the Award Process. This would help ensure that a final Relocation Project Plan for the 900 MHz and 1800 MHz frequency bands could be drafted and agreed by all Existing GSM Operators within the two week time frame.”; and*
- *“in ComReg document 11/75, paragraph 3.131, ComReg set out several points that they would like to see addressed in the Project Plan. Existing GSM licensees should have a clear perspective on these points.”*

### The formulation of a framework to ensure timely transition

6.86 ComReg notes that one respondent, H3GI, provided comments on the formulation of a framework to ensure a timely transition and that most of these comments are addressed in other sections of this chapter, e.g. comments in relation to liquidated damages are addressed below.

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<sup>302</sup> Unless specifically identified as a rule relating to the ‘relocation’ project plan or the ‘retuning’ project plan, the Transition Rules set out in this section apply to both ‘relocation’ and ‘retuning’ activities.

<sup>303</sup> Red-M/Vilicom Joint Technical Report Document 12/22, Section 3.



6.87 H3GI suggests that ComReg should take the lead in specifying a robust framework for transitional activities including the setting of a concrete timetable with detailed milestones for the completion of all transitional activities. ComReg believes that its final position on the timeframes required for 'relocation' and 'retuning' activities, as discussed above, addresses this matter as it:

- sets the deadline date for the completion of 'relocation' activities. For both the 900 MHz and 1800 MHz bands, the deadline date is 31 January 2013. However, ComReg notes that the timetable for relocation activities in the 1800 MHz band is challenging but not insurmountable if operators schedule the work involved in an efficient manner and therefore reserves the right to amend the 1800 MHz deadline date for relocation activities as necessary; and
- outlines the process for determining the deadline date for 'retuning' activities. As noted above, this is only applicable to a maximum of 3 spectrum blocks in the 900 MHz band and therefore, for the reasons stated previously, ComReg believes that the likelihood of this 'retuning' scenario occurring is minimal.

6.88 Regarding the setting of interim milestones, ComReg is also of the view that a transition project plan will require interim milestones and as the outcome of the Award Process is not yet known, it is not possible to set interim milestones at this stage. However, it is ComReg's view that interim milestones for each operator task will be set out in the transition project plan and in setting these milestones, ComReg will be guided by the views of the existing licensees, the winning bidders and other relevant information such as, Documents 10/71c and 10/105b. ComReg notes the urgency generally expressed by respondents to this process with regard to the early liberalisation of the respective bands and thus anticipates the full cooperation of all parties in this regard.

### **The timeframe for formulating a Transition project plan**

6.89 ComReg notes that two respondents, H3GI and eircom Group, provided comments on the timeframe for formulating a transition project plan.

6.90 ComReg's discussion of a transition project plan covers both retuning and relocation activities, and unless specifically identified as a rule relating to the 'relocation' project plan or the 'retuning' project plan, the transition rules set out in this section apply to both 'relocation' and 'retuning' activities.

6.91 In Document 11/75, ComReg suggested a timeframe of 2 weeks from the end of the main stage of the auction for the formulation of a relocation project plan. In proposing this deadline, ComReg was aware that Document 10/71c and

10/105b had provided detailed guidance on the activities involved in a relocation process and that the relocation aspects of these reports have been generally accepted by respondents to ComReg's consultations. In addition, ComReg was cognisant of the need to incentivise a timely transitional process to allow relocation activities to be completed in advance of the Liberalised Licence commencement date of 1 February 2013. As such, ComReg has carefully considered the various submissions received and the advice provided by Red-M/Vilicom and while it will outline the process steps in greater detail in its response to Document 11/75, it remains satisfied with the approach as proposed.

6.92 In relation to a retuning project plan, ComReg notes that while the formulation of such a plan is likely to be more complex than a relocation project plan, it is important that a retuning project plan, if required, is formulated with due haste, as this plan is necessary to:

- a. determine the retuning timeframe;
- b. identify whether the retuning activities of this operator affect the relocation activities of other licensees; and
- c. identify the spectrum block or spectrum blocks that are liable to have a delayed commencement date.

6.93 Given the above, and the advice provided by Red-M/Vilicom ComReg believes that a retuning project plan should be submitted 2 weeks after the end of the main stage of the auction, which is also the deadline time for the submission of a relocation project plan.

6.94 In coming to this view, ComReg notes that:

- a. once the main stage of the auction is complete, an operator will know whether a retuning activity is required or not;
- b. the formulation of a retuning project plan is a discrete matter for each operator and, as noted by Red-M/Vilicom in Document 12/22, an existing GSM operator should carry out some general planning activities in relation to a retune to 2x5MHz in the 900 MHz band in advance of the auction.
- c. a party requiring a retune can, in parallel with the preparation of a retuning project plan, work with the other incumbent 900 MHz bidders in preparing the relocation project plan; and.

- d. as a retuning project plan is to be formulated on a per operator basis, ongoing discussions between the affected operator and ComReg can take place before a retuning project plan is published for comment.

6.95 ComReg notes eircom Group's suggestion that ComReg should retain the right to extend the time period for the formulation of a relocation project plan if required. ComReg believes this is a sensible suggestion and will reserve its rights to extend the time period for both the formulation of the relocation project plan and the retuning project plan.

6.96 Finally, ComReg notes that eircom Group and H3GI both commented on its proposal that the existing operators should first be given an opportunity to formulate a transitional project plan. While H3GI sought feedback from ComReg on the relevant safeguards that would be put in place to avoid the risk of tacit collusion, in its response to Document 11/60 eircom Group queried whether it would be prudent to commence more generic technical planning activities in advance of the Award Process.

6.97 While ComReg understands the rationale for both of these views, it believes its proposal as set out in Document 11/75 strikes the appropriate balance as:

- it schedules discussions to commence immediately following the outcome of the Award Process;
- it recognises that only the existing GSM Licensees will be required to carry out relocation and retuning activities and therefore sensibly proposes that these operators should first be given an opportunity to formulate a relocation project plan, before other winning bidders;<sup>304</sup>
- it affords other winning bidders the opportunity to comment on the relocation project plan. This reduces the possibility of the relocation project plan being devised or implemented in an anti-competitive fashion; and
- overall ComReg retains the right to make a final and binding decision on any and all matters associated with the relocation project plan, in a manner consistent with its statutory functions, objectives and duties.

### **The obligation to agree to the Transition Rules including liquidated damages**

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<sup>304</sup> In addition to ComReg's proposal as set out in Document 11/75, ComReg will require the existing GSM licensees to put in place safeguards regarding the exchange of sensitive information. This will be outlined further in the final Information Memorandum.

6.98 ComReg notes that two respondents, eircom Group and Telefónica, did not agree with ComReg's proposal that the winning bidders and existing GSM licensees should be obliged to agree to the terms and conditions of the Transition Rules upon application to participate in the Award Process. Amongst other things, these respondents believed that the proposal:

- would circumvent an entity's right to object to an unreasonable decision as a prospective bidder would be obliged to agree in advance of knowing the circumstances of the transition;
- is contrary to ComReg's obligation to promote regulatory predictability and certainty, as the details of and obligations under such a project plan will not become clear until after the competition of the auction;
- is in breach of the principles of natural justice, by seeking to impose penalties on successful bidders for non-compliance with obligations yet to be determined; and
- must form the basis of a separate consultation prior to the auction.

6.99 ComReg believes that its final position on the transitional process, as set out in this chapter addresses each of the above comments.

6.100 Firstly, ComReg is obliged under its statutory functions, objectives and duties to ensure that the terms and conditions of the transition project plan are fair and reasonable.

6.101 Secondly, ComReg is of the view that the main elements of the transition project plan have now been set out in this chapter and the remaining elements which primarily relate to the setting of interim milestones, are a matter where interested and affected parties shall play a role in transition planning with ComReg. ComReg believes that this provides regulatory predictability, certainty and transparency for all affected parties. In particular, ComReg notes that this chapter has outlined ComReg's final position on:

- the deadline for completion of relocation activities in the 900 MHz and 1800 MHz bands (see above),
- the process for determining the deadline for retuning activities in the 900 MHz band (see above); and
- the liquidated damages that will apply in the event of non-compliance (see below).

6.102 Finally, ComReg notes that respondents to both Document 11/60 and 11/75 have provided comments on this issue and ComReg therefore believes that no further consultation is required.

### **The calculation of liquidated damages**

6.103 In relation to Telefónica's contention that it *"is clearly in breach of the principles of natural justice, by seeking to impose penalties on successful bidders for non-compliance with obligations yet to be determined"* ComReg notes that:

- ComReg is proposing that liquidated damages be provided for; and
- In relation to the relocation project plan, essentially what is proposed is that operators seek to agree the relocation project plan between themselves including relevant transition milestones. For a retuning project plan an operator would submit its plan to ComReg for comment and approval. Only where these plans fail to produce a reasonable proposal will ComReg impose a reasonable relocation or retuning project plan. Given that ComReg is enabling the relevant parties to suggest the milestone dates and corresponding liquidated damages, relevant parties cannot suggest a lack of certainty or predictability;

6.104 Finally, ComReg would disagree with the views of eircom Group in relation to the lack of effectiveness of liquidated damages. ComReg would consider that the existence of liquidated damages will cause the parties to the transition plan to exercise additional care when developing and committing to particular milestone dates. Once agreed, this risk of liquidated damages will bring an important discipline to the transitioning process which will be necessary given the timelines being contemplated. In this regard, H3GI has expressed strong support for liquidated damages.

6.105 Given that liquidated damages should ensure that ComReg recovers its pre-estimated loss of licence fees from the party(s) causing the delay and holding back liberalisation, it would not be appropriate or proportionate for such damages to be exponential over time. Licence fees (which would not be recovered due to delayed commencement) are not exponential over time. ComReg would not agree with H3GI's proposal for exponential damages to apply over time and continues to propose that the liquidated damages which the parties should agree shall be based on the pre-estimated loss of licence fees which ComReg would suffer if the liberalised licenses were not available on time due to delays in transitioning.

6.106 ComReg agrees with Vodafone that more detail is required in the transition plan in relation to the inter-operator relationship where a delay from one operator may cause a delay to another operator and the relevant parties will have to decide these details in negotiations (before ComReg steps-in in the absence of agreement) and ComReg will update the Information Memorandum in this regard. ComReg would expect the GSM Licensees and other winning bidders, when negotiating a transition plan and liquidated damages, to ensure that damages are correctly attributable to the specific party causing the delay(s). Where a delay by one party to meet an interim milestone causes another party to be unable to achieve one or more of its milestones, then the party initially failing to meet its interim milestone shall be the party responsible for all liquidated damage which flow as a direct result of its delay. The transition plan should also adopt a principle of full co-operation whereby in the event of one party causing a delay, that party and the other parties will work together to bring the transitioning back in alignment with the relevant milestones.

#### **Amendment of existing GSM licences to facilitate transition**

- 6.107 ComReg notes eircom's comment in this regard. To clarify, ComReg would point out, that while another entity could suggest that ComReg consider a proposed amendment to another licensee's licence, to aid transition, it does not oblige ComReg to alter it.
- 6.108 ComReg is cognisant of its statutory obligations, including, following the procedure as set out in the authorisation regulations, when amending a licence and intends to follow the same. Amongst other items, this procedure allows ComReg to amend a licence, if objectively justifiable and necessary, for the efficient use and management of the radio spectrum.

