



Commission for
Communications Regulation

Multi-band Spectrum Release

Draft Information Memorandum

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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 Web www.comreg.ie

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Chapter 1

1 Introduction

- 1.1 In ComReg document 11/60¹, ComReg set out its response to consultation and its draft Decision on the broader spectrum release proposals it has developed, following extensive consultation, concerning the 800 MHz, 900 MHz and 1800 MHz spectrum bands. Interested Parties are referred to ComReg document 11/60, and to previous documents in the consultation process, for references to the process to date and for a description and summary of ComReg's multi-band spectrum release proposals, as reflected in the draft Decision contained in Chapter 8 of document 11/60.
- 1.2 In Chapter 9 of ComReg document 11/60, ComReg noted its intention to publish a draft Information Memorandum, and draft secondary legislation associated with the proposals and their implementation, in advance of publishing its final decision on the multi-band spectrum release process it has proposed.
- 1.3 Accordingly, and having regard to its obligations under Regulation 9(4) of the Authorisation Regulations ComReg now publishes this 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.
- 1.4 This draft Information Memorandum and associated materials have been prepared, in the main, while ComReg was awaiting the responses and submissions of Interested Parties to ComReg document 11/60. Clearly, ComReg's full consideration of these responses and submissions, as well as its final evaluation of the matters at issue, may result in appropriate changes to the draft Information Memorandum and its associated materials.
- 1.5 ComReg notes, in particular, that any material changes made in ComReg's final regulatory impact assessment (RIA) and final Decision may require subsequent changes to be made to this draft Information Memorandum.

¹ ComReg Document 11/60 –Response to consultation and draft decision - Multi-band spectrum release - release of the 800 MHz, 900 MHz and 1800 MHz radio spectrum bands - published 24 August 2011.

1.1 Legal Framework and Agreement

- 1.6 In preparation of this draft Information Memorandum, ComReg has been guided by its statutory functions, objectives and relevant duties in relation to Ireland's radio frequency spectrum (which are outlined in Annex 1 of document 11/60a) and the preliminary findings of its RIA analysis (which are set out in Chapter 3 of ComReg document 11/60).
- 1.7 Further, in addition to providing for the licensing of successful Applicants preparing for the launch of services on foot of the usage-rights secured in the proposed Award Process, it is proposed that the draft Statutory Instrument contained in this document - subject to obtaining the necessary, prior consent of the Minister for Communications, Energy and Natural Resources - will prescribe relevant matters² in relation to the Liberalised Use Licences that ComReg proposes to grant under section 5 of the Wireless Telegraphy Act 1926, as amended, on foot of the Award Process.
- 1.8 In addition, Interested Parties should note the requirement to be authorised to provide an electronic communications network or service in Ireland.³ Interested Parties can consult ComReg's website⁴ for further details, and in particular, ComReg document 03/81R3⁵.
- 1.9 Chapters 2, 3, 4 and 5 of this draft Information Memorandum contains the terms of the agreement which Interested Parties will agree to in participating in the proposed Award Process and attention is specifically drawn to these Chapters given the important and potentially binding provisions contained therein.

² See section 6 of the Wireless Telegraphy Act, 1926, as amended by section 182 of the Broadcasting Act 2009.

³ Under Regulation 4(1) of the Authorisation Regulations, any undertaking intending to provide an electronic communications network or service shall, before doing so, notify ComReg of its intention to provide such a network or service, following which that undertaking will be deemed to be authorised under Regulation 4(4). Under Regulation 4(6) of the Authorisation Regulations, any undertaking which fails to comply with Regulation 4(1) or Regulation 4(5) (notification of any changes to the information supplied) commits an offence.

⁴ See www.comreg.ie/licensing_and_services/general_authorisation.551.html for further details.

⁵ ComReg document 03/81R3 - *General Authorisation, Pursuant to Regulation 8 of the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations, 2003 (S.I. No. 306 of 2003), Conditions for the provision of Electronic Communications Networks and Services* - Published 23 March 2011

1.2 The Spectrum Bands

1.10 Spectrum in the 800 MHz, 900 MHz and 1800 MHz bands is to be included in the proposed Award Process, as set out in the following table:

Frequency Band	Frequency Pairing (FDD)		Number of 2 x 5 MHz Spectrum Blocks
	Uplink band (MHz)	Downlink band (MHz)	
800 MHz	832 - 862	791 – 821	6
900 MHz	880 – 915	925 – 960	7
1800 MHz	1710 - 1785	1805 – 1880	15

Table 1: The Spectrum Bands to be included in this process

1.3 Indication of Process to the Start of the Auction

1.11 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. The indicative timetable for the Award Process is set out in Section 3.2.

1.12 ComReg is unable to give specific dates for each step detailed below without having completed its analysis and consideration of the responses and submissions of Interested Parties to ComReg Document 11/60, to this draft Information Memorandum and to any other publications noted below. ComReg envisages, however, that the following publications and actions⁶, or some of them, will be required in advance of announcing the start date of the Award Process:

- Publication of draft Information Memorandum and draft Statutory Instrument (this document);
- Publication and consideration of responses received in relation to ComReg Document 11/60;
- Publication of ComReg’s Response to Document 11/60 and final Decision;

⁶ 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.

- Publication and consideration of responses received in relation to draft Information Memorandum and draft Statutory Instrument (this document);
- Publication and consideration of responses received in relation to any further draft Information Memorandum and draft Statutory Instrument;
- Publication of final Information Memorandum;
- Publication of Statutory Instrument as consented to by the Minister for Communications, Energy and Natural Resources;
- If not announced in the final Information Memorandum, then the publication of an Information Notice announcing the start date of the Award Process.

1.13 As noted in ComReg document 11/60, within the timescale of these publications, and at the appropriate time, ComReg intends to hold appropriate workshops to allow Interested Parties to further develop their understanding of the relevant award procedures, processes and tools.

1.4 Structure of draft Information Memorandum

The remainder of this draft Information Memorandum is structured as follows:

- **Chapter 2** details the spectrum bands and Lots included in the proposed Award Process and the terms and conditions associated with the Liberalised Use and Preparatory Licences that may be awarded through this process.
- **Chapter 3** provides an overview of the Award Process, describes in general each auction stage and provides a timetable for this Award Process, once under way;
- **Chapter 4** details the auction rules and provides substantial information on the Auction component of the Award Process;
- **Chapter 5** provides detail on the legal terms and conditions that are applicable to this Award Process;
- **Chapter 6** contains information about communications, both written and other, between Interested Parties, Applicants and Qualified Bidders and ComReg, before and during the Award Process, including in the event of exceptional circumstances.
- **Annexes:**

1. Glossary
2. Draft Statutory Instrument
3. Part 4 of Schedule 1 to a Liberalised Use Licence
4. Rebate Methodology applicable to GSM Licensees
5. Lot Application Form
6. Administrative Forms
7. Worked example of activity rules for Primary Rounds and caps on Supplementary Bids
8. Determination of Winning Bids and Base Prices

1.5 Submitting Comments

- 1.14 All input and comments from Interested Parties are welcome. It would, however, make the task of analysing responses easier if comments were referenced to the relevant section of each Chapter and Annex from this document.
- 1.15 Please also set out reasoning and all supporting information for any views expressed.
- 1.16 The period for comment will run until 5pm on 21 November 2011, during which time ComReg welcomes written comments on any of the issues raised in this paper.
- 1.17 Although this draft Information Memorandum has raised issues of a complex nature, ComReg notes the significant amount of detail already in the public domain (through ComReg's consultation process and publication of all non-confidential material received over the period of this consultation process) and therefore considers that the period for comment provides sufficient time for Interested Parties to reply. Consequently, any extension to this deadline is unlikely.
- 1.18 In order to promote further openness and transparency, ComReg will publish all respondents' submissions to this Information Memorandum and draft Statutory Instrument (including all material correspondence received on matters relating to this document), subject to the provisions of ComReg's Guidelines on the Treatment of Confidential Information, ComReg Document 05/24

- 1.19 It is requested that electronic submissions be submitted in an unprotected format so that they can be appended into the ComReg submissions document for publishing electronically.
- 1.20 ComReg appreciates that many of the issues raised in this paper may require respondents to provide confidential information if their comments are to be meaningful. As it is ComReg's policy to make all responses available on its website and for inspection generally, respondents to consultations are again requested clearly to identify confidential material, and to place confidential material in a separate annex to their response, also providing supporting reasoning as to why such material is considered to be confidential.
- 1.21 In anticipation of receiving 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.
- 1.22 All responses to this consultation should be clearly marked:-

"Reference: Submission re ComReg 11/75" as indicated above, and sent by post or e-mail to arrive on or before 5pm on 21 November 2011 to:

Mr. Patrick Mulvey
Commission for Communications Regulation
Irish Life Centre
Abbey Street
Freepost
Dublin 1
Ireland

Ph: +353-1-8049600 Fax: +353-1-804 9680
Email: patrick.mulvey@comreg.ie

Chapter 2

2 The Spectrum Bands & Licences

- 2.1 In this Award Process, ComReg proposes to award Liberalised Use Licences which will permit the use of specific frequency assignments in the **Bands** to deploy and use terrestrial systems capable of providing Electronic Communications Services (“ECS”).
- 2.2 The terms and conditions attached to Liberalised Use Licences are set out in section 2.2 of this document and, among other things, Licences are being made available in two Time Slices, where:
- Time Slice 1 commences on 1 February 2013⁷ and expires on 12 July 2015; and
 - Time Slice 2 commences on 13 July 2015 and expires on 12 July 2030.
- 2.3 Winning Bidders in the Award Process will also be entitled to apply for a Preparatory Licence which will allow the Licensees to install networks and associated equipment in advance of the commencement date of its Liberalised Use Licence, but will not allow any wireless telegraphy transmissions. The terms and conditions attached to a Preparatory Licence are set out in subsection 2.3 of this document.

2.1 The Spectrum Bands in the Award Process

- 2.4 In this Award Process, rights of use of spectrum from the 800 MHz band, the 900 MHz band and the 1800 MHz band are being made available in 5 MHz paired blocks (or “**Lots**”).
- 2.5 As discussed further below, there are two types of Lots in this Award Process.
- Lots which are available to all bidders; and

⁷ Note the commencement date of Lots in Time Slice 1:

- may be brought forward in time in line with the Advanced Commencement Procedure as discussed in subsection 2.4.2 of this Draft Information Memorandum; or alternatively,
- to promote the interests of users it may be necessary for ComReg to amend the duration and/or the frequency assignments associated with Liberalised Use Licences in Time Slice 1 in order to protect legacy services in a spectrum band. See subsection 2.2.6 of this document for a discussion of ComReg’s treatment of any Liberalised Use Licence fees paid associated with such an amendment.

- Party-Specific Lots which are only available to specific bidders.

2.1.1 The 800 MHz band

2.6 The 800 MHz band comprises six (6) Lots of paired spectrum in the 791-821 MHz and the 832-862 MHz frequency ranges. While this spectrum band is currently used for the provision of analogue terrestrial television services, the Minister for Communications, Energy and Natural Resources has announced that on 24 October 2012 these services are to be switched off in Ireland in a process known as Analogue Switch Off (“ASO”).⁸ On the basis of the Department of Communications, Energy and Natural Resources’s (DCENR) announcement, ASO is expected to be completed in advance of the commencement date of Time Slice 1, and so, in the 800 MHz band there are expected to be;

- Six (6) Lots available to all bidders in Time Slice 1; and
- Six (6) Lots available to all bidders in Time Slice 2.

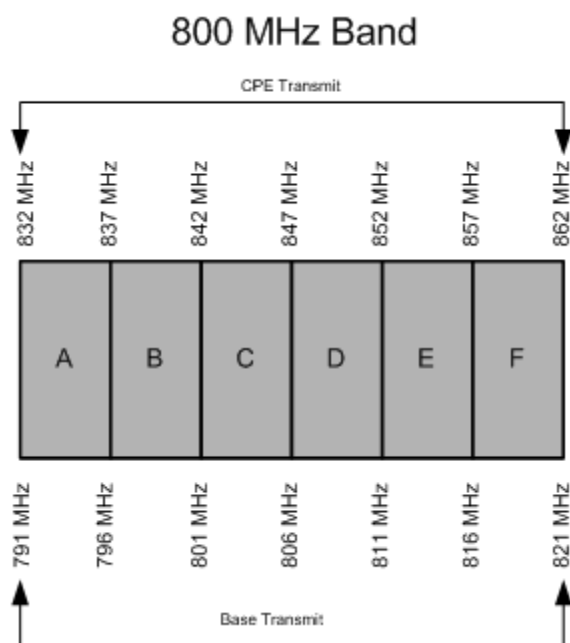


Figure 1: The 800 MHz band

2.7 Figure 1 above shows the band-plan for the 800 MHz band and details on the frequency assignments associated with these Lots in this band are set out in Table 2 below.

⁸ See: www.dcenr.gov.ie/Press+Releases/MINISTER+RABBITTE+ANNOUNCES+DATE+FOR+DIGITAL+TV+SWITCHOVER.ER.htm

Frequency Band	Name of Lot	Uplink / Downlink Frequency	Name of Lot in Time Slice 1	Name of Lot in Time Slice 2
800 MHz	A	832.0 - 837.0 MHz 791.0 - 796.0 MHz	800/1/A	800/2/A
800 MHz	B	837.0 - 842.0 MHz 796.0 - 801.0 MHz	800/1/B	800/2/B
800 MHz	C	842.0 - 847.0 MHz 801.0 - 806.0 MHz	800/1/C	800/2/C
800 MHz	D	847.0 - 852.0 MHz 806.0 - 811.0 MHz	800/1/D	800/2/D
800 MHz	E	852.0 - 857.0 MHz 811.0 - 816.0 MHz	800/1/E	800/2/E
800 MHz	F	857.0 - 862.0 MHz 816.0 - 821.0 MHz	800/1/F	800/2/F

Table 2: Lots in the 800 MHz band

2.1.2 The 900 MHz band

2.8 The 900 MHz band comprises seven (7) Lots of paired spectrum in the 880-915 MHz and the 925-960 MHz frequency ranges. Currently this spectrum band is used for the provision of GSM services and, as shown in Figure 2 below, Meteor, O2 and Vodafone each currently hold a GSM Licence in respect of 2 x 7.2 MHz bandwidth.

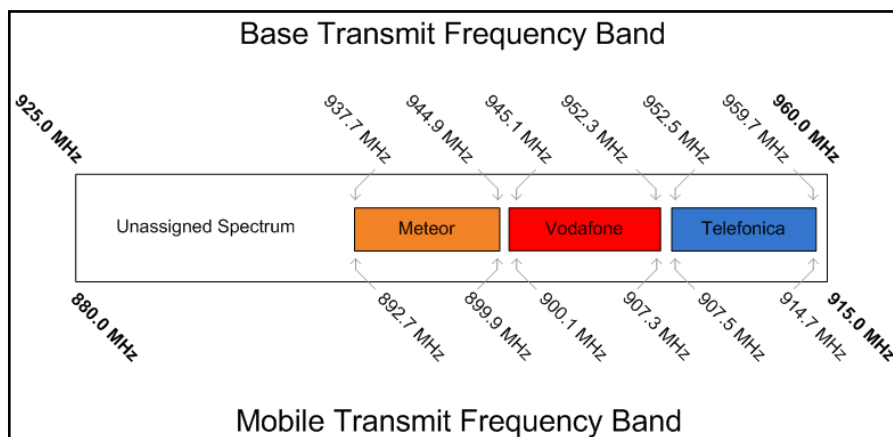


Figure 2: The current spectrum assignments in the 900 MHz band

2.9 The GSM Licences held by Telefonica O2 and Vodafone are Interim GSM 900 MHz Licences which are due to expire on 31 January 2013 (i.e. immediately before the commencement date of Time Slice 1) and, following expiry, the spectrum bandwidth currently assigned to these Interim GSM 900 MHz Licences will become available for licensing in this Award Process.

2.10 The GSM 900 MHz Licence held by Meteor is due to expire on 12 July 2015 (i.e. the end date of Time Slice 1). On the basis of ComReg’s position on its “early liberalisation option” in respect of

certain existing GSM 900 MHz and GSM 1800 MHz rights of use (as set out in Chapter 4 of ComReg Document 11/60 and Annex 6 of ComReg Document 11/60a), two (2) Lots in Time Slice 1 will be available only to Meteor as Party-specific Lots under the Award Process Rules.⁹ The process and rules associated with the Party-specific Lot Categories are discussed in Chapters 3 and 4 of this document.

2.11 In summary, in the 900 MHz band:

- in Time Slice 1 there are five (5) Lots available to all bidders and two (2) Party-Specific Lots available to Meteor; and
- in Time Slice 2 there are seven (7) Lots available to all bidders.

2.12 Details on the frequency assignments associated with these Lots are set out in Table 3 of below.

Frequency Band	Name of Lot	Uplink / Downlink Frequency	Name of Lot in Time Slice 1 ¹⁰	Name of Lot in Time Slice 2
900 MHz	A	880.0 - 885.0 MHz 925.0 - 930.0 MHz	900/1/A ¹¹	900/2/A
900 MHz	B	885.0 - 890.0 MHz 930.0 - 935.0 MHz	900/1/B ¹²	900/2/B
900 MHz	C	890.0 - 895.0 MHz 935.0 - 940.0 MHz	900/1/C	900/2/C
900 MHz	D	895.0 - 900.0 MHz 940.0 - 945.0 MHz	900/1/D	900/2/D
900 MHz	E	900.0 - 905.0 MHz 945.0 - 950.0 MHz	900/1/E	900/2/E
900 MHz	F	905.0 - 910.0 MHz 950.0 - 955.0 MHz	900/1/F	900/2/F
900 MHz	G	910.0 - 915.0 MHz 955.0 - 960.0 MHz	900/1/G	900/2/G

Table 3: Lots in the 900 MHz band

⁹ The specific location of these Party-specific Lots in the 900 MHz band will be determined, along with all other Lots, via the Assignment Round of this Award Process. See Chapters 3 and 4 of this document for further details.

¹⁰ In this Award Process two (2) of the 900 MHz Lots in Time Slice 1 are only available as Party-Specific Lots.

¹¹ The Liberalised Use Licence commencement date of Lot 900/1/A may be brought forward under the advanced commencement process as discussed in subsection 2.4.2 of this Draft Information Memorandum.

¹² The Liberalised Use Licence commencement date of Lot 900/1/B may be brought forward under the advanced commencement process as discussed in subsection 2.4.2 of this Draft Information Memorandum.

2.1.3 The 1800 MHz band

2.13 The 1800 MHz band comprises fifteen (15) Lots of paired spectrum in the 1710-1785 MHz and the 1805-1880 MHz frequency ranges. Currently the 1800 MHz band is used for the provision of GSM services and as shown in Figure 3 below, Meteor, O2 and Vodafone each currently hold a GSM 1800 MHz Licence of 2 x 14.4 MHz bandwidth.

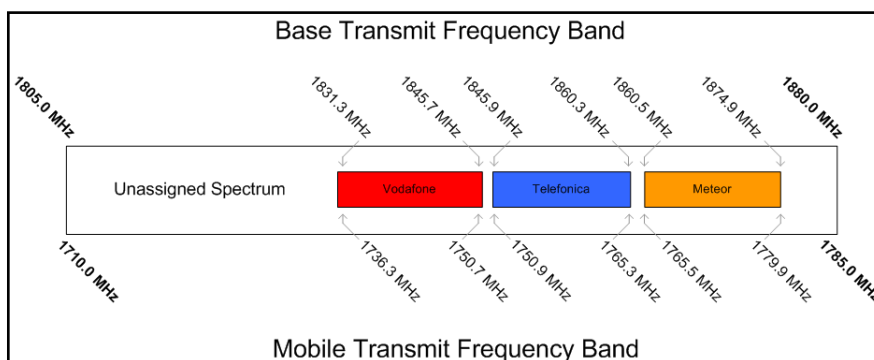


Figure 3: The current spectrum assignments in the 1800 MHz band

2.14 The GSM 1800 MHz Licence held by Meteor is due to expire on 12 July 2015 (i.e. the end date of Time Slice 1) and the GSM 1800 MHz Licences held by O2 and Vodafone are due to expire on 31 December 2014 (i.e. approximately 6 ½ months before the end date of Time Slice 1). On the basis of ComReg’s position on its “early liberalisation option” in respect of certain existing GSM 900 and GSM 1800 rights of use (as set out in Chapter 4 of ComReg Document 11/60 and Annex 6 of ComReg Document 11/60a), nine (9) Lots in Time Slice 1 are not available to all bidders in this Award Process. Three (3) of these Lots are available only to each of Meteor, O2 and Vodafone as Party-Specific Lots under the rules of the Award Process.¹³ The process and rules associated with the Party-specific Lot Category are discussed in Chapters 3 and 4 of this document.

2.15 In summary, in the 1800 MHz band:

- in Time Slice 1 there are six (6) Lots available to all bidders, three (3) Party-Specific Lots available to Meteor, three (3) Party-Specific Lots available to O2 and three (3) Party-Specific Lots available to Vodafone; and

¹³ The specific location of these Party-specific Lots in the 1800 MHz band will be determined, along with all other Lots, via the Assignment Round of this Award Process as discussed in subsection 2.4.2 of this Draft Information Memorandum.

- in Time Slice 2 there are fifteen (15) Lots available to all bidders.

2.16 Details on the frequency assignments associated with these Lots is set out in Table 4 below.

Frequency Band	Name of Lot	Uplink / Downlink Frequency	Name of Lot in Time Slice 1 ¹⁴	Name of Lot in Time Slice 2
1800 MHz	A	1710.0 - 1715.0 MHz 1805.0 - 1810.0 MHz	1800/1/A	1800/2/A
1800 MHz	B	1715.0 - 1720.0 MHz 1810.0 - 1815.0 MHz	1800/1/B	1800/2/B
1800 MHz	C	1720.0 - 1725.0 MHz 1815.0 - 1820.0 MHz	1800/1/C	1800/2/C
1800 MHz	D	1725.0 - 1730.0 MHz 1820.0 - 1825.0 MHz	1800/1/D	1800/2/D
1800 MHz	E	1730.0 - 1735.0 MHz 1825.0 - 1830.0 MHz	1800/1/E	1800/2/E
1800 MHz	F	1735.0 - 1740.0 MHz 1830.0 - 1835.0 MHz	1800/1/F	1800/2/F
1800 MHz	G	1740.0 - 1745.0 MHz 1835.0 - 1840.0 MHz	1800/1/G	1800/2/G
1800 MHz	H	1745.0 - 1750.0 MHz 1840.0 - 1845.0 MHz	1800/1/H	1800/2/H
1800 MHz	I	1750.0 - 1755.0 MHz 1845.0 - 1850.0 MHz	1800/1/I	1800/2/I
1800 MHz	J	1755.0 - 1760.0 MHz 1850.0 - 1855.0 MHz	1800/1/J	1800/2/J
1800 MHz	K	1760.0 - 1765.0 MHz 1855.0 - 1860.0 MHz	1800/1/K	1800/2/K
1800 MHz	L	1765.0 - 1770.0 MHz 1860.0 - 1865.0 MHz	1800/1/L	1800/2/L
1800 MHz	M	1770.0 - 1775.0 MHz 1865.0 - 1870.0 MHz	1800/1/M	1800/2/M
1800 MHz	N	1775.0 - 1780.0 MHz 1870.0 - 1875.0 MHz	1800/1/N	1800/2/N
1800 MHz	O	1780.0 - 1785.0 MHz 1875.0 - 1880.0 MHz	1800/1/O	1800/2/O

Table 4: Lots in the 1800 MHz band

¹⁴ In the Award Process nine (9) of the 1800 MHz Lots in Time Slice 1 are only available for liberalised licensing under the early liberalisation option as discussed in subsection 3.1 of this Draft Information Memorandum.

2.2 Liberalised Use Licence – Terms and Conditions¹⁵

2.17 The following sets out the principal terms and conditions associated with a Liberalised Use Licence.

2.2.1 Scope of the Liberalised Use Licence

2.18 A Liberalised Use Licence will allow the Licensee to keep and have possession of, install, maintain, work and use Wireless Telegraphy (“WT”) apparatus for terrestrial systems capable of providing electronic communications services in some or all of the 800 MHz band, the 900 MHz band and the 1800 MHz band.

2.19 It is a non-exclusive¹⁶ Licence for the national terrestrial territory of the Republic of Ireland and all WT apparatus licensed under a Liberalised Use Licence are required to comply with the relevant European Commission (EC) decisions for the spectrum band(s) licensed,¹⁷ including;

- EC Decision 2010/267/EU¹⁸ in respect of the 800 MHz band; and
- EC Decision 2009/766/EC¹⁹ as amended²⁰ in respect of the 900 MHz and 1800 MHz bands.

2.2.2 Liberalised Use Licence Duration and Renewal

2.20 Lots in this Award Process are being made available in two Time Slices and the duration of any Liberalised Use Licence issued to a

¹⁵ Where general principles are stated in this Information Memorandum they are not necessarily immediately qualified by any provisos, exceptions or reservations that apply. Accordingly, this document should be construed as a whole. By way of example the duration of a Licence may be expressed as being a fixed term and an earlier or later section of this Information Memorandum may set out circumstances in which its duration may be altered.

¹⁶ 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.

¹⁷ As same may be amended, re-enacted or replaced from time to time.

¹⁸ European Commission Decision 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. (2010/267/EU)

¹⁹ European Commission 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. (Decision 2009/766/EC)

²⁰ In April 2011 EC Decision 2011/251/EU amended EC Decision 2009/766/EC.

Winning Bidder is defined by reference to the Lots won in Time Slice 1 and/or Time Slice 2.

2.21 The commencement and expiry dates of Lots in Time Slice 1 and Time Slice 2 are set out in Table 5 below. Accordingly:

- 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.

	Commencement Date	Expiry Date
Time Slice 1	1 February 2013 ²¹	12 July 2015
Time Slice 2	13 July 2015	12 July 2030

Table 5: Commencement and expiry dates of Time Slice 1 and Time Slice 2

Potential for delayed commencement of Liberalised Use Licences in Time Slice 1 for Lots in the 800 MHz, 900 MHz and/or 1800 MHz bands

2.22 It should be noted that circumstances outside ComReg's control could lead to ComReg being unable to make any or all Lots in the 800 MHz, 900 MHz and/or 1800 MHz Bands available for Liberalised Use by a Winning Bidder by the commencement of Time Slice 1 and/or Time Slice 2 identified above.²²

2.23 Interested Parties are hereby expressly put on notice of the potential for delayed access to any and all Lots in the 800 MHz, 900 MHz and 1800 MHz Bands in Time Slice 1 and/or 2 and, in submitting an Application, Interested Parties acknowledge same.

²¹ See footnote 7.

²² Such potential circumstances include unforeseen delays to ASO resulting in delayed access to Lots in the 800 MHz band in Time Slice 1 and/or Transitional Activities by Existing GSM Licensees in the 900 MHz and/or 1800 MHz band resulting in delayed access to Lot/s in Time Slice 1 and/or 2 in these bands.

- 2.24 Subsection 2.2.6 below details the refunds payable to a Winning Bidder in the event of delayed access to Lots in Time Slice 1 and 2.
- 2.25 To the extent permitted by law, ComReg's aggregate liability for all losses of any nature arising from delayed access to Lots in Time Slice 1 and/or 2 is expressly limited to the refunds stated to be payable by ComReg set out in this draft Information Memorandum and, by submitting an Application Interested Parties agree to same.

Renewals within the duration of a Liberalised Use Licence

- 2.26 A Liberalised Use Licence once granted will be subject to a series of annual Licence renewals of 1 year duration up until one year prior to the expiry date of the Liberalised Use Licence.
- 2.27 Given that the expiry of both Time Slice 1 and Time Slice 2 occurs on 12 July of their respective years of expiry, 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. The first renewal and all subsequent renewals of a Licence shall then be for a one (1) year duration and will commence on 13 July of each year.
- 2.28 For example, a Liberalised Use Licence with a commencement date of 1 February 2013 would initially be granted up to 12 July 2013 and would then be subject to a series of annual renewals. The first annual renewal period would then be from 13 July 2013 until 12 July 2014 and the Licence would be annually renewed on each 13 July anniversary until the expiry date of the Liberalised Use Licence.
- 2.29 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); and
 - pay the Spectrum Usage Fees (SUFs) associated with the renewal period.
- 2.30 Whilst, 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,²³ 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.

2.31 There is no implied or express right of renewal, extension or any other form of prolongation of a spectrum right of use beyond the expiry date of Time Slice 2 as specified herein.

2.32 Significantly prior to the expiry of Liberalised Use Licences at the end of Time Slice 2, ComReg intends to review the future use of the Bands with a view to identifying the appropriate process for dealing with the spectrum released by the above Licence expirations.

2.2.3 Licence Conditions applicable to all Liberalised Use Licences

2.33 This section sets out the conditions which are applicable to all Liberalised Use Licences.

Coverage and Roll-out obligations and associated performance guarantee

2.34 It is a condition of a Liberalised Use Licence that the Licensee shall achieve and maintain a minimum coverage obligation of 70% of the population of Ireland within a set timeframe. The timeframe for meeting this licence condition will depend on whether the Licensee is an Existing MNO or a New Entrant as follows:

- For an Existing MNO the timeframe for meeting the minimum coverage obligation of 70% of the population of Ireland is three (3) years from the commencement date of its Liberalised Use Licence; and
- For a New Entrant the timeframe for meeting the minimum coverage obligation of 70% of the population of Ireland is seven (7) years from the commencement date of its Liberalised Use Licence. In addition, the New Entrant shall meet an interim coverage obligation of 35% of the population of Ireland within three (3) years of the commencement date of its Liberalised Use Licence.

²³ With the last such renewal being granted one (1) year before the end of Time Slice 1 or Time Slice 2 (whichever is applicable).

- 2.35 A Licensee can meet the applicable coverage obligation via the coverage provided by its Liberalised Use Licence and/or its GSM Licence and/or its 3G Licence²⁴ so long as 50% of the 70% coverage obligation (i.e. 35% of the population) is provided through its Liberalised Use Licence.²⁵
- 2.36 For the purposes of determining compliance with the above coverage obligations, coverage will be measured against a distinct field-strength level for each type of technology that is used by the Licensee under the Liberalised Use Licence. The measurement metrics as currently defined are set out in Annex 3: of this document. Over time, these measurement metrics may be amended in accordance with the Authorisation and Framework Regulations.
- 2.37 Additionally, prior to the commencement of its Liberalised Use Licence the Licensee shall:
- put in place a programme to measure coverage and monitor compliance with the coverage and roll-out obligations (“Coverage Compliance Programme”). The Coverage Compliance Programme (CPG) shall include provisions for reporting procedures to ComReg and shall be in such form as may be specified by ComReg from time to time;
 - submit and maintain a performance guarantee of €2 million over the full duration of the Liberalised Use Licence in respect of the above coverage and roll-out obligations (“Coverage Performance Guarantee”). The Coverage Performance Guarantee must be from a reputable financial institution approved of in advance by ComReg and satisfy ComReg that the €2 million funds will be available to it should the Licensee fail to meet the above coverage and roll-out obligations; and
 - in the event that the Licensee fails to meet a coverage and roll-out obligation, the full €2 million CPG will be payable on demand to ComReg. Furthermore, the Licensee will then be obliged to submit and maintain a new CPG of €2 million to

²⁴ The GSM Licence and the 3G Licence can be used in combination with the Liberalised Use Licence to provide a seamless service to consumers. Over time other Licence types may also be capable of being used in combination with the Liberalised Use Licence to provide a seamless service and ComReg reserves and retains the right to amend the conditions of the Liberalised Use Licence to allow such Licences to count towards the coverage obligation of the Liberalised Use Licence.

²⁵ For the avoidance of doubt coverage obtained by roaming onto another Licensee’s network will not count towards meeting the coverage obligation.

ComReg (in respect of the coverage and roll-out obligations) in line with the timeframes set by ComReg at that time.

Quality of Service (“QoS”) obligations and its associated performance guarantee

2.38 It is a condition of a Liberalised Use Licence that the Licensee, or any third party who provides services to consumers via spectrum rights attached to a Liberalised Use Licence, shall meet the minimum Quality of Service (“QoS”) obligations as set out in Part 5 of Annex 3: of this document. The QoS obligations relate to:

- The Minimum “Availability of the Network” Standard; and
- The Minimum “Voice Call” Standard.

2.39 Additionally, prior to the commencement of the Liberalised Use Licence the Licensee shall:

- put in place a programme to measure and monitor compliance with the QoS obligations (“QoS Compliance Programme”). The QoS Compliance Programme shall include provision for reporting procedures to ComReg and shall be in such form as may be specified by ComReg from time to time;
- submit and maintain a Quality of Service Performance Guarantee (QoSPG) of €1 million over the full duration of the Liberalised Use Licence in respect of the above QoS obligations. This QoSPG must be from a reputable financial institution approved of in advance by ComReg and satisfy ComReg that the €1 million funds will be available to it should the Licensee fail to meet its QoS obligations; and
- in the event that the Licensee fails to meet a QoS obligation, the full amount of the €1 million QoSPG will be payable on demand to ComReg. Furthermore, the Licensee will then be obliged to submit and maintain a new QoSPG of €1 million to ComReg (in respect of the QoS obligations) in line with the timeframes set by ComReg at that time.

Notification to ComReg: Termination of the use of a technology

2.40 As outlined in Annex 2 to this document, the Licensee is obliged to inform ComReg of the technology standards applicable to the WT apparatus licensed under the Liberalised Use Licence²⁶.