### **6.3 Transitional Issues that Could Arise Between the Two Time Slices**

#### **6.3.1 Summary of ComReg's Position in Document 11/60**

- 6.109 In Document 11/60 and Document 11/60a, ComReg set out preliminary conclusions in respect of the five issues related to the transitional activities, that could arise between the two Time Slices:

A: The potential constraint on assignment options to ensure contiguous spectrum assignments across both Time Slices where a bidder wins an equal quantum of spectrum in a spectrum band in both Time Slices

- 6.110 Where a bidder wins the same quantum of spectrum in a spectrum band in both Time Slices, ComReg proposed to include a constraint on assignment options that ensures that only contiguous spectrum assignments across both Time Slices would be offered to this bidder in this spectrum band.

B: The potential constraint on assignment options to only present options involving partial relocation

- 6.111 Where a bidder wins a different quantum of spectrum in a spectrum band in both Time Slices, ComReg considered the possibility of applying a constraint that would only present those options involving partial relocation. ComReg proposed not to include this constraint in the assignment round.

C: The possibility of delaying access to spectrum in Time Slice 2 to make allowance for transitional activities between Time Slices

- 6.112 ComReg noted that there is the possibility of transitional issues arising between Time Slices (e.g. where a bidder wins spectrum rights to 2 × 10 MHz of 900 MHz spectrum in Time Slice 1 and rights to 2 × 10 MHz of 800 MHz spectrum in Time Slice 2). ComReg was of the view that it should not delay the availability of spectrum blocks in the Time Slice 2, to allow for such transitional arrangements to be completed. That is, affected parties would be required to fully address such issues during Time Slice 1.

D: The possibility of a Memorandum of Understanding to minimise transitional issues between Time Slices

- 6.113 ComReg noted that it had previously considered the possibility of participants in the Award Process being obliged to “*enter into a memorandum of understanding (MOU) under which they would agree to use best efforts to cooperate with other licensees and ComReg in addressing any transitional issues arising*”. Given ComReg’s proposals to ensure the timely completion of transitional activities, as discussed under its relocation project plan proposal, ComReg believed that the MOU proposal was now redundant.

E: The variation of a Licence to facilitate transition

- 6.114 Similar to the proposals as set out in the section considering transitional issues that could occur prior to the commencement of Liberalised Licence, ComReg

considered that, where appropriate to facilitate transitional activities, it should retain its discretion to consider requests to vary an existing GSM licence, either from the holder of that licence or from other parties.<sup>305</sup>

### 6.3.2 Summary of ComReg's Position in Document 11/75

6.115 In Document 11/75, ComReg provided further details on the transition issues associated with the GSM Licensees and the Transition Rules. These were outlined in section 2.4.3 and section 3.8 of Document 11/75.

6.116 In relation to the transitional issues that could arise between Time Slices, ComReg noted that there may also be transitional and relocation activities between Time Slice 1 and Time Slice 2. To manage any such transition, ComReg noted that a similar process and system may be adopted to that proposed for transition, prior to commencement of Time Slice 1.<sup>306</sup> ComReg reserved the right to apply the Transition Rules, as set out in Document 11/75, to transitions that could arise during Time Slices.

### 6.3.3 Views of Respondents

6.117 In their responses to Document 11/60, two respondents, Telefónica and eircom Group, provided comments on the transitional issues that could arise between Time Slices.

6.118 Telefónica questioned the ability of ComReg *“to structure the allocation of spectrum to ensure temporal contiguity of spectrum allocation between two time slices, meaning that an operator would not have to relocate within a band in 2015.”* It believed that this could not be promised, given the variety of permutations of spectrum feasible under the two temporal lots proposal.<sup>307</sup>

6.119 eircom Group, in section 3.3.5 of its response, saw merit in ComReg's proposal to promote contiguous spectrum assignments across temporal lots. However it did not believe ComReg's proposed constraint should be limited to consider only the spectrum assignments won by Eligible Bidders. It believed that this construction *“appears to unfairly exclude un-liberalised assignments (the*

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<sup>305</sup> See pp137-140 of Document 11/60 and in particular, paragraph 6.30

<sup>306</sup> At footnote 61 in Document 11/75.

<sup>307</sup> Telefónica O2 submitted the following example.

- *“One example would be where 3 operators buy two lots of 900 MHz each and a fourth buys 1 lot in T1. Then, in the second time slice, the fourth operator buys 3 lots, while the other operators' allocations reduce to 1 each. In that situation, it is not possible for the fourth operator to obtain contiguous spectrum without requiring at least 2 of the other 3 operators to move.”*



*spectrum assignments existing during Temporal Lot 1 where an Existing GSM Licensee with GSM rights of use which are intended to continue after the proposed commencement date for Temporal Lot 1 chose not to or was unsuccessful in exercising the Early Liberalisation Option).*” It believed that the Existing GSM Licensee would also be an Eligible Bidder if it won spectrum in Temporal Lot 2 and, in this regard, it proposed text for ComReg’s Decision to address this issue.

- 6.120 In its response to Document 11/75, one respondent, H3GI, noted that ComReg retained the right to define a transitional project plan in relation to the transition between Time Slices. It believed that ComReg failed to properly consult on this issue<sup>308</sup> and in its view, *“licences in Time Slice 1 should simply expire at the commencement of Time Slice 2. ComReg should not be countenancing any other situation. Otherwise and in the absence of sufficient incentives, licensees in Time Slice 2 are unfairly placed at the mercy of the licensees in Time Slice 1.”*

### 6.3.4 Red-M/Vilicom’s Updated Position

- 6.121 Red-M/Vilicom’s updated view is set out in ComReg 12/22 and among other things, it provides its expert view on the timeframes associated with transition and the general planning activities that can be carried out in advance of a transition to reduce these timeframes.
- 6.122 DotEcon’s updated view is set out in ComReg 12/24 and among other things it:
- agrees with eircom Group’s interpretation of the constraint in the Assignment Stage which only presents assignment options that ensures contiguous spectrum assignments across both Time Slices where a bidder has the same quantum of spectrum in a spectrum band in both Time Slices; and
  - notes Telefonica’s example was not for a bidder with the same quantum of spectrum in a spectrum band in both Time Slices.

### 6.3.5 ComReg’s Final Position

#### Constraining bid packages to contiguous spectrum across time slices in the Assignment Round

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<sup>308</sup> H3GI stated that *“The possibility that commencement of Liberalised Use Licences in the second time slice would be delayed represents an entirely new position and has not been consulted upon by ComReg to date.”*

- In addition, H3GI stated that *“The basis for the purported need to provide for delayed commencement in respect of both Time Slice 1 and/or Time Slice 2 is entirely unclear.”*

- 6.123 ComReg notes Telefonica's concerns regarding contiguity outlined above but would draw its attention to the proposal already discussed and set out in Document 11/60 and Document 11/75 in relation to a bidder who obtains the same quantum of spectrum in a spectrum band in both Time Slices.<sup>309</sup> As highlighted by DotEcon, Document 12/24<sup>310</sup> Telefonica's example was not for a bidder with the same quantum of spectrum in a spectrum band in both Time Slices, and therefore the assignment round would not offer contiguous spectrum assignment options across Time Slices in this scenario.
- 6.124 ComReg notes that Telefónica did not provide any reasons why it would not be possible to provide contiguous spectrum across both Time Slices in this circumstance where a bidder obtains the same quantum of spectrum in a spectrum band in both Time Slices. ComReg therefore maintains the view that it is possible to include a constraint in the assignment round that guarantees contiguous spectrum across where a bidder obtains the same quantum of spectrum in a spectrum band in both Time Slices.
- 6.125 In relation to eircom Group's comment regarding permitting those who retain unliberalised spectrum to obtain contiguous spectrum across both Time Slices, ComReg agrees with this suggestion and has amended the text of the decision as set out in Chapter 8 in line with this suggestion.

### **The need for a Transition between Time Slice 1 and Time Slice 2 – safeguarding the Transition Project Plan**

- 6.126 ComReg is cognisant of H3GI's comments in relation to ComReg's right to define a transitional project plan in relation to the transition between Time Slices and further notes its assertion that *"ComReg has failed to carry out a proper consultation and has improperly chosen to introduce fundamental issues to the award process"*.
- 6.127 In relation to H3GI's comments, ComReg firstly notes that the outcome of the auction may lead to a situation where transition is required between Time Slices. While ComReg re-iterates its view as set out in Document 11/60 that ComReg *"should not delay availability of spectrum blocks in the proposed second temporal lot to make allowance for these transition arrangements to be completed"*<sup>311</sup> and ComReg therefore expects all such transition activities to be finished by 12 July 2015, ComReg is of the view that it may be necessary to put

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<sup>309</sup> See paragraph 6.18 to 6.19 of Document 11/60, and paragraph 4.211 of Document 11/75

<sup>310</sup> See section 8.3.2.

<sup>311</sup> Document 11/60, paragraph 6.25

in place a transition project plan to ensure this. To this end ComReg notes that this view would be in line with H3GI's own views (in relation to the possible transitional issues between the award and the comment of Liberalised Licences in Time Slice 1) that a robust transition process should be put in place to ensure timely transition.

6.128 Given the above, ComReg is of the view that upon application into the award process, existing GSM licensees and winners of spectrum in the 800 MHz band, 900 MHz band and 1800 MHz band in Time Slice 1 are to bound by the transition rules set down by ComReg in relation to the transition between time slices. As noted in Document 11/75, these transition rules will be based upon the transition rules as set down for the period between the award of liberalised licences and the commencement date of liberalised licences in Time Slice 1, with the exception that:

- the deadline for the completion of all transition activities, for the second time slice is 12 July 2015; and in order to give them the fullest consideration the;
- Relocation Project Plans are to be submitted by 12 July 2014 (one year in advance) and
- Retuning Project Plans are to be submitted by 12 July 2013 (two years in advance).

6.129 Finally, ComReg refutes the assertion made by H3GI that it *"has failed to carry out a proper consultation"*. ComReg notes that respondents have submitted numerous comments on transition issues and the transition project plan, as discussed in this chapter, and ComReg also notes that this issue was detailed specifically in Document 11/75.

## 6.4 Preparatory Licence

### 6.4.1 Summary of ComReg's Position in Document 11/60 and Document 11/75

6.130 In Document 11/60 and Document 11/60a ComReg considered the issue of preparatory licences and was of the view that:

- all winners of liberalised rights of use in the proposed joint spectrum award would be issued with a preparatory licence under the Wireless Telegraphy Act, 1926, as soon as practicable following completion of the proposed joint award;

- such licences would enable recipients to install networks and associated equipment but would not allow the operation of these in any of the relevant bands;
- however, during this period, ComReg would consider and grant, where possible, test licences to facilitate the testing of these networks and equipment; and
- preparatory licences would operate until commencement of the licensee's liberalised licences.<sup>312</sup>

6.131 In Document 11/75 and in line with ComReg's preliminary position as set out in Document 11/60, section 2.3 set out the principal terms and conditions associated with a preparatory licence.

#### 6.4.2 Views of Respondents

6.132 In its response to Document 11/60, one respondent, eircom Group, commented on preparatory licences. eircom Group agreed in principle with ComReg's proposal to grant preparatory licences to eligible parties, subject to sight of the proposed Preparatory Licence schedules and the opportunity to comment on same. eircom Group assumed that there would be no additional fees associated with such a licence as it believed that the *"value of such licences to bidders will be captured in the Spectrum Access Fees determined by the award process and that SUF will not be applicable as the relevant spectrum is not being used."*

6.133 In its response to Document 11/75, one respondent, H3GI commented on preparatory licences. H3GI requested confirmation that ComReg *"will grant test and trial licences in respect of the trialling of this apparatus. In the absence of such licences, Preparatory Licences will be of limited use."*

#### 6.4.3 ComReg's Final Position

6.134 ComReg maintains its position with regard to preparatory licences as set out in Document 11/60 to, amongst other things, issue all winners of liberalised rights of use in the proposed joint spectrum award with a preparatory licence under the Wireless Telegraphy Act, 1926, as soon as practicable following completion of the proposed joint award. The final terms and conditions associated with

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<sup>312</sup> This may include the 800, 900 and 1800MHz bands or any combinations of the above.

preparatory licences, including fees<sup>313</sup>, will be set out in the forthcoming Information Memorandum, in essentially the terms set out in Document 11/75<sup>314</sup>

- 6.135 It should be noted that ComReg cannot guarantee the availability of test licences for the bands in question as spectrum in the requested band may be licensed to another operator. However, where possible, ComReg will issue test licences.

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<sup>313</sup> See section 2.3.4 of Document 11/75.

<sup>314</sup> See section 2.3 of Document 11/75.

## Chapter 7

# 7 Advanced Commencement of Liberalised Use Licences

7.1 This chapter sets out ComReg’s position in relation to Advanced Commencement as set out in Document 11/60, views expressed by respondents in relation to that position and ComReg’s final position in relation to Advanced Commencement having considered the views of respondents and of its expert advisors.

## 7.1 Summary of ComReg’s Position in Document 11/60

7.2 In Document 11/60, ComReg discussed the possibility of Liberalised use licences being issued with a commencement date prior to 1 February 2013, or the commencement date of Time Slice 1 i.e. an Advanced Commencement Liberalised Use Licence.<sup>315</sup>

7.3 In considering this possibility, ComReg was of the view that there was merit in exploring Advanced Commencement on a **per Band** basis and a **per Block** basis<sup>316</sup> and paragraphs 7.9 and 7.10 of Document 11/60 noted various arguments in support of this view.

### 7.1.1 Background – Timeframes for Relocation Activities in the 900 MHz and 1800 MHz Bands.

7.4 In considering the potential for Advanced Commencement in the 900 MHz and 1800 MHz bands, paragraph 7.12 of Document 11/60 noted that “*there is an obvious link between the nature and time for relocation activities in these bands to be completed and the potential for some (or all) of liberalised rights in these bands to be made available earlier than February 2013.*”

7.5 ComReg noted that Red-M/Vilicom has provided details of the process steps, estimated timeframes and estimated costs for relocation activities in the 900

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<sup>315</sup> In Document 11/11 and Document 11/29 ComReg used the term “earlier liberalisation” to discuss the possibility of issuing Liberalised Licences prior to 1 February 2103. In Document 11/60, Document 11/75 and this document, the term “Advanced Commencement” is used to indicate this possibility. This is to distinguish it from the “Early Liberalisation Option” as discussed in section 4.7 of this document.

<sup>316</sup> This would mean that some spectrum Blocks could have an earlier Liberalised Licence commencement date than other spectrum Blocks.

MHz and 1800 MHz bands.<sup>317</sup> In summary and as noted in paragraph 7.14 of document 11/60, “based on this analysis, ComReg noted that the minimum time required to complete a relocation in the 900 MHz and 1800 MHz bands would be:

- 5 Months for a relocation in the 900 MHz band;
- 4 Months for a relocation in the 1800 MHz band;
- 6 Months for a simultaneous relocation project for the 900 MHz and 1800 MHz band; and
- 9 months for a sequential relocation project for the 900 MHz and 1800 MHz band. In this case, the 900 MHz band would be complete after 5 months and the 1800 MHz band would be complete after 9 months.”

7.6 Paragraph 7.16 of Document 11/60 noted that “the above timeframes are based upon the premise that the existing GSM licensees can relocate all of their existing spectrum assignment into a single contiguous spectrum location. While the Red-M/Vilicom reports recognise that relocation into non-contiguous spectrum assignments is also possible, it was noted that this is a slightly more complex case and cost or time estimates for this case were not provided. In any event, given an operator’s ability and incentive to obtain contiguous spectrum assignments, the following discussion is based upon the premise that existing GSM licensees would relocate existing GSM 900 MHz and 1800 MHz spectrum assignments into a single contiguous spectrum assignment.”

### **7.1.2 Identification of Advanced Commencement Opportunities in Each of the 800 MHz, 900 MHz and 1800 MHz Bands**

7.7 Paragraphs 7.17 to 7.30 of Document 11/60 considered whether discrete auction outcome scenarios could be defined where:

- the Advanced Commencement of one or more spectrum Blocks in the 800 MHz, 900 MHz and/or 1800 MHz bands could be allowed; and
- such Advanced Commencement would not result in additional and/or inefficient relocation activities other than those already considered by Red-M/Vilicom in their reports.

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<sup>317</sup> Readers are referred to: ComReg Document 10/71c, ComReg Document 10/105b and ComReg Document 11/57.

- 7.8 In relation to the 800 MHz band, ComReg did not identify any discrete auction outcome scenarios where Advanced Commencement could be considered.<sup>318</sup>
- 7.9 In relation to the 1800 MHz band, ComReg did not identify any discrete auction outcome scenarios where Advanced Commencement could be considered.<sup>319</sup>
- 7.10 In relation to the 900 MHz band, ComReg identified two discrete auction outcome scenarios where Advanced Commencement could be considered:<sup>320</sup>
- Scenario 1: An existing GSM licensee in the 900 MHz band wins rights of use to Blocks A and B; and
  - Scenario 2: A new 900 MHz band entrant (i.e. a non-GSM licensee) wins rights of use to Block A (or Blocks A and B).

#### **7.1.2.1 Scenario 1: An existing GSM licensee in the 900 MHz band wins rights of use to Blocks A and B**

- 7.11 Under this scenario, ComReg noted that if an existing GSM licensee in the 900 MHz band won rights of use to spectrum Blocks A and B in the 900MHz band, then it would be possible for such licensee to be granted a licence in respect of apparatus operating in such block(s) with an Advanced Commencement date. Paragraph 7.25 of Document 11/60 noted that:
- *“an existing 900 MHz licensee would be able to relocate its existing spectrum assignment of 2 × 7.2 MHz to blocks A and B in one relocation move;”* and
  - *“the remaining 5 blocks in the band would, in ComReg’s view, provide sufficient space for the remaining two GSM 900 MHz licensees to relocate, if necessary, based on the results of the proposed assignment round, without incurring any*

<sup>318</sup> Paragraph 7.18 of Document 11/60 noted that *“analogue terrestrial television is expected to be switched off by the end of 2012. Given the proposed 1 February 2013 commencement date for liberalised licences, there would appear to be little scope for advanced commencement 800 MHz spectrum blocks, unless analogue terrestrial television is switched-off earlier.”* Since Document 11/60 was published, the Minister for CENR has announced that analogue terrestrial television is to be switched off on 24 October 2012. See [www.dcenr.gov.ie/Press+Releases/MINISTER+RABBITTE+ANNOUNCES+DATE+FOR+DIGITAL+TV+SWITCHOVER.htm](http://www.dcenr.gov.ie/Press+Releases/MINISTER+RABBITTE+ANNOUNCES+DATE+FOR+DIGITAL+TV+SWITCHOVER.htm)

<sup>319</sup> Paragraph 7.20 of Document 11/60 stated that *“ComReg’s proposal for an overall spectrum cap of 2 × 50 MHz across the three bands means that there are numerous auction outcome scenarios possible in the 1800 MHz band. As a result, it is difficult to identify discrete outcome scenarios prior to the proposed auction where advanced commencement of one or more blocks would not impact upon the relocation activities of existing GSM licensees.”*

<sup>320</sup> Paragraph 7.24 of Document 11/60 noted that these scenarios *“would not result in additional and/or inefficient relocation activities other than those already considered by Red-M/Vilicom in their reports.”*



*additional relocation activities other than those considered in the Red-M/Vilicom reports.”*

### **7.1.2.2 Scenario 2: A non-GSM licensee wins rights of use to Block A (or Blocks A and B).**

7.12 Under this scenario, ComReg noted that if a non-GSM licensee won rights of use to spectrum Block A (or Blocks A and B) in the 900MHz band, then it would be possible for such licensee to be granted a licence operating in such block(s) with an Advanced Commencement date. Paragraph 7.27 of Document 11/60 noted that:

- *“the new entrant to the 900 MHz band (“new entrant”) would not be required to carry out any relocation activities”; and*
- *“the remaining 6 blocks in the band would, in ComReg’s view, provide sufficient space for the three existing GSM 900 MHz licensees to relocate without incurring any additional relocation activities other than those considered in the Red-M/Vilicom report (10/105b).”*

### **7.1.3 Competition and Other Aspects of Potential Advanced Commencement**

7.13 Paragraphs 7.31 to 7.36 of Document 11/60 considered the potential competition effects and other aspects associated with Advanced Commencement. As discussed in these paragraphs, ComReg was of the view that:

- *“the potential for significant distortions to competition to arise is likely to be very small”* (c.f. paragraph 7.34 of Document 11/60); and
- *“the benefits of advanced commencement would likely outweigh the very small potential for competition distortions”* (c.f. paragraph 7.35 of Document 11/60);

7.14 In light of foregoing, ComReg considered that *“the possibility of advanced commencement of certain blocks in the 900 MHz band, as identified in Scenarios 1 and 2 above, should be facilitated”* (c.f. paragraph 7.36 of Document 11/60);

## 7.1.4 Detailed Consideration of Specific Aspects of Advanced Commencement Under Scenario 1 and 2

7.15 Paragraphs 7.37 to 7.48 of Document 11/60 considered specific aspects associated with Advanced Commencement under Scenario 1 and 2 above:

- a. The Advanced Commencement date
- b. The surrender of an existing GSM licence in order to obtain an Advanced Commencement licence under Scenario 1; and
- c. The spectrum fees for Advanced Commencement.

### 7.1.4.1 The Advanced Commencement date under Scenario 1 and 2

7.16 Paragraphs 7.38 to 7.39 of Document 11/60 set out ComReg's understanding of the time required by a winner of spectrum Blocks under Scenario 1 and 2 to make actual use of liberalised spectrum-use rights in the 900 MHz band. ComReg noted that the actual time required is largely idiosyncratic and that:

- *“One option for ComReg could be to discount such idiosyncrasies and propose that advanced commencement licences under both Scenario 1 and 2 would commence immediately following completion of the proposed auction (with proposed advanced commencement fees to start from same date).”* (c.f. Paragraph 7.39 of Document 11/60);
- Another option could be setting a different commencement date for Scenario 1 and 2. ComReg noted that this option *“could be seen by new entrants to the 900 MHz band to be disadvantageous to them relative to existing GSM licensees because existing GSM licensees could use the 5 month relocation period to also deploy UMTS and other advanced equipment without any advanced commencement spectrum fee being charged (and the advantage that existing GSM licensees would have in terms of deployed base stations etc) in contrast to a new entrant to the 900 MHz band who would be paying for that right from immediately following the proposed auction.”* (c.f. Paragraph 7.40 of Document 11/60);

7.17 Paragraph 7.41 of Document 11/60 set out the Advanced Commencement date proposed by ComReg under scenario 1 and 2, and stated that:

- *“advanced commencement licences in the 900 MHz band (and corresponding proposed advanced commencement spectrum fees) under scenario 1 and 2 would not commence until 5 months following the proposed auction”;* and

- *“if, following the proposed auction, an existing GSM licensee, under Scenario 1, or a new entrant to the 900 MHz band, under Scenario 2, was in a position to commence liberalised use earlier than 5 months following the proposed auction<sup>321</sup>, then ComReg would consider an application from these parties for earlier advanced commencement subject to an existing GSM licensee meeting the proposed steps in the following section (relating to the expiry of existing GSM licence) and the applicant paying [the] (sic) proposed advanced commencement fees relating to this earlier period (see below regarding ComReg’s proposal for advanced commencement fees).”*

#### **7.1.4.2 The expiry of an existing GSM900 licence in order to obtain an Advanced Commencement licence under Scenario 1**

7.18 Paragraph 7.43 of Document 11/60 set out ComReg’s view that *“the advanced commencement of a liberalised 900 MHz licence under Scenario 1 for an existing GSM licensee require[s] (sic) the surrender of said licensees’ existing GSM 900 MHz licence because otherwise it would be possible for the licensee to occupy two positions in the 900 MHz band and thus frustrate the transition activities of other licensees in the 900 MHz band and/or the advanced liberalisation of other blocks post auction.”*

#### **7.1.4.3 Spectrum fees for Advanced Commencement**

7.19 ComReg’s proposed spectrum fees for Advanced Commencement is set out in Paragraph 7.48 of Document 11/60, and stated that:

- *“the appropriate spectrum fee for the advanced commencement element of liberalised licences should be the additional spectrum usage fees (SUFs) for each day a liberalised licence commences earlier than the proposed commencement date for Temporal Lot 1, based on the proposed applicable SUFs for the spectrum band and quantum of spectrum in question (see Chapter 4 [of Document 1/60]). In light of ComReg’s proposal for the advanced commencement date for the 900 MHz band (as set out above), this would mean:*
  - *additional daily 900 MHz SUFs payable from 5 months following the proposed auction; or*

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<sup>321</sup> For instance, if an existing GSM900 MHz licensee, under Scenario 1, was able to complete its relocation activities faster than the 5 months or a new entrant to the 900 MHz band considered that it had deployed enough operator equipment with which to commence commercial operations.