2.41 In addition, it is a condition of the Liberalised Use Licence that where a Licensee intends to terminate the use of a technology (e.g. GSM) that is used to provide services under the Liberalised Use Licence, the Licensee is obliged to notify ComReg of this intention at least 6 months in advance of the proposed termination date, unless ComReg, in its discretion, exceptionally decides it will admit a notification less than 6 months in advance of any proposed termination date.

Compliance with rules to prevent spectrum hoarding

2.42 It is a condition of the Liberalised Use Licence that the Licensee complies with any rules to prevent spectrum hoarding as laid down by ComReg under Regulation 17(10) of the Framework Regulations. While no such rules have been currently laid down by ComReg, ComReg reserves the right to specify such rules in the future.

Assignment of rights and obligations of a Liberalised Use Licence

2.43 Assignment of rights and obligations of a Liberalised Use Licence (including transfer, lease or other form of trading of spectrum rights attached to a Liberalised Use Licence) will be permitted only in accordance with such rules and regulations as might be determined by ComReg from time to time which, in turn, shall be in accordance with the Authorisation and Framework Regulations.

2.44 ComReg has yet to set out its procedures for the transfer or lease of spectrum rights of use as specified under Regulation 19 of the Framework Regulations but will be consulting on same in the coming months. While ComReg would expect these procedures and measures to provide further clarity on spectrum trading in Ireland, it should be noted that any spectrum trades would not only have to comply with electronic communication law but also applicable

²⁶ For the avoidance of doubt the entitlement of a Licensee to terminate the use of a technology standard is without prejudice to the contractual rights of parties who have entered into contracts with the Licensee.

competition law (for which the Irish Competition Authority also has responsibilities²⁷).

2.2.4 Liberalised Use Licence Technical Conditions

2.45 This section sets out the technical conditions which are applicable to specific spectrum bands in a Liberalised Use Licence, and the technical conditions associated with the R&TTE²⁸ and EMC²⁹ Directives.

Spectrum in the 800 MHz band

2.46 The technical conditions for the 800 MHz band are detailed in Part 3 of Annex 3 of this document. These conditions are in accordance with the parameters set out in the Annex to Decision 2010/267/EU and require a Licensee with spectrum rights in the 800 MHz band to:

- ensure that the in-block radiated power from a base station transmitter in the downlink direction does not exceed 59 dBm/5 MHz EIRP (Equivalent Isotropically Radiated Power); and
- comply with the out-of-block Block Edge Mask (BEM) as specified in Table 1 to Table 4 of Part 3 of Annex 3.

2.47 The technical conditions for the 800 MHz band have, among other issues, taken into account ComReg's spectrum plans for Digital Terrestrial Television ("DTT") in the broadcasting bands below the 800 MHz band. As discussed in Annex 10 to ComReg 11/60a, ComReg does not require the use of Channel 60 for the provision of the first six DTT multiplexes in Ireland. In addition, ComReg is planning the 7th and 8th DTT multiplexes on the basis that they would mainly or only use Channels 21-59.

2.48 Additionally the Licensee is required to comply with all Memoranda of Understanding ("MoU") agreed from time to time between ComReg and the national regulatory authority responsible for electronic

²⁷ In addition to assessing mergers under competition law, the Competition Authority also assesses whether agreements have an anti-competitive object or effect.

²⁸ This refers to Article 3(2) of Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on Radio Equipment and Telecommunications Terminal Equipment and the Mutual Recognition of their Conformity.

²⁹ Directive 2004/108/EC

communications matters in the UK, Ofcom or its successor, in relation to the 800 MHz band.³⁰

Spectrum in the 900 MHz band and the 1800 MHz band

2.49 The technical conditions for the 900 MHz band and 1800 MHz band are detailed in Part 3 of Annex 3 of this document. These conditions are in accordance with Decision 2009/766/EC as amended, and require:

- A Licensee with spectrum rights in the 900 MHz band and/or the 1800 MHz band to deploy and operate terrestrial systems that are in compliance the technical parameters set out in Decision 2009/766/EC as amended; and
- A Licensee deploying a GSM system in the 900 MHz and/or 1800 MHz bands to meet the guard band obligation as set down in Decision 2009/766/EC as amended in the absence of bilateral or multilateral agreements between neighbouring Licensees.

2.50 In addition, a Licensee is obliged to comply with all MoUs agreed from time to time between ComReg and Ofcom, or its successor, in relation to the 900 MHz and 1800 MHz bands, including those set out in:

- ComReg Document 11/50c;³¹
- ComReg Document 11/50d;³²
- ComReg Document 11/50e;³³ and
- ComReg Document 11/50f.³⁴

Compliance with the R&TTE Directive

2.51 All radio and telecommunications terminal equipment must comply with the essential requirements and other relevant provisions of the R&TTE Directive before being placed on the market or put into service in Ireland.

³⁰ A Draft MoU regarding the 800 MHz band is set out in Annex 12 of ComReg Document 11/60a. Once finalised, a Licensee with Lots in the 800 MHz band would be obliged to comply with this MoU in relation to those Lots.

³¹ <http://www.comreg.ie/fileupload/publications/ComReg1150c.pdf>

³² <http://www.comreg.ie/fileupload/publications/ComReg1150d.pdf>

³³ <http://www.comreg.ie/fileupload/publications/ComReg1150e.pdf>

³⁴ <http://www.comreg.ie/fileupload/publications/ComReg1150f.pdf>

2.52 Under the R&TTE Regulations³⁵, which transposed the R&TTE Directive into law in Ireland, and the 2002 Act, it is a function of ComReg to ensure compliance, as appropriate, by persons with the relevant provision of that legislation in relation to the placing of communications equipment on the market and the placing on the market and putting into service of radio equipment. Among other things, ComReg defines the regulated interface requirements for radio services in Ireland and these interfaces are currently set out in ComReg Document 06/47R.³⁶ This document has radio interface specifications for the 800 MHz, 900 MHz and 1800 MHz bands and it is ComReg's intention to update ComReg Document 06/47R in due course to account for Liberalised Use Licences issued as a result of this Award Process.

2.53 The Licensee is required at all times to ensure that all radio equipment worked and used under the Liberalised Use Licence operates in accordance with the relevant interface requirements as set out in ComReg Document 06/47R (as amended from time to time).

Compliance with the EMC Directive as transposed into Irish law and as applicable

2.54 It is a condition of a Liberalised Use Licence that the Licensee and all installations operated by the Licensee comply with the requirements set out in Annex I to Directive 2004/108/EC.

2.2.5 Fees for a Liberalised Use Licence

2.55 The spectrum fees for a Liberalised Use Licence identified in this Draft Information Memorandum are those as set in ComReg Document 11/60. It is ComReg's intention to update the fees benchmarking document (see ComReg Document 11/59) for ComReg's Final Decision on spectrum bands. Therefore, the fees set out in this section are subject to change from those set out in its Multi-Band Spectrum Release proposal (ComReg Document 11/60).

2.56 The fee for a Liberalised Use Licence consists of an Upfront Fee which is paid at the end of the Award Process and Spectrum Usage Fees ("SUFs") which are paid over the duration of the Liberalised Use Licence. As discussed further in Chapter 4, these fees will be

³⁵ The European Communities (Radio Equipment and Telecommunications Terminal Equipment) Regulations, 2001 (S.I. No. 240 of 2001)

³⁶ <http://www.comreg.ie/fileupload/publications/ComReg0647R.pdf>

appropriately reduced by the deposit submitted by a Winning Bidder and any applicable Rebate(s).

2.57 For the avoidance of doubt, it should be noted that the grant of any Licence arising out of the Award Process (including any Preparatory Licence) is not an activity that is subject to VAT and so all Licence fees to be paid by Licensees in connection with the Award Process do not include VAT.

The Upfront Fee

2.58 As described in detail in Chapter 4, the Upfront Fee for each Winning Bidder is a spectrum-access fee, and comprises of

- the **Base Price** of that Winning Bidder payable for winning Generic Lots in a specified band and Time Slice in the Award Process; and
- the **Additional Price** of that Winning Bidder, if any, payable for the assignment of Specific Lots in the Assignment Round.

2.59 The **Base Price** is determined as follows:

- Where the Main Stage of the Award Process is not required (i.e. demand is less than or equal to supply in all spectrum bands and Time Slices), the Base Price for a Liberalised Use Licence is the sum of the Reserve Prices for all Lots included in the Liberalised Use Licence, where Table 6 below sets out the Reserve Price per Lot per Band and Time Slice.

Frequency Band	Reserve Price per Lot in Time Slice 1	Reserve Price per Lot in Time Slice 2
800 MHz band	€3.34 Million	€8.48 Million
900 MHz band	€3.34 Million	€8.48 Million
1800 MHz band	€1.67 Million	€4.24 Million

Table 6: Reserve Prices per Lot per Spectrum Band and Time Slice

- Where the Main Stage of the Award Process is required (i.e. demand is greater than supply in one or more spectrum bands in one or more Time Slices), the Base Price for a Liberalised Use Licence is determined by the Main Stage of the Auction as detailed in Chapter 4 of this document. The Base Price for a Liberalised Use Licence will be no less than the sum of the Reserve Prices for all Lots included in the Liberalised Use Licence.

- 2.60 The **Additional Price** for a Winning Bidder, if any, is the price associated with the assignment of Specific Lots to this Winning Bidder as determined in the Assignment Stage of this Award Process. As discussed in Chapter 4, this price will be determined using a second price rule, and will be no greater than the amount Bid by the Winning Bidder for these Specific Lots.
- 2.61 The due date for the payment of the Upfront Fees is set out in subsection 3.7 of this document.

The Spectrum Usage Fee (“SUF”)

- 2.62 The SUF is an index-linked fee that is paid at defined intervals over the duration of the Licence. The first SUF is due prior to the initial grant of a Liberalised Use Licence. Subsequent SUFs are due prior to each subsequent Licence renewal, which occurs on an annual basis. SUFs are index-linked to the overall Consumer Price Index³⁷ (“CPI”) as published by the Central Statistics Office³⁸ of Ireland or its successor. As the CPI may vary over time, the SUF per Lot may increase or decrease over the duration of the Liberalised Use Licence based upon the increases or decreases in the CPI for the relevant time period.
- 2.63 As discussed in the Licence Duration and Renewal Section above, on the grant of a Licence, ComReg will issue a Licence with a duration of up to one (1) year, to ensure that the annual licence expires on 12 July of the first year. The first annual renewal and all subsequent renewals of a Liberalised Use Licence shall then be for a one (1) year duration and will commence on 13 July of each year.
- 2.64 For a Liberalised Use Licence, the SUFs are the sum of the annual SUFs associated with each Lot included in the Liberalised Use Licence. For each Lot included in a Liberalised Use Licence, the SUF for a one (1) year Licence period is:
- Base SUF per Lot in the 800 MHz and/or 900 MHz band (i.e. €1.21 Million) * “CPI Adjustment”; and
 - Base SUF per Lot in the 1800 MHz band (i.e. €0.605 Million) * x “CPI Adjustment”.

³⁷ If the CPI data ceases to be published or if the method of its calculation changes fundamentally, ComReg reserves the right to select another appropriate index and to amend the method of calculating indexing accordingly.

³⁸ See www.cso.ie

2.65 The SUF associated with all Liberalised Use Licences will be calculated as the Base SUF adjusted for the change in CPI from a common base date³⁹ to the date at which the licence grant/renewal is issued. When granting or renewing of a Licence, ComReg will use the most up to date CPI data available to it at that time. Where licences are issued or renewed on 13 July of a particular year, ComReg envisages that the most up to date CPI data available to ComReg is likely to be CPI data from April or May of that year.⁴⁰

2.66 Where a Liberalised Use Licence is granted for a period of less than one year, the SUF shall be calculated using the above methodology and adjusted on a pro rata daily basis.

Rebates against Liberalised Use Licence Fees

2.67 Where the holder of a Liberalised Use Licence previously held or continues to hold an Existing GSM Licence, it may be entitled to a rebate against its Liberalised Use Licence fees in a number of defined circumstances as explained in Annex 4 to this document.

2.68 These defined circumstances are when the GSM Licensee:

- avails of the Early Liberalisation Option (see subsection 2.4.1) and/or the Advanced Commencement Possibility (see subsection 2.4.2), thereby surrendering its Existing GSM Licence earlier than the expiry date of same; and/or
- has incurred additional relocation costs as a result of the Assignment Round, and these costs qualify for a rebate under the relocation costs rules as set out in (see subsection 2.4.3) of this document.

2.69 Annex 4 to this document provides the methodology that will be used to calculate the applicable Rebate to a GSM Licensee.

Payment Arrangements for Licence Fees

2.70 The Licence fees for a Liberalised Use Licence are to be paid into ComReg's Bank Account, the details of which are specified in the Lot Application as set out in Annex 5: of this document

³⁹ This is likely to be the date that ComReg publishes its Final Decision on the Multi-band Spectrum Release.

⁴⁰ This would take into consideration the time required for the publication of CPI data and the administrative requirements such as invoicing the SUF to the Winning Bidder or Licensee 30 days in advance of its commencement or renewal date.

- 2.71 Where the due date for payment of Licence Fees falls on a day which is not a Business Day, payment shall be made on or before the last Business Day before the date on which payment would otherwise have fallen due.
- 2.72 As set out in section 3.7 of this document, where a Winning Bidder does not comply with the conditions relating to the payment of the Upfront Fee or the conditions attached to the payment of the SUF for the first grant of a licence it will forfeit its deposit, without prejudice to ComReg's entitlement to recover the full amount due in respect of all Lots won as a simple contract debt.
- 2.73 Where a Licensee has already been issued a Liberalised Use Licence, failure by a Licensee to make a payment on or before the date it falls due shall be a non-compliance by the Licensee with its Licence conditions and ComReg will take steps to recover the sum due and/or take enforcement actions in accordance with the Authorisation Regulations. In addition, interest accrued on any fee under Regulation 9 of the Draft Regulations shall be payable by the Licensee at the 1 Month EURIBOR rate standing on the fee or part thereof in respect of the period between the date when such fee or part thereof fell due and the date of payment of such fee or part thereof.
- 2.74 An amount payable by a person in respect of a fee required under Regulation 9 of the Draft Regulations may be recovered by ComReg from the person as a simple contract debt in any court of competent jurisdiction.

2.2.6 Refund of Licence Fees

- 2.75 In the limited circumstances described in this Information Memorandum, ComReg may refund Licence Fees for delayed commencement of Liberalised Use Licences in Time Slice 1 for Lots in the 800 MHz, 900 MHz and/or 1800 MHz bands.
- 2.76 In the event that ComReg is unable to make any Lot or Lots in the 800 MHz, 900 MHz and/or 1800 MHz bands to which a Liberalised Use Licence relates available for use by the commencement date of Time Slice 1,⁴¹ then the Winning Bidders of such Lots shall be entitled to a refund from ComReg. The refund payable to a Winning Bidder for each Lot in the 800 MHz, 900 MHz and/or 1800 MHz band so delayed shall be calculated as follows:

⁴¹ ComReg reserves the right to vary the Commencement and/or Expiry date of Time Slice 1 and/or 2 in the Final Information Memorandum or by way of amendment of same.

- 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.

2.77 Refunds will be paid by ComReg by way of an offset against the following year's SUF (or multiple years' SUF if required).

2.78 For the avoidance of doubt:

- no refund of Upfront Fees and/or SUFs shall be payable by ComReg to any Winning Bidder for any delay to the availability of any Lot caused, or contributed to, by acts or omissions of that Winning Bidder, its servants or agents, or any failure on behalf of its suppliers
- in submitting an Application, Applicants agree that if they become Winning Bidders, a failure to obtain consents, approvals, apparatus or funding necessary to deploy a network or complete transitional activities shall be deemed to be an omission on behalf of that Winning Bidder;
- no interest shall be payable by ComReg on any Upfront Fee or SUF already paid by a Winning Bidder for any Lot in the 800 MHz, 900 MHz and/or 1800 MHz delayed; and
- to the extent permitted by law, ComReg's liability for loss of any nature arising from delayed access to Lots in Time Slice 1 and/or 2 is expressly limited to the refunds identified above and, in submitting an Application, Interested Parties agree to same.

2.79 In the limited circumstances described in this Information Memorandum, ComReg may also refund of Licence Fees for delayed commencement of Liberalised Use Licences in Time Slice 2 for Lots in the 800 MHz, 900 MHz and/or 1800 MHz band.

2.80 Even though ComReg does not expect any transitional activities to result in delayed access to Lots in Time Slice 2 (given the substantial time before commencement of Time Slice 2 for Existing GSM Licensees and Winning Bidders to address such activities), in the

event that such delays arise, then ComReg would apply the above process for any such delays.

Other refunds of Licence Fees

2.81 Where a Licensee requests an amendment to its Liberalised Use Licence which is accepted by ComReg and which results in:

- a reduction of the quantum of spectrum assigned to a Liberalised Use Licence, the Licensee shall not be entitled to any refund of its Upfront Licence fee,⁴² but shall be entitled to any excess SUF licence fees paid in relation to this quantum of spectrum (which has been subject to the reduction) after the date this amendment takes effect; or
- a reduction of the duration of a Liberalised Use Licence, the Licensee shall not be entitled to any refund of its Upfront Licence fee, but shall be entitled to any excess SUF licence fees paid in relation to the unused part of the Licence term.

2.82 Where an amendment, surrender or withdrawal of a Liberalised Use Licence result from an enforcement action taken by ComReg, no Liberalised Use Licence Fees paid will be refunded to the Licensee.

2.2.7 Enforcement Actions – Compliance with Licence Conditions, Licence Suspension, Licence Withdrawal

2.83 Enforcement of conditions of Liberalised Use Licences shall be carried out by ComReg in accordance with the Authorisation Regulations.

2.84 A Liberalised Use Licence may be suspended or withdrawn in accordance with the Authorisation Regulations.

2.85 In the event that enforcement action by ComReg results in the suspension, withdrawal (or foreshortening) of a Liberalised Use Licence or part thereof, all Licence fees paid in connection with that Liberalised Use Licence will not be refundable.

2.86 ComReg may appoint such members of its staff as it considers appropriate to be authorised officers for the purposes of the exercise by ComReg of its functions under Regulations. For the purposes of the exercise by ComReg of its functions under those Regulations, an authorised officer appointed thereunder may exercise the powers

⁴² For the avoidance of doubt, ComReg reserves the right to offer such refunds/rebates as part of any future reassignment/re-organisation of spectrum.

conferred by section 39(3) of the 2002 Act on authorised officers appointed under that Act.

2.2.8 Amendment of a Liberalised Use Licence

2.87 ComReg may amend the rights, obligations and procedures relating to a Liberalised Use Licence from time to time in accordance with the Authorisation Regulations.

2.2.9 The Draft Regulations and an indicative Liberalised Use Licence

2.88 Annex 2 of this document sets out the Draft Regulations which provide for the issuing of a Liberalised Use Licence on foot of the Award Process. Among other things, Draft Regulations specify the:

- Duration and procedures for annual renewal of a Licence;
- Conditions of a Licence; and
- Licence Fees.

2.89 An indicative Liberalised Use Licence is set out in Schedule 1 to the Draft Regulations, where;

- Parts 1 to 3 of Schedule 1 set out the geographical and technical conditions associated with the Liberalised Use Licence, and
- Part 4 of Schedule 1 sets out the other conditions associated with the Liberalised Use Licence. These are set out in Annex 3 of this document.

2.90 The Draft Regulations and the indicative Liberalised Use Licence should be considered in conjunction with the text in this document, ComReg Document 11/60, ComReg Document 11/60a and ComReg Document 11/XX (ComReg's Final Decision Document).

2.2.10 Other Considerations

Spectrum reviews and amendments to Licence conditions

2.91 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.

Spectrum pooling and sharing

2.92 Annex 10 to ComReg 11/60a sets out ComReg's consideration of spectrum pooling and sharing issues associated with the Award Process.

2.93 While ComReg understands that spectrum sharing and pooling can, in principle, bring benefits such as reduced costs and improved quality of service, ComReg is also aware that spectrum sharing and pooling can give rise to policy concerns, particularly in relation to competition. 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 responsibilities⁴³), and it is only possible to make such an assessment on a case-by-case basis having seen the details of a proposed arrangement.⁴⁴

2.3 The Preparatory Licence – terms and conditions

2.94 The following sets out the principal terms and conditions associated with the Preparatory Licence.

2.3.1 Scope of the Preparatory Licence

2.95 A Preparatory Licence allows the Licensee to keep and have possession of, install and maintain WT apparatus for terrestrial systems capable of providing electronic communications services in some or all three of the 800 MHz, 900 MHz and 1800 MHz bands. It is a condition of a Preparatory Licence that the Licensee shall not work or use said apparatus.

2.96 It is a non-exclusive⁴⁵ Licence for the national terrestrial territory of the Republic of Ireland and all WT apparatus licensed under the

⁴³ In addition to assessing mergers under competition law, the Competition Authority also assess whether agreements have an anti-competitive object or effect.

⁴⁴ For example, in the proposed merger of Orange-UK and T-Mobile-UK, in order to remove possible concern regards the joint venture's spectrum holding, it made a commitment to divest 2x15 MHz of its 1800 MHz spectrum band.

Source: "Of spectrum and radio access networks: the T-Mobile/Orange joint venture in the UK", Jocelyn Guitton, Boryana Hristova & Vera Pozzato, European Commission, Competition policy newsletter 2010-2

⁴⁵ Non-exclusive in the present context means that ComReg may have authorised prior to the grant of the Preparatory Licence and retains the right to authorise other Wireless

Preparatory Licence is required to comply with the relevant EC decisions for the spectrum band(s) licensed.

- In the 800 MHz band, such WT apparatus is required to comply with EC Decision 2010/267/EU; and
- In the 900 MHz and 1800 MHz bands, such WT apparatus is required to comply with EC Decision 2009/766/EC as amended.

2.3.2 Preparatory Licence Duration and Renewal

2.97 The duration of the Preparatory Licence is set by reference to its commencement and expiry dates.

2.98 Before a Preparatory Licence will be granted to a Winning Bidder, it must pay the Upfront Fee associated with their Liberalised Use Licence. Consequently, the commencement date of a Preparatory Licence will be defined by reference to the timing of the Award Process and Grant Stage as discussed in Chapters 3 and 4 of this document, and will follow payment of the relevant Upfront Fee associated with the Liberalised Use Licence.

2.99 The expiry date of a Lot in the Preparatory Licence will coincide with the commencement date of that Lot in the Licensee's Liberalised Use Licence. ComReg envisages that the latest possible expiry date for a Preparatory Licence is likely to be 12 July 2015, as all Lots won in the Award Process should have a Liberalised Commencement date of 13 July 2015 or earlier.

2.100 Unlike the Liberalised Use Licence, the Preparatory Licence is not subject to a series of potential Licence-renewals. Instead the Preparatory Licence granted to a Licensee will be for the duration of the Licence as defined by the above commencement and expiry dates.

2.101 Once issued, the duration of the Preparatory Licence may be amended in accordance with the provisions of the Authorisation Regulations.

Telegraphy apparatus in the licensed spectrum which may cause interference to the Licensee.

2.3.3 Licence Conditions applicable to all Preparatory Licences

2.102 The conditions associated with a Preparatory Licence are set out in Regulation 6 of the Draft Regulations. Among other things, Regulation 6 of the Draft Regulations sets out conditions in relation to:

- The assigning of the Preparatory Licence in its entirety to another party and the rights and obligations conferred with it, and
- The transfer or lease of a Preparatory Licence to another party.

2.3.4 Fees for a Preparatory Licence

2.103 An administrative fee of €100.00 will be payable to ComReg in respect of the issue of a Preparatory Licence.

2.104 Additionally Winning Bidders shall pay the Upfront Fee associated with the Lots won in the Award Process before a Preparatory Licence is issued.

2.3.5 Enforcement Actions – Compliance with Licence Conditions, Licence Suspension, Licence Withdrawal

2.105 Enforcement of conditions of Preparatory Licences shall be carried out by ComReg in accordance with the Authorisation Regulations.

2.106 A Preparatory Licence may be suspended or withdrawn in accordance with the Authorisation Regulations.

2.107 In the event that enforcement action by ComReg results in the suspension, withdrawal (or foreshortening) of a Preparatory Licence, no Licence fees paid in connection with the related Liberalised Use Licence will be refundable.

2.108 ComReg may appoint such members of its staff as it considers appropriate to be authorised officers for the purposes of the exercise by ComReg of its functions under those Regulations. For the purposes of the exercise by ComReg of its functions under those Regulations, an authorised officer appointed thereunder may exercise the powers conferred by section 39(3) of the 2002 Act on authorised officers appointed under that Act in relation to a Preparatory Licence.

2.3.6 Amendment of a Licence

2.109 ComReg may amend the rights, obligations and procedures relating to a Preparatory Licence from time to time in accordance with the Authorisation Regulations.

2.3.7 The Draft Regulations and an indicative Preparatory Licence

2.110 The Draft Regulations provide for the issuing of a Preparatory Licence on foot of this Award Process. Among other things, the Draft Regulations specify the:

- Duration and procedures for renewal of a Preparatory Licence;
- Conditions of a Preparatory Licence; and
- Preparatory Licence Fees.

2.111 An indicative Preparatory Licence is set out in Schedule 2 to the Draft Regulations.

- Part 1 of Schedule 2 to the Draft Regulations sets out the Statement of Authorised Apparatus associated with the Preparatory Licence.

2.112 The Draft Regulations and the indicative Preparatory Licence should be considered in conjunction with the text in this document, ComReg Document 11/60, ComReg Document 11/60a and ComReg Document 11/XX (ComReg's Final Decision Document).

2.3.8 Other Considerations

Spectrum reviews and amendments to Licence conditions

2.113 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 Preparatory Licence from time to time in accordance with the Authorisation Regulations.

2.4 Associated Processes in this Award Process

2.114 This section sets out the following three associated processes in the Award Process;

1. The Early Liberalisation Option;

2. The possibility of Advanced Commencement; and
3. Transitional Issues associated with GSM Licensees

2.4.1 The Early Liberalisation Option

2.115 The Award Process includes an “early liberalisation option” whereby an Existing GSM Licensee has the option of bidding for Party-specific Lots as follows;

- In the 900 MHz band, Lot Category 7 or 900/1/MET contains two Party-specific Lots for which Meteor can Bid;
- In the 1800 MHz band;
 - Lot Category 8 or 1800/1/MET contains three Party-specific Lots for which Meteor can Bid;
 - Lot Category 9 or 1800/1/TO2 contains three Party-specific Lots for which O2 can Bid; and
 - Lot Category 10 or 1800/1/VOD contains three Party-specific Lots for which Vodafone can Bid.

2.116 Further details on the treatment of these Party-specific Lots within the Award Process is set out in Chapters 3 and 4 of this document

2.4.2 The possibility of Advanced Commencement

2.117 Two methods of obtaining a commencement date for a Liberalised Use Licence before 1 February 2013 (i.e. the beginning of Time Slice 1) are being considered by ComReg. These are not mutually exclusive and ComReg may use both of these approaches.

2.118 Method 1: ComReg has identified the following two distinct scenarios where Lots in the 900 MHz band could be released in the Award Process with an advanced commencement date of Y⁴⁶ months after the completion of the Award Process;

- Scenario 1 is where an Existing GSM 900 MHz Licensee is the Winning Bidder of Lots 900/1/A and 900/1/B. In this scenario both of these Specific Lots would be available with an advanced commencement date; and
- Scenario 2 is where a New Entrant to the 900 MHz band is the Winning Bidder of Lot 900/1/A. In this scenario, only Lot

⁴⁶ In ComReg 11/60, ComReg sought views on the advanced commencement date under Scenario 1 and 2. In accordance with its statutory objectives, ComReg will carefully consider any views received before arriving at its final decision.

900/1/A would be available with an advanced commencement date.

2.119 Method 2: Once the outcome of the Award Process is known, it may be possible for other Specific Lots to be made available on an advanced commencement basis. Winners of Lots in the Award Process could apply to ComReg to have their entitlements to a Liberalised Use Licence amended to an earlier Liberalised Use Licence commencement date. 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 subsection 3.8). For example, whether an Existing GSM Licensee could demonstrate that its existing GSM spectrum has been relocated to the location associated with its Liberalised Use 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.

2.120 ComReg will notify Winning Bidders of Lots to which Advanced Commencement could apply and that notification will outline the obligations that the Winning Bidder has to fulfil in advance of the issue of the Liberalised Use Licence including how any additional SUF payments and/or Rebates that may now apply would be calculated in the case of advanced commencement being permitted.

2.4.3 Transitional Issues associated with GSM Licensees

2.121 Two transitional issues are considered in this Award Process:

- Participation in the Assignment Stage;
- The Relocation Project Plan and other Transitional Rules.

Participation in the Assignment Stage

2.122 As set out in Chapter 3 of this document, it is a condition of the Application Stage that an Existing GSM Licensee which submits an Application will be obliged to participate in the Assignment Stage of the Award Process.

2.123 Where an Existing GSM Licensee does not submit an application to enter the Award Process, ComReg will write to the Existing GSM Licensee inviting it to participate in the Assignment Stage. This

invitation will outline the terms and conditions associated with the Assignment Round including the payment of any Additional Price for the assignment of Specific Lots where applicable. If the Existing GSM Licensee chooses not to participate in the Assignment Stage, the Existing GSM Licensee will be deemed to have made a nominal Bid of zero for all assignment options available to it and the location of the GSM spectrum rights associated with this GSM Licensee will be determined by process and procedures as set out in subsection 4.5 of this document. Upon completion of the Assignment Stage, ComReg will notify the results to all participants and any such non-participating Existing GSM Licensee and will take steps to amend its Existing GSM Licence accordingly. An Existing GSM Licensee will, in some circumstances, be entitled to apply for a Rebate as described in 'Circumstance 2' of Annex 4.

The Relocation Project Plan and other Transitional Rules

- 2.124 From the end of the Assignment Round to the commencement date of Liberalised Use Licences, transitional activities are likely to be required to relocate the frequency assignments of the Existing GSM Licences into the frequency assignment locations as determined by the Assignment Stage.
- 2.125 As set out in Chapters 3 and 5 of this document, it is a condition of the Application Stage that an Existing GSM Licensee who submits an Application is required to participate in the setting of the Relocation Project Plan and is bound by the Transitional Rules of the Award Process;.
- 2.126 Where an Existing GSM Licensee does not submit an Application, ComReg will write to this Existing GSM Licensee inviting it to agree to participate in the setting of the Relocation Project Plan and to be bound by the Transitional Rules of the Award Process. If this GSM Licensee chooses not to accept this invitation, ComReg will determine the Relocation Project Plan deadlines associated with this GSM Licensee. ComReg will notify the outcome of the Relocation Project Plan to this GSM Licensee once complete.

Chapter 3

3 The Award Process

3.1 Lots available

3.1 There are two types of Lot being made available in this Award Process:

- Generic Lots for which all Interested Parties may submit Bids to be allocated (of which there are 45 in total); and
- Party Specific Lots for which only specific Interested Parties may submit Bids to be allocated (of which there are 11 in total).

3.2 The 45 Lots available for all Interested Parties are grouped into six Lot Category (Categories 1 to 6). Table 7 provides an overview of these Lot Categories, including for each Category:

- a. the number of Lots available;
- b. the size of a Lot (in MHz);
- c. the **Reserve Price** per Lot in each category and the associated annual spectrum usage fees (SUFs) before indexation; and
- d. the number of **Eligibility Points** associated with a Lot for the purposes of applying the activity rules for the Main Stage of the Auction (discussed subsequently in Section 4.4).

3.3 The 11 further Lots, each available to only one specific Interested Party to be awarded in the Award Process (“**Party-Specific Lots**”), are grouped into four Lot Categories (categories 7 to 10). As discussed in Chapter 2 above, these categories contain Lots already licensed, in whole or in part, by existing GSM operators, pursuant to Licences that extend beyond the start of the first Time Slice, on an unliberalised basis.

3.4 Notwithstanding the outcome of the Award Process, the holders of these GSM Licences will retain rights of use of the amount of spectrum licensed pursuant to such Existing Licences until their expiry. The Existing Licence holder in each case is permitted to Bid in the Award Process to win some or all of these Lots in order to liberalise existing licensed spectrum it holds. Table 8: Party Specific

Lots the Award Process provides an overview of Party-specific Lot Categories, Reserve Prices, annual SUFs before indexation (see Glossary for definition of SUFs) and eligibility points.

- 3.5 Where an Auction is required (see subsection 3.4.3) and the Winning Combination of Bids at the end of the Main Stage of the Auction includes Party-specific Lots (or if no Auction is needed and a Bidder has applied for, and therefore won, such Lots) Existing Licence holders will be permitted to use the Lots won on a liberalised basis. Where an Auction is required and these Lots are not included in the Winning Combination of Bids at the end of the Main Stage of the Auction, the Existing Licence holders will continue to hold the relevant amount of spectrum on an unliberalised basis subject to Existing Licence conditions.
- 3.6 As described in Section 2 of this Information Memorandum, the licensing period of spectrum available for allocation in this Award Process is broken into two distinct time periods (called “Time Slices”):
- Time Slice 1: 1 February 2013 – 12 July 2015;
 - Time Slice 2: 13 July 2015 – 12 July 2030.
- 3.7 Lots in all Lot Categories, 1 to 10, will be awarded first on a generic basis, i.e. demand expressed by Applicants in their Lot **Application Forms** at the Application Stage of the Award Process (see subsection 3.3.1) and any Bids submitted by Bidders in the Main Stage of the Auction (see subsection 3.5) will be made for Lots of spectrum within a given band and Time Slice but that do not have any specific frequencies assigned to them. The specific frequency assignments will be decided in a separate Assignment Stage (see Section 4.5). This means that all Lots within a category are identical for the purposes of the Main Stage.

Lot Category number and name	Frequency band	Licence duration	Time Slice	Number of Lots available	Lot size	Reserve Price per Lot	Annual SUF per Lot based (before indexation)	Eligibility points per Lot
(1) 800/1	791-821MHz paired with 832-862MHz	01/02/13 to 12/07/15	1	6	2x5MHz	€3.34m	€1.21m	2
(2) 800/2	791-821MHz paired with 832-862MHz	13/07/15 to 12/07/30	2	6	2x5MHz	€8.48m	€1.21m	2
(3) 900/1	880-915MHz paired with 925-960MHz	01/02/13 to 12/07/15	1	5	2x5MHz	€3.34m	€1.21m	2
(4) 900/2	880-915MHz paired with 925-960MHz	13/07/15 to 12/07/30	2	7	2x5MHz	€8.48m	€1.21m	2
(5) 1800/1	1710-1785MHz paired with 1805-1880MHz	01/02/13 to 12/07/15	1	6	2x5MHz	€1.67m	€0.605m	1
(6) 1800/2	1710-1785MHz paired with 1805-1880MHz	13/07/15 to 12/07/30	2	15	2x5MHz	€4.24m	€0.605m	1

Table 7: Lots available to any Interested Party participating in the Award Process⁴⁷

⁴⁷ Prices are only indicative at this point and are subject to a final benchmarking assessment.

Lot Category number and name	Frequency band	Licence duration	Time Slice	Party permitted to Bid for Lots in this category	Number of Lots available	Lot size	Reserve Price per Lot	Annual SUF per Lot (before indexation)	Rebate applicable to release of GSM Spectrum rights	Eligibility points per Lot
(7) 900/1/MET	880-915MHz paired with 925-960MHz	01/02/13 to 12/07/15	1	Meteor	2	2x5 MHz	€3.34m	€1.21m	See Annex4	2
(8) 1800/1/MET	1710-1785MHz paired with 1805-1880MHz	01/02/13 to 12/07/15	1	Meteor	3	2x5 MHz	€1.67m	€0.605m	See Annex 4	1
(9) 1800/1/TO2	1710-1785MHz paired with 1805-1880MHz	01/02/13 to 12/07/15	1	O2	3	2x5 MHz	€1.67m	€0.605m	See Annex 4	1
(10) 1800/1/VO D	1710-1785MHz paired with 1805-1880MHz	01/02/13 to 12/07/15	1	Vodafone	3	2x5 MHz	€1.67m	€0.605m	See Annex 4	1

Table 8: Party Specific Lots the Award Process⁴⁸

⁴⁸ Prices are only indicative at this point and are subject to a final benchmarking assessment.

3.2 Process overview and indicative timeline

3.8 This subsection describes the overall structure of the Award Process. It comprises the following stages:

- an Application Stage during which Applicants can submit Applications to ComReg for participation in the Award Process in accordance with the procedures described in subsection 3.3;
- a Qualification Stage during which ComReg will examine Applications received and determine whether Applicants are qualified to participate in the Award Process;
- an Auction, consisting of either a Main Stage and Assignment Stage or an Assignment Stage only, where:
 - The Main Stage⁴⁹ consists of:
 - I. one or more Primary Bid Rounds, during which Bidders Bid for a package of one or more Generic Lots in particular bands and Time Slices; and
 - II. a Supplementary Bids Round, during which Bidders can Bid for all packages of Generic Lots in particular bands and Time Slices;
 - The Assignment Stage consists of a single round of bidding which determines the specific frequencies in each Lot Category that are assigned to each Winning Bidder or maintained by an existing GSM Licensee if applicable; and
- a Notification & Grant Stage during which ComReg will notify the Winning Bidders of their entitlement to pay their Upfront Fee and their entitlement to obtain a Preparatory Licence and a Liberalised Licence in accordance with the outcome of the Award Process, and the procedure for any subsequent grant of a Licence.

This process is illustrated in Figure 4 below.

⁴⁹ If there is no excess demand for Lots in any Lot Category when ComReg calculates the level of aggregate demand of all Qualified Bidders, the Main Stage Auction will not be required.

3.9 If an Auction is necessary, an **Electronic Auction System (EAS)** will be used. This will provide Bidders with an interface through which they should check and submit their Bids. This EAS is described in subsection 4.1.1.

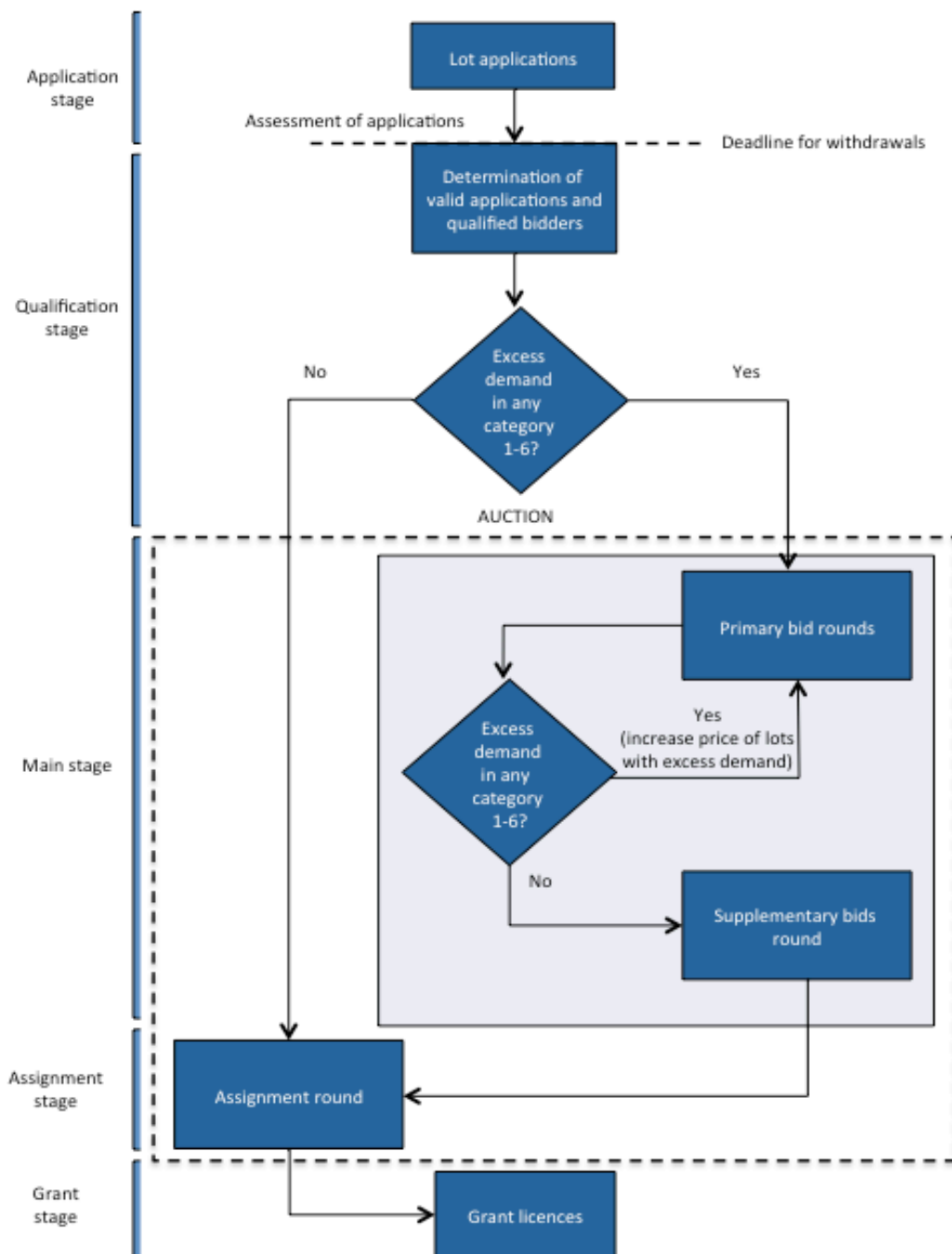


Figure 4: Overview of the Award Process

3.10 The proposed timeline with indicative milestones for the Award Process is set out in Table 9 below. This is subject to adjustment by ComReg at its discretion.

Indicative Milestone	Timing
Publication of the Final Information Memorandum on ComReg's website	X
Presentation to Interested Parties on the Award Process and the Auction Rules	X+1 weeks
Submission of questions regarding the Award Process	X+2 weeks
Responses to questions on the Award Process published on ComReg's website	X+4 weeks
Deadline for submission of Application Forms and Deposits	X+7 weeks
Deadline for withdrawals	X+12 weeks
Confirmation of requirement for a Main Stage of the Auction and announcement of scheduled start date of the first Primary Bid Round; or Confirmation that there is no requirement for a Main Stage and announcement of Winning Bidders and start date for Assignment Stage; or Confirmation that there is no requirement for a Main Stage or an Assignment Stage and announcement of Winning Bidders and progression to Notification & Grant Stage	X+12 weeks
Return of Deposits to Applicants that have not become Qualified Bidders.	X+13 weeks
Where a Main Stage is required: Circulation of Bidder materials for accessing and using the EAS Mock Auction for Qualified Bidders Start of the Auction	X+12 weeks X+13 weeks X+14 weeks
Announcement to all Bidders of number of Lots won by each Bidder	End of Main Stage
Assignment Stage	End of Main Stage + 1 day/as scheduled
Announcement of the outcome of the Assignment Stage; and Notification in writing to Winning Bidders of their obligation to pay their Upfront Fee and entitlement to obtain a Preparatory Licence and a Liberalised Licence for the Lots won in the Award Process.	End of Assignment Round
Deadline for:	End of Assignment

Indicative Milestone	Timing
Lodgement by Winning Bidders of their Upfront Fee in full less any applicable Rebate and less the Deposit already held by ComReg Return of partial Deposits by ComReg to each Winning Bidder whose Upfront Fee less any applicable Rebate is less than its Deposit already held by ComReg Return of full Deposits by ComReg to unsuccessful Bidders	Round + 2 weeks
Deadline for: Lodgement of relevant Spectrum Usage Fees; Performance Guarantee on Coverage; and Performance Guarantee on Quality of Service	Commencement date of Licence – Y weeks
Granting of Licences	As per the timetable set out in subsection 3.7

Table 9: Indicative timetable for the Award Process

3.11 References in this Chapter and throughout this draft Information Memorandum to ComReg using its discretion shall mean that ComReg shall exercise its discretion in accordance with its statutory functions, objectives, obligations and duties.

3.3 Application Stage

3.12 The Award Process will begin on the day on which ComReg publishes the final Information Memorandum.⁵⁰ ComReg will endeavour to provide guidance as to the intended publication date in advance but will not be bound by any such guidance.

3.13 The Information Memorandum will contain a deadline⁵¹ by which point all Interested Parties wishing to be awarded at least one Lot of the spectrum made available in this Award Process must have submitted an Application and associated Deposit. Such Interested Parties will have approximately 7 weeks from the publication of the final Information Memorandum during which they may submit a complete and valid application.

⁵⁰ ComReg has published a provisional timetable within this draft Information Memorandum. If the deadline for application in this draft Information Memorandum and that published on ComReg's website differ, the deadline for applications published on ComReg's website takes precedence.

⁵¹ ComReg is under no obligation to consider applications that have not been submitted in full by this deadline.

- 3.14 During this time, ComReg will provide a presentation of the details of the Award Process and of the Auction Rules. ComReg will also allow questions to be submitted to it regarding the Award Process and Auction Rules and will respond publicly to these questions on an anonymous basis.⁵²
- 3.15 For the purpose of this document, and for the Award Process, the term “**Auction Rules**” shall refer to the rules and procedures relating to the Auction, as presented in Chapters 3 and 4 of this Information Memorandum, and to any other material to which the rules in Chapters 3 and 4 directly refer.
- 3.16 As part of its Application and in order to be eligible to qualify to be awarded spectrum in this Award Process, Interested Parties must submit:
- a completed Lot Application Form;
 - a cleared monetary Deposit;
 - an Administrative Application Form; and
 - any other documentation required to be annexed to its Application Forms.
- 3.17 An Interested Party that submits an Application to ComReg to be awarded spectrum being made available in this Award Process is herein referred to as an Applicant.

3.3.1 Lot Application Form

- 3.18 The Lot Application Form lists all Lot Categories, the number of Lots available within each category, the Reserve Price per Lot in each category and the number of eligibility points per Lot in each category. These Lot Categories are shown in Table 7 and Table 8. Certain categories of Lot are only available to specific Interested Parties.⁵³ A sample of the Lot Application Form is found in Annex 5:.
- 3.19 On its Lot Application Form, an Applicant must specify the number of Lots in each Lot Category that it is eligible and willing to buy at the applicable Reserve Price. This selection of Lots at the Reserve Prices will be treated as an initial Bid in any Main Stage Auction that is subsequently conducted.

⁵² See Chapter 6 in this regard.

⁵³ These are Lots for which existing GSM operators hold existing usage rights. These are included in the Award Process only to allow these operators to compete to liberalise their existing usage rights; they are not available for re-allocation to alternative Interested Parties for the duration of existing Licences.

- 3.20 Applications are subject to spectrum caps (discussed in Section 4.2) and eligibility to Bid for Party-specific Lots (Lots in Lot Categories 7 to 10) (see Table 8 for details of the restrictions on Party-specific Lots).
- 3.21 If a Lot Application Form includes Lots that, if awarded, would exceed the relevant spectrum caps, or are within a Party-specific Lot Category not available to the Applicant, ComReg may, amongst other things and at its discretion:
- a. contact the Applicant and seek to resolve the issue;
 - b. unilaterally reduce the number of Lots Bid for so that the spectrum caps are not exceeded and treat the application as valid and binding with the necessary amendments; or
 - c. declare the Application invalid.
- 3.22 If valid, a completed Lot Application Form represents an unconditional offer to buy the number of Lots specified by the Applicant in its Lot Application Form at the Reserve Prices and to discharge the related SUFs over the term of the Licence in the event that the Award Process does not proceed to the Main Stage.
- 3.23 Where a GSM Licensee submits a Lot Application Form, the GSM Licensee is obliged to:
- participate in the Assignment Stage and be bound by its outcome;
 - participate in the setting of the Relocation Project Plan (where this is described in Chapter 2 of this Information Memorandum) and be bound by the Transitional Rules of the Award Process;
 - agree to the amendment or surrender of its GSM spectrum rights of use in the relevant bands (the 900MHz and/or 1800MHz bands) in accordance with the outcome of the Award Process and following any request by the GSM Licensee for advanced commencement of a Liberalised Licence won in exchange for relinquishment of these spectrum rights.

3.3.2 Deposits

3.24 An Applicant must submit a Deposit with its Application. The required amount of the Deposit corresponds to the sum of the Reserve Prices of Lots requested by the Applicant in its Lot Application Form.

3.25 The Applicant's Deposit must be transferred to an account, as nominated by ComReg, to be received as cleared funds on ComReg's account, ⁵⁴ before 23:59 on the final day that Applications are permitted. ComReg's Bank details are contained in Annex A of this Information Memorandum.

3.26 Deposits will be held by ComReg in euro. Any amount of a Deposit to be repaid to an Applicant will be repaid in euro unless, arising from an action taken by the State, funds held in the relevant ComReg account are compulsorily redenominated or converted into a currency other than euro, in which case ComReg shall return the appropriate amount in the currency into which the account was redenominated or converted at the rate applicable on the date of any such redenomination or conversion. The Applicant bears any risk of any exchange rate fluctuations or compulsory currency redenomination or conversion. No interest will be paid by ComReg on funds held by it for part or all of the Award Process.

3.3.3 Other forms required for application

3.27 Applicants must also submit as part of their respective Applications:

- An Administrative Application Form. This form includes details of person(s) used as the direct point of contact for an Applicant for purposes of the Award Process, including contact details for Authorised Agents and for receiving Bidder materials and reporting of technical problems during the Auction where necessary;
- Appropriate evidence that the persons signing the Application Form and the persons authorised to Bid on behalf of the Applicant ("Authorised Agents") are entitled to bind the Applicant contractually. Appropriate evidence would include:

⁵⁴ Bidders are cautioned to ensure that the cleared funds received by ComReg are required to be the amount of the Deposit specified in euro. Bidders should ensure that the amount of funds received by ComReg is not diminished by bank charges, exchange rate fluctuations or similar matters.

- where the Applicant is incorporated in the EU, evidence that the Authorised Agents are registered pursuant to the appropriate national implementing measures transposing Article 9 of the First Company Law Directive⁵⁵ (regulation 6 of S.I. 163 1973 in Ireland);
- a board resolution from an Applicant which is a company registered in Ireland;
- an irrevocable power of attorney; or
- equivalent evidence in respect of an Applicant from outside Ireland, supported by a legal opinion from a law firm in their jurisdiction, carrying in excess of €20,000,000 in professional indemnity insurance, addressed to ComReg, certifying that the Authorised Agents are entitled to bind the Applicants contractually;
- An Ownership Structure Form. This provides details of the Applicant's ownership structure, including certification that this ownership structure is compliant with the ownership rules set out in subsection 3.3.4 and is correct to the best knowledge of the Applicant, and listing the Applicant's Insiders; and
- A signed form agreeing to be bound by the Auction agreement's provisions referred to in Chapter 3 including:
 - the Auction Rules relating to confidentiality;
 - non-collusion for the duration of the Award Process;
 - in relation to Existing MNOs, participation in the Assignment Round irrespective of whether the Applicant is a Winning Bidder; and
 - the Transition Rules which form part of the Auction Rules.

A sample of each of the administrative information form, certification form regarding ownership and a form setting out confidentiality requirements are found in Annex 5: and Annex 6:.

⁵⁵ Directive 68/151/EEC.

3.3.4 Ownership rules

3.28 Bidders are subject to the ownership rules described below in order that they both Bid for and win Licences as independent entities and in accordance with applicable law. In particular, these rules are necessary to ensure that the spectrum caps cannot be circumvented. They are also intended to prevent a Bidder from having any unfair advantage by being able to coordinate with another Bidder.

3.29 Each Interested Party applying to take part in the Award Process is subject to ownership rules, which require that its Bidding Group is not connected or associated with any other Bidding Group. Bidders are deemed to be connected if they have common or overlapping Bidding Groups. Bidders are deemed to be associated if their Bidding Groups do not overlap but there is nonetheless a degree of common ownership.

3.30 The rules surrounding ownership are provided below. In the following subsection, for simplicity, the term Bidder is used to represent Interested Parties involved in the Award Process. The rules in the subsection are not however limited to the Auction; they represent rules imposed throughout the Award Process.

Bidding Groups

3.31 A Bidding Group is defined as a Bidder and its **Connected Persons**.

Connected Persons

3.32 A person (the “Connected Person”) is a Connected Person in relation to a Bidder where the Connected Person and/or any of its Controlling Persons and/or any of its Controlled Persons:

- a) either by itself or together with another person or other persons Controls the Bidder;
- b) either by itself or together with another person or other persons has a direct or indirect Interest of 10% or more in the Bidder;
- c) where the Bidder is a partnership⁵⁶ is a partner in the Bidder;

⁵⁶ Within the meaning of the Partnership Act 1890 or equivalent legislation in the place where the entity is formed.

- d) either by itself or together with another person or other persons has an agreement, wholly or partly, to finance or otherwise assist the Bidder in connection with the Award Process;
- e) is Controlled by the Bidder alone or together with another Connected Person or Persons; or
- f) has as a director or senior executive any individual who is a director or senior executive of the Connected Person or any of its Controlled Persons.

3.33 A person (the “Controlling Person”) will be deemed to control another person (the “Controlled Person”) in the circumstances described in the following paragraphs, (and “Control” will be construed accordingly):

- a) where the Controlling Person and/or its Controlled Persons and/or its Associates, either by itself or together with other persons has:
 - i. an Interest in 30% or more of the share capital of the Controlled Person;
 - ii. the right to cast 30% or more of the votes of shareholders on any matter at shareholders meetings;
- b) where the Controlled Person routinely or generally acts in accordance with the instructions of the Controlling Person;
- c) where, in the plain meaning of the words, the Controlling Person and/or its Controlled Persons controls the Controlled Person.

3.34 An “Interest” shall include:

- a) an ownership interest, legal or beneficial, actual or contingent;
- b) an interest as the holder of a mortgage, charge, lien, hypothecation or other encumbrance;
- c) any derivative interest such as a participation or sub-participation where the holder of the Interest and/or any of its Controlled Persons directly or indirectly bears some or all of the rewards and / or some or all of the risks of the relevant entity, shares or other securities;
- d) an option to acquire any of the foregoing;
- e) a right to convert a right or asset (such as a debt security) into any of the foregoing.

3.35 An “Associate” of any entity means:

- a) a director or company secretary or like officer of the entity and/or of its Controlled Persons;
- b) a senior executive of the entity and/or of its Controlled Persons;
- c) a spouse, civil partner or cohabiting partner of the foregoing;
- d) any minor child of the foregoing and any child of the foregoing residing with the foregoing;
- e) any partner⁵⁷ of the foregoing;
- f) any entity Controlled by any one or more of the foregoing and any partner of such entity.

Associated Bidders

3.36 Where two Bidding Groups do not overlap but there is nonetheless a degree of common ownership between the Bidders, such Bidders will be treated as **Associated Bidders**.

3.37 Associated Bidders shall mean Bidders who have one of the following relationships to each other:

- a Connected Person in relation to one Bidder holds a direct or indirect Interest of 20% or more in the other Bidder, or
- a Person who is not a Connected Person in relation to any of the Bidders concerned holds a direct or indirect Interest of 20% or more in both Bidders.

Common and overlapping Bidding Groups or Associated Bidders

3.38 The following relations must not exist between Bidders:

- One Bidder is a Connected Person of one or more other Bidders.
- Two or more Bidders are Associated Bidders.

ComReg’s scope for granting exemptions from the above-mentioned rules is described in further detail below.

⁵⁷ Within the meaning of the Partnership Act 1890 or equivalent legislation in the place where the entity is formed.

Resolution of Bidder connections

- 3.39 It is possible at the Application Date that a Bidder is unaware that another party with whom it has common or overlapping Bidding Groups or which is an Associated Bidder is applying. If ComReg finds that one of the relations referred to above exists between Bidders, it shall notify this to the Bidders affected, indicating a deadline for Bidders to:
- a) apply for exemption from the rules on relations between Bidders;
 - b) bring the relation to an end; or
 - c) refrain from further participation in the Award Process.
- 3.40 If the Bidders affected are not granted an exemption, do not bring the relation to an end or refrain from participation in the Award Process, ComReg will exclude the Bidders affected from further participation in the Award Process. If the relation is brought to light later in the Award Process, ComReg may also declare the result of the Award Process not binding, wholly or partly, on ComReg.
- 3.41 If one of the above-mentioned relations exists between two Bidders, and it is not possible to bring the relation to an end within the deadline set by ComReg, and ComReg does not grant an exemption, one of the Bidders may withdraw from participation in the Award Process, before the deadline for doing so set by ComReg, so that it is not necessary for ComReg to exclude both Bidders.

Exemption from ownership rules

- 3.42 ComReg may, in exceptional circumstances and at its sole discretion, grant exemption from the ownership rules described above. Furthermore, ComReg may attach terms to a decision about exemption from the ownership rules.
- 3.43 In considering whether to grant an exemption, ComReg will put emphasis on ensuring that restrictions on participation in the Award Process are necessary in order to ensure efficient use of spectrum and compliance with Section 4 of the Competition Act 2002 (as amended). In doing so, ComReg will also ensure that competition in utilising the spectrum is promoted in order to give users the greatest possible benefits.
- 3.44 In the case of a relation of any of the types described in this subsection between two Bidders, ComReg may grant exemption from the ownership rules if it is substantiated to it that:

- the Connection or the Association is temporary;
- the Connection or the Association has not been established because of the Award Process or the Licences;
- a Bidder cannot determine and has not determined decisions in respect of another Bidder or its Connected Persons, so that the management of the Bidders have made and will make decisions in respect of the participation and bidding in the Auction independently of each other;
- no Connected Persons in relation to a Bidder have determined or can determine the decisions of the management in relation to the Award Process for two or more Bidders; and
- none of the Bidders or its Connected Persons shall receive or has received Confidential Information concerning more than one Bidder.

Changes to ownership structures

3.45 After the Application Date, a Bidder and its Connected Persons must refrain from actions or omissions that establish a relation to another Bidder resulting in the Bidders falling outside permitted ownership structures. In the absence of an exemption, failure to comply with this rule could result in partial or whole Deposit forfeiture and/or exclusion from the Award Process.

3.46 In any event, the Bidder must notify ComReg of any changes whatsoever in the conditions on which its Application is based.

Joint bidding

3.47 A Bidding Group may be under the joint control of two or more Communications Providers. Irish Communications Providers wishing to Bid in consortium as a Bidding Group will be viewed as a single entity for the purposes of applying ownership rules (detailed in subsection 3.3.4), rules on confidentiality and collusion (see subsection 3.3.5) and the Auction Rules (see Section 4.4) within the Award Process. Note, in particular, that such an entity would be subject to the same spectrum caps as other Bidders, specified in subsection 4.2.

3.48 The rules laid down in this subsection (that is, subsection 3.3.4) do not imply that ComReg has taken a position in this Information Memorandum on what Bidder connections, ownership structures or associations of a Bidder may or may not be lawful or permitted under Irish or EU competition law. Such

assessment falls outside the scope of this Information Memorandum and, depending on the subject matter of the assessment, may come within the jurisdiction of another competition law authority.

3.3.5 Confidential information and Bidder behaviour

- 3.49 This subsection sets out the rules that govern the behaviour of Interested Parties prior to and after submission of Applications until ComReg announces the outcome of the Award Process. The rules cover a general requirement that any Interested Party that submits an Application refrain from any action that could upset the running of the Award Process, as well as a number of specific rules in relation to Confidential Information and collusion, other restrictive practices capable of distorting the outcome of the Award Process and the behaviour of employees and legal entities that are related to the Bidder.
- 3.50 As part of its application to be awarded spectrum rights of use in one or more of the bands in which radio frequencies are being made available in the Award Process, each Applicant is required to confirm that it does and will continue to comply with these rules and has taken all reasonable measures to ensure that its Connected Persons, employees and Insiders⁵⁸ do and will continue to comply with these rules e.g. requiring those entities or persons to enter into agreements to that effect. Notwithstanding subsection 3.3.4, if at any point it becomes apparent that an Applicant or Bidder, its Connected Persons or its Insiders have failed to comply with these rules, the Bidder will be deemed responsible for that breach and may, depending on the nature and seriousness of the breach, be excluded from the Award Process and/or forfeit part or all of the Deposit it paid at the Application Stage. In certain circumstances, ComReg may also suspend or withdraw a successful Bidder's Licence(s) if, after award of the Licence(s), it emerges that the Bidder, its Connected Persons or its Insiders breached these rules.

Confidential Information and Insiders

- 3.51 **Confidential Information** shall mean any information which, if known to one or more other Bidders, may influence the amount they are willing to Bid for Lots in the Award Process or the strategy they would adopt in bidding for such Lots in the Auction.

⁵⁸ See the subsection 3.53 for a definition of Insiders.

3.52 Confidential Information shall include (but not necessarily be limited to) a Bidder's business case, certain pre-Auction activities indicating potential participation in the Award Process, the identity of a Bidder's Authorised Agents, Auction strategy and the Prices it is willing to Bid for different amounts of spectrum, spectrum in different bands and different Time Slices. Until the completion of Award Process, Confidential Information relating to individual Bidders shall also include:

- a) the Bidder's participation in the Award Process including the Auction itself;
- b) the Bidder's Eligibility to make future Bids within the Auction;
- c) the composition and value of all Bids made so far by the Bidder within the Auction.

3.53 An **Insider** shall mean an entity that has:

- received Confidential Information about that Bidder but is not a Connected Person;
- undertaken, wholly or partly, to finance or assist a member of a Bidding Group in connection with the Award Process; or
- has provided advice to the Bidder in formulating its Bid strategy and/or business case in connection with the Award Process.

An Insider can be a Legal Entity or a natural Person. For example, an Insider could be a bank or other funder with knowledge of a Bidder's business case, valuations or Bid ceilings, auditors, consultants, lawyers, economic advisers, or vendors assisting in the preparation of a Bid. Insiders must be notified to ComReg at the time of Applicant and re-notified if any changes to these Insiders occur.

3.54 Except in accordance with subsection 3.64 below, Bidding Groups and Insiders must not convey Confidential Information to any other person, including another Bidder, its Connected Persons or its Insiders, either by making public such information, communicating such information directly to another Bidding Group or its Insiders or indirectly through an intermediate source.

3.55 It is possible at the Application Date that a Bidder is unaware that it has a common Insider with another Bidder. If ComReg finds that two or more Bidders have a common Insider, it shall notify this to the Bidders affected,

indicating a deadline for Bidders to apply for exemption from the rules on common Insiders; bring the relationship of one or more of the Bidders with the common Insider to an end; or refrain from further participation in the Award Process.

- 3.56 If the Bidders affected are not granted an exemption and do not alter the situation to eliminate the common Insider ComReg will exclude the Bidders affected from further participation in the Award Process. If the relation is brought to light later in the Award Process, ComReg may also declare the result of the Award Process not binding, wholly or partly, on ComReg.
- 3.57 If two or more Bidders have a common Insider, and it is not possible to bring the situation to an end within the deadline set by ComReg, and ComReg does not grant an exemption, one or more of the Bidders may withdraw from participation in the Award Process, before the deadline for doing so set by ComReg, so that it is not necessary for ComReg to exclude all affected Bidders.

Exemption from Insider rules

- 3.58 ComReg may, in exceptional circumstances and at its sole discretion, grant exemption from the rules relating to common Insiders described above. Furthermore, ComReg may attach terms to a decision about exemption from the common Insider rules.
- 3.59 In considering whether to grant an exemption, ComReg will consider carefully the arrangements put in place by a common Insider to prevent the dissemination of Confidential Information relating to one Bidder from the individuals acting for that Bidder within a common Insider to the individuals acting for another Bidder.
- 3.60 In considering whether or not to grant an exemption ComReg will require among other things:
- details of all individuals acting for each Bidder within the common Insider;
 - an organisation chart showing the positions of each of these individuals within the common insider;
 - a copy of any appropriate policies and procedures manuals used by the common insider in relation to the segregation of customer data;

- a written undertaking from the common insider, in a form acceptable to ComReg, to segregate all confidential information relating to the Bidders that it is acting for and not to use any common personnel in relation to two different Bidders.

3.61 If a Bidder seeks an exemption, it will consent to ComReg contacting the managing director, managing partner, or person occupying an equivalent position in the common Insider, to seek the appropriate written undertaking, which shall be expressed to be for the benefit of ComReg.

Collusion and other disruption to the Award Process

3.62 Except in accordance with paragraph 3.64 below, a Bidder, its Connected Persons and Insiders shall, from the issue of this Information Memorandum until ComReg announces the outcome of the Award Process, refrain from, either directly or indirectly:

- disclosing or attempting to disclose any Confidential Information beyond the Bidder and its Connected Persons and Insiders;
- disclosing or attempting to disclose any Confidential Information in breach of undertakings made by a Bidder pursuant to any exemption to the rules on Connected Persons and Insiders granted by ComReg;
- obtaining or attempting to obtain Confidential Information in relation to any other Bidder;
- communicating with other Bidders and their Connected Persons with the intention or effect of coordinating bidding within the Auction;
- entering into agreements with other Bidders or their Connected Persons in relation to the Award Process;
- undertaking any action that is intended to, or is likely to, distort the outcome of the Award Process; and
- for the duration of the Award Process, exchanging information, coordinating or entering into agreements with other Bidders and their Connected Persons regarding the Bidder's strategy for use of the Licence.

These requirements shall be binding upon all Applicants from the issuance of the Information Memorandum until the issuance of Licences by ComReg.

3.63 Subject to ComReg's discretion to conclude otherwise, mergers or acquisitions conducted during the Award Process that are not conducted for purposes related to the Award Process shall not be considered an act that could adversely affect the Award Process, provided that they would not result in a member of one Bidding Group also being a member of another Bidding Group.

3.64 Notwithstanding the provisions of the paragraphs above, a Bidder, its Connected Persons and Insiders are permitted to disclose Confidential Information to their employees, agents and other representatives (who, in turn, may disclose Confidential Information to the Bidder, its Connected Persons and Insiders or any of their agents or employees) who need to know the Confidential Information for the purposes of:

- determining the Bidder's participation and preparing for its participation in the Award Process, including its Auction strategy;
- assisting the Bidder during the Auction in relation to its participation in the Auction; and
- dealing with commercial and regulatory matters following, and directly concerned with, the outcome of the Auction, including for example liaison with ComReg prior to the award of Licences.

However, such disclosure shall not include disclosure to any members of another Bidding Group except with ComReg's prior written consent.