- *earlier if the winner of the advanced commencement licence applies for and is granted advanced commencement earlier than the 5 month period.”*

### **7.1.5 In Principle Advanced Commencement Proposal for All Liberalised Spectrum Blocks in the 900 MHz and 1800 MHz Bands (and Potentially the 800 MHz band) – Following the Outcome of the Proposed Auction**

7.20 Paragraphs 7.49 to 7.52 of Document 11/60 discussed ComReg’s in principle Advanced Commencement proposal for all liberalised spectrum Blocks in the 900 MHz and 1800 MHz bands (and potentially 800 MHz band) – following the outcome of the proposed auction.

7.21 In relation to the fees associated with this proposal, ComReg stated that:

- *“that the additional spectrum fees associated with earlier commencement [would be calculated on] (sic) a daily pro-rata of the proposed applicable SUFs for the spectrum band and quantum of spectrum in question for each day a liberalised licence commences earlier than the proposed commencement date of Temporal Lot 1.”* (c.f. paragraph 7.51 of Document 11/60)

7.22 Paragraph 7.52 of Document 11/60 set out a number of factors that ComReg would consider in deciding whether to grant such advanced commencement, including:

- *“whether the applicant had met its milestones in a timely manner as set out in the proposed Transitional Project Plan (as discussed in Chapter 6 [of Document 11/60]). For example, whether an existing GSM licensee[s] (sic) could demonstrate that existing spectrum holdings had been relocated to the correct location;*
- *whether the spectrum block/s to which the application applied would reasonably be required for transitional activities which had yet to occur in the spectrum band;*
- *for existing GSM licensees: whether they agreed to foreshortening of existing GSM licence; and*
- *whether the application included payment of the additional spectrum fees identified above.”*

## 7.2 Summary of ComReg's Position in Document 11/75

7.23 Document 11/75 set out ComReg's proposal for implementing its preliminary position as set out in Document 11/60 in the award process and the licensing regime for liberalised-use and preparatory licences. Section 2.4.2 of Document 11/75 set out ComReg's view on the possibility of Advanced Commencement.

## 7.3 Views of Respondents

7.24 Four respondents provided comments on ComReg's Advanced Commencement proposal in their responses to Document 11/60.

- Two respondents, H3GI<sup>322</sup> and eircom Group,<sup>323</sup> supported ComReg's Advanced Commencement proposal. Specific comments were also provided by these two respondents and are set out in turn below.
- One respondent, Telefónica, appreciated ComReg's intention in making the Advanced Commencement proposal but believed that it was not technically possible to make the spectrum in question available as proposed.<sup>324</sup> Specific comments from Telefónica are set out below.
- One respondent, Vodafone, did not state whether it supported the Advanced Commencement proposal. Instead it provided specific comments in relation to

<sup>322</sup> H3GI stated: "*H3GI welcomes ComReg's advanced commencement proposals.*" (c.f. Part 7 of H3GI's submission)

<sup>323</sup> eircom Group stated that it "*would agree in principle with allowing the possibility of earlier commencement of a 900MHz Liberalised-Use Licence in respect of Blocks A and B or Block A depending on the relevant circumstances post award, provided it is not done in a manner that is prejudicial to eircom Group*" (c.f. Clause 3.3.6 of eircom Group's submission); and "*eircom Group has no principled objection to the possibility of Liberalised-Use Licence(s) commencing earlier in the 1800MHz band provided that*

- *It is not done so in a manner discriminatory to eircom Group (for example constraining our options in the assignment round).*
- *Sufficient spectrum is made available to ensure timely completion of any relocation activities within the band.*
- *A decision is taken on the merits once all facts are known when the proposed award process is concluded.*
- *All relevant factors are clearly set out in the Information Memorandum.*" (c.f. section 3.3.7 of eircom Group's submission)

<sup>324</sup> Telefónica stated:

- "*Telefónica appreciates ComReg's intention, in making the Advanced Commencement Proposal, to facilitate an early start in the use of spectrum for liberalised services.*" (c.f. paragraph 11.1 of Telefónica's submission)
- "*It is not technically feasible to make the spectrum in question available as proposed, as the full band will likely be required to physically facilitate the relocation and re-tuning of 900 MHz lots prior to licence commencement required by ComReg's Full Assignment Round approach.*" (c.f. paragraph 1.15 of Telefónica's submission).

the possibility of an existing GSM900 MHz Licensee being reduced to a single 5MHz block of 900 MHz spectrum and the implications this could have for Advanced Commencement. Again, Vodafone's specific comments follow below.

- 7.25 Additionally, one respondent, H3GI, commented on ComReg's Advanced Commencement proposal in its response to Document 11/75 and in its further correspondence of 23 December 2012.<sup>325</sup> Where these comments are relevant to the Document 11/60, these comments are set out below.

### 7.3.1 Specific Comments Received from Respondents

7.26 H3GI submitted that:

- *"In order to encourage prompt completion of transitional issues and ensure the prompt delivery of liberalised services on 900 MHz, H3GI submits that ComReg should reserve Lot A of the 900 MHz band in the first time slice for a new band entrant"*; (c.f. Part 7 of H3GI's submission to Document 11/60)
- In its response to Document 11/75, H3GI added that *"ComReg should also reserve Lot A of the 900 MHz band in the second time slice and unassigned 1800 MHz in both time slices for a new band entrant. This would: (i) provide an incentive to the existing GSM licensees to promptly complete their transitional activities; (ii) ensure the prompt delivery of liberalised services on 900 MHz; and (iii) reduce the significant competitive harm created and exacerbated by ComReg's proposals."* (c.f. Part 6 of H3GI's submission to Document 11/75) and
- *"a successful bidder for advanced commencement blocks should only pay annual spectrum fees in respect of advance commencement"*<sup>326</sup> (Part 7 of H3GI's submission to Document 11/60 and Part 6 of H3GI's submission to Document 11/75)

7.27 eircom Group submitted that:

- *"there appears to be a risk that ComReg will constrain eircom Group's options in the full assignment round if we choose not to or fail to acquire Liberalised Use Licences in the 900MHz band in Temporal Lot 1."* .... "For the avoidance of

<sup>325</sup> Published in ComReg Document 12/21

<sup>326</sup> In proposing this submission, H3GI stated that it

*"H3GI does not understand why a bidder would pay additional daily 900 MHz SUFs payable from 5 months following the proposed auction. This would amount to an increase in the winning bid in respect of something that had already been factored in and in respect of which there is no certainty in advance of the auction outcome."* (c.f. Part 7 of H3GI's submission)

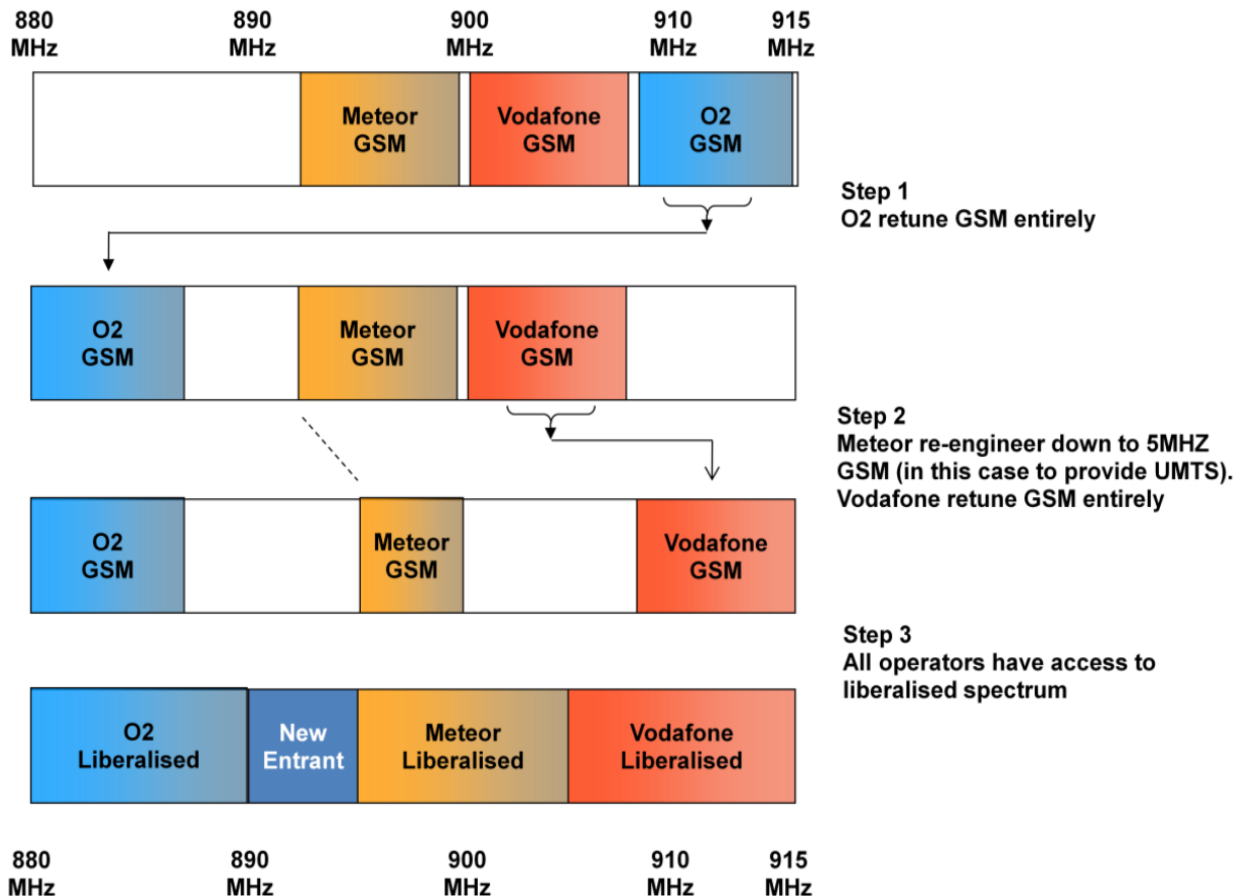
doubt we do not consider such a constraint acceptable.” (c.f. clause 3.3.6 of eircom Group’s submission).