Restrictive agreements

3.65 A Bidder, its Connected Persons or Insiders may neither prior to the submission of an Application, nor after the submission of an Application and until ComReg announces the outcome of the Award Process, enter into any agreement or establish any understanding with a provider of equipment or software, which directly or indirectly:

- restricts the provider's ability to supply equipment or software to another Bidder or another Bidder's Connected Persons regarding the planning, establishment or operation of a network in Ireland involving the frequencies dealt with by this Award Process; or
- restricts the Prices or other terms and conditions that the provider can offer another Bidder or its Connected Persons regarding the planning,

establishment or operation of a network in Ireland involving the frequencies dealt with by this Award Process.

3.66 A Bidder, its Connected Persons or Insiders may neither prior to nor during the Auction enter into any agreement or establish any understanding with a third party if the agreement or understanding directs this third party not to participate in the Award Process, or restricts the ability of this third party to participate in the Award Process.

Directors and employees

3.67 Circumstances may arise where Bidding Groups and their respective Insiders have common directors and/or employees. If this occurs, the Bidders concerned need to ensure that the respective persons:

- are not, directly or indirectly, involved in the preparation and/or submission of the Application, or bidding, for both Bidders or their Connected Persons, such that they may be involved in the Award Process for one Bidding Group only;
- are not in possession of, or obtain, or have knowledge of any Confidential Information concerning both Bidders or their respective Connected Persons or Insiders; and
- are not involved in bidding.

3.68 Prior to the submission of its Application, a potential Bidder shall take all reasonable measures with a view to identifying its Connected Persons, Associated Persons and Insiders.

3.69 A Bidder shall also ensure that its Connected Persons take all reasonable measures to identify and inform the Bidder if they have any board members or employees who are Insiders in relation to another Bidder, such that the Bidder can take appropriate precautions to ensure that the rules on Confidential Information and collusion are not breached.

Sanctions

3.70 As part of their Applications, Applicants agree to be bound by a series of possible administrative sanctions for infringement of the Auction Rules.

3.71 Interested Parties should note that certain breaches of the Auction Rules and other behaviours that Applicants and/or Qualified Bidders could engage in may

entitle other Applicants and/or Qualified Bidders to seek redress at civil law and moreover, may also constitute offences including, amongst other things, offences relating to competition law, fraud, conspiracy and unlawful use of a computer. In respect of certain such behaviours liability can be imposed on the individuals engaging in the behaviour as well as the Bidder organisation. In the event that such behaviour comes to the attention of Bidders during the Auction they are obliged under the Auction Rules to notify ComReg immediately to enable appropriate action to be taken.

3.72 In the event that an Applicant or Qualified Bidder breaches any of these rules, it can face, subject to ComReg's discretion, a number of alternative sanctions, including exclusion from the Award Process, depending on the severity of the breach. A list of possible sanctions includes, but is not limited to:

- exclusion from the Award Process; and/or
- forfeiture of part or all of the Deposit which was paid on Application.

3.73 If a Bidder is excluded from the Award Process, then ComReg, at its discretion, may void all Bids made so far by the Bidder in question, in addition to preventing further Bids from that Bidder. For the avoidance of doubt, on exclusion of a Bidder, ComReg may continue with the Auction unchanged, save for the exclusion of that Bidder. In this event, all Bids and calculations made up to that point remain valid and binding, although it reserves the right to make such alterations to the Auction as it considers appropriate at its discretion. For example, if a Bidder were excluded after the Main Stage of the Auction, ComReg would not typically expect to re-run the Main Stage or to re-compute the Winning Bids and Prices determined by the Main Stage, though reserves the right to do so. If a Bidder were excluded during the Primary Bid Rounds, ComReg would typically expect not to re-run Primary Bid Rounds already completed, though reserves the right to do so.

3.74 A breach by an individual Bidder, its Connected Persons or Insiders of any of the rules mentioned in this subsection, may lead to the forfeiture of part or all of the Deposit paid by that Bidder on Application. The amount of a Deposit to be forfeited for breach of these rules will be determined by ComReg by reference to the nature and severity of the breach and its impact.

3.75 Actions which may lead to exclusion from the Award Process and/or the forfeiture of a Bidder's Deposit include the following:

- submitting materially⁵⁹ false or misleading information to ComReg;
- failing to update ComReg, in a timely manner, in relation to any change in material information submitted on its Application Form;
- a Bidder or any member of its Bidding Group colluding or attempting to collude with any other Person to distort the outcome of the Award Process, or is acting in a way which is likely to distort the outcome of the Award Process;
- a Bidder or any member of its Bidding Group, or any Insider, disclosed unnecessary Confidential Information to others other than in accordance with Paragraph 3.64 above;
- a Bidder or any member of its Bidding Group obtaining or attempting to obtain Confidential Information in relation to any other Bidder;
- any member, director or employee of a member of a Bidder's Bidding Group, who is also a director or employee of a member of another Bidding Group, taking part in the preparation of both Bidding Groups for participation in the Award Process or is receiving Confidential Information relating to both Bidding Groups or has participated in the Award Process in relation to more than one Bidding Group;
- a Bidder, its Connected Persons or Insiders canvassed directly or indirectly any member of ComReg or any person associated in any way with the Award Process (see Chapter 3); and
- any other breach of the Auction Rules contained in Chapter 4.

In certain circumstances, ComReg may also suspend or withdraw a successful Bidder's Licence(s) if, after award of the Licence(s), it emerges that the Bidder, its Connected Persons or its Insiders breached the Auction Rules set out in Chapter 4.

3.76 In cases where breaches are caused not by the Bidder, but by its Connected Persons and Insiders, then ComReg has discretion to waive or limit the application of sanctions set out in this subsection if it can be shown that the breach occurred without the Bidder's knowledge, that the Bidder has taken all

⁵⁹ Where reference is made in this Information Memorandum to matters being material, ComReg, acting reasonably, shall be entitled to decide whether or not a matter is material. Accordingly, where an applicant has any doubt as to the materiality of a matter it should be reported to ComReg.

reasonable steps to avoid the breach and that the breach has not caused major detriment to the Award Process.

- 3.77 Nothing in this Information Memorandum shall preclude ComReg from seeking alternative remedies for breach of the Auction Rules set out herein, including, but not limited to, a claim for damages, or the bringing of proceedings under the Competition Acts 2002 and 2006 or the Communications Regulation Acts 2002-2010.

3.3.6 Application procedure

- 3.78 In order to take part in the Award Process, Bidders must submit an Application on paper and an electronic copy of same in an editable format on CD-ROM, between 10.00 and 16.00 hours (Irish time) before the deadline for Applications.

- 3.79 Application must be delivered to the address specified by ComReg. Unless otherwise specified on the ComReg website, the address will be the reception at the ComReg office in Dublin:

Commission for Communications Regulation,
“Multi-Band Spectrum Award”
Block DEF,
Abbey Court,
Irish Life Centre,
Lower Abbey Street,
Dublin 1

- 3.80 Applicants that submit an Application during the specified time window will be given a receipt to acknowledge submission of the Application. ComReg retains discretion to accept Applications delivered late or to the wrong address where the Applicant can satisfy ComReg that such mis-delivery was due to administrative error or factors outside of the Applicant’s control. However, in general, Applications received before or after the specified time window or delivered to the wrong address will not be accepted.

- 3.81 In the event that an Applicant submits more than one Application, only the last Application received from that Applicant during the specified time will be taken into consideration. Any Applications previously submitted will be returned.

- 3.82 In the event that Applicants are refining their bidding strategy close to the deadline for the submission of Applications they are encouraged to deliver at

least one Application in ample time. This can be replaced at any time up to the deadline with no penalty. On the submission of a second or subsequent Application, the Applicant must return the receipt for the prior Application to ComReg. This receipt will be endorsed to indicate that the earlier Application had been superseded and will not be evaluated, however the Application will not be returned until after the Qualification Stage of the Award Process.

- 3.83 No Applications will be opened by ComReg until after the deadline for submissions has passed.
- 3.84 The deadline for receipt of Deposits, as set out in subsection 3.3.2, will be 23:59 on the same date as the deadline for receipt of Applications.
- 3.85 Following the submission of Applications, and onwards through to the conclusion of the Grant Stage, no questions will be accepted from Applicants or Interested Parties, save for those that would qualify as permitted communications of the type set out in Chapter 4.1.3 of this document (Communications with the Auctioneer) and save for those communications and responses which are specifically requested by ComReg or its agents in accordance with the Information Memorandum.

3.4 Qualification Stage

3.4.1 Process for approval of Applications

- 3.86 Once the deadline for Applications has passed, ComReg will evaluate all Applications received before the deadline, evaluate which Applications are valid⁶⁰ and assess the level of aggregate demand associated with valid Applications. Applicants that submitted valid applications at the Application Stage that are approved by ComReg are referred to as Qualified Bidders or Bidders.
- 3.87 Upon completion of its assessment of Applications, ComReg will inform each Applicant about:
- whether it has become a Qualified Bidder and is eligible to Bid for spectrum in the Award Process; and
 - whether an Auction is required and, if so, whether a Main Stage of the Auction is required.

⁶⁰ Details of what constitutes a valid application is set out in subsection 3.3.

- 3.88 Following the assessment of all Applications, ComReg will inform all Applicants whether or not they have been approved by ComReg to become Qualified Bidders. ComReg will not inform Qualified Bidders about the identity of other Qualified Bidders, or the initial Eligibility to Bid of other Qualified Bidders. ComReg will not inform Qualified Bidders about unsuccessful Applicants who fail to become Qualified Bidders.
- 3.89 In the case where an Applicant is informed that it has been unsuccessful in its Application, its Deposit will be returned approximately one week after the notification that its Application was unsuccessful. Applicants are reminded that even if they are unsuccessful in becoming Qualified Bidders, they remain bound by the Auction Rules on release of Confidential Information for the duration of the Award Process.

3.4.2 Assessment of Applications

- 3.90 If an Applicant fails to ensure that ComReg receives the full Deposit associated with the Lots applied for in its Lot Application Form by the deadline specified by ComReg, ComReg may, at its discretion, decide that the corresponding Application is not valid and that the Applicant will not become a Qualified Bidder and will thus not be eligible to be awarded Lots in the Award Process. Alternatively, it may provide a short additional period of time for the Deposit to be topped up appropriately. In the event that the Applicant does not become a Qualified Bidder by virtue of an incomplete Deposit, any incomplete Deposit that has been paid to ComReg will be returned soon after the end of the Qualification Stage in accordance with the timetable for return of Deposits to unsuccessful Applicants provided in Table 9 as may have been extended by any grace period permitted by ComReg for the Deposit to be topped up.
- 3.91 If any aspect of an Application (other than the partial payment or non-payment of Deposit) is found to be incomplete, only partially complete, unclear or otherwise invalid, ComReg has the discretion to decide what measures to take, reflecting the nature of the ambiguity, omission or invalidity. These measures include seeking clarification or verification of information already provided and requesting further information from the Applicant.
- 3.92 In particular, if at any point during the Award Process a Bidder is found by ComReg to have submitted information on its ownership structure which is materially incomplete or incorrect, ComReg has the discretion to take whatever measures that it deems appropriate, including the issue of a request to one or

more Bidders to verify information already provided, and to provide additional information and supporting evidence. If ComReg is unable to determine to its reasonable satisfaction that two or more Bidders are not connected or associated (in the terms of subsection 3.3.4) on the basis of information provided to it, it reserves the right to treat those Bidders as being connected or associated.

- 3.93 In the event that an Application is in any material way incomplete, inaccurate, invalid or untrue, ComReg may not allow the Applicant to become a Qualified Bidder. If, having determined that Applicant to be a Qualified Bidder, ComReg becomes subsequently aware that the Bidder's original Application was incomplete, inaccurate, invalid or untrue, ComReg may, at its discretion, allow the Bidder the opportunity to clarify or correct the information already provided. If the Bidder cannot provide correction or clarification to ComReg's satisfaction within a time limit specified by ComReg, that Bidder may be excluded from the Award Process with return of all, part or none of the Bidder's Deposit in accordance with the timetable as set out in Table 9 In the event of any material inaccuracy or untruth in an Application being identified, ComReg reserves the right to exclude the Qualified Bidder directly without providing opportunity for the Bidder to clarify or correct the information already provided.
- 3.94 Applicants are subject to an on-going obligation to inform ComReg of material changes in all circumstances affecting any of the information provided in their Applications. If an Applicant becomes aware of a material error, omission or inaccuracy in its application, the Applicant will inform ComReg as soon as reasonably possible. This obligation on an Applicant continues throughout the entire Award Process (including for the avoidance of doubt, subsequent to ComReg determining that an Applicant is a Qualified Bidder) until such time that Licences have been awarded.

3.4.3 Progress of the Award Process

- 3.95 Based on ComReg's assessment of aggregate demand for each Lot Category as expressed in the Applications of Qualified Bidders, the Award Process will progress in one of the following ways:
- A Main Stage and, if required, an Assignment Stage will be held, followed by a Notification & Grant Stage;

- An Assignment Stage will be held, followed by a Notification & Grant Stage; or
- In a small number of specified cases, the Award Process will progress directly to the Notification & Grant Stage.

3.96 A Main Stage of the Auction is required if, for one or more of Lot Categories 1 to 6, the sum of Lots specified in each Qualified Bidder's Lot Application Form for that Lot Category exceeds the number of Lots available in that category i.e. if there is at least one category for which aggregate demand exceeds supply. Party-specific Lot Categories will not be considered in determining the need for a Main Stage.

3.97 If a Main Stage of the Auction is required:

- All Lot Categories available for bidding on by all Bidders (with their respective Lots) will be included in the Auction regardless of whether there was excess demand in the respective category at the Application Stage.
- ComReg will inform each Bidder of its initial Eligibility to Bid for Lots in each Time Slice in the first Primary Bid Round (where eligibility is not transferable across Time Slices). The initial Eligibility of each Bidder in the first Primary Bid Round in each Time Slice (where Time Slice 1 corresponds to the period from February 2013 to July 2015 and Time Slice 2 corresponds to the period from July 2015 to July 2030) will be the sum of the Eligibility points associated with Lots selected in its application for Lots in that Time Slice as specified on its Lot Application Form submitted at the Application Stage.
- If an Application has been approved by ComReg, the offer that the Application represents (that is, the Lots included in the Application for a Price equal to the sum of the Reserve Prices of those Lots) will be considered as a Bid when determining the combination of Winning Bidders and Prices for the Main Stage.
- The Round Price per Lot in each Lot Category in the first Primary Bid Round will be the Reserve Price per Lot in the category plus one Price Increment, where the level of the Price Increment applicable to a Lot Category will be set based on the level of excess demand (i.e. aggregate demand less the number of Lots available in that category),

assessed based on demand expressed by Qualified Bidders at the Application Stage.

- 3.98 If the Main Stage is not required then each Qualified Bidder that has applied for Lots will automatically become a Winning Bidder, winning the Lots it applied for on its Lot Application Form.
- 3.99 At the end of the Main Stage, or if a Main Stage is not required, the Award Process will progress to the Assignment Stage in respect of:
- a) The 800MHz band in the case that there is more than one Winning Bidder for this band in at least one of the two Time Slices.
 - b) The 900MHz band in the case that:
 - i. There is at least one Winning Bidder of Lots in Lot Category 3 (900MHz Lots in the first Time Slice); or
 - ii. There is at least two Winning Bidders of Lots in Lot Category 4 (900MHz Lots in the second Time Slice).
 - c) The 1800MHz band in the case that:
 - i. There is at least one Winning Bidder of Lots in Lot Category 5 (1800MHz Lots in the first Time Slice); or
 - ii. At least one Lot in any of the Party-specific Lot Categories 8, 9 or 10 won in the Main Stage (that is, any Party-specific 1800MHz Lot in the first Time Slice); or
 - iii. There is at least two Winning Bidders of Lots in Lot Category 6 (1800MHz Lots in the second Time Slice).
- 3.100 In the case of the 800MHz band, if there is a single Bidder in a Time Slice, that Bidder will automatically become a Winning Bidder, its application will be transformed into a Winning Bid at the relevant Reserve Prices and, provided that there is no need for an Assignment Round as per paragraph 3.99 the Winning Bidder will be requested to express its preference for specific frequencies which will be the lowermost or uppermost Lots available within the given band. The Award Process will then progress directly to the Notification & Grant Stage in respect of that Time Slice in that spectrum band.
- 3.101 Once Applications have been submitted they constitute binding offers to purchase the Lots applied for on the Lot Application Form. ComReg may permit the withdrawal of Applications, without forfeiture or partial forfeiture of

Deposits, up to the time that ComReg has completed its assessment of Applications and announced that the Award Process will progress to the Main Stage, the Assignment Stage or to the Notification & Grant Stage, as the results of the Qualification Stage may require, in order to resolve any issues which may arise such as Connected Bidder issues. Other than in the case of the withdrawal of an Application permitted by ComReg as set out above, if a Bidder were to opt not to Bid during the Main Stage of the Auction, its unconditional offer to accept Lots and pay the Reserve Prices associated with such Lots, as included in its Application, would still be included in the assessment of which Bids in the Award Process will become Winning Bids.

3.5 Main Stage

3.102 This subsection outlines the key features of the Main Stage. The detailed Auction Rules pertaining to the Main Stage are provided in subsection 4.4. The function of the Main Stage is to determine how many generic Lots Bidders will be allocated in each of the available Lot Categories and a Price for each Winning Bidder (its Base Price). Specific frequency assignments will be determined subsequently in the Assignment Stage.

3.103 In the Main Stage, certain categories of Lots will be Party-specific and only available to Bid on by one party (assuming that this party participates in the Award Process). These Party-specific Lots provide a mechanism by which Existing MNOs holding Existing Licences in respect of spectrum in the 900MHz and 1800MHz bands, which continue beyond the start date of the first Time Slice, can liberalise this spectrum at a Price determined within the auction.

3.5.1 Primary Bid Rounds and Supplementary Bids Round

3.104 The Main Stage will use a combinatorial clock auction format. This will progress in discrete rounds, consisting of one or more **Primary Bid Rounds**, followed by one further round of bidding – the **Supplementary Bids Round**. Bids are made during these rounds for packages of Lots drawn from the various categories of Lots for which a Bidder is eligible to Bid.

3.105 In any given Primary Bid Round, a single Bid can be made by each Bidder for a package of Lots. The monetary amount of the Bid is determined by the prevailing Round Prices for the Lots included (i.e. the price per Lot in the relevant Lot Categories set by ComReg). Primary Bids are subject to activity

rules that may limit the ability to make Bids depending on the Bids submitted in previous rounds by that Bidder.

3.106 The Supplementary Bids Round consists of a single round of bidding that follows the Primary Bid Rounds. Bidders may submit a number of Bids for different packages of Lots, choosing the amount of these Bids. However, there are restrictions on the Bid amounts that can be specified for these Bids that arise due to the Primary Bids previously submitted. The restrictions on the amounts of Supplementary Bids, together with the activity rules for the Primary Bid Rounds, ensure that Bidders are not able conceal their demand for Lots in early Primary Bid Rounds only to reveal this demand for Lots in later rounds.

3.5.2 Winner and Base Price determination

3.107 All Bids received from Bidders are then considered together to determine the **Winning Bidders** in the Main Stage, and the **Base Prices** to be paid by these Winning Bidders (see subsection 4.5.7). These comprise the initial Bids at Reserve Prices made at the time of application, all Bids made in the Primary Bid Rounds and all Bids made in the Supplementary Bids Round.

3.108 A Winning Combination of Main Stage Bids will be determined by selecting at most one Winning Bid from each Bidder in order to maximise the total value of Winning Bids subject to certain restrictions. These include the amount of any Winning Bid that includes Lots in a Party-specific category that is sufficiently high that the Bidder would still win if the Party-specific Lot Category were hypothetically made available to all Bidders. This ensures that Existing Licensees obtaining liberalised spectrum will pay a market determined price.

3.109 ComReg will determine the Base Price payable by each Winning Bidder in respect of its winning Main Stage Bid. These Base Prices will be determined using an opportunity cost pricing methodology. In particular, each Winning Bid and, collectively, each and every group of Winner Bidders, will be required to pay a sufficient amount so that there is no other Bidder or group of Bidders that would be prepared to pay more. In the case of winners of Party-specific Lots, the amount paid must be sufficient to ensure that this requirement is satisfied even if the Party-specific Lot were made generally available to all Bidders.

3.6 Assignment Stage

3.110 All Winning Bidders from the Main Stage will receive a single block of contiguous frequencies in a band corresponding in size to the number of

Generic Lots won in that band in the Main Stage plus, in the case of existing GSM operators, any spectrum for which it holds usage rights that it did not liberalise within the Auction. These frequencies could potentially be different for the two Time Slices. In addition, ComReg will, in the interests of efficient spectrum usage and management, require that any unallocated frequencies in a band themselves form a single contiguous block.

3.111 An Assignment Stage is needed whenever there is the potential of a number of Winning Bidders (or existing GSM licensees) to have conflicting demands on specific frequencies in a band. The Assignment Stage uses an auction mechanism to resolve any such conflicts. In any band in which there would be a single licensee, then no auction is necessary (as there is no potential for conflicting demands for specific frequencies). In such a case, the single licensee will be able to choose the frequencies that it wishes to be assigned. Note that, given the contiguity rule, this would mean either the highest or lowest frequencies available in the band.

3.6.1 Assignment Round

3.112 The purpose of the Assignment Stage is to determine the frequencies to be assigned to each Winning Bidder in the Award Process (given the outcome of the Main Stage or the Qualification Stage where the Award Process progresses directly from the Qualification Stage to the Assignment Stage) and to any existing GSM Licensee in 900 MHz and 1800 MHz bands who does not win any Lots.

3.113 For each band in which an Assignment Stage is needed, ComReg will determine the feasible assignments of frequencies (so-called assignment options) for each Winning Bidder that:

- a) are compatible with all Winning Bidders in that band receiving contiguous assignments of frequencies (of a size determined by the number of Lots won in the Main Stage and, for 900MHz and 1800MHz GSM licensees, any need to maintain a holding of unliberalised spectrum); and
- b) are compatible with unallocated spectrum forming a single contiguous block of frequencies.

These assignment options will be determined separately for each Time Slice.

3.114 The Assignment Stage consists of a single round of bidding in which Winning Bidders submit sealed Bids for their preferred frequency assignments in each

of the spectrum bands. These Bids may be for a combination of frequency assignments across the two Time Slices for one band. However, Bids are made separately for each band.

Winner and Additional Price determination

3.115 For each spectrum band included in the Assignment Round, there will be a separate determination of the winning Assignment Stage Bids for specific frequency assignments in that band.

3.116 The Winning Combination of Bids in the Assignment Stage will be the combination of valid Assignment Stage Bids having the highest total value of Bid amounts, subject to limitations on assignment options described in subsection 4.5.4.

3.117 In respect of each Winning Bid in the Assignment Stage, ComReg will determine an amount which will be payable by the relevant Winning Bidders according to an opportunity cost pricing rule (that is, Additional Prices). The key features of this rule are similar to those set out in above in relation to determination of the Base Price for a winning Main Stage Bid.

3.7 Notification & Grant Stage

3.118 Once ComReg has determined the Base Price for Winning Bids for Lots in Lot Categories 1 to 10, and determined which Lots in Lot Categories 7 to 10, if any, are to be liberalised and the Additional Prices to be paid for specific frequencies assigned in the Assignment Stage, the results of the Award Process shall be announced to all Bidders as per subsection 4.6.1, releasing:

- the identity of the Winning Bidders;
- the frequency ranges awarded to each Winning Bidder;
- the frequency ranges retained as GSM spectrum rights in the first Time Slice, where applicable; and
- the Upfront Fee to be paid by each Winning Bidder, including a breakdown of the Base Price and any Additional Prices for specific frequency assignments.

3.119 Additionally, ComReg will notify each Bidder in writing whether it has been successful in acquiring Lots in the Award Process.

- 3.120 In the case of Winning Bids, ComReg will notify the Winning Bidders of their entitlement to obtain a Preparatory Licence and a Liberalised Use Licence, subject to compliance with certain obligations, as set out in paragraphs 3.123 and 3.125 below, including their obligation to pay the Upfront Fee.
- 3.121 The **Upfront Fee** to be paid by each Winning Bidder prior to a receipt of a Preparatory or Liberalised Use will be the sum of their Base Price plus any Additional Prices for the specific frequencies assigned to them in the Assignment Stage. The notification to the Winning Bidder will specify the deadline date for the payment of the Upfront Fee, and this date will be approximately two weeks after the release of the results of the Assignment Round to Bidders. The payment of each Winning Bidder's Upfront Fee is a prerequisite condition to that Winning Bidder being entitled to obtain a Preparatory Licence and a Liberalised Licence.
- 3.122 If the amount of a Winning Bidder's Upfront Fee less any applicable Rebates is more than the amount of its Deposit, then the net amount of funds due must be received by ComReg in the relevant bank account as cleared funds before the deadline date. If the amount of a Winning Bidder's Upfront Fee, less any applicable Rebates is less than the amount of its Deposit, or if the Bidder did not win any Lots in the Award Process, the relevant amount of its Deposit will be returned to it by ComReg by the same deadline date (less any Deposit forfeiture imposed in accordance with the Auction Rules (see Chapter 4).
- 3.123 In respect of a Preparatory Licence, the notification will state that, upon grant of such a Licence, the Winning Bidder is obliged to comply with the terms and conditions associated with the Preparatory Licence as set out in section 2.3 of this Information Memorandum and will specify:
- the Lots to be included in the Licence in accordance with the Lots won by the Bidder in the Award Process); and
 - the due date by which the Winning Bidder shall pay the Licence fees associated with the Preparatory Licence.
- 3.124 Where the Winning Bidder has submitted the Upfront Fee and the Licence fees associated with the Preparatory Licence, ComReg will issue a Preparatory Licence to the Winning Bidder.
- 3.125 In respect of a Liberalised Licence the notification will state that, upon grant of such a Licence, the Winning Bidder is obliged to comply with the terms and

conditions associated with the Liberalised Licence as set out in section 2.2 of this Information Memorandum and will:

- specify the Lots to be included in the licence in accordance with the Lots won by the Bidder in the Award Process;
- specify the expected commencement date of the Liberalised Licence notwithstanding the possibility for advanced commencement;
- note that the Winning Bidder is required to pay to the Spectrum Usage Fee associated with the Liberalised Licence in advance of the issue of its Liberalised Licence;
- specify the expected date on which ComReg will issue an invoice to the Winning Bidder in respect of the Spectrum Usage Fee to be paid in connection with the grant of its Liberalised Licence, notwithstanding the possibility for advanced commencement,
- specify the information required by ComReg to populate Part 2 and Part 3 of the Liberalised Licence Schedule and state that the Winning Bidder is obliged to provide such information to ComReg in advance of the commencement date of its Liberalised Licence;
- note that the Winning Bidder is required to submit the necessary performance guarantee, (see Chapter 2 in this regard) in relation to the Coverage and QoS licence conditions in advance of the commencement date of its Liberalised Licence;
- note that the Winning Bidder is required to be authorised under and in accordance with Regulation 4 of the Authorisation Regulations in advance of the commencement date of its Liberalised Licence
- note that where a GSM Licensee has won Lots in Lots category 7, 8, 9 or 10, or has obtained a Liberalised Licence under the possibility of advanced commencement as set out in subsection 2.4.2, the GSM Licensee is required to amend or surrender the rights associated with its GSM Licence (whichever is appropriate) in line with the outcome of the Award Process;
- note that the Winning Bidder is required to comply with Transitional Rules as set out in subsection 2.4.3 in order to be eligible for a Liberalised Licence.

3.126 Where the Winning Bidder has submitted the Upfront Fee and complies with the conditions sets out in paragraph 3.125 above, ComReg will issue a Liberalised Licence to the Winning Bidder.

3.127 ComReg may at its discretion extend the time limit in order for Bidders to fulfil these obligations. If a Winning Bidder does not comply with the conditions relating to the payment of the Upfront Fee as set out in paragraph 3.121 above, or the conditions relating to the Liberalised Licence set out in paragraph 3.125 above it will forfeit its Deposit and Liberalised Licence entitlements, without prejudice to ComReg's entitlement to recover the full amount due in respect of all Lots won as a simple contract debt.

3.128 Once a Liberalised Licence has been issued to a Winning Bidder, ComReg will publish on its website the text of the Liberalised Licence and subsequent renewals of same.

3.8 Transition Rules for 900 MHz and 1800 MHz bands

3.129 As part of the announcement of the results of the Award Process to all Bidders in accordance with subsection 4.6.1 of this document (i.e. the end of Assignment Stage), ComReg will notify Winning Bidders and Existing GSM Licensees of:

- a) the specific location of any unliberalised spectrum holdings of Existing GSM Licensees in the 900 MHz and 1800 MHz band following the outcome of the Assignment Stage;
- b) the Specific Lots in the 900 MHz and 1800 MHz bands, their specific locations and the Winning Bidders for each.

3.130 Existing GSM Licensees will be provided a 2 week period immediately following the above announcement during which to collectively formulate and submit a Relocation Project Proposal for the 900 MHz and 1800 MHz bands for consideration by ComReg (including any agents or servants) and Winning Bidders in these bands.

3.131 ComReg would envisage this Relocation Project Proposal to satisfactorily address at least the following matters:

- identification of the relocations to be undertaken by Existing GSM Licensees and the order of each relocation in each band (or coordinated across both bands);

- the setting of milestones dates for each relocation activity identified. It is assumed that the Relocation Project Proposal will ensure that all relocation activities for both bands will be completed by the commencement date of Time Slice 1;
- where the relocation of one Existing GSM Licensee is dependent upon the relocation/s of another, this would be clearly identified such that any consequential delays to one party due to the delay of another party can be clearly attributable to the responsible party;
- a robust and transparent mechanism to allow ComReg (including any agents or servants), Existing GSM Licensees, Winning Bidders and other Interested Parties to monitor compliance with the relocation activity milestones and deliverable dates (subject to non-disclosure of properly confidential information); and
- attribution and acceptance of liability for liquidated damages payable by Existing GSM Licensee(s) to ComReg in the event of non-compliance by it/them with the relocation activity milestones identified in the plan (as further described below), where such Existing GSM Licensee(s)' actions or omissions caused the non-compliance with the relevant milestone date.

3.132 Following receipt of a Relocation Project Proposal, ComReg will progress the matter in consultation with Winning Bidders and Existing GSM Licensees with a view to finalising a Relocation Project Plan. This may take the form of written consultation and/or via multilateral and/or bilateral meetings with same.

3.133 In the event that Existing GSM Licensees are unable or unwilling to submit a Relocation Project Proposal by the stipulated time, ComReg will formulate and implement a Relocation Project Plan, following appropriate consultation with Winning Bidders and Existing GSM Licensees.

3.134 ComReg reserves the right to make a final and binding decision on any and all matters following appropriate consultation. Existing GSM Licensees and other Interested Parties agree to be bound by the Relocation Project Plan by submitting their Applications to partake in the Award Process.

3.135 Once the Relocation Project Plan is finalised, it will be published on ComReg's website, having regard to the provisions of ComReg's Guidelines on the Treatment of Confidential Information as set out in ComReg Document 05/24. ComReg reserves and retains the discretion to vary the Relocation Project Plan as appropriate.

3.8.1 Liquidated Damages

3.136 An essential part of ensuring that Existing GSM Licensees are appropriately incentivised to complete their respective required relocation activities in an effective and timely manner, is the identification of, and agreement to pay, liquidated damages to ComReg where an Existing GSM Licensee fails to discharge its obligations in accordance with the milestones and deadlines set out in the Relocation Project Plan.

3.137 The total amount of liquidated damages payable by Existing GSM Licensees will be based on the refunds of Licence Fees that ComReg pre-estimates that it may have to make to Winning Bidders in the event that ComReg may be unable to make Lots in the 900 MHz and/or 1800 MHz band available for use by the commencement date of Time Slice 1 due to the transitional activities of Existing GSM Licensees in these bands.⁶¹ Section 2.2.6 of this document contains details of the nature of refunds payable by ComReg and shall be used by ComReg in pre-estimating the payable liquidated damages pursuant to the Relocation Project Plan. These liquidated damages are payable immediately on request and are non-refundable.

⁶¹ A similar process and system may be adopted by ComReg for Time Slice 2 where delays may be caused by the transitional activities of Existing GSM Licensees and Winning Bidders of Lots in Time Slice 1. Depending upon the nature and extent of relocations between Time Slice 1 and Time Slice 2, ComReg reserves the right to apply the above Transition Rules to the Existing GSM Licensees and the Winning Bidders of Lots in Time Slice 1 in the 800 MHz, 900 MHz and 1800 MHz bands.

Chapter 4

4 The Auction Rules

4.1 Running of the Auction

4.1.1 The Electronic Auction System

- 4.1 Both the Main Stage (including the Primary Bid Rounds and the Supplementary Bids Round) and the Assignment Stage will be run through the Electronic Auction System (EAS). Following the Qualification Stage, but prior to the start of the Auction, Bidders will be informed how to use the EAS and will be given various authentication tokens to allow access to this system. Bidders will be provided with a user manual for the EAS, explaining how to use both the EAS and the supplied certificates for authentication of each Bidder by the EAS.
- 4.2 Bidders will not face any particularly onerous technical requirements in accessing the EAS. They will require a computer with:
 - a) an up-to-date operating system (Windows, OS X or Linux) free from viruses and malware;
 - b) a recent web browser (such as Internet Explorer, Safari or Firefox);
 - c) an up-to-date installation of Java; and
 - d) a reliable Internet connection (which does not require more than 512kbps in bandwidth, but should provide sufficient reliability and have reasonably low latency).
- 4.3 Specific recommendations on accessing the EAS securely will be provided in the user manual. However, Bidders are responsible for ensuring that their authentication tokens are kept securely and are only available to Authorised Agents. In the event that a Bidder has cause to believe that its authentication tokens have been released to unauthorised persons or has any reason to believe that there has been, or that there is risk of, unauthorised access to the EAS, the Bidder should inform ComReg immediately.
- 4.4 By participating in the Auction, Bidders consent to the logging of all accesses to the EAS.

- 4.5 Bidders are recommended to have back-up bidding facilities in place, including alternative computers and Internet connections, to ensure that they can access the EAS reliably. ComReg is not able to provide specific advice on this matter, as this depends on the systems in use by any particular Bidder. Bidders should perform their own reviews of their bidding facilities prior to the start of the Auction.
- 4.6 Bidders may not submit Bids through means other than the EAS except in exceptional circumstances and only then with the explicit permission of ComReg. In particular, ComReg must be satisfied that a Bidder was unable to access the EAS due to circumstances beyond its reasonable control before granting permission for Bid to be made through other means. Procedures for the submission of Bids other than through the EAS are described in subsection 4.19. It is in Bidder's own interests to submit Bids using the EAS, as the EAS provides facilities to check the compatibility of Bids with the Auction Rules prior to submitting them.
- 4.7 Limited time **extensions** will be available to Bidders to allow Bids to be submitted after the deadline initially notified by ComReg. The rules for these time extensions are explained in subsection 4.3. These time extensions are expected to allow Bidders opportunity to switch to back-up bidding facilities and to submit a Bid through the EAS in the case that the Bidder has experienced technical difficulties.

4.1.2 Information made available to Bidders prior to the start of the Auction

- 4.8 Before the start of the Main Stage of the Auction, ComReg will announce to all Bidders:
- the Round Price for each Lot Category in the first Primary Bid Round;
 - the provisional round schedule for the first few days of the Auction; and
 - the number of extension rights to be granted to each Bidder for the Primary Bid Rounds.
- 4.9 Bidders will already have been informed of their initial Eligibility to make Bids in each Time Slice at the Qualification Stage.

4.1.3 During the Auction

Bid submission

4.10 All Bids are submitted through the EAS unless exceptional circumstances prevent Bidders from doing so.

4.11 The process for submitting a Bid in each of the Primary Bid Rounds, Supplementary Bids Round and the Assignment Round is described in the relevant subsections below, but in all cases there is a two-step process for submitting Bids:

- in the first step, Bidders enter their Bid in a given form and send this for checking by the EAS; and
- in the second step, a Bid confirmed by the EAS as valid at the first step is submitted.

4.12 The EAS will check Bid forms for consistency with the Auction Rules and the Bidder's Eligibility to Bid.⁶² Once a Bid has been checked and has been confirmed as compliant with the applicable constraints, the screen will display a summary statement of the Bid. A Bidder can then formally submit this Bid. Alternatively, after checking the Bid, the Bidder could choose to return to the Bid form to revise its Bid (in which case the Bidder would need to check its Bid once more before it can be confirmed).

4.13 A Bidder is treated as not having submitted a Bid until such time as a valid Bid is received by the EAS. The Bid shall become irrevocable on receipt by the EAS. If a valid Bid is submitted to and received by the EAS, it will be treated as binding irrespective of whether subsequent confirmation is received by the Bidder. It is the responsibility of the Bidder to check receipt of the Bid by the system by receiving a confirmation, and to alert ComReg if problems are suspected to have prevented successful receipt of a confirmation.

4.14 Bidders should be aware that the transmission of a Bid from a client computer to the EAS will take a short, but material, time. Bids are considered to have been submitted and become irrevocable at the time they are logged by the EAS, and not the time when they were initially sent by the Bidder's computer. Therefore, data transmission delays that could lead to extension periods being

⁶² Notwithstanding this the Bidder is responsible for confirming that each Bid that is made on its behalf is valid in accordance with the Auction Rules and certifies this on submitting each Bid.

triggered (or, in the worst case, if a Bidder's extension time budget has already been used up, the Bidder being considered to have not made a valid Bid before the end of the round) are at the Bidder's own risk. It is recommended that Bidders maintain a sufficient extension time budget to ensure that this risk is mitigated. Bidders are responsible for making their own assessments of such risks and ensuring that they have access to the necessary infrastructure and equipment to allow reliable Bid submission.

- 4.15 Bidders should note that any Bid lodged with the EAS is not processed until the relevant submission deadline for the round in force is reached. Therefore, there is no strategic advantage whatsoever obtained by submitting a Bid close to the submission deadline.
- 4.16 If a Bidder is unable to submit a Bid using the EAS, then it should immediately notify ComReg and seek permission to submit a Bid using an alternative method. Permission will be granted at the discretion of ComReg, and will usually not be given if ComReg has been notified after a round has closed. Where notification is received before the end of a round, ComReg may grant such permission for one or more rounds, and will provide directions to the relevant Bidder for the submission of such Bids. Bidders must follow the express directions of ComReg for the submission of Bids by alternative means, such as fax, email or telephone, otherwise ComReg will consider that no valid Bid has been submitted.

Collusion

- 4.17 Bidders are reminded that they are subject to provisions, both from the Auction Rules and from competition law, against the coordination of bidding decisions with other Bidders or the sharing of information with other Bidders that could affect those Bidders' bidding decisions. These apply throughout the Award Process. See subsections 3.3.5 of this Information Memorandum for the Auction Rules relating to collusion.

Communication with ComReg

- 4.18 The EAS contains a one-way messaging system, which will be used as the primary method for ComReg to communicate with Bidders during the Auction. The EAS will log if, and when, Bidders read messages sent to them by ComReg through the EAS.

4.19 Bidders may contact ComReg by telephone, using designated telephone numbers, only to report technical problems. In certain exceptional circumstances, Bidders may be given permission to submit a Bid through alternative means, such as fax, email or telephone. Where permission has expressly been granted by ComReg to a Bidder, such a Bidder may submit Bids only by the means previously agreed with ComReg.

4.20 Contact details for ComReg and guidelines on the submission of Bids in exceptional circumstances will be made available to Bidders in advance of the Auction. ComReg may take steps to verify the authenticity of any communications from a Bidder using one-time passwords provided to the Bidder prior to the start of, or during, the Auction, or by other means as necessary.

4.1.4 Exceptional circumstances

4.21 If exceptional circumstances arise during any stage of the Auction, ComReg has the discretion to:

- postpone the end of a round in progress or the release of results of a round;
- postpone the scheduling of further rounds;
- cancel a round that is either underway or which has finished but for which round results have not yet been released, and re-schedule that round;
- void one or more rounds and the Bids made therein, and resume the Auction from an earlier round;
- void all Bids received in the Auction, and either suspend the Auction or restart the Auction;
- end the Primary Bid Rounds early (i.e. while there is still excess demand in one or more Lot categories), and proceed directly to the Supplementary Bids Round (see subsection 4.4); and/or
- take any other steps or measures in running the Award Process which are appropriate and proportionate to the exceptional circumstances which have arisen and which further the objectives of the Award Process and ComReg's objectives.

4.22 ComReg will determine whether a situation of exceptional circumstances has arisen. Exceptional circumstances could include, for example, widespread technical failure or material concern about collusion amongst Bidders.

4.23 In the event that a Bidder is excluded from the Auction and some, or all, of its Bids so far deemed invalid, ComReg would typically expect not to use any of its exceptional powers to modify any Auction outcome or intermediate state of the Auction as it affects other Bidders. However, ComReg does not fetter its discretion in this regard.

4.2 Spectrum caps

4.24 Applications submitted by Applicants at the Application Stage of the Award Process and all Bids made by Bidders in the Main Stage of the Auction are subject to the following spectrum caps:

- For each Time Slice (February 2013 to July 2015 or July 2015 to July 2030) separately, a total cap of 2x50MHz of spectrum across all three bands (800MHz, 900MHz and 1800MHz);
- For each Time Slice (February 2013 to July 2015 or July 2015 to July 2030) separately, a cap of 2x20MHz of sub-1GHz spectrum (that is, spectrum in the 800MHz band plus spectrum in the 900MHz band); and
- For the Time Slice 1 (February 2013 to July 2015) only, a cap of 2x10MHz of spectrum in the 900MHz band.

For the avoidance of doubt, any spectrum in the bands in respect of which an Existing MNO retains rights of use on an unliberalised basis after the start of Time Slice 1 will count towards the Spectrum Caps.

4.3 Overview of Main Stage

4.25 This subsection provides an informal overview of the key features of the Main Stage and explains the rationale for certain rules. The detailed Auction Rules themselves are described in the subsequent subsection 4.4. Some worked examples of how these rules affect the Bids a Bidder may make in the Primary Bid Rounds and Supplementary Bid Round are given in Annex 7:.

4.3.1 Function of the Main Stage

4.26 The Main Stage determines:

- the allocation of the Lot Categories consisting of generic Lots available to all Bidders (categories 1 to 6); and
- what, if any, Lots will be awarded in respect of Party-specific Lot Categories (categories 7 to 10).

The Main Stage determines which Bidders will win these generic Lots and the number of Lots in each Lot Category they each win. For existing GSM licensees, it also determines whether some or all of their existing GSM spectrum holdings will be maintained on an unliberalised basis or replaced by liberalised spectrum. The Main Stage does not determine the specific frequencies to be awarded, which are determined subsequently in the Assignment Stage.

- 4.27 A Main Stage of the Auction will be required whenever there is excess demand for one or more Lot Categories 1 to 6 given the selection of Lots made by Bidders in their applications. In the event that an Auction is required, the selection of Lots made at application will be treated as an initial Bid for this package of Lots at Reserve Prices.
- 4.28 All Bids in the Main Stage are made for packages of Lots. A Bid for a package of Lots will not be subdivided, so a Bidder will only win an entire package it has Bid for, or win no Lots. As a result, Bidders do not face risks associated with winning some, but not all, of a set of Lots.

4.3.2 Primary Bid Rounds

- 4.29 The Main Stage is an open auction consisting of one or more Primary Bid Rounds, followed by one further round of bidding – the Supplementary Bids Round. The multiple round structure of the auction is intended to allow Bidders to learn about aggregate demand for spectrum in the various bands (and Time Slices) and to provide an opportunity for Bidders to revise their assessment of the value of Lots in the light of this information.
- 4.30 In the Primary Bid Rounds, Round Prices for each Lot Category are announced by ComReg and incremented from round to round to reflect excess demand in each Lot Category. In each Primary Bid Round, a Bidder may Bid for a single package, with a Bid amount set by the Round Prices. The Primary Bid Rounds close when there is no excess demand in any of Lot Categories 1 to 6 (subject to certain provisions for exceptional circumstances).

- 4.31 In order to ensure that bidding is progressive, with Bidders reducing their demands as the prices of Lots increase, there are *activity rules* for the Primary Rounds. These activity rules deter Bidders from revealing their demand for Lots only late in the auction. In particular, in the Primary Bid Rounds it is necessary for a Bidder to make Bids for sufficiently large packages of Lots (as measured in terms of Eligibility Points) in order to maintain its Eligibility to make further Bids in subsequent rounds, otherwise its Eligibility will be reduced.
- 4.32 Within this constraint, there is significant flexibility for Bidders. First, it is possible for Bidders to switch demand across Lot Categories from one Primary Bid Round to the next whilst maintaining overall Eligibility in a Time Slice. However, because both bidding activity and Eligibility are determined independently for each Time Slice, it is not possible to shift demand across Time Slices from one round to the next.
- 4.33 Second, the rules incorporate specific features that (in certain circumstances) allow Bidders to make Bids that breach the normal condition that Bid activity should not exceed current Eligibility (in either Time Slice). Such Bids are termed **Relaxed Primary Bids**. There is no necessity that a Bidder uses the facility to make Relaxed Primary Bids unless they wish to. Therefore, Relaxed Primary Bids are an entirely optional feature of the Auction Rules for Bidders.
- 4.34 Whether or not such a Relaxed Primary Bid is allowed depends on the Round Price applying in a round and the history of previous Primary Bids. To be able to Bid for a package that exceeds a Bidder's current Eligibility, it is necessary for such a Bid be consistent with the preferences expressed by the earlier Bid made when the Bidder last had the Eligibility to Bid for that package. The essence of the consistency requirement is that if a Bidder dropped Eligibility by bidding for package *A* in preference to package *B*, it cannot then Bid for package *B* on some subsequent occasion when package *B* has become relatively more expensive compared with package *A* and so should be less attractive.
- 4.35 These provisions for Relaxed Primary Bids are needed due to nature of the rules that cap Supplementary Bids (discussed in the next subsection). In particular, these rules for Supplementary Bids mean that the outcome achieved in the final Primary Bid Round cannot be too readily overturned by subsequent Supplementary Bids. This is a desirable feature, but Bidders then need to be given sufficient flexibility to Bid for the package that they most prefer at the prevailing Round Prices in each Primary Bid Round.

- 4.36 Relaxed Primary Bids provide an opportunity for Bidders to respond to the changing relative prices of Lots in different categories. For instance, suppose that a Bidder starts by bidding for package *A*, but this package becomes too expensive relative to an alternative package *B* and so the Bidder switches to bidding on package *B*. However, it might be that package *B* has a smaller activity than package *A* (for example, a Bidder might need fewer Lots in a different band). Without the opportunity to make Relaxed Primary Bids, a reduction in Eligibility would occur, as the Bidder would not be able to Bid again for package *A*, even if in some future round package *B* became relatively expensive compared with package *A*.
- 4.37 In contrast, the Relaxed Primary Rule will permit such a Bid provided that Round Prices have changed in a way that a Bid for Package *A* can be made consistently given the previous Bids made by the Bidder.⁶³ This means that the Bidder should not be able to switch back again unless package *B* has become no more expensive in relative terms to package *A* as when the Bidder previously switched from package *B* to package *A*. In some cases, to make a consistent Bid for package *A* it might be necessary to raise a Bidder's previous Bid for package *B*. Such a Bid is called a **Binding Supplementary Bid**.
- 4.38 Binding Supplementary Bids are additional Bids that the EAS determines are necessary on certain packages that have already been subject to Primary Bids in earlier rounds in order to make a Relaxed Primary Bid on a package that the Bidder is not currently eligible to Bid for. These Binding Supplementary Bids are at the minimum level necessary to ensure consistency with the Bids made for packages in Primary Bid Rounds where the Bidder dropped Eligibility.
- 4.39 In some cases there may be no Binding Supplementary Bids that allow a Relaxed Primary Bid to be made at the current Round Prices. In this case, a Relaxed Primary Bid will not be permitted, as Round Prices have not changed in a manner that permit such a Bid given the previous Bids made by the Bidder.
- 4.40 The EAS will assist Bidders with identification of possible packages that can be subject to Relaxed Primary Bids. Also, any associated Binding Supplementary Bid(s) that need to be submitted alongside the Relaxed Primary Bid would be identified by the EAS. There would typically be only a small number of such Binding Supplementary Bids needed. Therefore, making a Relaxed Primary

⁶³ Strictly, this consistency is only required in respect of Bids made on packages submitted in Primary Bids in rounds where the Bidder dropped Eligibility.

Bid simply requires the selection of the package by the Bidder; all Bid amounts would be non-discretionary.

4.3.3 Supplementary Bids Round

- 4.41 It is possible that the Primary Bid Rounds would not by themselves lead to an efficient allocation of the available Lots. For example, there could be unallocated Lots in the final Primary Bid Round because a Bidder reduced its demand from one round to the next by multiple Lots (or even because multiple Bidders reduced their demand simultaneously). However, it could be that another Bidder would value these unallocated Lots – either the Lots by themselves or in combination with other Lots – but this possibility might not be expressed by that Bidder’s Primary Bid in the final Primary Bid Round or, indeed, have been expressed by any previous Primary Bid that the Bidder has made.
- 4.42 For this reason, the Main Stage includes one further round of bidding – the Supplementary Bids Round – which occurs after the final Primary Bids Round. This allows Bidders to Bid for multiple packages of Lots, including packages that they may not yet have Bid for in any Primary Bid Rounds. A Supplementary Bid may be made for any package of Lots satisfying the spectrum caps and for which the Bidder was initially eligible to Bid. However, there are caps on the amount of any Supplementary Bids other than for the package Bid for by a Bidder in the final Primary Bid Round (the Final Primary Package).
- 4.43 Supplementary Bids can only increase the highest Bid made so far for a package (which might be a Primary Bid or a previously made Binding Supplementary Bid). Bidders are not required to make Supplementary Bids if they do not wish.
- 4.44 Providing that a Bidder is bidding for a non-zero package in the final Primary Bid Round, there is no cap on the amount of the Supplementary Bid that may be made for that package. (If the Bidder has dropped out entirely before the end of Primary Bid Round, the Final Primary Package is a trivial zero package with a Bid amount of zero.) However, any other package is subject to two parallel systems of caps on Supplementary Bids: a **Final Price Cap** and a **Relative Cap**.
- 4.45 The **Final Price Cap** limits the amount of any Supplementary Bid for a package X to the highest Bid for the Final Primary Package plus the difference

in price between package *X* and the Final Primary Package at the final Round Prices. This cap applies to all packages other than the Final Primary Package.

- 4.46 The effect of the Final Price Cap is to ensure that if a Bidder submits a Supplementary Bid for a package other than its Final Primary Package, then the *incremental* valuation that its Bid expresses for any additional Lots is at most the value of those Lots at the Final Round Prices. A consequence of this rule is that a Bidder can ensure it wins its Final Primary Package provided it makes a sufficiently high Supplementary Bid (and does not raise the amount of Primary Bids for alternative packages too much). This issue is analysed in detail in Annex 7.
- 4.47 The **Relative Cap** limits the amount that can be Bid for packages that the Bidder is no longer eligible to Bid for in the Final Primary Round.⁶⁴ This is intended to ensure that the preferences across different packages expressed by a Bidder's Supplementary Bids are consistent with the Primary Bids that the Bidder previously made. This mechanism is intended to provide incentives for straightforward bidding during the Primary Bid Rounds.
- 4.48 The Relative Cap limits the amount of a Supplementary Bid for a package *X* relative to the highest Bid made for the package (the Constraining Package) subject to a Bid in the last Primary Bid Round (the Constraining Round) when the Bidder was eligible to Bid for package *X*. In the Constraining Round, the Bidder did not Bid for package *X*, but instead dropped Eligibility by bidding for the Constraining Package. The amount that the Bidder can subsequently Bid for *X* in excess of the Constraining Package is limited to the price difference between these packages given the Round Prices back in the Constraining Round.
- 4.49 Notice that Relative Caps arise due *only* as a result of a Bidder dropping Eligibility. If a Bidder entered a round with Eligibility *E*, but Bid for a package *Y* with activity (in at least one Time Slice) that is lower than *E* (and so has lower Eligibility in the following round), then the Bid made in that round for *Y* will determine Relative Caps on all packages with Eligibility *E*. All packages with Eligibility *E* will have package *Y* as their Constraining Package. However, if the Bidder does not drop Eligibility, then no relative caps are created by its Bid in that Primary Bid Round.

⁶⁴ The relative cap and the final price cap coincide for packages that the Bidder is eligible to Bid for in the final Primary Round. Therefore, the relative cap can be ignored for such packages.

4.3.4 Winner and price determination

- 4.50 The Winning Bids are selected from amongst all the Bids received in the Main Stage, including all Bids submitted in the Primary Bid Rounds, the Bids for a single package of Lots at Reserve Prices made at Application, and all Bids made in the Supplementary Bids Round. The selection of Winning Bids maximises the total value of Winning Bids, subject to accepting at most one Bid from each Bidder and ensuring that the Winning Bids can be satisfied given the available spectrum. Further specific restrictions apply before Party-specific Bids can become part of Winning Bids, which ensure that no other Bidder or Bidders would win the Lot if it were hypothetically made available as an unrestricted Lot available to all Bidders. This process of selecting the Winning Bids on the basis of optimisation is called **winner determination**.
- 4.51 The prices that Winning Bidders need to pay (Base Prices) are then determined by an algorithm that identifies the opportunity cost that each Winning Bidder and group of Winning Bidders imposes on other Bidders denied spectrum by virtue of the available Lots being allocated to these Winning Bidders. In determining this opportunity cost, the restrictions that a Party-specific Lot can only be won by one Party will be disregarded and the Lot treated as if it were available to all. This ensures that the winners of Party-specific Lots will pay a fair market price and will not be advantaged by the bidding restriction on such Lots.
- 4.52 Annex 8: provides a more formal mathematical description of the process of winner and price determination that will be used. This is also described in more detail in subsection 4.4.4 and 4.4.5 below.

4.4 Detailed rules for the Main Stage

- 4.53 This section provides a detailed description of the rules applying to the Main Stage.

4.4.1 Primary Bid Rounds

Schedule for Primary Bid Rounds

- 4.54 Primary Bid Rounds are scheduled at ComReg's discretion.
- 4.55 There is no minimum or maximum length for a Primary Bid Round. However, ComReg does not anticipate setting Primary Bid Round schedules with a round

duration of less than 30 minutes or greater than two hours (assuming no extensions are triggered). Subject to the constraints of the notification requirements below, the duration between Primary Bid Rounds is discretionary and a matter for ComReg to determine round-by-round. Nevertheless, ComReg would typically expect to give at least one day's notice of its intentions with regard to the pace of the rounds. Due the provisions for automatic extensions of rounds, it is not possible to give a firm timetable giving the start time of each round well in advance; the actual start time of next round will be notified after the completion of the preceding round in line with the notice requirements.

- 4.56 All Primary Bid Rounds will be scheduled to run between 9.00 and 18.00 hours on Business Days assuming that no extensions are triggered.
- 4.57 There is no upper bound on the number of Primary Bid Rounds that may be run in a day, although ComReg does not anticipate running more than eight Primary Bid Rounds in a single day.
- 4.58 Bidders will be notified of the start time of a Primary Bid Round through the EAS at least 15 minutes in advance. With the start time of the next Primary Bid Round, each Bidder will also be informed about:
- the duration of the Primary Bid Round;
 - the Round Price for each Lot Category in the round;
 - the Bidder's Eligibility to Bid in the round (expressed as a number of eligibility points for each Time Slice); and
 - the number of extension rights it has remaining (discussed from paragraph 4.104 below).
- 4.59 Even if all Bidders have submitted Bids prior to the scheduled end of a Primary Bid Round to which no extension has been applied, the round will not be closed early.

Bid submission

- 4.60 All Lots in categories 1 to 6 are available for all Bidders to Bid for in each Primary Bid Round. All Lots in categories 7 to 10 are available for only one specific Bidder to Bid for.
- 4.61 In each Primary Bid Round, a Bidder may choose only one package to Bid for.

However, in the case of a Relaxed Primary Bid, this Primary Bid may be

associated with Binding Supplementary Bids being made on one or more packages that have already subject to a Primary Bid in an earlier round. These associated Binding Supplementary Bids would be calculated by the EAS, notified to the Bidder and made automatically when the Relaxed Primary Bid was made. Therefore, even in this case, the Bidder need only identify a single package to be subject to a Primary Bid.

4.62 In all cases, a Primary Bid is made by specifying the number of Lots in each of the Lot Categories that a Bidder wishes to acquire at the prevailing Round Prices. A Lot package may include any combination of Lots subject to the constraints arising from the application of spectrum caps (described in subsection 4.2) and activity rules (described subsequently in subsection 4.4). To enter a Bid in the EAS, Bidders must select the number of Lots that they wish to acquire in each Lot Category using the drop down boxes provided on the electronic Bid form.

4.63 The monetary **amount** of a Bid is determined as follows:

- for each Lot Category, the number of Lots in that category included in the Bid will be multiplied by the relevant Round Price for that category; and
- these values will be summed across all Lot categories.

4.64 It is not possible for Bidders to choose the amount of a Bid during the Primary Bid Rounds.

4.65 Bid submission follows the two-step process described in subsection 0.

4.66 A Bid is a binding offer to buy a specified package of Lots for a price not exceeding the amount of the Bid. Each Bid will only be considered in its entirety and will not be sub-divided.

4.67 During the Primary Bid Rounds, Bidders have the option to submit a Zero Bid, i.e. to Bid for an empty Lot package containing no Lots in any of the available Lot Categories for an amount of zero. Following such a Bid, the Eligibility of a Bidder making a Zero Bid will be set to zero (for both Time Slices) in the following and all subsequent Primary Bid Rounds. This does not prevent a Bidder from making subsequent Supplementary Bids or a Relaxed Primary Bid (where permitted by the rule on Relaxed Primary Bids).

4.68 If a Bidder fails to submit a Bid within the round schedule, extended by an extension period if that the Bidder has an extension time budget remaining, the EAS will automatically enter a Zero Bid on the Bidder's behalf.

Activity rules for Primary Bids

4.69 The **activity** associated with a Bid for a package of Lots in respect of a Time Slice is determined as follows:

- a) for each Lot Category falling into the Time Slice considered, the number of Lots in that category included in the Bid will be multiplied by the eligibility points per Lot applying to that category; and
- b) these values will be summed across all Lot Categories falling into the Time Slice considered.

4.70 The total Eligibility of a Bidder for the first Primary Bid Round, its initial Eligibility, is set by the Lots selected on the Bidder's Application, as described in Section 3.4.3.

4.71 In each Primary Bid Round, a Bidder may submit a Bid with an activity level less than or equal to its current Eligibility in each Time Slice, and in accordance with spectrum caps (set out in subsection 4.2). In certain limited circumstances, a Bidder is permitted to make a Bid whose activity exceeds its current Eligibility in one or both Time Slices. Such Bids are termed **Relaxed Primary Bids** and are described in subsection 4.4.

4.72 For each subsequent Primary Bid Round, each Bidder's **Eligibility** in a Time Slice is equal to that Bidder's activity in that Time Slice in the previous Primary Bid Round, with the exception that if a Bidder makes a Relaxed Primary Bid, its Eligibility in both Time Slices will be maintained at its current level. Thus, over successive Primary Bid Rounds, a Bidder's Eligibility in a Time Slice can stay the same or fall, but can never increase.

4.73 The EAS will not allow any Bidder to submit a Bid which or is in violation of the spectrum caps (set out in subsection 4.2). The EAS will not permit a Bid whose activity exceeds the Bidder's current Eligibility to Bid in either Time Slice, unless the Bidder is in a situation where it can make a Relaxed Primary Bid (discussed in the following subsection). If a Bidder checks a Bid that is invalid, it will be required to return to the Bid form to revise its Bid.

4.74 The EAS will also warn a Bidder if a Bid it checks would result in a reduction of the Bidder's Eligibility in either Time Slice for the next Primary Bid Round. In

this case, the Bidder would have the option to return to the Bid form to revise their Bid.

4.75 As the Primary Bid Rounds progress, Bidders may switch Eligibility between categories of Lots. Therefore, within a given Time Slice, it is possible that a Bidder's activity in one or more Lot Categories may increase in a round relative to the previous round, provided that the Bidder's activity in other Lot Categories is sufficiently reduced in the same round. For the avoidance of doubt, eligibility points are not transferable across Time Slices; it is not possible to increase bidding in one Time Slice and correspondingly reduce bidding in the other Time Slice.

Relaxed Primary Bids

4.76 In certain circumstances (defined in this subsection), a Bidder will be permitted to make a Bid whose associated activity exceeds its current Eligibility in one or both Time Slices. This will be called a Relaxed Primary Bid.

4.77 Relaxed Primary Bids are not permitted for packages that exceed a Bidder's initial Eligibility in respect of either Time Slice. A Bid may only be made for a single package (subject the need for making associated Binding Supplementary Bids discussed below).

4.78 A Relaxed Primary Bid must be for an amount equal to the price of the package at the current Round Prices. A Bidder is not able to choose the amount of a Relaxed Primary Bid.

4.79 To make a Relaxed Primary Bid on some package X at the current Round Prices, **Binding Supplementary Bids** may be required on one or more packages that were subject to previous Primary Bids (as specified below).

4.80 Binding Supplementary Bids are required on the packages which were subject to Primary Bids:

- a) made since the most recent Primary Bid Round in which the Bidder was eligible for package X ; and
- b) made in a round in which the Bidder reduced its Eligibility to Bid in one or both Time Slices.

4.81 Let the Primary Bid Round M_1 be the most recent round in which the Bidder was eligible to Bid for package X . A Binding Supplementary Bid is required on

the package Z_1 that was subject to a Primary Bid in round M_1 . The amount of this Binding Supplementary Bid for package Z_1 is equal to:

- a) The amount of the Relaxed Primary Bid for package X (i.e. the price of package X at the current Round Prices) minus
- b) The difference in price between package X and the package Z_1 at the round M_1 prices.

4.82 Where a Bidder has previously made a Bid⁶⁵ for package Z_1 in a previous Primary Bid Round at least this level, no Bid is required in this round.

4.83 If the Bidder is currently eligible to Bid for package Z_1 defined above, then no other Binding Supplementary Bids are required.

4.84 Conversely, if the Bidder is not currently eligible to Bid for Z_1 , let M_2 be the most recent Primary Bid Round in which the Bidder was eligible to Bid for Z_1 . A Binding Supplementary Bid is required on the package Z_2 that was subject to a Primary Bid in round M_2 . The amount of this Binding Supplementary Bid for package Z_2 is equal to:

- a) The amount of the Binding Supplementary Bid for package Z_1 (determined above) minus
- b) The difference in price between package Z_1 and the package Z_2 at the round M_2 prices.

4.85 Where a Bidder has previously made a Bid for package Z_2 in a previous Primary Bid Round at least this level, no Bid is required in this round.

4.86 If the Bidder is currently eligible to Bid for package Z_2 defined above, then no other Binding Supplementary Bids are required.

4.87 Conversely, If the Bidder is not currently eligible to Bid for package Z_2 then at least one further Binding Supplementary Bid is required. The further Binding Supplementary Bids are defined sequentially as follows.

4.88 Assume that the Bidder is not eligible to Bid for a previously defined package Z_k subject to a required Binding Supplementary Bid. Determine the most recent Primary Bid Round M_{k+1} in which the Bidder was eligible to Bid for Z_k . A Binding Supplementary Bid is required on the package Z_{k+1} that was subject to

⁶⁵ This is irrespective of whether this is a previous Primary Bid, Relaxed Primary Bid or Binding Supplementary Bid.

a Primary Bid in round M_k . The amount of this Binding Supplementary Bid for package Z_{k+1} is equal to:

- a) The amount of the Binding Supplementary Bid for package Z_k (previously determined) minus
- b) The difference in price between package Z_k and the package Z_{k+1} at the round M_k prices.

4.89 Where a Bidder has previously made a Bid for package Z_{k+1} in a previous Primary Bid Round at least this level, no Bid is required in this round.

4.90 If the Bidder is current eligible to Bid for Z_{k+1} then no further Binding Supplementary Bids are required. Otherwise, repeat the procedure in the paragraph above.

4.91 To be permitted to make a Relaxed Primary Bid on the package X , it is necessary that none of the associated Binding Supplementary Bids defined above exceed the price of the package subject to the Binding Supplementary Bid at current Round Prices.

4.92 If one or more of the associated Binding Supplementary Bids exceed the price of Lot at current Round Price, then it is not possible to make a Relaxed Primary Bid for package X in the current Primary Bid Round. For the avoidance of doubt, this does not rule out the possibility that Relaxed Primary Bid might be possible for that package in some later Primary Bid Round depending on the subsequent evolution of Round Prices.

4.93 When making a Relaxed Primary Bid, it is only necessary for a Bidder to enter a single package that is the subject of its Bid into the EAS. The associated Binding Supplementary Bids that need to be made together with the Relaxed Primary Bid will be identified by the EAS and notified to the Bidder on checking its Bid. On submission of its Bid, these associated Binding Supplementary Bids will be entered by the EAS.

4.94 The EAS will provide facilities to assist in determining when the current Round Prices and the history of a Bidder's reductions in Eligibility in particular rounds will permit a Relaxed Primary Bid on a particular package.

Validity of Bids

4.95 Each Bid submitted which is in compliance with the Auction Rules is considered valid and represents a binding commitment to buy the specified

package of Lots at a Price not exceeding the specified Bid amount and to pay the appropriate Spectrum Usage Fee through the life of the licence. This commitment remains in force until ComReg announces the conclusion of the Award Process as specified in paragraph 5.31 of this document.

- 4.96 A Bid remains valid until it is replaced by a higher Bid for the same package by the same Bidder in a subsequent Primary Bid Round or in the Supplementary Bids Round, or it is voided by ComReg pursuant to rules on breach of the Auction Rules.

Round Prices

- 4.97 In all Primary Bid Rounds, the Round Price for each Party-specific Lot Categories will be set equal to the Round Prices of the corresponding category open to all Bidders in the same spectrum band and time period. The correspondence is given in Table 10 below. For each Party-specific Lot Category there is a unique **matching category** open to all Bidders

Party-specific Lot Category	Category determining Round Price (Matching category)
(7) 900/1/MET	(3) 900/1
(8) 1800/1/MET	(5) 1800/1
(9) 1800/1/TO2	(5) 1800/1
(10) 1800/1/VOD	(5) 1800/1

Table 10: Round prices for Party-specific Lot categories

- 4.98 In the first Primary Bid Round, the Round Price for each Lot Category open to all Bidders (categories 1 to 6) will be set equal to the Reserve Price for that Lot Category plus one price increment (see paragraphs 4.101 and 4.102) where there is excess demand for a Lot Category given the selection of Lots made by Bidders in their Applications. In subsequent Primary Bid Rounds, the Round Price categories 1 to 6 will be increased if in the previous round there was excess demand for Lots in that Lot Category. The Round Prices for categories 7 to 10 will be determined by the prices for categories 3 and 5 according to Table 10.
- 4.99 Excess demand in a Lot Category 1 to 6 exists in a round if the number of Lots demanded by Bidders in that Lot Category in the round, taking into account all valid Bids, is greater than the number of Lots available in that Lot Category.