- *“At least one of the blocks will be required to facilitate any relocation activities within the band. Depending on when the award process is completed, in turn informing the period for relocation activities to be completed, and the extent of the relocation activities, there may be a requirement for both blocks A and B to facilitate relocation activities. As such we do not believe it can unequivocally be stated that Block A could be made available immediately following completion of the award process [as stated by ComReg in paragraph 7.27 of Document 11/60]. Such matters can only be determined when all the facts are known following completion of the award process.”* (c.f. clause 3.3.6 of eircom Group’s submission).
- *“More generally, chapter 7 of ComReg 11/60 sets out a number of factors that will need to be considered. The manner in which these factors will be considered should be clearly set out in the Information Memorandum”* (c.f. clause 3.3.6 of eircom Group’s submission).
- *“eircom Group has no objection to the pro rata application of SUFs in the event that one or more parties exercises the early commencement option as set out in section 3.3.6 [of the Draft Decision set out in Document 11/60] provided our concerns expressed under that paragraph are addressed to our satisfaction.”* (c.f. section 3.3.13 of eircom Group’s submission).

7.28 Telefónica stated:

- *“Telefonica notes that under current time-lines, and depending on the actual auction outcome there is likely to be less than 6 months between auction conclusion and the proposed start dates of January 2013, meaning that Advanced Commencement as currently proposed would not bring liberalisation forward.”* (c.f. paragraph 11.1 of Telefónica’s submission)
- *“More importantly, Telefonica is concerned that there could be a significant amount of network re-engineering and re-tuning work required in the 900MHz band post-auction which would involve network operators undertaking network adjustments both sequentially and concurrently.”* ... The reconfiguration of the band might involve a series of “moves” similar to those made in a “Gem Puzzle”. The diagram below depicts just one such sequence of moves, however there are several variations on this example.” ... “In the below scenario it is not technically feasible to make the currently unoccupied spectrum in question available in the 900 MHz band as proposed, as the full band will be required to

physically facilitate the sequential relocation and re-tuning of 900 MHz lots of all existing occupants prior to licence commencement required by ComReg’s Full Assignment Round approach.” (c.f. paragraphs 11.1, 11.2 and 11.3 of Telefónica’s submission)



**Figure 3: Telefónica’s example of a relocation and retuning scenario in the 900 MHz band. (c.f. Part 11 of Telefónica’s submission to Document 11/60)**

- “Telefonica takes issue with the statement in paragraph 7.35 [of Document 11/60] that “advanced commencement...would insure against delays of availability of 800 MHz spectrum”. Allowing 900 MHz licences to start several months earlier does not in any way excuse ComReg of its obligation to provide certainty around the start dates of the 800 MHz spectrum it is proposing to auction.” (c.f. paragraph 11.4 of Telefónica’s submission)



7.29 Vodafone stated that it *“is extremely concerned regarding advance commencement of new licences, should ComReg contemplate a timeframe of as little as 5 months for a spectrum relocation process (and other activities required to provide continuity of service for the maximum number of customers) in the case of an existing operator being reduced to a single 5 MHz block of 900 MHz spectrum after the auction (the Scenario 2 outcome).”* (c.f. paragraph 19 of Vodafone’s submission)<sup>327</sup>

## 7.4 DotEcon’s and Red-M/Vilicom’s Position on Advanced Commencement

7.30 Red-M/Vilicom’s updated view is set out in ComReg 12/22 and section 2 of that report sets out their expert view in relation to the transition comments submitted by Vodafone, Telefónica, eircom Group and H3GI. In this regard, and in relation to Advanced Commencement, Red-M/Vilicom notes that.

- in relation to Advanced Commencement Scenario 1, ComReg states that it does not believe that advanced commencement could occur where an existing GSM 900 MHz licensee won a paired 5 MHz block, being block A or B<sup>328</sup>.
- in both hypothetical assignment round outcome examples<sup>329</sup>, *“blocks A and B are available for liberalised use immediately under the hypothesis that the right to use them is won by an existing operator so there is no need for these blocks to be occupied in a transitory manner by another operator to facilitate the sequential relocation and re-tuning of the remaining 900MHz lots. These examples therefore follow the Advanced Commencement Scenario 1 proposal in ComReg document 11/60 paragraphs 7.25 to 7.30.”*
- *“it should be noted that only under the two specific Advanced Commencement Scenarios where blocks are not required to facilitate relocation activities does ComReg’s proposal in Document 11/60 paragraphs 7.25 to 7.30 identify that*

<sup>327</sup> In addition, Vodafone stated that: *“Vodafone do not believe that the Red-M/Vilicom report can be legitimately used as supporting ComReg’s proposals for advanced commencement of new licences in the case of Scenario 2.”*; (c.f. paragraph 20 of Vodafone’s submission to 11/60); and *“For the avoidance of doubt, should ComReg proceed to enforce the facilitation of an advanced commencement of 900 MHz licences -without the rigorous analysis of the potential for consumer disruption and on the assumption that a 5 month timeframe is sufficient - despite Vodafone’s position and arguments, then Vodafone believes that ComReg would be entirely liable for any service disruption/degradation experienced by consumers that would directly result.”* (c.f. paragraph 24 of Vodafone’s submission to 11/60)

<sup>328</sup> Document 11/60, paragraph 7.26.

<sup>329</sup> One outcome was presented by Telefónica in paragraph 11.3 of its response to Document 11/60, and the other outcome was presented by Red-M/Vilicom in Figure 2 of Document 12/22.

*blocks will be made available under advanced commencement. It follows that under all other potential scenarios, the blocks are potentially available to facilitate relocation activities, should they be required, when the results of the assignment stage are known.”*

7.31 DotEcon’s updated view on Advanced Commencement is set out in section 5.2 of Document 12/24 and, among other things, DotEcon states that:

- *“with regard to the payment of additional daily SUFs in the case of Advanced Commencement of licences, we consider that such an approach is justified, as a bidder also gains benefits as well as paying additional SUFs.”*
- *“we clarify that it remains possible to incorporate the advanced commencement proposals into the assignment stage of the proposed award process.”*

## **7.5 ComReg’s Final Position on Advanced Commencement**

7.32 The following set outs ComReg’s final position on Advanced Commencement. In doing so ComReg first considers the issues raised by respondents.

### **7.5.1 ComReg’s Consideration of Respondents’ Views**

7.33 At a high level, ComReg notes that the responses received were generally supportive of ComReg’s Advanced Commencement proposals<sup>330</sup> although specific comments were raised by the respondents on a number of detailed aspects. These specific comments are now considered in turn.

#### **A) Is it technically feasible to make the currently unoccupied spectrum available in the 900 MHz band as proposed?**

7.34 Telefónica provided an example of a sequence of relocation and re-tuning moves in the 900 MHz band and stated that in this example, *“it is not technically feasible to make the currently unoccupied spectrum in question available in the 900 MHz band as proposed, as the full band will be required to physically facilitate the sequential relocation and re-tuning of 900 MHz lots of all existing occupants prior to licence commencement required by ComReg’s Full Assignment Round approach.”*

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<sup>330</sup> H3GI and eircom Group supported the Advanced Commencement proposals, while Telefónica appreciated ComReg’s intention but believed that it was not technically feasible to make the unallocated spectrum available as proposed. While Vodafone expressed certain concerns in relation to possible aspects of advanced commencement, it did not state whether it supported the Advanced Commencement proposal or not.

- 7.35 ComReg notes that Red-M/Vilicom have analysed Telefónica's example and are of the view that this example follows "the Advanced Commencement Scenario 1 proposal in ComReg document 11/60 paragraphs 7.25 to 7.30" ... as "*blocks A and B are available for liberalised use immediately under the hypothesis that the right to use them is won by an existing operator.*"
- 7.36 In addition, ComReg has analysed the example provided by Telefónica and notes that this example does not demonstrate that it is technically infeasible to make the unallocated spectrum available as per ComReg's Advanced Commencement proposals, but instead Telefónica's example is a demonstration of how ComReg's Advanced Commencement Scenario 1 proposal could work. In Telefónica's example, an existing GSM licensee (Telefónica) wins spectrum in Blocks A and B and relocates its existing 900 MHz spectrum holdings to these Blocks. This relocation creates sufficient space for the other existing GSM licensees to relocate and/or re-tune as necessary.
- 7.37 ComReg therefore remains of the view that it is technically feasible to make some or all of the unallocated spectrum in the 900 MHz band available for Advanced Commencement: Blocks A and B under Scenario 1; and Block A under Scenario 2.

## **B) Are both Blocks A and B required to facilitate relocation activities?**

- 7.38 eircom Group stated that it did not believe that "*it can be unequivocally stated that Block A could be made available immediately following completion of the award process*", as stated by ComReg in paragraph 7.27 of Document 11/60, as it believed that "*there may be a requirement for both Blocks A and B to facilitate relocation activities.*"
- 7.39 In relation to paragraph 7.27 of Document 11/60 ComReg firstly notes this paragraph only refers to Advanced Commencement Scenario 2, namely the scenario where a non-GSM licensee (i.e. a new 900 MHz band entrant) wins Block A.<sup>331</sup> Under this scenario ComReg stated that "*Block A could be made available for use by the new entrant immediately following completion of the proposed auction*". As a non-GSM licensee does not have any relocation activities to carry out, ComReg remains of the view that Block A could be made available immediately after the award process under Advanced Commencement Scenario 2.

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<sup>331</sup> Paragraph 7.27 of Document 11/60 only refers to ComReg's proposed Advanced Commencement Scenario 2 and states "*Under this scenario ... Block A could be made available for use by the new entrant immediately following completion of the proposed auction*"

7.40 In relation to eircom Group's view that "*there may be a requirement for Blocks A and B to facilitate relocation activities*", ComReg notes:

- that under Advanced Commencement Scenario 1, if rights of use in Blocks A and B were to be granted to an existing GSM licensee with an Advanced Commencement date, its relocation to Blocks A and B would result in at least 2 × 7.2 MHz of contiguous unassigned spectrum in 900 MHz band in the location that the existing GSM Licensee just vacated. In ComReg's view this unassigned spectrum is sufficiently large to facilitate the relocation activities of the remaining two existing GSM licensees in this band. In addition, ComReg notes Red-M/Vilicom's view, as set out in ComReg 12/22, that under the hypothetical assignment round examples analysed in that report, "*blocks A and B are available for liberalised use immediately under the hypothesis that the right to use them is won by an existing operator so there is no need for these blocks to be occupied in a transitory manner by another operator to facilitate the sequential relocation and re-tuning of the remaining 900MHz lots*"; and
- that under Advanced Commencement Scenario 2, if rights of use in respect of Block A were to be granted to a non-GSM licensee with an Advanced Commencement date, there would still be 2 × 7.7 MHz of contiguous spectrum unassigned in Blocks B and C, and this spectrum is sufficiently large to facilitate relocation activities as it allows an existing GSM licensee to relocate its current GSM900 spectrum holdings (of 2 × 7.2 MHz) to this location, if required by the auction outcome and under the Relocation Project Plan;
- Red-M/Vilicom's view, as set out in ComReg 12/22 that "*only under the two specific Advanced Commencement Scenarios where blocks are not required to facilitate relocation activities does ComReg's proposal in Document 11/60 paragraphs 7.25 to 7.30 identify that blocks will be made available under advanced commencement.*"

7.41 ComReg therefore remains of the view that Blocks A and B can be made available under Scenario 1 and Block A can be made available under Scenario 2, as ComReg believes that these Advanced Commencement proposals would not result in the existing GSM licensees incurring any additional relocation activities other than those set out in the Red-M/Vilicom reports.