- 4.100 For Lot Categories 1 to 6 in which there is no excess demand, the Round Price will remain unchanged.
- 4.101 For each Lot Category 1 to 6, the amount by which the Round Price is increased in the case of excess demand is set at ComReg's discretion. Price increments will normally be based on the level of excess demand, and increments may vary across Lot Categories and across Primary Bid Rounds.
- 4.102 In any case, the Round Price will not increase by more than 50% from one Primary Bid Round to the next. Round prices will be given in units of 1,000 euros.
- 4.103 For the avoidance of doubt, the Round Price of any Lot Category will not be reduced during the Primary Bid Rounds.

Extension rights

- 4.104 An extension right allows a Bidder additional time in which to submit a Bid during a Primary Bid Round. In the event that a Bidder with non-zero Eligibility and one or more remaining extension rights fails to submit a Bid during a Primary Bid Round, the round will automatically be extended for that particular Bidder, and one of its remaining extension rights deducted. Where an extension right is utilised, the EAS will automatically extend the time within which any Bidder utilising an extension right can submit a Bid by 30 minutes from the scheduled end of the round.
- 4.105 The extension period ends 30 minutes after the scheduled end of the round, or once all Bidders who are using extensions have successfully submitted their Bids, whichever is the earlier. For the avoidance of doubt, a round which has not been subject to an extension will not close earlier than the scheduled end even if Bids have been received from all Bidders.
- 4.106 Bidders that have already submitted a Bid during the round cannot take any further action during the extension period. They will be informed that the round has been extended and should wait for the announcement that the extension period has ended.
- 4.107 Bidders that have not submitted a Bid during a Primary Bid Round and have no remaining extension rights will not be able to enter a Bid during the extension period, and a Zero Bid will be entered automatically on their behalf.
- 4.108 Each Bidder starts the Primary Bid Rounds with two extension rights.

- 4.109 Additional extension rights for the Primary Bid Rounds may be granted either to all Bidders or to individual Bidders at ComReg's discretion. Additional extension rights may be granted in the periods between Primary Bid Rounds. Additional extension rights will not be granted during a Primary Bid Round. However, ComReg has an overarching discretion to extend a round or to make other rulings in the event of significant technical difficulties.
- 4.110 Extension rights are provided to Bidders in order to protect them from unforeseen circumstances that would prevent them from entering a Bid during a round. Extensions are intended to provide a safeguard against effects of technical failures, rather than to provide Bidders with extra time to consider their decisions.
- 4.111 Note that if a Bidder has exhausted its extension rights and runs into technical difficulties during a round, no additional extension will be granted at that point. Therefore, any Bidder seeking additional extensions, having exhausted its allowance, should contact ComReg prior to the start of a round. ComReg will not grant additional extensions unless it is satisfied that the Bidder has already taken all reasonable steps to avoid missing the round deadlines and that previous extensions were triggered through circumstances beyond the Bidder's reasonable control.
- 4.112 A Bidder may notify ComReg as auctioneer, through the approved channels of communication (see subsection 4.1.3), that it is unable to submit a Bid during a Primary Bid Round and is likely to require an extension period. Such notification is not mandatory, but would assist administration of the Auction process.
- 4.113 In the event that a Bidder perceives an error in the functioning of the EAS it should contact ComReg immediately. ComReg may, at its discretion, suspend or continue the Auction while investigating any such concerns.

Deposit calls during the Primary Bid Rounds

- 4.114 During the Primary Bid Rounds, ComReg may give notice to one or more Bidders that they need to increase their Deposits to an amount specified by ComReg not exceeding their highest Bid made so far in the Primary Bid Rounds. ComReg will specify a deadline by which cleared funds must be received which will be not less than three Business Days from giving notice.

4.115 ComReg reserves the right to not schedule Primary Bid Rounds in the period between giving notice of a Deposit call and the deadline for receipt of increased Deposits or the actual receipt of such Deposits, whichever is earlier.

4.116 In the event that a Bidder fails to meet its new Deposit requirement, ComReg may amongst other things restrict it in making further Bids and/or declare some or all of its Bids already submitted as being incapable of becoming Winning Bids.

Information available during the Primary Bid Rounds

4.117 Before the start of the first Primary Bid Round, each Bidder will be informed about its own initial Eligibility in each Time Slice, the number of extension rights it holds and the Prices in each Lot Category in the first Primary Bid Round. Information about the initial Eligibility of individual Bidders will not be provided to other Bidders.

4.118 At the end of a Primary Bid Round, ComReg will release to each Bidder information about:

- the aggregate demand for Lots in each Lot Category 1 to 6 in the most recently completed round; and
- the Bidder's own Bid in that round, its Eligibility in the next round in each Time Slice and how many extension rights the Bidder has remaining.

4.119 Upon scheduling of a further Primary Bid Round, ComReg will provide to each Bidder information on:

- The Eligibility of that Bidder in the forthcoming scheduled round in each Time Slice;
- The number of extension rights the Bidder has remaining; and
- The Round Price in each Lot Category for the forthcoming scheduled round.

4.120 At the end of a Primary Bid Round that is the last such round and prior to the start of the Supplementary Bids Round, ComReg will provide information about the demand for the Party-specific Lots categories 7 to 10 to all Bidders. For the avoidance of doubt, this information will not be released at the end of any Primary Bid Round other than the final Primary Bid Round.

- 4.121 No information will be released about the level of activity or content of individual Bids submitted by other Bidders during the Primary Bid Rounds.
- 4.122 The EAS includes a history function that will allow Bidders to view and download information about aggregate demand by category, Round Prices, and their own Bids in previous rounds.

End of the Primary Bid Rounds

- 4.123 The Primary Bid Rounds end after a round has closed during which there was no excess demand for Lots in any Lot Category. At this point, ComReg will announce that the Primary Bid Rounds have finished and that the Auction will progress to the Supplementary Bids Round.
- 4.124 In addition, following the close of a Primary Bid Round, ComReg may announce that it is ending the Primary Bid Rounds early (i.e. while demand is still above supply in one or more Lot categories). In this case, the Auction will proceed directly to the Supplementary Bids Round, and there will be no further Primary Bid Rounds.
- 4.125 ComReg will only terminate the Primary Bid Rounds early in exceptional circumstances where it believes, acting objectively, that continuing to run further Primary Bid Rounds would be significantly prejudicial to the efficient award of the available spectrum; where such further Primary Bid Rounds are likely to result in breaches of the Auction Rules or where it is infeasible or impractical to run more Primary Bid Rounds.

4.4.2 The Supplementary Bids Round

Schedule for the Supplementary Bids Round

- 4.126 The start time and duration of the Supplementary Bids Round will be announced by ComReg after the completion of the Primary Bid Rounds.
- 4.127 There will be at least one clear business day between the last Primary Bid Round and the start of the Supplementary Bids Round.
- 4.128 ComReg has discretion over the start time and duration of the round. However, ComReg anticipates that the round will take place between 9.00 and 18.00 hours on a single business day, and last for at least 3 hours and no more than 6 hours.

4.129 A single extension right will be available to all Bidders in the Supplementary Bids Round. Extension rights in the Supplementary Bids Round will operate in the same way as extension rights in the Primary Bid Rounds. The extension of the Supplementary Bids Round, where relevant, will not be longer than 30 minutes. For the avoidance of doubt, the extension right available for the supplementary round is different from and distinct to the extension rights available during the Primary Bid Rounds.

Bid submission

4.130 Lots in all Lot Categories are available for bidding on in the Supplementary Bids Round subject to:

- a) the restriction that only the appropriate Bidder may Bid on a Party-specific Lot Category;
- b) the general provisions of the spectrum caps detailed in 4.2
- c) no package having activity exceeding the Bidder's initial Eligibility.

4.131 A Bidder may submit only one Bid form in the Supplementary Bids Round. However, this may list many Bids on different packages. A Bid form may consist of Bids for up to 2,000 packages (including those packages on which Bids were submitted during the Primary Bid Rounds).

4.132 The Bid amount associated with each Supplementary Bid is discretionary, (subject to the restrictions set out in subsection 4.4.3 below). All Supplementary Bids must be in units of 1,000 euros.

4.133 Bid submission will follow the two-step process described in Section 4.1.2. The EAS will not allow Bidders to submit a Bid form that contains invalid Bids. If a Bid is rejected by the EAS, the Bidder will be able to return to the Bid form to revise its set of Bids, any necessary revision must be completed within the time limits for the Supplementary Bids Round.

4.134 To complete a Bid form, a Bidder will need to select the Lots that it wishes to include in each package Bid using the tools provided in the EAS. To facilitate making Supplementary Bids, the EAS will provide facilities for:

- a) Editing a list of packages that could potentially be subject to Supplementary Bids. The EAS will maintain this list throughout the Primary Bid stages and automatically add packages that have been subject to Primary Bids;

- b) Determining minimum and maximum Bid amounts for Supplementary Bids on specific packages based on the Bids entered so far into the EAS;
 - c) Downloading a set of provisional Supplementary Bids from the EAS;
 - d) Uploading a set of provisional Supplementary Bids to the EAS.
- 4.135 These facilities for maintaining and modifying a provisional set of Supplementary Bids within the EAS will be available from the start of the first Primary Bid Round onwards for the convenience of Bidders. However, these Supplementary Bids can only be checked and submitted during the Supplementary Bids Round itself.

Validity of Supplementary Bids

- 4.136 Each Bid submitted as part of a valid Bid form is valid and represents a binding commitment to buy the specified package of Lots at a price not exceeding the specified Bid amount. This commitment remains in force until ComReg announces the outcome of the Award Process.
- 4.137 A Bid identified as valid under paragraph 4.13 remains valid unless it is voided by ComReg (pursuant to the Auction Rules).

Restrictions on Bid amounts for Supplementary Bids

Supplementary Bids may increase previous Bids or be for new packages

- 4.138 Bidders may submit at most one Supplementary Bid for any specific package of Lots for which they submitted a Primary Bid. Any such Supplementary Bid on a package of Lots already subject to one or more Primary Bids must exceed the highest Bid made by that Bidder in the Primary Bid Rounds for that package.
- 4.139 Where a Bidder has made a Relaxed Primary Bid, in some cases the Bidder will have been required to make an associated Binding Supplementary Bid for one or more packages subject to Primary Bids in previous rounds. Any Supplementary Bid made in the Supplementary Bids Round can only increase these previous Binding Supplementary Bid(s).
- 4.140 Bidders may submit Supplementary Bids for packages of Lots for which they had Eligibility at the start of the Auction, but for which they did not make any Bids during the Primary Bid Rounds. Bidders may submit only one Supplementary Bid for each such package.

4.141 All Supplementary Bids must be no less than the sum of the Reserve Prices for the component Lots within the package.

The Final Primary Package

4.142 There is no limit on the Supplementary Bid that may be made for the package Bid for in the final Primary Bid Round, provided this package contains at least one Lot in some category (i.e. is not a trivial package of zero Lots). This package will be referred to as the **Final Primary Package**.

4.143 If the Bidder has ceased bidding for non-zero packages prior to the last Primary Bid Round, the final Primary Bid Round package is taken to be a zero package (i.e. no Lot in any category).

Final price cap relative to the Final Primary Package

4.144 All Supplementary Bids are subject to a **Final Price Cap** relative to the Bid made for the Final Primary Package.

4.145 Specifically, if F is the Final Primary Package, then, for any other package X , the Supplementary Bid for X may not exceed:

- a) the highest Bid for F (which may be the Primary Bid for that package, or the Supplementary Bid for this package if one has been made) plus
- b) the difference in the price of X and F at the Round Prices prevailing in the final Primary Bid Round.

Relative cap on packages with more eligibility than the Final Primary Package

4.146 Supplementary Bids for all packages whose eligibility exceeds that of Final Primary Package are subject to a **Relative Cap**.

4.147 Specifically, the Supplementary Bid for any package X with eligibility strictly exceeding that of the Final Primary Package for at least one Time Slice is subject to a Relative Cap calculated as follows:

- a. Suppose that the Bidder was last eligible to Bid for package X in round n (the Constraining Round);
- b. In round n , the Bidder's Primary Bid was for some package Y (the Constraining Package);
- c. the Supplementary Bid for X cannot exceed the Bid for Y (i.e. the Supplementary Bid for Y or the Primary Bid if no Supplementary Bid)

plus the price difference between the price of package X and package Y at the Round Prices that prevailed in round n .

- 4.148 Notice that package Y above will itself be subject to a Relative Cap in respect of some other package unless Y is a package that the Bidder is eligible to Bid for in the final Primary Bid Round. The rule above has the effect of creating a chain of constraints that cap the Supplementary Bid for any package X relative to the last Bid made for a package not exceeding the Bidder's Eligibility in the final Primary Round.
- 4.149 Notice also that these rules have the consequence of creating *absolute* maximum Bids on all Supplementary Bids for any Bidder who was not active in the final Primary Bid Round. Such a Bidder would have a zero Final Primary Package. All other packages would have strictly larger eligibility and so be subject to Relative Caps linking back eventually to a zero Final Primary Package whose Bid was necessarily zero.

Final Primary Bid was a Relaxed Primary Bid

- 4.150 In the event that the Primary Bid made by a Bidder in the final Primary Bid Round was a Relaxed Primary Bid, any Supplementary Bid for the Final Primary Package is subject to Relative Cap. This is a consequence of the Relative Cap rule as already defined above, as in this case the Final Primary Package is a package that the Bidder had insufficient Eligibility to Bid for in the final Primary Round.
- 4.151 Specifically, suppose that the Bidder was last eligible to Bid for its Final Primary Package F , other than by use of a Relaxed Primary Bid, in round n (the Constraining Round). This will not be last Primary Bid Round, as the Bidder was not eligible to Bid for F in the last Primary Round and so made a Relaxed Primary Bid. Suppose that in round n , the Bidder Bid for a package Y (the Constraining Package). Then the Supplementary Bid for F cannot exceed the highest Bid for Y (i.e. the Supplementary Bid for Y or the Primary Bid if no Supplementary Bid) plus the price difference between the price of package F and package Y at the Round Prices in round n .
- 4.152 The effect of this rule is that those packages which were subject to associated Binding Supplementary Bids at the time that the Relaxed Primary Bid was made become coupled to the Final Primary Package. Supplementary Bids for these packages and the Final Primary Package may need to be increased

together in order to satisfy all the constraints. The EAS will identify the coupled Binding Supplementary Bids that need to be increased if the Bidder makes a Supplementary Bid for the Final Primary Package in such a case.

4.153 Examples of this situation are given in subsection 4.4.3 below and also in a worked example in Annex 7.

4.4.3 Summary: structure of constraints on Supplementary Bids

4.154 This subsection summarises the consequences of the rules described above that cap Supplementary Bids. We consider two cases depending on whether or not a Bidder made a standard Primary Bid or a Relaxed Primary Bid in the final Primary Bid Round. This subsection does not define any further rules and is provided only to assist in understanding the interrelations between the various constraints on Supplementary Bids.

Case where the Final Primary Bid is a not a Relaxed Primary Bid

4.155 We first consider the case in which a Bidder's final Primary Bid is not a Relaxed Primary Bid.

4.156 The Relative Cap rule creates a sequence of links between the Final Primary Package and the packages Bid for in previous Primary Bid Rounds in which the Bidder dropped Eligibility. These interrelationships are shown diagrammatically in Figure 5 below.

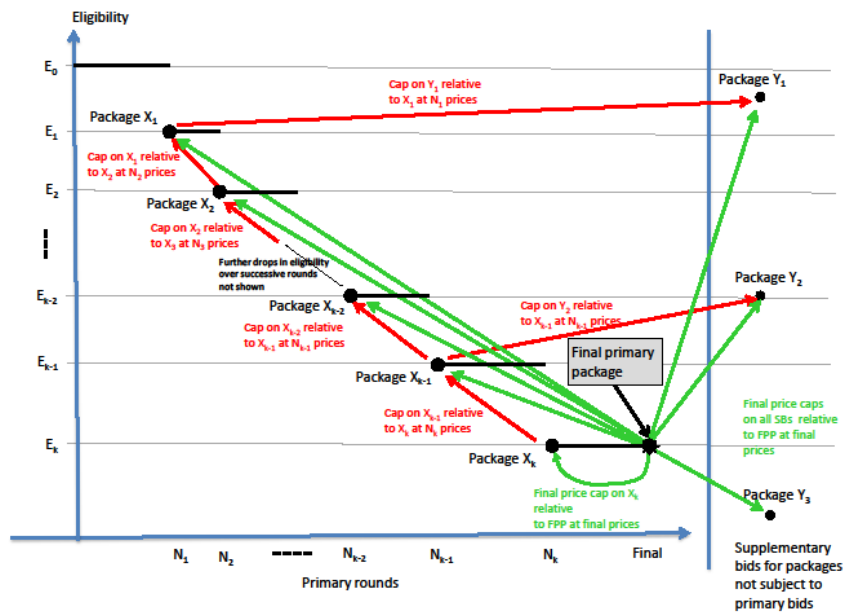


Figure 5: Example structure of constraints on Supplementary Bids (where Final Primary Package not subject to a Relaxed Primary Bid)

Note: Eligibility shown on a single axis as a simplification, but Eligibility is set separately for each Time Slice.

4.157 In this diagram, X_1 , X_2 and so on are the packages Bid for in Primary Bid Rounds in which the Bidder dropped Eligibility. Here X_k is the package Bid for on the last occasion that the Bidder dropped Eligibility. For the purposes of the diagram, it is assumed that the Bidder then maintained this level of Eligibility for a number of Primary Bid Rounds, so that the Final Primary Package is at the same level of activity as X_k (though of course the last Primary Bid Round could be one in which the Bidder reduced its Eligibility).

4.158 The Bidder is able to make a Supplementary Bid for its Final Primary Package at any level greater than or equal to its Primary Bid. The Bid for the Final Primary Package determines the greatest possible Supplementary Bid for X_k , the last package Bid for in a Primary Bid Round where the Bidder dropped Eligibility.

4.159 For packages with Eligibility not exceeding the Final Primary Package, the Final Price Cap and the Relative Cap coincide (see the subsequent formal

definitions in Annex 8: for details). There is a single constraint that the Bid for X_k cannot exceed that for the Final Primary Package by more than the price difference between these packages at the Round Prices in the final Primary Bid Round.

- 4.160 When the Bidder dropped Eligibility and Bid for X_k , it was still eligible to Bid for X_{k-1} in that Primary Bid Round. Therefore, there is a Relative Cap on X_{k-1} , which sets the maximum amount by which a Supplementary Bid can exceed the Bid for X_k (equal to the difference in the price of these packages in the relevant round). In this case, X_k is the Constraining Package for X_{k-1} .
- 4.161 In the same way, on the penultimate occasion that the Bidder dropped Eligibility, it Bid for package X_{k-1} when it could have Bid for package X_{k-2} in that round. This gives rise to a Relative Cap on the Supplementary Bid for X_{k-2} . This limits the amount by which a Supplementary Bid for package X_{k-2} can exceed a Bid for X_{k-1} .
- 4.162 In a similar manner, each of the packages subject to Primary Bids made in rounds where Eligibility was dropped are subject to Relative Caps (shown in red) limiting the amount by which they may exceed the Bid on different packages of Lots based on their respective Constraining Packages. In addition, all these packages are also subject to Final Price Caps (shown in green), which limit the amount by which Supplementary Bids for these packages may exceed the Bid for the Final Primary Package.
- 4.163 The diagram also shows examples of packages Y_1 , Y_2 and Y_3 that are subject to Supplementary Bids, but not subject to any previous Primary Bids. These packages are all subject to Final Price Caps.
- 4.164 In the case of packages that the Bidder was not eligible to Bid for in the final Primary Bid Round (i.e. Y_1 and Y_2), there is a Relative Cap. For example, when the Bidder was last eligible to Bid for Y_1 , it chose to Bid for X_1 instead. Therefore, X_1 is the Constraining Package on Y_1 , limiting the Supplementary Bid for Y_1 to the amount of Bid for X_1 plus the price differences between the packages back in the Primary Bid Round when the Bid for X_1 was made. Notice that X_1 is itself subject to a Relative Cap. Therefore, the Supplementary Bids for any package links back, potentially through a number of steps, to the Bid made for the Final Primary Package.

Case where the Final Primary Bid is a Relaxed Primary Bid

4.165 We now turn to the more complex situation in which a Bidder makes a Relaxed Primary Bid in the final Primary Bid Round.

4.166 This situation is illustrated in Figure 6 where a Bidder makes a Relaxed Primary Bid in the final Primary Bid Round. The example assumes that the Final Primary Package subject to the Relaxed Primary Bid has activity that exceeds not just the Bidder's current Eligibility (for one or both Time Slices), but that we need to go back to the penultimate round in which the Bidder dropped Eligibility (round N_{k-1}) in order for the Bidder to be eligible to Bid for the Final Primary Package.

4.167 A Supplementary Bid on the Final Primary Package is subject to a Relative Cap that limits the amount of such a Bid relative to the highest Bid for X_{k-1} , the package that the Bidder Bid for when it was last eligible to Bid for the Final Primary Package. As already discussed, package X_{k-1} is itself subject to a Relative Cap that limits the amount by which any Supplementary Bid for X_{k-1} may exceed the highest Bid for X_k .

4.168 Therefore, any Supplementary Bid for the Final Primary Package is subject to cap relative to the Bids for X_k and X_{k-1} . This can be expressed equivalently as a there being floors on Bids for X_k and X_{k-1} relative to the highest Bid for the Final Primary Package. For any particular Supplementary Bid for the Final Primary Package, there are corresponding lowest possible values for the Bids for X_k and X_{k-1} that are consistent with the Relative Caps. Binding Supplementary Bids may have been previously required to meet these floors even before any Supplementary Bid for the Final Primary Package was made. However, a Supplementary Bid for the Final Primary Package will raise these floors and so may require further Supplementary Bids to be made for X_k and X_{k-1} .

4.169 Therefore, the overall effect is that if a Supplementary Bid is made for the Final Primary Package, then for all sufficiently high Bids, it will be necessary to also raise X_k and X_{k-1} . Bids for X_k and X_{k-1} cannot be too low relative to the Supplementary Bid for the Final Primary Package as a result of the Relative Caps.

4.170 Because the Relaxed Primary Bid is a Final Primary Bid, it also gives rise to a Final Price Cap on all other packages, including X_k and X_{k-1} . The Final Price Cap rule applies to the Final Primary Package regardless of whether the Final

Primary Bid is relaxed or within the Bidder's current Eligibility to Bid. Therefore, Bids for X_k and X_{k-1} cannot be too high relative to the Supplementary Bid for the Final Primary Package as a result of the Final Price cap.

4.171 The fact that the associated packages X_k and X_{k+1} are subject to both floors and ceilings relative to the Bid for the Final Primary Package means that Bids for these packages may all need to be increased together if any of these packages are subject to Supplementary Bids. Therefore, there is effectively a loose lock amongst the Bids for these packages which arises because the final Primary Bid was a relaxed Bid.

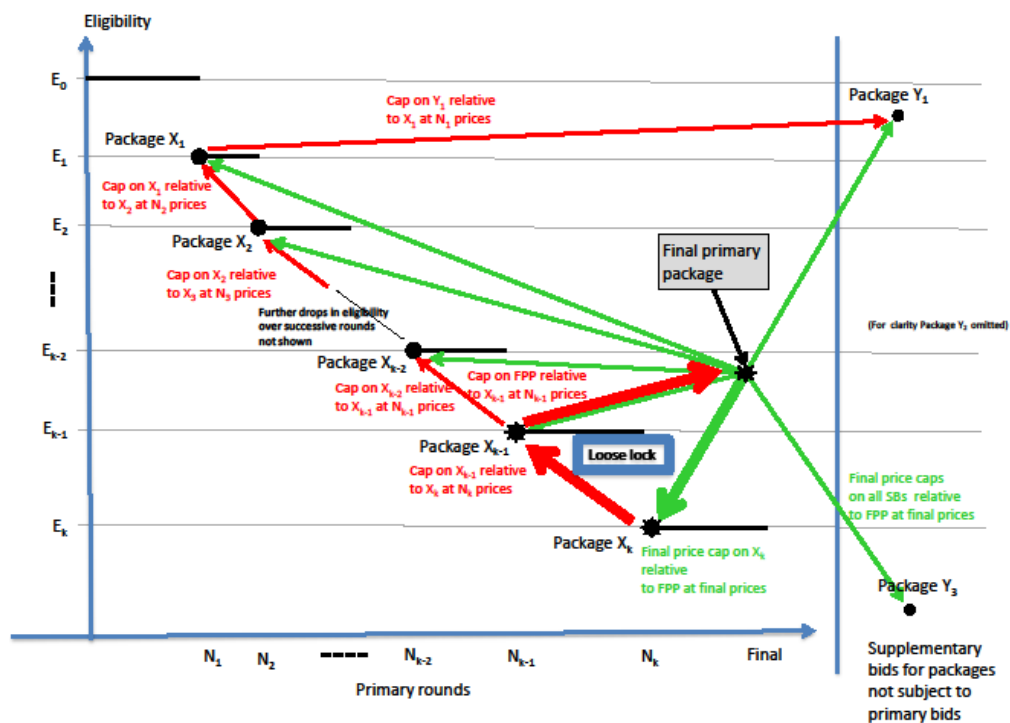


Figure 6: Structure of constraints on Supplementary Bids (where Final Primary Package subject to a Relaxed Primary Bid)

4.4.4 Winner determination

4.172 Annex 8: provides a more formal mathematical description of the material in this subsection.

4.173 Following the close of the Supplementary Bids Round, ComReg will determine the combination of Winning Bids. This will determine the *generic* Lots won by Bidders. The specific frequencies won will be subsequently determined in the Assignment Stage.

4.174 In order to determine the Winning Bidders, all Bids made in the Auction throughout the Primary Bid Rounds and the Supplementary Bids Round are considered. This will also include the selection of Lots at Reserve Prices made at Application as a Bid. In addition to those Bids made in the Auction, a notional “Zero Bid” for each Bidder (i.e. a Bid of zero for no Lots) that represents the case of that Bidder losing is added.

Notional release scenarios

4.175 A **notional release scenario** is a specification of number of Lots in each of the categories 7 to 10 that does not exceed the number of available Lots in each respective category. A scenario includes the possibility of zero Lots being specified in one or more of these categories. There are 192 (=3x4x4x4) possible notional release scenarios. These are intended to represent all the various possibilities for liberalising spectrum currently licensed to GSM licensees.

4.176 For each notional release scenario, there is a corresponding total number of Lots released in the 900MHz and 1800MHz bands for Time Slice 1. Table 10 gives the correspondence between categories 7 to 10 and the matching categories open to all Bidders that correspond in both band and Time Slice. Therefore, the number of notionally released Lots at 900MHz is simply the number of Lots in category 7 specified by the scenario. The number of notionally released Lots at 1800MHz is the total number of Lots in categories 8, 9 and 10 by the scenario.

4.177 For example, one notional release scenario is two Lots in 900/1/MET, two Lots in 1800/1/VOD, one Lot in 1800/1/TO2 and zero Lots in 1800/1/MET. This scenario corresponds to an additional two Lots at 900MHz and three Lots at 1800MHz for Time Slice 1 being notionally released and available for allocation. Obviously such an outcome can only occur if GSM licensees win back these notionally released Lots in open competition with other Bids made for spectrum in these bands for Time Slice 1. This requirement is imposed by the procedure described below.

4.178 For each notional release scenario, the following steps are performed:

- a) Determine the **total Lots available** in the notional release scenario. The total supply of spectrum consists of Lots unconditionally available for award (i.e. Lots Categories 1 to 6) *plus* the notionally released spectrum from existing licensees in matching categories assumed by the scenario. For instance, taking the example above, the supply of Lots in Time Slice 1 would increase from 5 at 900MHz to 7 Lots, and from 6 Lots at 1800MHz to 9 Lots as a result of the notional release.
- b) Determine all the Bids to buy Lots that are **compatible with the notional release scenario**. These are all Bids for packages of Lots for a Bidder which contain exactly the number of Party-specific Lots specified in the notional release scenario. For instance, in the example above, we presumed that Meteor released both blocks in the 900MHz band, so only Meteor's Bids containing two Lots of 900/1/MET are considered.
- c) To the compatible Bids, add a Zero Bid for each Bidder. (This creates the hypothetical possibility that the releaser might not be re-awarded its released spectrum unless it Bids a sufficient amount.)
- d) Given the compatible Bids (and Zero Bids), determine the combination(s) of Bids, taking one Bid from each Bidder (which might be a Zero Bid), of greatest total value subject to the total demand for spectrum in each band and for each Time Slice not exceeding the total Lots available in the notional release scenario. Call these the **potential winning combinations** of Bids associated with that notional release scenario. It is possible that there could be multiple such potential winning combinations if there are tied outcomes to this optimisation step.
- e) If there is a least one potentially winning combination in which every Bidder making a Bid for one or more Party-specific Lots within the notional release scenario is not allocated its Zero Bid, then this scenario is deemed **feasible**. (This condition ensures that any Bidder notionally releasing spectrum is guaranteed to win back a corresponding number of Lots in the relevant categories.) Otherwise, the notional release scenario is **infeasible** (i.e. there is no potentially winning combination in which every Bidder notionally releasing spectrum in the scenario wins back corresponding Lots).

4.179 Finally, amongst all feasible notional release scenarios, the EAS will identify those with the greatest total value of Winning Bids. If this scenario is unique, then it will be the **winning scenario**. Otherwise, a selection from amongst the tied winning scenarios is required.

Tie-breaking

4.180 In the event that there are multiple feasible notional release scenarios with equal greatest total value, then the Winning Scenario will be selected from amongst these tied winning scenarios. First, the Winning Scenario must maximise the number of MHz of spectrum subject to winning Party-specific Bids from amongst the tied scenarios. Second, if ties still remain, this will be resolved by random selection of a Winning Scenario from amongst the remaining ties by the EAS.

4.181 Given the Winning Scenario, if there is just one potentially winning combination of Bids, this is the **Winning Combination**.

4.182 If there is more than one potentially winning combinations of Bids in the Winning Scenario, then one of these will be chosen at random by the EAS. This will be the Winning Combination.

4.4.5 Base Price determination

4.183 Annex 8: provides a more formal mathematical description of the material in this subsection.

4.184 A price will be determined for each Bidder receiving Generic Lots in the winning outcome. These will be called the **Base Prices**. One Base Price is determined for each Winning Bidder. By definition, the Base Price is zero for any Bidder who does not win any Lots. Notice that prices are not determined for individual Lot categories.

4.185 Base Prices must meet the requirement that each Winning Bidder and group of Winning Bidders pays at least its opportunity cost. This also includes the requirement that any winner of an Party-specific Lot pay a sufficient amount that there is not another Bidder (or Bidders) who would be prepared to pay more than the existing holder of unliberalised spectrum for the right to use liberalised spectrum. Subject to this requirement, the sum of Base Prices is minimised, so that Bidders pay no more than necessary collectively to achieve this requirement.

4.186 The procedure described above for determining winners has an associated total value of Winning Bids in the Winning Combination, V . For the purposes of defining the Base Prices, it is necessary to re-evaluate the total value of Winning Bids on hypothetically eliminating the Bids of a group of Bidders.

4.187 In particular, let $V(I \setminus C)$ denote the re-evaluated sum of Winning Bids if some set of Bidders C is selected from the set of all Bidders and the Bids of all Bidders in C are removed from the determination of the Winning Combination. In evaluating $V(I \setminus C)$, all notional release scenarios will be re-considered when re-optimising the Winning Bids.

4.188 The Base Prices that Winning Bidders pay must satisfy the constraints

$$\sum_{i \in C} (\beta_i - p_i) \leq V(I) - V(I \setminus C)$$

for every possible subset of Winning Bidders C . Here β_i is the Winning Bid of Bidder i and p_i is the corresponding Base Price. These constraints represent the requirements that each set of Bidders C pay a sufficient amount that there would not be any other Bidders (i.e. those not in C) who individually or collectively would be prepared to pay more.

4.189 Subject to these constraints and that the Base Prices must be at least the Reserve Prices of the packages in the Winning Combination, the sum of the Base Prices is minimised.

4.190 In the event that there are multiple sets of Base Prices that satisfy these conditions, the set of Base Prices will be selected that minimises the sum-of-square distance from the Vickrey Prices p_i^V for each Bidder. The Vickrey Prices are defined by

$$p_i^V = \beta_i - V(I) + V(I \setminus \{i\})$$

i.e. the opportunity cost created by an individual Bidder i winning its Bid. The Base Prices are then chosen to minimise the sum-of-squares difference between the Base Prices and the Vickrey Prices

$$\sum_i (p_i - p_i^V)^2$$

which always results in a unique set of Base Prices.

4.191 These conditions characterise a unique Base Price for each Winning Bidder that is no more than their Winning Bid and is at least the Reserve Price for that

package. Finally, if these Base Prices are not amounts in units of 1,000 euros, they are rounded up to the nearest 1,000 euros.