### **C) Is a timeframe of 5 months sufficient where an existing operator is reduced to a single 5 MHz block of 900 MHz spectrum?**

7.42 Vodafone stated that it "*is extremely concerned regarding advance commencement of new licences, should ComReg contemplate a timeframe of*

*as little as 5 months for a spectrum relocation process ... in the case of an existing operator being reduced to a single 5 MHz block of 900 MHz spectrum after the auction (the Scenario 2 outcome)."*

7.43 ComReg recognises that the possibility of an existing GSM 900 MHz licensee being reduced to a spectrum assignment of 2 × 5 MHz (or alternatively not winning any spectrum in either the 900 MHz band or in the 1800 MHz Band) raises transition issues, and ComReg's view on this possibility is set out in chapter 6 of this document.

7.44 In relation to ComReg's Advanced Commencement proposals, ComReg notes that:

- The Advanced Commencement Scenario 1 and 2 proposals set out by ComReg in Document 11/60 do not require a GSM licensee who wins a single 2 × 5 MHz block of 900 MHz spectrum in the first Time Slice to complete its spectrum relocation process within 5 months.<sup>332</sup> This point has also been noted by Red-M/Vilicom in ComReg 12/22;
- In principle, ComReg's Advanced Commencement proposal for all liberalised spectrum blocks in the 900 MHz and 1800 MHz bands (and potentially the 800 MHz band) following the outcome of the proposed auction, does not require a GSM licensee to have completed its spectrum relocation process within 5 months. Instead, under this proposal and following the outcome of the auction, a person eligible to be issued a Liberalised Use Licence could apply to ComReg for the Advanced Commencement of its Liberalised Licence, and in considering whether to grant such an application, which would not be unreasonably withheld, ComReg would take into account a number of factors, including:
  - whether the spectrum block/s to which the application applied would reasonably be required for transitional activities which had yet to occur in the spectrum band; (c.f. Paragraph 7.52 of Document 11/60).

7.45 Given the above, ComReg is of the view that the Advanced Commencement proposals as set out in Document 11/60 do not need to be altered in light of Vodafone's comment.

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<sup>332</sup> The scenario which applies to a GSM900 MHz licensee (i.e. ComReg's Advanced Commencement Scenario 1 proposal) is only valid where a GSM900 MHz licensee wins both Blocks A and B in the first Time Slice (i.e. 2 × 10 MHz of 900 MHz spectrum).

#### **D) Can Advanced Commencement bring liberalisation forward?**

- 7.46 Telefónica stated *“under current time-lines, and depending on the actual auction outcome there is likely to be less than 6 months between auction conclusion and the proposed start dates of January 2013, meaning that Advanced Commencement as currently proposed would not bring liberalisation forward.”*
- 7.47 ComReg does not agree with this statement, as the inclusion of an Advanced Commencement opportunity in the Award Process does not delay the liberalisation of a spectrum band, but, provided one or more successful bidders wish to avail of the option, brings it forward.
- 7.48 Furthermore, ComReg notes that Red-M/Vilicom and DotEcon have analysed ComReg’s Advanced Commencement proposals in light of the views of the respondents received and, as summarised in section 7.3 of this document, both Red-M/Vilicom and DotEcon are of the view that ComReg’s Advanced Commencement proposals can be incorporated into the award process.
- 7.49 Given that there are no obvious downsides to the inclusion of an Advanced Commencement opportunity in the Award Process, ComReg remains of the view that there is merit in including an Advanced Commencement opportunity in the Award Process.

#### **E) The spectrum fees associated with Advanced Commencement**

- 7.50 H3GI and eircom Group provided specific comments on the spectrum fees for Advanced Commencement.
- eircom Group stated that it has *“no objection to the pro rata application of SUFs in the event that one or more parties exercises the early commencement option”*; and
  - H3GI stated that *“it does not understand why a bidder would pay additional daily 900 MHz SUFs payable from 5 months following the proposed auction”* ... and *“a successful bidder for advanced commencement blocks should only pay annual spectrum fees in respect of advance commencement”*
- 7.51 ComReg notes that H3GI and eircom Group both support ComReg’s proposal that annual spectrum fees or SUFs be paid in respect of Advanced Commencement.
- 7.52 In relation to H3GI’s query as to why *“a bidder would pay additional daily 900 MHz SUFs payable from 5 months following the proposed auction”*, it should be

noted that ComReg proposed that the start date of an Advanced Commencement Liberalised Use Licence would be “5 months following the proposed auction” (c.f. paragraph 7.41 of Document 11/60) under Advanced Commencement Scenario 1 and 2. Consequently, ComReg’s statement that the fees would be payable from 5 months following the proposed auction is consistent with ComReg’s view that the fees associated with the Advanced Commencement of a spectrum Block should be the SUF associated with this spectrum Block adjusted pro-rata for the duration of the Advanced Commencement. In this regard, ComReg notes DotEcon’s view as set out in section 5.2 of ComReg 12/24 that this approach is justified, “as a bidder also gains benefits as well as paying additional SUFs.”

7.53 Overall, ComReg remains of the view that the fees associated with Advanced Commencement as set out in Document 11/60 are appropriate.

**F) Block A in the 900 MHz band and unassigned spectrum in the 1800 MHz band should be reserved for a new entrant to the band.**

7.54 H3GI stated as follows “in order to encourage prompt completion of transitional issues and ensure the prompt delivery of liberalised services on 900 MHz, H3GI submits that ComReg should reserve Lot A of the 900 MHz band in the first time slice for a new band entrant”.

7.55 In its response to Document 11/75, it added that “ComReg should also reserve Lot A of the 900 MHz band in the second time slice and unassigned 1800 MHz in both time slices for a new band entrant. This would: (i) provide an incentive to the existing GSM licensees to promptly complete their transitional activities; (ii) ensure the prompt delivery of liberalised services on 900 MHz; and (iii) reduce the significant competitive harm created and exacerbated by ComReg’s proposals.”

7.56 In relation to the above, ComReg notes that:

- Option 2A of the Assignment Process RIA considers the issue of whether it is appropriate to reserve a spectrum for a new entrant. As discussed in section 3 of this document, this is not ComReg’s preferred approach;
- The spectrum requested by H3GI is spectrum suitable for Advanced Commencement Licences. If ComReg were to reserve Block A in the 900 MHz band for a new band entrant (i.e. a non-GSM licensee) it would mean that Block A could not be won by an existing GSM Licensee. This would prevent ComReg

from including Advanced Commencement Scenario 1 in the Award Process and could be seen as a discriminatory measure against the GSM licensees; and

- Where an existing GSM licensee obtains an Advanced Commencement Licence (e.g. Blocks A and B in the 900 MHz band under Advanced Commencement Scenario 1) similar arguments can be made that this would encourage the prompt completion of transitional issues and the prompt delivery of liberalised services in the 900 MHz band.

7.57 Given the above and the analysis in the Assignment Process RIA, ComReg does not agree with H3GI's submission that Block A in the 900 MHz band and unassigned spectrum in the 1800 MHz band should be reserved for a new entrant to the band.

### **G) Will ComReg constrain eircom Group's options in the full assignment round if eircom Group does not obtain a Liberalised Use Licence in the 900MHz band in Time Slice 1?**

7.58 eircom Group noted that it was unclear whether ComReg intended to apply a constraint on eircom Group's ability to bid for blocks A and B in the 900 MHz band in the assignment round if eircom Group did not obtain a Liberalised use Licence in the 900 MHz band in Time Slice 1.<sup>333</sup> For the avoidance of doubt ComReg does not intend to apply such a constraint.

### **H) Availability of the 800 MHz band**

7.59 Telefónica stated that it "takes issue with the statement in paragraph 7.35 [of Document 11/60] that "*advanced commencement...would insure against delays of availability of 800 MHz spectrum*". *Allowing 900 MHz licences to start several months earlier does not in any way excuse ComReg of its obligation to provide certainty around the start dates of the 800 MHz spectrum it is proposing to auction.*"

7.60 ComReg notes that comments relating to the availability of the 800 MHz band are dealt with in Annex 12 of this document.

### **I) The manner in which ComReg will consider the factors in paragraph 7.52 of Document 11/60, where a Liberalised Licensee applies for Advanced Commencement following the outcome of the auction**

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<sup>333</sup> eircom Group correctly noted that this was mentioned in paragraph 399 of Document 11/58 (DotEcon's advice to ComReg on "*Issues relating to the award of spectrum in multiple bands in Ireland*") but was not provided for in Document 11/60 or in the draft Information Memorandum.



- 7.61 eircom Group stated that *“more generally, chapter 7 of ComReg 11/60 sets out a number of factors that will need to be considered. The manner in which these factors will be considered should be clearly set out in the Information Memorandum”*
- 7.62 While eircom Group did not specifically state which factors it was referring to, ComReg assumes that it was referring to those factors set out in paragraph 7.52 of Document 11/60. This paragraph refers to a non-exhaustive list of factors that ComReg would take into account in considering whether to grant an application for Advanced Commencement following the outcome of the proposed auction.
- 7.63 In relation to eircom Group’s request to provide further clarity on the manner in which these factors will be considered by ComReg, while ComReg aims to provide as much clarity as possible in relation to the Award Process, at this stage it is not possible for ComReg to provide further clarity on the manner in which these factors will be considered save to say that approval would not be unreasonably withheld, as each application will have to be considered on its own merits in light of ComReg’s statutory functions, obligations and objectives and of the information available at that time.
- 7.64 Finally, it should be noted that the possibility of Advanced Commencement has been set out in the draft Information Memorandum (e.g. see section 2.4.2 of Document 11/75). The text of the final Information Memorandum will be updated (as necessary) in light of the information available to ComReg at that time and this text may contain further information on Advanced Commencement.

## **7.5.2 Competition and Other Aspects of Advanced Commencement**

- 7.65 In Document 11/60, ComReg noted that some interested parties may consider the Advanced Commencement of spectrum-use rights in some spectrum Bands over others, and/or the Advanced Commencement of rights of use in some spectrum Blocks within a Band over other spectrum Blocks in the same Band as potentially giving rise to competition distortions.
- 7.66 ComReg notes that DotEcon considered this issue in section 5.2 of Document 11/58 and noted that the potential for Advanced Commencement to have a negative effect on competition is small because, amongst other things:
- the maximum time lag that may exist between 900 MHz licences that benefit from advanced commencement and those that do not will in any case be relatively short. In that regard, DotEcon notes that if the auction ended by July

this would leave 7 Months before the commencement date – thus suggesting a very short time lag.

- ComReg proposal also includes the possibility of bidders applying for and obtaining advanced commencement licences in other spectrum blocks following the outcome of the Award Process;
- ComReg’s proposal to issue preparatory licences means that a bidder winning rights of use of 900 MHz spectrum in the first time slice but not able to avail of advanced commencement, would be able to be ready to provide services from the beginning of its licence by the envisaged licence commencement date of February 2013, or whatever later date ComReg might specify.

7.67 Section 5.2 of DotEcon’s updated report (Document 12/24) set out its updated views and DotEcon state that *“we clarify that it remains possible to incorporate the advanced commencement proposals into the assignment stage of the proposed award process.”*

7.68 In addition, ComReg notes that the responses submitted to ComReg did not appear to be explicitly concerned about the potential for ComReg’s Advanced Commencement proposals to be distortive of competition. In this regard, ComReg notes that two respondents, H3GI and eircom group, supported ComReg’s proposals, one respondent Telefónica appreciated ComReg’s intention, and the remaining respondent, Vodafone, while expressing certain concerns, did not express a clear view as to whether or not it supported Advanced Commencement.