End of the Main Stage

4.192 Once ComReg has determined the Winning Bids and the Base Prices, the outcome of the Main Stage will be announced to Bidders. The following information will be released to all Bidders:

- The number of Lots won by each Bidder in each Lot Category will be released to all Bidders;
- In addition, each Winning Bidder will be told the Base Price that applies to its own Winning Bid. This information will not be released to other Bidders.

4.5 The Assignment Stage

4.5.1 Overview

4.193 The purpose of the Assignment Stage is to determine the frequencies to be assigned to Winning Bidders in the Award Process⁶⁶ and any Licensees retaining unliberalised GSM Licences in the 900 MHz and 1800 MHz bands in the first Time Slice. The frequency assignment will be determined separately for each spectrum band (800MHz, 900MHz and 1800MHz). For each band, the determination of frequency assignments in both Time Slices will be made together and outcomes will be constrained so that Bidders winning the same amount of spectrum in a band in both Time Slices will obtain the same frequency assignments in both Time Slices.

4.194 During the Assignment Round, each Winning Bidder (and, in respect of the first Time Slice, any GSM licensee in the 900MHz or 1800MHz even if not a Winner Bidder) may submit Bids for assignment options in each of the bands in which it has been allocated Generic Lots (or, in respect of the first Time Slice, has existing rights of use of spectrum which has not been liberalised within the Award Process) and which is included in the Assignment Round.

4.195 A band will be included in the Assignment Stage under the following conditions:

⁶⁶ Given the outcome of the Main Stage or the Qualification Stage where the Award Process progresses directly from the Qualification Stage to the Assignment Stage

- a) The 800MHz band in the case that there is more than one Winning Bidder for this band in at least one of the two Time Slices.
- b) The 900MHz band in the case that:
 - i. There is at least one Winning Bidder of Lots in Lot Category 3 (900MHz Lots in Time Slice 1); or
 - ii. There is at least two Winning Bidders of Lots in Lot Category 4 (900MHz Lots in Time Slice 2).
- c) The 1800MHz band in the case that:
 - i. There is at least one Winning Bidder of Lots in Lot Category 5 (1800MHz Lots in Time Slice 1); or
 - ii. At least one Lot in any of the Party-specific Lot Categories 8, 9 or 10 won in the Main Stage (that is, any Party-specific 1800MHz Lot in Time Slice 1); or
 - iii. There is at least two Winning Bidders of Lots in Lot Category 6 (1800MHz Lots in Time Slice 2).

4.196 If a band is included in the Assignment Stage, assignment options for a Winning Bidder will include all alternative blocks of contiguous frequencies equal to the number of Generic Lots allocated to it in the Award Process for relevant Time Slice plus any unliberalised spectrum retained by the Winning Bidder under its existing GSM licence in the 900MHz or 1800MHz bands. Assignment options are subject to a number of specific constraints, detailed in subsection 4.5.4.

4.197 Determination of winners of specific assignment options and Additional Prices to be paid for these specific frequencies is determined on a band-by-band basis. However, for each band, both Time Slices will be considered jointly.

4.5.2 Schedule for the Assignment Round

4.198 The start time and duration of the Assignment Round will be announced by ComReg after the completion of the Main Stage (or after the completion of the Qualification Stage if the Award progresses directly from the Qualification Stage to the Assignment Stage).

4.199 There will be at least one clear business day between the Supplementary Bids Round and the Assignment Round.

4.200 ComReg has discretion over the time and duration of the round. However, ComReg anticipates that the round will take place between 9.00 and 18.00 hours on a single business day, and last for at least 2 hours.

4.201 A single extension right will be available to all Bidders in the Assignment Round. The extension right in the Assignment Round will operate in the same way as extension rights in the Primary Bid Rounds and Supplementary Bids Round. The extension of the Assignment Round, where relevant, will not be longer than 30 minutes. For the avoidance of doubt, the extension right in the Assignment Round is different to and distinct from the extension rights in the Main Stage.

4.5.3 Frequencies assigned to Lots

4.202 Lots allocated in Lot Categories 1 and 2 will be assigned frequencies in the 800MHz band. For each Winning Bidder, the amount of spectrum assigned to it in the 800MHz band in each Time Slice in the Assignment Stage will correspond to number of 2x5MHz Lots allocated to it in the Main Stage of the Auction (or at the Qualification Stage where the Award Process progressed directly from the Qualification Stage to the Assignment Stage).

4.203 Lots allocated in Lot Categories 3 and 4, Lots in category 7 and any retained unliberalised spectrum in Time Slice 1 will be assigned frequencies in the 900MHz band. For each Winning Bidder, the amount of spectrum assigned to it in the 900MHz band in each Time Slice in the Assignment Stage will correspond to:

- a) the number of 2x5MHz Lots allocated to it in the Main Stage of the Auction (or at the Qualification Stage where the Award Process progressed directly from the Qualification Stage to the Assignment Stage); plus
- b) in the case of category 7 Lots, the number of 2x5MHz Lots already held by it at the start of the Award Process, regardless of whether or not Lots in this category were allocated within the Award Process.⁶⁷

⁶⁷ Where the relevant GSM 900 MHz Licensee does not win any category 7 Lots in the Award Process, the spectrum entitlements of the GSM 900 MHz Licence do not change i.e. it is entitled to use a spectrum bandwidth of 2 x 7.2 MHz in Time Slice 1 for GSM use only. The location of this GSM licence in 900 MHz band is to be determined by the Assignment Round and its location will comply with the technical co-existence rules as set down in EC Decision 2009/766/EC as amended, and the GSM raster plan.

4.204 Lots allocated in Lot Categories 5 and 6, Lots in categories 8, 9 and 10 and any retained unliberalised spectrum in Time Slice 1 will be assigned frequencies in the 1800MHz band. For each Winning Bidder, the amount of spectrum assigned in the 1800MHz band in each Time Slice in the Assignment Stage will correspond to:

- a) the number of 2x5MHz Lots allocated to it in the Main Stage of the Auction (or at the Qualification Stage where the Award Process progressed directly from the Qualification Stage to the Assignment Stage); plus
- b) in the case of category 8, 9 and 10 Lots, the number of 2x5MHz Lots already held by it at the start of the Award Process, regardless of whether or not Lots in these categories were allocated within the Award Process.⁶⁸

4.205 Frequencies available for assignment in the 800MHz band, 900MHz band and 1800MHz band are found in subsection 2.1

4.206 An **assignment option** is a specification of a frequency for each Time Slice corresponding in size to the number of Lots won (or unliberalised spectrum retained in the case of 900MHz and 1800MHz Lots) in that Time Slice and forming one contiguous block. An assignment option may specify different frequencies for the two Time Slices.

4.207 Assignment options within a band will be limited, so that the full assignment of spectrum to every Winning Bidder to be assigned frequencies in that band will be contiguous. Each Winning Bidder will only be able to Bid on options that assign frequencies to the Lots it has won in a contiguous block and which are compatible with other Winning Bidders receiving the Lots they have been allocated in the same band in contiguous blocks.

4.208 It is possible that some or all Lots in some spectrum bands may be unallocated in the Award Process. If there are multiple Lots unallocated in a Time Slice in a band, assignment options for Winning Bidders in that band and

⁶⁸ Where the relevant GSM 1800 MHz Licensee does not win any category 8, 9, or 10 Lots in the Award Process (as appropriate), the spectrum entitlements of the relevant GSM 1800 MHz Licence do not change i.e. it is entitled to use a spectrum bandwidth of 2 x 14.4 MHz in Time Slice 1 for GSM use only in line with their respective GSM Licence expiry dates. The location of this GSM licence in the 1800 MHz band is to be determined by the Assignment Round and its location will comply with the technical co-existence rules as set down in EC Decision 2009/766/EC as amended and the GSM raster plan.

Time Slice will be constrained such that all unallocated Lots will be located contiguously. In the case that there are unallocated Lots in a band within a Time Slice, there will be no other restrictions on where the unassigned block of spectrum will be located within the band in that Time Slice.

4.209 If there is no need to include a spectrum band in the Assignment Round as there is only one Winning Bidder in this spectrum band in both Time Slices, the single Winning Bidder will be requested to express its preference for specific frequencies which, given rules on assignment options listed in subsection 4.5.4, will be the lowermost or uppermost Lots available within the given band. No Additional Price will be due for the assignment of frequencies in this circumstance.

4.5.4 Bid options for the Assignment Round

4.210 During the Assignment Round, Winning Bidders (and any existing GSM licensees in the 900MHz and 1800MHz bands who do not win any Lots) will be invited to submit Bids for specific frequency assignment options as determined by ComReg.

4.211 For each of the spectrum bands included in the Assignment Round, ComReg will determine a set of frequency assignment options available to each Winning Bidder. Specifically, for each Winning Bidder in each spectrum band, ComReg will identify an exhaustive list of packages of contiguous frequencies consistent with the following conditions:

- the number of Lots in each Time Slice equals the number of Lots that the Winning Bidder was allocated in that Time Slice in the Main Stage (or in the Qualification Stage where the Award Process progressed directly from the Qualification Stage to the Assignment Stage) plus:
 - in the case of Meteor in the 900 MHz band any category 7 Lots which have not been won in the Main Stage;
 - in the case of Meteor in the 1800 MHz band any category 8 Lots which have not been won in the Main Stage;
 - in the case of Telefonica O2 in the 1800 MHz band any category 9 Lots which have not been won in the Main Stage; and
 - in the case of Vodafone in the 1800 MHz band any category 10 Lots which have not been won in the Main Stage.

- any option for assigning frequencies to a particular Winning Bidder is consistent with all other Winning Bidders that have been allocated Lots in the same spectrum band each receiving contiguous spectrum;
- any Winning Bidders that have been allocated the same number of Lots in a band in both Time Slices receiving a continuous spectrum assignment (i.e. they must Bid for the same frequency assignment in both Time Slices); and
- for Lots in a spectrum band, frequencies of any unsold Lots are in one contiguous block.

4.5.5 Bid submission

4.212 In the Assignment Round, participating Winning Bidders (and any existing GSM licensees in the 900MHz and 1800MHz bands who retain existing GSM rights of use in Time Slice 1) should submit a Bid form, according to the two-step process of checking and submitting Bids described in subsection 4.1.3.

4.213 For each Winning Bidder, their Bid form will provide a list of all frequency assignment options available to them in each of the spectrum bands in which they are allocated Lots and for which further bidding is required. Each Winning Bidder may submit a Bid for every assignment option listed on their Bid form.

4.214 The amount of each assignment Bid is discretionary. Assignment Bids must be in whole euros. The minimum Bid for each frequency assignment option is zero. There is no upper limit.⁶⁹

4.215 For frequency assignment options for which no Bid is received, Bidders will be deemed to have made Bids of zero for all of their assignment options. If a Winning Bidder fails to submit a Bid form during the round schedule for the Assignment Round (or during the resulting extension), then it will be deemed to have made a Bid of zero for every frequency assignment option in every spectrum band for which it was eligible to Bid.

⁶⁹ Note that all Bidders eligible to participate in the Assignment Round are guaranteed to win the amount of spectrum in each Lot Category that they won in the Main Stage. Bids will affect which of the possible frequency assignment options will be awarded, and any Additional Prices to be paid. Bids for different assignment options with the same Bid amount indicate that the Bidder is indifferent between these options. It is recommended (but not obligatory) that Bidders submit a Bid of zero euros for their least favoured option(s) in every category where they are eligible to make an assignment Bid.

4.5.6 Validity of assignment Bids

4.216 Each Bid submitted as part of a valid Bid form represents a binding commitment to pay an Additional Price (i.e. a Price above the Bidder's Base Price) for the specified frequency assignment option that is less than or equal to the Bid amount.

4.217 A Bid submitted in the Assignment Round and identified as valid under subsection 4.5.4 remains valid unless it is voided by ComReg (pursuant the Auction Rules).

4.5.7 Winner and Price determination

Winner determination

4.218 Following the close of the Assignment Round, ComReg will determine the Winning Bids in each band.

4.219 For each band, the winning assignment Bids are the combination of valid assignment Bids of greatest total value amongst all valid assignment Bids submitted, subject to the conditions that:

- exactly one Bid is accepted from each Bidder in each band;
- each Bidder is assigned the same amount of spectrum in each band and in each Time Slice as they won in the Main Stage plus any GSM spectrum rights retained in Lots in Category 7, 8, 9 or 10 as appropriate⁷⁰;
- each Bidder receives contiguous frequencies within a band and Time Slice;
- the frequency ranges included in the winning assignment Bids do not overlap;

⁷⁰ Where a GSM Licensee retains some, but not all, of its spectrum rights in Category 7, 8, 9 or 10 (as appropriate), the number of GSM channels that can be maintained by the GSM Licensee in those retained Lots is to be determined by ComReg using the technical co-existence rules as set down in EC Decision 2009/766/EC as amended, and the GSM raster plan. For example, where a GSM Licensee retains one Lot, the maximum amount of GSM channels that can be maintained in that Lot is:

24 GSM channels. where no adjacent Lots are assigned to another Licensee; and

23 GSM channels where one adjacent Lot is assigned to another Licensee.

- any winners of the same number of Lots in a band in both Time Slices receive continuous spectrum; and
- for Lots in a spectrum band, any unsold Lots are allocated as a contiguous block.

4.220 If more than one combination of Assignment Round Bids meeting the conditions above have equal highest total value, one combination will be selected by the EAS at random.

4.221 Each Bidder will have exactly one winning assignment Bid in each spectrum band in which they have won Lots in the Main Stage. The winning assignment Bid may be an automatically generated Bid of zero for an assignment option on which the Bidder has not submitted an Assignment Round Bid.

Additional Price determination

4.222 In each spectrum band where there were two or more Winning Bidders in at least one Time Slice, Additional Prices will be determined.

4.223 Additional Prices are determined in each spectrum band jointly for all winners in a single calculation. The procedure described above for determining winners in a spectrum band has an associated total value of winning assigned Bids, W . For the purposes of defining the Additional Prices, it is necessary to re-evaluate the total value of Winning Bids on hypothetically reducing the assignment Bids of a group of Bidders to reserve prices.

4.224 In particular, let $W(I \setminus C)$ denote the re-evaluated sum of Winning Bids if some set of Bidders C is selected from the set of all Bidders I and the Bids of all Bidders in C are reduced to zero for each assignment option.

4.225 The Additional Prices that Winning Bidders pay must satisfy the constraints

$$\sum_{i \in C} (\alpha_i - A_i) \leq W(I) - W(I \setminus C)$$

for every possible subset of Winning Bidders C . Here α_i is the winning assignment Bid of Bidder i and A_i is the corresponding Additional Price. These constraints represent the requirements that each set of Bidders C pay a sufficient amount that there would not be any other Bidders (i.e. those not in C) who individually or collectively would be prepared to pay more.

4.226 Subject to these constraints and that the Additional Prices must be positive, the sum of the Additional Prices is minimised.

4.227 In the event that there are multiple sets of Additional Prices that satisfy these conditions, the set of Additional Prices will be selected that minimises the sum-of-square distance from the Vickrey prices A_i^V for each Bidder. The Vickrey prices are defined by

$$A_i^V = \alpha_i - W(I) + W(I \setminus \{i\})$$

i.e. the opportunity cost created by Bidder i bidding above zero for one or more assignment options. The Additional Prices are then chosen to minimise the sum-of-squares difference between Additional Prices and Vickrey prices

$$\sum_i (A_i^V - A_i)^2$$

which always results in a unique set of Additional Prices.

4.228 These conditions characterise a unique Additional Price for each Winning Bidder in each spectrum band that is no more than their winning Assignment Stage Bid. Finally, if these Additional Prices are not amounts in whole euros, they are rounded up to the nearest whole euro.

4.5.8 End of the Assignment Stage

4.229 Once ComReg has determined the Winning Bids and the Additional Prices, the outcome of the Assignment Stage will be announced to Bidders. The following information will be released:

- Each Bidder will be informed about the specific frequency ranges it has been assigned in each of the bands and each of the Time Slices in which it has won Lots in the Main Stage and/or retained GSM spectrum rights in Lots in Category 7, 8, 9 or 10 as appropriate⁷¹.
- Each Winning Bidder in each band will be told the Additional Price that applies to its own Winning Bid in that band. This information will not be released to other Bidders at this point in the process.

⁷¹ See footnotes 67, 68 and 70.

4.6 End of Auction

4.6.1 Closing of the Auction

4.230 Once ComReg has determined the Winning Bids for Lots in all Lot Categories and the Additional Prices for the Assignment Stage, the results of the Auction will be announced to all Bidders.

4.231 The following information will be released to all Bidders:

- the identity of the Winning Bidders;
- the frequency ranges awarded to each Winning Bidder;
- the frequency ranges retained as GSM spectrum rights in the first time period, where applicable; and
- the Upfront Fee to be paid by each Winning Bidder, including a breakdown of the Base Price and any Additional Prices for specific frequency assignments.

4.6.2 Upfront Fees

4.232 The Upfront Fee for each Winning Bidder will be the sum of their Base Price plus any Additional Prices for the specific frequencies assigned to them (in the Assignment Stage). Each Winning Bidder must pay its Upfront Fee less any applicable Rebate and less its Deposit in accordance with the Notification & Grant stage as set out in subsection 3.7.

Chapter 5

5 Legal Terms and Conditions

5.1 Important Notice

- 5.1 This draft Information Memorandum is being made available by ComReg to enable Interested Parties to submit comments in relation to the Award Process broadly in accordance with the terms of this draft Information Memorandum and to assist prospective bidders and their agents in preparing for and understanding the Award Process.
- 5.2 [The text of this paragraph has no effect in the draft Information Memorandum as it applies to the final Information Memorandum] This Information Memorandum is being made available by ComReg solely for the purposes of assisting potential bidders in deciding whether they wish to proceed to participate in the Award Process that ComReg contemplates running in accordance with the terms of this Information Memorandum (as may be amended by ComReg from time to time) and, to assist prospective bidders and their agents in preparing for and understanding the Award Process. This Information Memorandum may not be used for any other purpose and, in relation to the stated purposes above, strictly subject to the terms and conditions set out in this Information Memorandum.
- 5.3 In this [draft](#) Information Memorandum an “**Interested Party**” shall have the meaning ascribed to this expression in the Glossary to this draft Information Memorandum.
- 5.4 To the extent permitted by law, no representation or warranty or undertaking (express or implied) is or will be made by ComReg or its personnel or agents and no liability or responsibility is or will be accepted by ComReg or its personnel or agents as to:
- i. the adequacy, accuracy or completeness of or any of the information, opinions or statements (or the basis on which they are premised) contained in this [draft](#) Information Memorandum or any of the documents referred to herein;
 - ii. any omissions, errors or misstatements contained in this [draft](#) Information Memorandum or any documents referred to herein, or as to

the software used to implement the electronic auction system that it is proposed to use to implement the Award Process; and

- iii. the contents of any written or oral information made available by ComReg or its personnel or agents to Interested Parties or any third party relating to the Award Process.
- 5.5 No staff or Commissioner of ComReg or any agent is authorised to vary any of the terms of this [draft](#) Information Memorandum orally, save as may be explicitly set out herein.
- 5.6 To the extent permitted by law, any liability and/or loss of any nature arising from this [draft](#) Information Memorandum and its use by Interested Parties is expressly disclaimed.
- 5.7 To the extent permitted by law, Interested Parties shall not be entitled to rely on the contents of this [draft](#) Information Memorandum to argue that they have rights or expectations (pursuant to legitimate expectation, estoppel or other related legal arguments) that:
- i. ComReg will not exercise any of its rights reserved by paragraphs 5.26 and 5.27 of this chapter;
 - ii. the final Information Memorandum will be consistent with this draft Information Memorandum or will be amended as necessary;
 - iii. they will be awarded any spectrum at the end of the Award Process;
 - iv. bidding in any particular manner will guarantee success in the Award Process;
 - v. ComReg will during the term of any license granted pursuant to the Award Process modify the terms of such licence, or the regulations affecting such licence, in any manner and, without prejudice to the generality of the foregoing, that ComReg will provide for spectrum trading or leasing or that ComReg will permit the use of any particular new technologies in the spectrum licensed in the Award Process; or
 - vi. ComReg will reassign rights of use of spectrum licensed pursuant to the Award Process in any particular way at the termination of any licences granted pursuant to the Award Process.

- 5.8 While ComReg, its personnel and agents intend to implement the Award Process, ComReg, its personnel and agents give no indication or commitment and make no statements as to the possible outcomes of this Award Process.
- 5.9 In accepting this [draft](#) Information Memorandum Interested Parties acknowledge that they will be solely responsible for their own assessment of any matter connected with the Award Process to which the [draft](#) Information Memorandum relates. Interested Parties are responsible for forming their own views, deciding if they will partake in the Award Process, completing the relevant application forms and calculating any Bids.
- 5.10 All dates in this [draft](#) Information Memorandum are, unless specifically stated to the contrary, target or indicative dates only and may be subject to change at the sole discretion of ComReg acting subject to its statutory functions, objectives and duties.
- 5.11 Whilst the information in this [draft](#) Information Memorandum has been provided in good faith, it does not purport to be comprehensive nor to have been independently verified. Interested Parties should form their own conclusions. ComReg reserves the right to amend this [draft](#) Information Memorandum and any information or documents contained or referred to herein.
- 5.12 Nothing in this [draft](#) Information Memorandum is, or should be relied upon as a promise or representation as to ComReg's ultimate decision in relation to the award of a licence or licences. ComReg reserves the right to suspend or not to proceed with the Award Process or any part thereof and may terminate the Award Process or any part thereof at any time and, in such event, ComReg shall not be liable, howsoever, to any Interested Party. ComReg also reserves the right, in accordance with law, to change any procedure in relation to the Award Process. ComReg reserves the right to reject any and all applications received as part of the Award Process or not to select any applicant for the grant of a licence. Interested Parties are recommended to seek their own financial, legal and technical advice at its own cost in relation to the Award Process. The publication of this [draft](#) Information Memorandum or any information made available in connection with the Award Process does not constitute nor is to be taken as constituting the giving of financial, legal, technical or investment advice by ComReg, its personnel or agents.
- 5.13 Any conflict of interest or potential conflict of interest must be disclosed by any Interested Party to ComReg as soon as such conflict of interest or potential

conflict of interest becomes apparent. The appropriate course of action to be taken in such event shall be decided upon by ComReg, in its discretion acting subject to its statutory functions, objectives and duties.

5.14 This **draft** Information Memorandum should be read and construed in accordance with the previous documentation issued by ComReg as part of this process including:

- a) Response to Consultation and Decision 11/29;
- b) Response to Consultation and Draft decision 11/60; and
- c) **Response to Consultation and Decision 11/xx** (response to 11/60)

along with the associated consultants' reports and other relevant ComReg documents, all of which are available at: http://www.comreg.ie/radio_spectrum/gsm_band_liberalisation_and_800_mhz_spectrum.713.html (the "Consultation Process Documents"). Noting that the consultation process has been complex and the views of ComReg and the respondents have evolved over time, in the event of any conflict between the views expressed in any of the Consultation Process Documents the view expressed in the later document shall take precedence. Where any draft document, for instance a draft statutory instrument, draft decision or **draft Information Memorandum** has been supplanted by a finalised document, the draft document should be discounted entirely. In the event of any conflict or inconsistency between the Consultation Process Documents and this **draft** Information Memorandum, this **draft** Information Memorandum shall take precedence.

5.15 This **draft** Information Memorandum does not impose or result in the imposition of any legal or contractual obligations on the part of ComReg. No legal obligations on the part of ComReg to grant any licensees will arise unless and until the granting and commencement of a licence or licences by ComReg following the completion of the Award Process.

5.16 The legal and contractual obligations described in this Chapter of the Information Memorandum are imposed on Interested Parties who are furnished with, download or respond to this Information Memorandum and ComReg reserves the right to enforce such obligations. Copyright (and any other intellectual property rights) in this Information Memorandum vest and remain in ComReg and its licensors and recipients of this document including Interested

Parties shall not use or copy this Information Memorandum other than in pursuit of the purposes described in paragraph 5.1 above, without the permission of ComReg. Applicants who submit applications to enter the Award Process shall be obliged to express their acceptance to the provisions of this Chapter as part of the application process.

5.17 This **draft** Information Memorandum and all matters arising out of or in connection with or in any way related to this draft Information Memorandum shall be governed and construed in accordance with the laws of Ireland and shall be subject to, and Interested Parties hereby expressly submit to, the exclusive jurisdiction of the Irish courts.

5.2 Additional Conditions

5.2.1 Open Applications

5.18 All applications (including applications which do not ultimately become qualifying applications) by Applicants comprise offers which must remain open and valid for six (6) months from the date of submission. Applications are contractually binding offers and the submission of an application shall mean the applicant unconditionally offers to agree to:

- i) the provisions of this Chapter;
- ii) the Bidder declaration which accompanies the application(a draft which is set out in Annex 6); and
- iii) the Auction Rules described in subsection 5.2.3 below.

5.19 Offers shall be deemed to be accepted (meaning that an agreement covering (i),(ii) and (iii) above has been formed between the applicant and ComReg) once they are submitted to ComReg in accordance with the Information Memorandum and an acknowledgment of receipt has been issued by ComReg even if they subsequently do not become qualifying applications.

5.20 For the avoidance of doubt, the contract described in this section 5.2.1 is in addition to and not in substitution for the contract described in paragraph 5.16 above, which binds all parties in receipt of this Information Memorandum to the provisions of this Chapter.

5.2.2 Canvassing

5.21 Interested Parties must not canvass directly or indirectly any staff or the Commissioner of ComReg or any person associated in any way with the Award Process. Failure to comply with this requirement may result in disqualification from the Award Process. This does not restrict an applicant from making any representations through the communications channels specified in this draft Information Memorandum.

5.2.3 Auction and Transition Rules / Collusion / Improper Influence

5.22 The Award Process and Auction Rules described in Chapters 2, 3 and 4 of this draft Information Memorandum (“Auction Rules” which expression shall include the Transition Rules) and the transition rules in section 3.8 of this draft Information Memorandum (“Transition Rules”) shall form part of the agreement between ComReg and applicants described in section 5.2.1 above and by submitting an application, the applicant agrees to be bound by and to comply with the Auction Rules and the Transition Rules. Without prejudice to the detailed Auction Rules designed to prevent concerning collusion and for the avoidance of doubt, collusion, or any attempt by Interested Parties to influence, in any way, the Award Process, may result in the disqualification of that/those Interested Parties or, where the party engaging in such behaviour is an agent that agent’s principal. Non-exhaustive examples of such improper influence are collusion, price fixing, Bid rigging, Bid rotation, market division or breach of Award Process confidentiality.

5.2.4 Publicity

5.23 No publicity whatever regarding this Information Memorandum and/or Award Process is permitted unless and until ComReg has consented in writing, at its discretion, to the relevant communication.

5.24 ComReg may issue such communications and generate such publicity in relation to the Award Process as it considers appropriate and without notice to respondents, bidders, applicants or their agents. ComReg, subject to its guidelines on the treatment of confidential information, in particular, has the right to publicise or otherwise disclose any information regarding the Award Process, the identity of applicants (including the identity of their members, sub-contractors and agents), successful bidders, the Award Process or the granting of related licence or licences at any time.

5.2.5 Errors

5.25 If Interested Parties discover any error or omissions or lack of clarity in this Information Memorandum, such Interested Parties must immediately notify ComReg in writing of such error, omission or lack of clarity which will be resolved by ComReg in such manner as it considers appropriate.

5.2.6 No Warranty and Termination

5.26 The publication of this draft Information Memorandum does not warrant or imply that any Interested Party will be awarded a licence or licences.

5.27 ComReg will act at all times to a standard expected of a public body and in line with its statutory duties and functions. ComReg reserves the right, for any reason whatever at its discretion :

- to reject any and all applications;
- not to proceed with any part of the Award Process described in this draft Information Memorandum;
- not to accept any application;
- not to provide an applicant, Interested Party with any additional information;
- not to implement any arrangement contemplated by this draft Information Memorandum;
- to withdraw from any discussions or consultation which ComReg might engage or have engaged in;
- to suspend the Award Process at any time;
- not to award any licence or licences;
- to procure the award of a licence or licences by alternative means; and/or
- to terminate the Award Process at any time and without reason.

5.2.7 Own Costs

5.28 Each Interested Party shall be fully responsible for the entirety of all expenses and/or costs it incurs in the preparation or submission of an application or in participating in the Award Process. ComReg is not responsible for and will not

pay for any expense or cost incurred or loss suffered by an Interested Party in the preparation or submission of its application or responses to this draft Information Memorandum, the participation in the Award Process (including mock auctions and workshops) or otherwise. Further, ComReg is not responsible for any travel or accommodation costs incurred by Interested Parties unless previously agreed in writing by ComReg.

5.2.8 Waiver

5.29 The failure or neglect by ComReg to enforce any provision of the draft Information Memorandum is not (and will not be deemed to be) a waiver of that provision and does not prejudice the ComReg's right to take subsequent action in respect of such provision.

5.2.9 Amendments

5.30 ComReg reserves, at its discretion, the right, at any time until the conclusion or termination of the Award Process, to amend or modify this draft Information Memorandum or Award Process in any respect by way of clarification, addition, deletion or otherwise. ComReg will inform Interested Parties of any such amendments or modifications, if appropriate.

5.2.10 Conclusion of Process

5.31 This Award Process will be concluded when the successful Bidders have been awarded a licence, or if the Award Process terminated by ComReg in accordance with the provisions of this draft Information Memorandum.

5.32 The conclusion of the Award Process shall be without prejudice to the accrued rights, and obligations of ComReg and Interested Parties pursuant to this Chapter 5. The following provisions of this draft Information Memorandum shall continue to bind ComReg and/or Interested Parties to the extent that each of these provisions has become applicable to an Interested Party during the Award Process, after the conclusion of the Award Process:

- paragraphs 5.4, 5.5, 5.6, 5.7, 5.12, 5.16, 5.17; and
- the Transition Rules referred to in Section 3.8.

5.33 Additional continuing obligations are imposed on Applicants pursuant to the contract formed by section 5.2.1 of this Chapter.

Chapter 6

6 Communication

6.1 Publication of Information

- 6.1 ComReg will publish all documents and updates on the 800MHz, 900MHz and 1800 MHz Award Process (the “Award Process”) on its website at http://www.comreg.ie/radio_spectrum/gsm_band_liberalisation_and_800_mhz_spectrum.713.html

6.2 Q & A period after the publishing of the final Information Memorandum

[This section is provided for comment only and does not become valid until published in the final Information Memorandum]

- 6.2 Any Interested Party may submit written questions concerning this Award Process by letter or preferably by e-mail. All questions received in due time (see below) will be replied to on an ongoing basis and as far as possible, within 8 working days. All questions submitted and not withdrawn, prior to the issuing of a formal response by ComReg, and the responses to them, will be published, in whole or in part (as appropriate) on ComReg’s website, and parties submitting questions should be cognisant of this in preparing and submitting their questions. ComReg will not disclose the identity of the party posing a question, except where it may be legally obliged to do so, or where the party concerned gives its permission to do so.⁷²
- 6.3 Questions shall be marked for the attention of **[Insert name]** and shall be clearly labelled “**QUESTIONS: 800 MHz, 900 MHz and 1800 MHz Award Process**”. Questions addressed in any other way will not be answered. Only questions forwarded by letter or e-mail will be accepted. Communications to ComReg containing questions should identify the party on whose behalf the question has been submitted, and provide the name, telephone, fax and e-mail

⁷² In addition to being subject to ComReg’s Guidelines on the Treatment of Confidential Information, the publication of any question submitted, the identity of the questioning party and ComReg’s response is subject to redaction by ComReg where ComReg considers that publication of part or all of such information could have the potential to compromise the Award Process whether by providing information as to the bidding intentions of a prospective Bidder or otherwise.

contact details of the individual or individuals within the questioning party's organisation who may be contacted with regard to the matter.

All questions should be sent to:

Commission for Communications Regulation,
Abbey Court, Irish Life Centre
Lower Abbey Street
Dublin 1
IRELAND
ATT: **[Insert Name]**

Fax: **[Fax number to be inserted by ComReg]**
E-mail: **[Email address to be inserted by ComReg]**

- 6.4 The latest time for receipt of questions is **14.00 hours (local time) on Day Month 2011**. Questions received after this time will not be answered.
- 6.5 Applicants should note generally that ComReg is subject to Irish and EU rules on transparency, equal treatment, non-discrimination and the treatment and handling of confidential information (on the latter of which, see, inter alia, ComReg document 05/24, "Guidelines on the Treatment of Confidential Information").