7.69 Given the above and the fact that the assignment round does not place a restriction on the blocks in which a winning bidder or an existing GSM licensee can obtain rights of use of spectrum, ComReg remains of the view that the benefits of Advanced Commencement outweigh any negative effects. Among the former, ComReg notes that:

- other things being equal, advanced data services would be made available in Ireland earlier than might otherwise be the case, with the consumer and operator benefits that this would entail; and
- advanced commencement by one operator would likely incentivise timely and efficient transitional activities by other winners of liberalised spectrum rights.

### 7.5.3 Summary of ComReg's Final Position on Advanced Commencement

- 7.70 Given the above and noting DotEcon's and Red-M/Vilicom's view as set out in ComReg 12/24 and 12/22 respectively, ComReg's final position of the Advanced Commencement of Liberalised Use Licences is as follows.
- 7.71 The opportunity for prospective Licensees to obtain a Liberalised Use Licence with an Advanced Commencement date is to be included in the Award Process. Advanced commencement is to be considered on a per band and a per spectrum Block basis.
- 7.72 The Award Process will contain two methods for obtaining such Advanced Commencement and these methods are not mutually exclusive.

#### 7.5.3.1 Methods for obtaining the Advanced Commencement of a Liberalised Use Licence

- 7.73 Method 1: In the 900 MHz band, Block A or Blocks A and B are to be made available in the Auction with an Advanced Commencement date, provided that the outcome of the Award Process is such that either:
- an Existing GSM Licensee wins the rights of use to both Block A and B on a liberalised basis in Time Slice 1. This is called Advanced Commencement Scenario 1 and in this scenario both Block A and B are to be made available with an Advanced Commencement date; or
  - a non-GSM Licensee wins the rights of use to Block A (or both Block A and B) on a liberalised basis in Time Slice 1. This is called Advanced Commencement Scenario 2 and in this scenario Block A is to be made available with an Advanced Commencement date.
- 7.74 Under Advanced Commencement Scenarios 1 and 2, the start date of an Advanced Commencement Liberalised Use Licence is to be set as 5 months from the outcome of the Assignment Stage of the Award Process.<sup>334</sup> However under these scenarios where an existing GSM900 MHz licensee or a new entrant to the 900 MHz band is in a position to avail of Advanced

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<sup>334</sup> As discussed in section 3.7 of Document 11/75 (i.e. the Notification and Grant Stage), ComReg's notification to the Winning Bidders at the end of the Assignment Round will and among other items, "specify the expected commencement date of the Liberalised Licence notwithstanding the possibility for Advanced Commencement."

Commencement earlier than 5 months from the outcome of the Assignment Stage, it can apply to ComReg for earlier Advanced Commencement of its Liberalised Use Licence, approval of which would not be unreasonably withheld.

7.75 Method 2: Aside from Advanced Commencement Scenario 1 and Scenario 2 as outlined above, winners of rights of use of spectrum Blocks in the 800 MHz<sup>335</sup>, 900 MHz and 1800 MHz bands in Time Slice 1 can apply to ComReg to have the start date of their Liberalised Licence (i.e. 1 February 2013 or such later date as might be specified by ComReg) amended to an Advanced Commencement start date.

7.76 As outlined in section paragraph 2.119 of Document 11/75, in considering such a request, ComReg will take into account a number of factors, including:

- whether the Winning Bidder has met its milestones in a timely manner as set out in the Relocation Project Plan (see section 3.8 of Document 11/75). For example, whether an Existing GSM Licensee could demonstrate that its existing GSM spectrum has been relocated to the location associated with its Liberalised Licence entitlements for the relevant Band; and
- whether the Lots won by the Winning Bidder would reasonably be required for transitional activities which have yet to occur in the spectrum Band.

7.77 As with method 1, approval of such applications would not be unreasonably withheld.

### **7.5.3.2 Fees associated with the Advanced Commencement of a Liberalised Use Licence**

7.78 The Advanced Commencement of a Liberalised Licence involves the bringing forward of the start date of one or more spectrum Blocks in a Liberalised Use Licence. This earlier start date means that the liberalised SUFs associated with this spectrum Block or Blocks become payable earlier on the Advanced Commencement Date.

7.79 The liberalised SUFs associated with a spectrum Block are set out in section 4.8 of this document. These SUFs are for a one-year duration. Where rights of use in a spectrum Block are licensed for a period of less than one year, the

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<sup>335</sup> Given the increased certainty that Analogue Switch Off will occur on the 24 October 2102, for completeness the 800 MHz band is being included in the list of spectrum bands that can be considered under Method 2.

SUF associated with this spectrum Block shall be adjusted on a pro-rata daily basis in relation to its duration.

### **7.5.3.3 Other conditions necessary to obtain a Liberalised Use Licence.**

7.80 Before obtaining a Liberalised Use Licence (or an Advanced Commencement Liberalised Use Licence), the relevant bidder is obliged to comply with a number of conditions, including:

- the payment of the relevant liberalised-use fees;
- where the bidder is an existing GSM Licensee, the amendment and/or surrender of the rights associated with any relevant GSM Licence (whichever is appropriate); and
- complying with the Transitional Rules (such as meeting the milestones set out in the Relocation Project Plan), to be set out in the final Information Memorandum, a draft of which was set out in section 3.8 of the draft information memorandum (Document 11/75)

7.81 The draft Information Memorandum (11/75) discussed the steps involved in the notification and grant of Liberalised Use Licences and in particular paragraph 3.125 of that draft Information Memorandum outlined the conditions that a winning Bidder would be required to meet before being issued with a Liberalised Use Licence. The final Information Memorandum will update this text (if and as necessary).

7.82 ComReg is of the view that its final position on Advanced Commencement as outlined above is fully in line with its Statutory Objectives as set out in Annex 2 to this document. ComReg's final Information Memorandum will provide further details on the implementation of Advanced Commencement in the Award Process.

## Chapter 8

# 8 Decisions

8.1 This chapter sets out ComReg's decisions based on the conclusions and the final positions arrived at by ComReg in the preceding chapters and their supporting annexes.

### 1. DEFINITIONS AND INTERPRETATION

In this Decision, save where the context otherwise admits or requires:

**"800 MHz band"** means the 791 to 821 MHz band paired with the 832 to 862 MHz band as set out in Annex 3 to ComReg Document 12/25;

**"900 MHz band"** means the 880 to 915 MHz band paired with the 925 to 960 MHz band as set out in Annex 3 to ComReg Document 12/25;

**"1800 MHz band"** means the 1710 to 1785 MHz band paired with the 1805 to 1880 MHz band as set out in Annex 3 to ComReg Document 12/25;

**"Advanced Commencement Date"** means a date earlier than the commencement date of Time Slice 1, from which a particular Liberalised Use Licence commences;

**"Authorisation Regulations"** means the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations, 2011 (S.I. No. 335 of 2011);

**"Base Price"** means the price to be paid by a Winning Bidder for the package of Lots allocated to it in the main stage of the competitive selection procedure;

**"Communications Regulation Act 2002"** means the Communications Regulation Act, 2002, (No. 20 of 2002), as amended;

**"ComReg"** means the Commission for Communications Regulation, established under section 6 of the Communications Regulation Act, 2002;

**"Existing GSM Licensee"** means a person with GSM-only 900 MHz and/or 1800 MHz rights of use existing on the day before the commencement of the competitive selection procedure described in section 3.3 of this Decision;

**"Framework Regulations"** means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011, (S.I. No. 333 of 2011);

**"GSM"** means the GSM specification as published by the European Telecommunications Standards Institute ('ETSI');

**“GSM Amendment Regulations”** means the European Communities (Public Pan-European Cellular Digital Land-Based Mobile Communications) Regulations 2010 (S.I. No. 195 of 2010), made under section 3 of the European Communities Act 1972 (No. 27 of 1972) for the purpose of giving effect to Directive 87/372/EEC, as amended by Directive 2009/114/EC;

**“Information Memorandum”** means the information memorandum which ComReg intends to publish in due course, and **“Draft Information Memorandum”** means the draft information memorandum which was published by ComReg on 24 October 2011 under ComReg Document Number 11/75;

**“Liberalised Use Licence”** means a licence of the type set out in draft form in Schedule 1 to the Liberalised Use and Preparatory Licence Regulations;

**“Liberalised Use and Preparatory Licence Regulations”** means the Wireless Telegraphy (Liberalised Use and Preparatory Licences in the 800 MHz, 900 MHz and 1800 MHz Bands) Regulations 2012 as set out in draft form in Annex 7 to ComReg Document 12/25;

**“Lot”** means a 2 x 5 MHz block of spectrum in any one of the 800 MHz, the 900 MHz or the 1800 MHz bands;

**“Minister”** means the Minister for Communications, Energy and Natural Resources;

**“Preparatory Licence”** means a licence of the type set out in draft form in Schedule 2 to the Liberalised Use and Preparatory Licence Regulations;

**“Qualified Bidder”** means an applicant who, following consideration of its application by ComReg, has been informed, in accordance with the requirements of the Information Memorandum that its application is compliant and that it is entitled to participate in the competitive selection procedure described herein.

**“RIA”** means Regulatory Impact Assessment;

**“Winning Bidder”** means a Qualified Bidder that wins at least one lot in the competitive selection procedure described herein; and

**“Wireless Telegraphy Act 1926”** means the Wireless Telegraphy Act, 1926 (No. 45 of 1926), as amended.

## 2. DECISION-MAKING CONSIDERATIONS

2.1 In arriving at its decisions in this document, ComReg has had regard to:

(i) the contents of, and the materials and reasoning referred to in, as well as the materials provided by respondents in connection with, the below-listed ComReg documents:

a. 08/57;

- b. 09/14;
- c. 09/99;
- d. 10/59;
- e. 10/71;
- f. 10/105;
- g. 11/11;
- h. 11/29;
- i. 11/60;
- j. 11/75; and
- k. 12/25;

(ii) the consultants' reports commissioned, and the advice obtained, by ComReg in relation to the subject-matter of the documents and materials listed above;

(iii) the powers, functions, objectives and duties of ComReg, including, without limitation those under and by virtue of:

- a. the Communications Regulation Act 2002, and, in particular, sections 10, 12 and 13 thereof;
- b. the applicable Policy Directions made by the Minister under Section 13 of the Communications Regulation Act 2002;
- c. the Framework Regulations, and, in particular, Regulations 13, 16 and 17 thereof;
- d. the Authorisation Regulations, and, in particular, Regulations 9, 10, 11, 12, 15, 16, 17, 18(1)(c) and 19 thereof;
- e. Regulation 6(1) of the Access Regulations;
- f. the GSM Amendment Regulations;
- g. Decision 2009/766/EC of 16 October, 2009, on the harmonisation of the 900 MHz and 1,800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community, as amended;
- h. Decision 2010/267/EU of 6 May, 2010, on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union, as amended; and
- i. Sections 5 and 6 of the Wireless Telegraphy Act, 1926,



and, noting that it has:

- a. given all interested parties the opportunity to express their views and make their submissions in accordance with Regulation 11 of the Authorisation Regulations and Regulation 12 of the Framework Regulations; and
- b. evaluated the matters to be decided, in accordance with its obligations pursuant to, inter alia, ComReg's RIA Guidelines (ComReg Document 07/56a) and the RIA Guidelines issued by the Department of An Taoiseach in June, 2009,

as set out in the various chapters hereof and their supporting annexes, ComReg has decided:

### **3. DECISIONS**

- 3.1 subject to obtaining the consent of the Minister to the making by it of the Liberalised Use and Preparatory Licence Regulations, to make those regulations under section 6 of the Wireless Telegraphy Act 1926, prescribing relevant matters in relation to Preparatory Licences and Liberalised Use Licences, including prescribing the form of the licences concerned, their duration and the conditions and restrictions subject to which they are granted;
- 3.2 under section 5 of the Wireless Telegraphy Act 1926, and pursuant to the Liberalised Use and Preparatory Licence Regulations as made following the obtaining of ministerial consent, to grant a limited number of individual rights of use for radio frequencies, by way of Preparatory Licences and Liberalised Use Licences, in respect of spectrum in the 800 MHz, 900 MHz and 1800 MHz bands, respectively;
- 3.3 to select those parties who will be eligible to be granted a Liberalised Use Licence and a Preparatory Licence (herein referred to as "Winning Bidders" or, in the singular, as a "Winning Bidder") by means of a competitive selection procedure which is more particularly described in Document 12/25 and which will be further particularised in the Information Memorandum.
- 3.4 To incorporate in the competitive selection procedure, inter alia, the following elements:
  - 3.4.1 a number of stages including an application stage, a qualification stage, a main stage and an assignment stage, with the outcome of the qualification stage determining whether the procedure moves directly to the assignment stage, or whether the main stage is necessary, due to demand exceeding supply.
  - 3.4.2 the main stage, if it occurs, comprising of a combinatorial clock auction.
  - 3.4.3 rights of use of spectrum in the 800 MHz, 900 MHz and the 1800 MHz bands being granted in two "time slices", viz.:
    - 3.4.3.1 Time Slice 1: From 1 February 2013 (or such other date as may be specified by ComReg) to 12 July 2015 (or such other date as may be specified by ComReg); and

3.4.3.2 Time Slice 2: From 13 July 2015 (or such other date as may be specified by ComReg) to 12 July 2030,

and where all rights of use of spectrum granted shall expire absolutely on 12 July 2030.

3.4.4 in the event of the main stage of the procedure occurring, multiple clock primary rounds, in each round of which the auctioneer setting the price for each lot category as specified in the Information Memorandum, and Qualified Bidders will be entitled to bid, subject to detailed rules to be set out in the Information Memorandum, for packages of lots at those prices, until supply equals or exceeds demand across all lot categories at the round prices or for such other reason as may be set out in the Information Memorandum.

3.4.5 following any such primary rounds, a single, sealed-bid, supplementary round, entitling Qualified Bidders to submit a number of bids for packages of lots for which such Qualified Bidders are eligible to bid, with bid prices of their choosing, all of which will be subject to detailed rules of the type set out in the Draft Information Memorandum, refined versions of which will be set out in the Information Memorandum. Winning bids will be determined by selecting at most one bid from amongst the entirety of bids made by each Qualified Bidder in order to maximise the total value of winning bids subject to not allocating more Lots than available in each spectrum band and other requirements related to winning bids of Existing GSM Licensees of the type set out in the Draft Information Memorandum and to be particularised in the Information Memorandum. A price calculation methodology as set out in the Draft Information Memorandum and to be particularised in the Information Memorandum, will then be applied to calculate the Base Price payable by Winning Bidders on the basis of the opportunity cost of awarding Lots to each Winning Bidder and group of Winning Bidders.

3.4.6 an assignment stage, in which Winning Bidders and Existing GSM Licensees will be required to participate in which such parties are eligible to bid for their preferred locations in the relevant spectrum bands.

3.4.7 a constraint in the assignment stage whereby any party that obtains rights to an equal number of Lots in a frequency band in both Time Slice 1 and Time Slice 2, (noting that existing GSM spectrum rights of use retained in Time Slice 1 will also count towards the total number of Lots obtained in Time Slice 1), will be offered the same location in that band in both time slices.

3.4.8 winning bids and prices in the assignment stage being determined in accordance with the winner and price determination methodology of the type set out in the Draft Information Memorandum, and which will be particularised in the Information Memorandum.

3.4.9 an opportunity, at the end of the assignment stage, but prior to the announcement of the final competitive selection procedure outcome, for Winning Bidders and

Existing GSM Licensees to agree an alternative assignment agreement between themselves on the location of their respective spectrum assignments in each of the 800 MHz, the 900 MHz and the 1800 MHz bands.

- 3.4.10 the possibility of a Liberalised Use Licence for the 900 MHz band being granted with an Advanced Commencement Date where an Existing GSM Licensee wins rights in Blocks A and B, or where a non-Existing GSM Licensee wins rights in Block A, in the 900 MHz assignment stage.
- 3.4.11 without prejudice to the preceding paragraph, the possibility of a Liberalised Use Licence, or Liberalised Use Licences, for the 800 MHz, the 900 MHz and the 1800 MHz bands being granted with an Advanced Commencement Date which would be determined following the outcome of the assignment stage.
- 3.4.12 the ability for an Existing GSM Licensee with GSM rights of use which are intended to continue after the commencement date for Time Slice 1 to relinquish all, or part, of its existing GSM 900 MHz and/or 1800 MHz spectrum rights of use, contingent on it winning an equivalent quantum of liberalised 900 MHz and/or 1800 MHz spectrum rights of use in Time Slice 1 (“Early Liberalisation Option”). Where an Existing GSM Licensee bids for a Lot in a spectrum band in which it has existing GSM 900 MHz and/or 1800 MHz spectrum rights of use, then it will win an equivalent quantum of liberalised 900 MHz and/or 1800 MHz spectrum rights of use in Time Slice 1 only if it secures them in open competition with other Eligible Bidders for similar rights, and pays a winning price determined on such a basis. The details of how this principle will be applied will be given in the Information Memorandum. Where an Existing GSM Licensee successfully avails of the Early Liberalisation Option, it will be entitled to a rebate in respect of the Existing GSM Licensee’s licence(s). The methodology for the calculation of the relevant rebate is more particularly described in Document 12/25 and will be further particularised in the Information Memorandum.
- 3.4.13 spectrum caps which will apply to each Qualified Bidder in the competitive selection procedure, and for the duration of that procedure, as follows:
- 2 × 50 MHz for spectrum rights in aggregate across the 800 MHz, the 900 MHz and the 1800 MHz bands, in each of Time Slice 1 and 2;
  - 2 × 20 MHz for spectrum rights in aggregate across the 800 MHz and the 900 MHz bands, in each of Time Slice 1 and 2; and
  - 2 × 10 MHz for spectrum rights in the 900 MHz band in Time Slice 1 only,
- with all spectrum rights of use in the relevant bands, irrespective of whether such rights are on a Liberalised Use-, GSM-only, or other basis being taken into account when determining the spectrum rights in a band.

- 3.4.14 an ability on the part of bidders to switch their bids between the 800 MHz, the 900 MHz and the 1800 MHz bands through an “auction activity rule”, of the type set out in the Draft Information Memorandum incorporating, amongst other things, a system of eligibility points whereby twice as many eligibility points would be assigned to lots in the 800 MHz and the 900 MHz bands than would be assigned to lots in the 1800 MHz band, and where such eligibility points would not be transferable between Time Slice 1 and 2.
- 3.4.15 arising from the assignment round, the reimbursement to Existing GSM Licensees of objectively-justified costs associated with the relocation of such Existing GSM Licensees’ spectrum rights of use in Time Slice 1, or where such Existing GSM Licensees can otherwise reasonably demonstrate to ComReg that relocation costs have been incurred directly as a result of the assignment round, which would not otherwise have been incurred.
- 3.4.16 minimum prices to be determined in accordance with the methodology set out in the Benchmarking Report prepared by DotEcon, and reserve prices and spectrum-usage fees (SUFs) for the Liberalised Use licences described herein, to be determined in accordance with the methodology set out in Chapter 4.8 hereof, and with the Issues Report prepared by DotEcon and which accompanies ComReg Document 12/25, where the final prices will be set out in the Information Memorandum, taking account of any additional relevant data at that time.
- 3.4.17 reimbursement by ComReg of upfront fees (as described in the Information Memorandum) and SUFs to any Winning Bidder in the event that a Liberalised Use Licence in Time Slice 1 commences later than 1 February 2013, in accordance with the methodology as set out in the Draft Information Memorandum, and which will be detailed in the Information Memorandum.
- 3.4.18 all Winning Bidders and Existing GSM Licensees being required to abide by “transition rules” as set out in the Draft Information Memorandum, which will be detailed in the Information Memorandum
- 3.3 upon application properly being made to it by Winning Bidders within the terms of the Liberalised Use Licence Regulations as made following the obtaining of Ministerial consent, and on payment of the Fees prescribed thereby, to grant Preparatory Licences and Liberalised Use Licences to Winning Bidders, under section 5 of the Wireless Telegraphy Act 1926 for the period, and subject to the conditions and restrictions (including conditions as to revocation), prescribed in the Liberalised Use and Preparatory Licence Regulations, including, as appropriate, the schedules to the Liberalised Use Licences as currently set out in Annex 7 and Annex 8 of ComReg Document 12/25.
- 3.4 to retain its discretion regarding how it might treat any unsold spectrum lots depending on the factual circumstances arising from the award process, save for the decision that unsold lots will not be allocated for a reasonable period after the process, and, in any event, will not be allocated for a period of at least 1 year.

#### **4. STATUTORY POWERS NOT AFFECTED**

4.1. Nothing in this document shall operate to limit ComReg in the exercise of discretions or powers, or the performance of functions or duties, or the attainment of objectives under any laws applicable to ComReg from time to time.



**ALEX CHISHOLM**

**CHAIRPERSON**

**THE COMMISSION FOR COMMUNICATIONS REGULATION**

**THE 16<sup>th</sup> DAY OF MARCH 2012**

**Annex A – Draft Liberalised Use and Preparatory Licence Regulations [Annex 7 of ComReg Document 12/25A]**

**Annex B – Draft Part 4 of the Liberalised Use Licence [Annex 8 of ComReg Document 12/25A]**

## Chapter 9

# 9 Next Steps

- 9.1 Insofar as it might receive correspondence on matters relating to this document, ComReg hereby gives notice that it will publish all material correspondence received in this regard. Such information will be subject to the provisions of ComReg's guidelines on the treatment of confidential information.
- 9.2 ComReg will, in due course, publish a final information memorandum setting out the rules and procedures associated with the competitive award process decided upon in the Decision herein. Subject to obtaining the required ministerial consent, ComReg will then make Regulations under the Wireless Telegraphy Acts prescribing relevant matters in relation to licences to be granted to eligible persons following that award process. ComReg also intends to hold workshops with interested parties as well as running a trial auction(s) to familiarise interested parties with the auction software.

## 9.1 Indication of Process to the Start of the Auction

- 9.3 The start date of the Award Process will be announced in the final Information Memorandum or by notice following the publication of the final Information Memorandum.
- 9.4 While ComReg is unable to give specific dates for each step detailed below, ComReg envisages that the following publications and actions,<sup>336</sup> will be required in advance of announcing the start date of the Award Process:
- Publication of final Information Memorandum;
  - Publication of Statutory Instrument as consented to by the Minister for Communications, Energy and Natural Resources; and
  - If not announced in the final Information Memorandum, then the publication of an Information Notice announcing the start date of the Award Process.
- 9.5 Additionally, ComReg intends to hold appropriate workshops to allow Interested Parties to further develop their understanding of the relevant award procedures, processes and tools.

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<sup>336</sup> Note that the publications and actions set out here are not necessarily exhaustive, nor are they necessarily set out in the order in which they may need to be carried out.