Annex 1: Glossary

Definitions

- A 1.1 The definitions in this glossary shall apply to this draft Information Memorandum as a whole save that they shall not apply to the draft Statutory Instrument in Annex 2.
- A 1.2 Where a term in this glossary is defined by reference to a definition in a section or paragraph and an explanation of that term is provided in this glossary, the latter explanation is for convenience only and reference should be made to the appropriate part of the document for the definitive meaning of that term in its appropriate context.
- A 1.3 Any reference to any provision of any legislation shall include any modification re-enactment or extension thereof.
- A 1.4 Any reference to an Interested Party shall include that Interested Party's successors and assigns.
- A 1.5 The headings contained in this draft Information Memorandum are inserted for convenience of reference only and shall not in any way form part of or affect or be taken into account in the construction or interpretation of any provision of this draft Information Memorandum or the Annexes or Schedules hereto.
- A 1.6 Terms defined in this draft Information Memorandum shall, unless the context otherwise requires or admits, have the meaning set out below:

3G Licence	A Licence issued under the Wireless Telegraphy (Third Generation and GSM Licence) Regulations, 2002 and 2003 (S.I. 345 of 2002 and S.I. No. 340 of 2003) for 3G services in the 2100 MHz band.
800MHz band	The frequency range 791-821MHz paired with 832-862MHz
900MHz band	The frequency range 880-915MHz paired with 925-960MHz

1800MHz band	The frequency range 1710-1785MHz paired with 1805-1880MHz
Activity	In a given Primary Bid Round, the number of eligibility points associated with the Bid submitted by a Bidder in that round.
Activity Rules	Rules governing the Bids that each Bidder can make in successive rounds based on Bids submitted by the Bidder in previous rounds and their associated Activity.
Additional Price	The price associated with the Specific Lots in a Band assigned to a Winning Bidder. This price will be determined in the Assignment Stage using a second price rule, and will be no greater than the amount Bid by the Winning Bidder for these Specific Lots.
Administrative Application Form	The form set out in Annex 6: of this Information Memorandum which sets out administrative information relating to an Applicant.
Aggregate Demand	The sum of demand for Lots in a Lot Category expressed by all Applicants at the Application Stage or by all Bidders in a Primary Bid Round in the Auction.
Applicant	An Entity that submits an Application to ComReg to be allocated at least one Lot of the Lots being made available in the Award Process.
Application	The Application to participate in the Award Process made by an Applicant. The correct Application process shall comprise: <ul style="list-style-type: none"> • delivering appropriately completed Application Forms along with any documents required to be annexed thereto; and • transferring the requisite deposit to ComReg's nominated bank account by the deadlines set by ComReg, as same may have been varied by ComReg, in the exercise of its discretion, pursuant to subsection 3.3.2.
Application Forms	The set of application forms to be delivered as part of an Application consisting of: <ul style="list-style-type: none"> • the Lot Application Form; • the Administrative Application Form; • the Ownership Structure Form;

	<ul style="list-style-type: none"> • the Auction Agreement Form; and • any supporting documentation required to be delivered therewith <p>and Application Form shall mean any of the foregoing.</p>
Application Stage	The stage of the Award Process described in subsection 3.3 of this Information Memorandum, which runs from the day on which the Information Memorandum is published up to the point at which ComReg has identified which Applicants qualify to be entitled to participate in the Award Process.
Assignment Round	The single round of bidding in the Assignment Stage during which Winning Bidders in the Main Stage may submit one or more Bids to be assigned Specific Lots within the bands in which they have won Generic Lots.
Assignment Stage	The stage of the Auction where Winning Bidders are allocated Specific Lots in accordance with the number of Generic Lots they have been allocated.
Associate	As defined in subsection 3.3.4 of the Information Memorandum.
Associated Bidders	As defined in subsection 3.3.4 of the Information Memorandum.
Auction	The mechanism within the Award Process used to determine Winning Bidders and Winning Prices in the event that there is insufficient supply in at least one Lot Category to meet the demand expressed by Applicants for Lots, overall and/or for Specific Lots, at the stated Reserve Prices at the Application stage of the Award Process.
Auction Agreement Form	<p>A form set out in Annex 6: of the Information Memorandum by which an Applicant:</p> <ul style="list-style-type: none"> • certifies that all of the details on its Application Forms are correct; • agrees to be bound by the Auction Rules and other legal provisions in this Information Memorandum; and • certifies that Authorised Agents are appropriately authorised to bind the Applicant contractually. <p>This form shall be signed by an Authorised Agent.</p>

Auction Rules	rules and procedures relating to the Auction, as presented in Chapters 3 and 4 of this Information Memorandum, and to any other material to which the rules in Chapters 3 and 4 directly refer.
Auctioneer	ComReg.
Authorised Agent	A person who the Applicant has notified ComReg is entitled to bind an Applicant contractually in relation to the Award Process.
Award Process	The overall process through which it is intended that rights of use of spectrum will be awarded in the relevant bands in the event that at least one Applicant submits a valid Application for at least one Lot at the stated Reserve Prices.
Bands	The 800 MHz band, the 900 MHz band and the 1800 MHz band.
Base Price	The price to be paid by a Winning Bidder for the Package of Lots allocated to it in the Main Stage of the Auction (determined using a second price rule).
Bid	A binding offer to buy a Package of Lots for a specific monetary amount.
Bid Amount	The monetary amount associated with an offer made by a Bidder for a specified Package of Lots.
Bidder	An Interested Party that has both submitted an Application to ComReg to be allocated a Package of Lots in the Award Process (thereby becoming an Applicant) and had its Application approved by ComReg, qualifying it to either be allocated such Lots (where a Main Stage of the Award Process is not required) or to compete for Packages of Lots with the same or less associated Eligibility in the Auction.
Bidding Group	A Bidder and its Connected Persons as defined in subsection 3.3.4 of the Information Memorandum.
Binding Supplementary Bid	A Supplementary Bid at a non-discretionary level for a Package of Lots previously subject to a Primary Bid in a Primary Bid Round where the Bidder dropped Eligibility which is submitted alongside a Relaxed Primary Bid.
Business Day	A day on which the clearing banks are open for business in

	Ireland.
Communications Provider	A provider of electronic communications services as that term is defined in S.I. No. 333 of 2011 The European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011.
Confidential Information	Details of what may constitute Confidential Information for the purposes of this Award Process are provided in sub-section, as defined in subsection 3.3.5.
Connected Person	Shall have the meaning ascribed to it in subsection 3.3.4 of the Information Memorandum.
Constraining Package	The Package of Lots whose Bid Amount determines the level of a Relative Cap applying to a Supplementary Bid. Shall have the meaning ascribed to it in Chapter 4 of the Information Memorandum.
Controlled Person	As defined in subsection 3.3.4 of the Information Memorandum.
Controlling Person	As defined in subsection 3.3.4 of the Information Memorandum.
CPI	Consumer Price Index published by the Central Statistics Office.
Deposit	A monetary amount submitted by an Applicant as part of its Application to be allocated Lots in the Award Process. For an Application to be valid, the amount of an Applicant's Deposit must be equal to the sum of the Reserve Prices of Lots specified by the Applicant in its Lot Application Form. If a Main Stage of the Auction is required, ComReg may require that this Deposit be increased, as described in this Information Memorandum, during the Primary Bid Rounds to a level no greater than the value of the Bidder's highest Bid at the point in the Auction at which it increases such Deposit requirements.
Draft Regulations	Means the Wireless Telegraphy "Liberalised and Preparatory Licences in the 800 MHz, 900 MHz and 1800 MHz bands" Draft Regulations as set out in Annex 2 .
Electronic Auction System (EAS)	The system used for running the Auction. Specifically, this will be used by Bidders to check and submit Bids during the Main Stage (where required) and the Assignment Stage of the Auction (except

	in exceptional circumstances).
Eligibility	<p>The extent of a Bidder's capacity to Bid for Lots in the current round of the Auction. This is expressed as a number of eligibility points and is equal to:</p> <ul style="list-style-type: none"> • In the first Primary Bid Round, the number of eligibility points associated with a Bidder's Application, as specified on its Lot Application Form (its initial eligibility); and • In subsequent Primary Bid Rounds, the number of eligibility points associated with a Bidder's Bid for Lots in the previous round.
Excess Demand	Demand for Lots in any one of Lot Categories 1 to 6 that exceeds supply of Lots in that Lot Category.
Extension	The increasing of the round end time, extending the deadline for submission of a Bid in the round (or Bids in the case of the Supplementary Bids Round) by up to 30 minutes for the Bidder (or Bidders) that have utilised an extension right in the round. An extension right of a Bidder will be exercised automatically in a round if the Bidder has at least one extension right remaining and has not submitted a Bid (or Bids in the Supplementary Bids Round) by the scheduled end time of the round.
Existing Licence	A Licence currently held under a Wireless Telegraphy Regulation.
Existing Mobile Network Operator or Existing MNO	Licensee who holds a GSM Licence or a 3G Licence on the date of publication of this Information Memorandum.
Final Price Cap	A cap applying to all Supplementary Bids limiting the maximum Bid Amount for a Package of Lots to the highest Bid made for the Final Primary Package plus the difference in value between the package in question and the Final Primary Package at the Round Prices applied in the final Primary Bid Round.
Final Primary Package	The Package of Lots Bid for by a Bidder in the final Primary Bid Round.
Generic Lot	A Lot of 2x5 MHz of spectrum in a specific band (the 800MHz, 900MHz or 1800MHz band) and in a specified Time Slice but not

	linked to specific frequencies within that band.
General Authorisation	An authorisation for an undertaking to provide an electronic communications network or service under and in accordance with Regulation 4 of the Authorisation Regulations.
GSM900 MHz Licence	A Licence issued under the Wireless Telegraphy (GSM Mobile Telephony Licence) (Amendment) Regulations 2003 (S.I. 339 of 2003) for GSM use in the 900 MHz band.
GSM1800 MHz Licence	A Licence issued under the Wireless Telegraphy (GSM Mobile Telephony Licence) (Amendment) Regulations 2003 (S.I. 339 of 2003) for GSM use in the 1800 MHz band.
GSM Licence	A GSM900 MHz Licence or a GSM1800 MHz Licence or an Interim GSM900 MHz Licence as the case may be and GSM Licensee shall be construed accordingly.
Information Memorandum	This Information Memorandum including all of the Annexes and Schedules hereto.
Initial Eligibility	The number of eligibility points that a Bidder has in the first Primary Bid Round. This is based on the number of eligibility points associated with the Package of Lots the Bidder specified on its Lot Application Form, submitted to ComReg at the Application Stage.
Insider	Shall have the meaning ascribed to it in section 3.3.5.
Interest	As defined in subsection 3.3.4 of the Information Memorandum.
Interested Party	Includes, to the extent that the context requires or admits, any of the following: <ul style="list-style-type: none"> • a respondent to this draft Information Memorandum; • a prospective Bidder; • an Applicant; • a Qualified Bidder; or • an agent of any of the foregoing.
Interim GSM900 MHz Licence	a Licence issued under the Wireless Telegraphy (Interim GSM Mobile Telephony Licence) Regulations, 2011 (S.I. 189 of 2011) for GSM use in the 900 MHz band
Liberalised Use	A Licence issued under Schedule 1 of the Draft Regulations in the

Licence (or a Liberalised Licence)	form set out in Annex 2 which entitles the holder to use certain Specific Lots of spectrum in the Bands, subject to the terms and conditions set out therein.
Licence	A Liberalised Use Licence, a Preparatory Licence or an Existing Licence as the case may be and “Existing Licensee” and “Licensee” shall be construed accordingly.
Lot	A 2x5MHz block of spectrum in a specified band (the 800MHz, 900MHz or 1800MHz band). A Specific Lot or a Generic Lot as the case may be.
Lot Category	A number of Lots that are similar both as regards technical characteristics and bidding entitlements that are put together into a group of Generic Lots for the purposes of the Award Process.
Main Stage	The stage of the Auction that determines the Generic Lots allocated to different Bidders and the associated Prices in the case where there is excess demand for Lots in any Lot Category 1 to 6 expressed by Qualified Bidders at the Application Stage. This consists of a number of Primary Bid Rounds and a Supplementary Bids Round.
New Entrant	A Bidder that, in combination with its Connected Persons, does not hold a GSM Licence or a 3G Licence.
Notification and Grant Stage	The stage of the Award Process during which Upfront Prices are paid by Winning Bidders, less their Deposits (and Rebates where applicable), licences are granted to Winning Bidders and Deposits are returned to Unsuccessful Bidders.
Package of Lots	<p>A selection of one or more Generic Lots:</p> <ul style="list-style-type: none"> • Specified in a Bidder’s Application; • Bid for in one or more Primary Bid Rounds; and/or • Bid for in the Supplementary Bids Round. <p>Such a selection of Generic Lots will only be considered in its entirety, in combination with the associated Bid Amount, in determining the Winning Combination of Bidders and associated Base Prices.</p>
Ownership Structure	A form as set out in Annex 6: setting out the ownership structure

Form	of the Applicant as required therein.
Party-specific Lot	A Lot that can only be Bid for by one party.
Party-specific Lot Category	A Lot Category containing Lots whose usage rights will remain with their existing holder for the duration of the associated Time Slice. Such Lots can only be Bid for by the existing licensee, as specified in Table 8 of this Information Memorandum. Where these Lots are won by their Existing Licensee within the Award Process, licence usage rights for the underlying spectrum will be liberalised. Where these Lots are not won by their Existing Licensee, licence usage rights of the existing licence holder will remain as GSM-only.
Preparatory Licence	A Licence issued under Schedule 2 of the Draft Regulations in the form set out in Annex 2 which entitles the holder to possess and install equipment designed or configured for operation in certain Lots of spectrum in the Bands, but which does not permit any wireless telegraphy transmissions, subject to the terms and conditions set out therein.
Price Increment	<p>In the case of Lot Categories 1 to 6, the increase of the price of Generic Lots in a Lot Category based on demand expressed for Generic Lots in that category in the previous Primary Bid Round (or in the case of the price increment applicable to Reserve Prices for the first Primary Bid Round, demand expressed by Qualified Bidders at the Application Stage).</p> <p>In the case of Lot Categories 7 to 10, the increase of the price of Lots in a Lot Category based on demand expressed for the Lots in the corresponding General Category in the previous Primary Bid Round (or in the case of the price increment applicable to Reserve Prices for the first Primary Bid Round, demand expressed by Qualified Bidders at the Application Stage).</p>
Primary Bid	A Bid made by a Bidder in a Primary Bid Round.
Primary Bid Round	A round of the Main Stage during which Bidders each have the opportunity to submit a single Bid for a Package of Generic Lots for a Bid Amount equal to the sum of the Round Prices associated with each Lot within the Package of Lots upon which it submits a Bid.

Qualification Stage	A stage of the Award Process during which ComReg assesses Applications to be allocated Lots in the Award Process submitted before the deadline for Applications, evaluates which Applications are valid and determines which Applicants qualify to become Qualified Bidders in the Award Process. Based on the level of demand for Lots by Qualified Bidders, these Bidders will either be allocated the Lots in their respective Applications or Bid for Lots in the Main Stage of the Auction.
Qualified Bidder	An Applicant who, following consideration of its Application by ComReg, has been informed, in accordance subsection 3.4, that its Application is compliant and that it is entitled to participate in the Award Process.
Relative Cap	A cap applying to a Supplementary Bid, which limits the Bid Amount for a Package of Lots to: <ul style="list-style-type: none"> • the Price of the Package of Lots in the last Primary Bid Round in which the Bidder was eligible to Bid for the Package of Lots; plus • the difference in value between that Package of Lots and the Package of Lots actually Bid for instead at the Round Prices prevailing in the same Primary Bid Round.
Relaxed Primary Bid	A Primary Bid submitted by a Bidder whose Activity exceeds the Bidder's Eligibility to Bid in one or more Time Slices but is permitted because it satisfies certain specified constraints.
Reserve Price	The minimum Bid for a Lot for such a Lot to be allocated. This minimum Bid might be met based on demand expressed by Applicants at the Application Stage or in the Main Stage of the Auction.
Round Price	The Price per Lot of each Generic Lot within a specified Lot Category in a given round.
Specific Frequencies	The frequency ranges associated with Specific Lots.
Specific Lot	A 2x5MHz block of spectrum in one Time Slice in one of the Bands. Each Specific Lot has two specific frequency ranges associated with it, one of which is used for uplink and one of which is used for downlink.

Spectrum Caps	<p>Explicit maximum limits set on the amount of spectrum that any one Bidder can be awarded in the Award Process. These are:</p> <ul style="list-style-type: none"> • 2x20MHz of sub-1GHz spectrum in a Time Slice • 2x50MHz of spectrum in a Time Slice • 2x10MHz of 900MHz spectrum in the first Time Slice.
Supplementary Bid	A Bid submitted in the Supplementary Bids Round for a Package of Lots for a Bid Amount specified by the Bidder. The specified Bid Amount will be subject to a minimum and, in some cases, a maximum, as set out in the activity rules for the Auction.
Supplementary Bids Round	A single round of bidding during which each Bidder can submit multiple Bids, each for a Package of Generic Lots for an amount specified by the Bidder. The specified Bid Amount for each Supplementary Bid submitted in this round will be subject to a minimum and, in some cases, a maximum, as set out in the activity rules for the Auction.
Temporal Lot 1	A Lot in Time Slice 1.
Temporal Lot 2	A Lot in Time Slice 2.
Time Slice	<p>Time Slice 1 or Time Slice 2 and each Licence shall be in respect of one Time Slice. A time period for which licences are being allocated within the Award Process. There are two distinct Time Slices for which Lots in all bands (800MHz, 900MHz, 1800MHz) are being allocated:</p> <ul style="list-style-type: none"> • 1 February 2012 – 12 July 2015 • 13 July 2015 – 12 July 2030
Time Slice 1	A time period from 1 February 2012 to 12 July 2015 (as may be amended by ComReg).
Time Slice 2	A time period from 13 July 2015 – 12 July 2030 (as may be amended by ComReg).
Unsuccessful Bidder	An Interested Party that submits an Application to ComReg to be allocated Lots in the Award Process, is declared a Qualified Bidder but is not allocated any Lots in the Auction.
Upfront Fee	The sum of the Base Price and any Additional Prices to be paid by a Winning Bidder for the spectrum assigned to it within the

	Award Process.
User manual	Manual provided to Qualified Bidders detailing the procedures for use of the Electronic Auction System, including for the checking and submission of Bids.
Valid Bid	A Bid submitted within the Auction or by way of the Lot Application Form that is in accordance with the Auction Rules.
Winning Bid	A Bid in respect of which a Winning Bidder is allocated at least one Lot in the Winning Scenario, such Bids are selected in accordance with subsection 3.5.
Winning Bidder	A Bidder that wins at least one Lot in the Award Process.
Winning Combination of Bidders	The final allocation of Generic Lots among Bidders as set out in section 4.3.
Zero Bid	A Bid for no Lots with an associated Bid Amount of zero. Entry of a Zero Bid in the Primary Bid Rounds does not prevent the entry of Supplementary Bids.

European and Governmental Bodies, Regulatory and Standardisation Organisations

ComReg	Commission for Communications Regulation
DCENR	Department of Communications, Energy and Natural Resources
EC	European Commission
EU	European Union

Primary and Secondary Legislation

SI	Statutory Instrument
2002 Act	The Communications Regulation Act 2002 (No. 20)

	of 2002), as amended ⁷³
Act of 1926	The Wireless Telegraphy Act 1926 (No. 45 of 1926) as amended
Authorisation Regulations	European Communities (Electronic Communication Networks and Services) (Authorisation) Regulations 2011 (S.I. No 335 of 2011)
EC Decision 2009/766/EC	European Commission 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
EC Decision 2010/267/EU	European Commission Decision 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
EC Decision 2011/251/EU	European Commission Decision, 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
Framework Directive	Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services, as amended
Framework Regulations	European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No 333 of 2011)
The Minister	Minister for Communications, Energy and Natural Resources

⁷³ Includes the Communications Regulation (Amendment) Act 2007 and the Communications Regulation (Premium Rate Services and Electronic Communications Infrastructure) Act 2010.

Glossary of Technical Terms

3G	Third Generation Mobile System (e.g. UMTS)
2G	Second generation mobile services (e.g. GSM)
2.5G	2G systems incorporating packet switched services
ASO	Analogue Switch-off (the switch-off of analogue TV transmissions have been replaced by DTT)
BEM	Block Edge Mask
Channels 21-59	The frequency range 470-782 MHz
Channel 60	The frequency range 782-790 MHz
CPI	Consumer Price Index
Combinatorial Clock Auction	An auction format that progresses in two distinct phases. The first phase consists of a number of open rounds, which provide for price discovery (the 'primary Bid rounds'). This is followed by a single round of bidding (the 'Supplementary Bids round') during which bidders can express their demand for all packages of Lots that they value, subject to certain constraints.
DTT	Digital Terrestrial Television
Ec/Io	The ratio of received pilot channel energy to total received Interference
ECN	Electronic Communications Network as defined under the Framework Regulations
ECS	Electronic Communications Service as defined under the Framework Regulations
EIRP (or eirp)	Equivalent Isotropically Radiated Power
EMC	Electro Magnetic Compatibility
FDD	Frequency Division Duplex

Guard-band	An unused spectrum bandwidth separating channels to prevent interference
GSM	Global System for Mobile Communications
Hertz	Unit of Frequency
kHz	Kilo Hertz (1,000 Hertz)
LTE	Long Term Evolution of 3G
MHz	Megahertz (1,000,000 Hertz)
MNO	Mobile Network Operator
MoU	Memorandum / Memoranda of Understanding
MVNO	Mobile Virtual Network Operator (a licensed mobile operator with no spectrum assignment and with or without network infrastructure)
QoS	Quality of Service
R&TTE	Radio Equipment And Telecommunications Terminal Equipment
SAF	Spectrum Access Fee
SUF	Spectrum Usage Fee
UMTS	Universal Mobile Telecommunications System.
WACC	Weighted Average Cost of Capital
WiMAX	Worldwide Interoperability for Microwave Access
800 MHz Band	791 – 821 MHz paired with 832 – 862 MHz
900 MHz Band	880 – 915 MHz paired with 925 – 960 MHz
1800 MHz Band	1710 – 1785 MHz paired with 1805 – 1880 MHz
2100 MHz Band	1920 – 1980 MHz paired with 2110 – 2170 MHz, 1900 – 1920 MHz

Annex 2: Draft Regulation

DRAFT STATUTORY INSTRUMENTS.

S.I. No. of 2011

**WIRELESS TELEGRAPHY (LIBERALISED AND PREPARATORY, LICENCES IN
THE 800 MHZ, 900 MHZ AND 1800 MHZ BANDS) REGULATIONS 2011**

(Prn.)

S.I. No. of 2011

WIRELESS TELEGRAPHY (LIBERALISED AND PREPARATORY LICENCES IN THE 800 MHZ, 900 MHZ AND 1800 MHZ BANDS) REGULATIONS 2011

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 6 of the Wireless Telegraphy Act, 1926 (as substituted by section 182 of the Broadcasting Act 2009 (No. 18 of 2009)), (No. 45 of 1926), and with the consent of the Minister for Communications, Energy and Natural Resources, as required pursuant to section 37 of the Communications Regulation Act, 2002, (No. 20 of 2002) (as adapted by the Communications, Marine and Natural Resources (Alteration of Name of Department and Title of Minister) Order 2007 (S.I. No. 706 of 2007), hereby makes the following Regulations:

Citation

1. These Regulations may be cited as the Wireless Telegraphy (Liberalised and Preparatory, Licences in the 800 MHz, 900 MHz and 1800 MHz bands) Regulations, 2011.

Interpretation

2. (1) In these Regulations, unless the context otherwise requires:

“800 MHz Band” means the 791 to 821 MHz band paired with the 832-862 MHz band;

“900 MHz Band” means the 880 to 915 MHz band paired with the 925 to 960 MHz band;

“1800 MHz Band” means the 1710 to 1785 MHz band paired with the 1805 to 1880 MHz band.

“Act of 1926” means the Wireless Telegraphy Act, 1926 (No. 45 of 1926);

“Act of 1972” means the Wireless Telegraphy Act, 1972 (No. 5 of 1972);

“Act of 2002” means the Communications Regulation Act, 2002 (No. 20 of 2002);

“Additional Price” has the meaning as set out in the Information Memorandum;

“Apparatus” means apparatus for wireless telegraphy as defined in section 2 of the Act of 1926 for terrestrial systems capable of providing Electronic Communications Services in some or all of the 800 MHz band, the 900 MHz band and the 1800 MHz band, and, in relation to a Licence, means the particular apparatus for wireless telegraphy to which the Licence relates;

“Assign” means the assignment of the rights and obligations under a Licence to a party who is not the Licensee;

“Assignee” means the party to whom the rights and obligations under a Licence are assigned;

“Assignor” means the party from which the rights and obligations under a Licence have been assigned;

“Auction” means the competitive award procedure used by the Commission for the purpose of granting rights of use for radio frequencies in the 800 MHz, 900 MHz and 1800 MHz bands, as detailed in the Information Memorandum, or, as the case may be, the Award Process within the meaning of the Information Memorandum;

“Auction Rules” means the rules of conduct set out in the Information Memorandum, with which prospective and actual participants in the Auction were to comply from the date of publication of the Information Memorandum up until the Commission announced the outcome of the Auction in accordance with the Information Memorandum;

“Base Price” has the meaning as set out in the Information Memorandum;

“Bidder” has the meaning as set out in the Information Memorandum;

“Business Day” means a week-day, and does not include a Saturday or a public holiday, within the meaning of the Organisation of Working Time Act 1997, (No. 20 of 1997);

“Authorisation Regulations” means the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations, 2011 (S.I. 335 of 2011);

“Commission” means the Commission for Communications Regulation;

“Connected Person” has the meaning as set out in the Information Memorandum;

“CPI” means Consumer Price Index as published from time to time by the Central Statistics Office or its successor;

“CPI Adjustment” means a negative or positive percentage of the SUF, calculated using the CPI according to the methodology as set out the by the Commission in the Information Memorandum;

“Decision of 2009” means the European Commission 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;

“Decision of 2010” means the European 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;

“EMC Directive” means 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;

“Electronic Communications Network” and “Electronic Communications Service” have the same meanings as assigned to them in the Framework Regulations;

“ETSI” means the European Telecommunications Standards Institute;

“EURIBOR” means the Euro Interbank Offered Rate;

“Framework Regulations” means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations, 2011 (S.I. 333 of 2011);

“General Authorisation” means an authorisation for an undertaking to provide an electronic communications network or service under and in accordance with Regulation 4 of the Authorisation Regulations;

“Harmful Interference” means interference which endangers the functioning of a Radionavigation Service or other safety services or which otherwise seriously degrades, obstructs or repeatedly interrupts a Radiocommunication Service operating in accordance with a requirement under the International Telecommunication Union Radio Regulations, a regulation of an institution of the European Union or legislation giving effect to an Act, or provisions of an Act, adopted by an institution of the European Union relating to the provision of an electronic communications service, electronic communications network or an associated facility or the radio frequency spectrum, or regulations made under the Act of 1926;

“Information Memorandum” means the information memorandum which was published on [•] and set out in the Commission’s Document numbered XX/XX for the purposes of outlining in detail the processes and procedures the Commission would follow in running the Auction;

“Insider” has the meaning as set out in the Information Memorandum;

“Liberalised Use Licence” means a licence granted under section 5 of the Act of 1926 in accordance with and subject to the matters prescribed in these Regulations to keep and have possession of Apparatus in a specified place in the State;

“Licence” means a Liberalised Use Licence or a Preparatory Licence, as the case may be;

“Licensee” means the holder of a Liberalised Use Licence or a Preparatory Licence, as the case may be;

“Other Operator” means an undertaking as defined in the Framework Regulations providing an Electronic Communications Service over a Licensee’s Electronic Communications Network or part thereof;

“Preparatory Licence” means a Licence granted under section 5 of the Act of 1926 in accordance with and subject to the matters prescribed in these Regulations to keep and have possession of Apparatus in a specified place in the State;

“Radiocommunication Service” means a service as defined in the Radio Regulations of

the International Telecommunication Union involving the transmission, emission and or reception of radio waves for specific telecommunication purposes;

“Radionavigation Service” means a service involving the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information related to their parameters, by means of the propagation properties of radio waves and used for the purposes of navigation, including obstruction warning;

“Spectrum Unit” means a 5 MHz duplex block of spectrum in the 800 MHz, 900 MHz and 1800 MHz bands respectively;

“Spectrum Usage Fee” or “SUF” means the fee payable by each prospective Licensee prior to the issue or annual renewal of a Liberalised Use Licence and as determined by the Auction;

“Time Slice 1” means the time period between 1 February 2013 and 12 July 2015 inclusive, or some other time period as specified by the Commission under Regulation 5 of these Regulations;

“Time Slice 2” means the time period between 13 July 2015 and 12 July 2030 inclusive, or some other time period as specified by the Commission under Regulation 5 of these Regulations;

“Undertaking” has the meaning set out in the Framework Regulations;

“Upfront Fee” means the fee payable by each prospective Licensee on the conclusion of, and as determined by, the Auction prior to the grant of any Licences under these Regulations;

“Winning Bidder” has the meaning as set out in the Information Memorandum;

(2) In these Regulations:

- (a) a reference to an enactment or regulation shall be construed as a reference to the enactment or regulation as amended or extended by or under any subsequent enactment or regulation;

- (b) a reference to a Regulation or a Schedule is to a Regulation of or Schedule to these Regulations, unless it is indicated that a reference to some other enactment is intended;
 - (c) a reference to a paragraph or subparagraph is to the paragraph or subparagraph of the provision in which the reference occurs unless it is indicated that reference to some other provision is intended; and
 - (d) a reference to a Directive of the European Parliament and Council shall be construed as a reference to the Directive as amended or extended by any subsequent Directive.
- (3) A word or expression that is used in these Regulations and that is also used in the Act of 1926 has, unless the context otherwise requires, the same meaning in these Regulations that it has in that Act.
- (4) A word or expression that is used in these Regulations and that is also used in the Act of 2002 has, unless the context otherwise requires, the same meaning in these Regulations that it has in that Act.
- (5) A word or expression that is used in these Regulations and that is also used in the Framework Regulations or in the Authorisation Regulations has, unless the context otherwise requires, the same meaning in these Regulations that it has in those Regulations.
- (6) The Interpretation Act 2005 (No. 23 of 2005) applies to these Regulations.

Licences to which these Regulations apply

3. (1) These Regulations apply to:
- (a) Preparatory Licences, and
 - (b) Liberalised Use Licences,

and in both cases, for terrestrial systems capable of providing Electronic Communications

Services in the 800 MHz, the 900 MHz and the 1800 MHz bands, with the forms of Licence detailed in Schedules 1 and 2 to these Regulations in which forms of Licence are set out, respectively, for a Liberalised Use Licence and a Preparatory Licence.

Application for the Grant and Form of Licences

4. (1) Application for the grant of a Licence or Preparatory Licence to which these Regulations apply shall be made by a Winning Bidder following the conclusion of the Auction, to the Commission in writing, and in such form as may be determined by the Commission from time to time.
- (2) A person who makes an application under paragraph (1) of this Regulation shall furnish to the Commission such information as the Commission may reasonably require for the purposes of these Regulations, and if the person, without reasonable cause, fails to comply with this paragraph, the Commission may refuse to grant a Licence concerned to the person.
- (3) The Commission may grant a Liberalised Use Licence or a Preparatory Licence to which these Regulations apply, in accordance with the provisions of Regulation 9 of the Authorisation Regulations and on payment by the applicant of the relevant fees prescribed in Regulation 8 of these Regulations.
- (4) A Liberalised Use Licence to which these Regulations apply shall be in the form specified in Schedule 1 to these Regulations with such variation, if any, whether by addition, deletion or alteration as the Commission may determine from time to time or in any particular case.
- (5) A Preparatory Licence to which these Regulations apply shall be in the form specified in Schedule 2 to these Regulations with such variation, if any, whether by addition, deletion or alteration as the Commission may determine from time to time or in any particular case.

Duration and Renewal of Licences

5. (1) (a) The commencement date of a Preparatory Licence to which these Regulations apply shall be set by the Commission and specified in Part 1 of the Preparatory Licence.
- (b) A Preparatory Licence to which these Regulations apply that has not been renewed, unless it has been withdrawn or had its duration amended under Regulation 7(2), shall in any event expire on such date as may be determined by the Commission.
- (2) (a) The first commencement date of a Liberalised Use Licence to which these Regulations apply shall be specified in Part 1 of the Liberalised Use Licence, and, in respect of:
- (i) Time Slice 1, shall be 1 February, 2013 or such date as may be specified by the Commission; and
- (ii) Time Slice 2, shall be 13 July, 2015 or such date as may be specified by the Commission.
- (b) A Liberalised Use Licence to which these Regulations apply that has not been renewed shall, unless it has been withdrawn or had its duration amended under Regulation 7(2), be in force for a period of up to one year and, unless renewed, shall then expire.
- (c) Subject to subparagraph 2(e) of this Regulation, a Liberalised Use Licence to which these Regulations apply may be renewed from time to time by the Commission under subparagraph 2(d) of this Regulation, on payment by the applicant of the fees prescribed in Regulation 8.

(d) On application by, or on behalf of a Licensee, to the Commission before the expiration of their Liberalised Use Licence, the Commission may, by notice in writing given to the Licensee or sent to the Licensee at the address of the Licensee specified in the Liberalised Use Licence or notified to the Commission by the Licensee in accordance with these Regulations, renew the Liberalised Use Licence for a period of one year from the day following the expiration of the immediately preceding period during which it was in force. The granting or renewal of a Liberalised Use Licence shall not be construed as warranting, representing or otherwise holding out that the Liberalised Use Licence shall be renewed at any time in the future, or renewed for any particular period or on any particular terms.

(e) Notwithstanding subparagraphs 2(b), 2(c) and 2(d) of this Regulation, a Liberalised Use Licence granted or renewed under these Regulations in respect of

(i) Time Slice 1, shall, in any event, expire on 12 July 2015 or such date as may be specified by the Commission;

(ii) Time Slice 2, shall, in any event, expire on 12 July 2030.

Conditions of Licences

6 It shall be a condition of the Licences to which these Regulations apply, that the Licensee shall:

(1) ensure that

(a) it complies with the conditions contained within the Licences and these Regulations; and

(b) that Other Operators, related to it or otherwise, operating on the Licensee's network comply with the conditions contained within Part 4 of the Liberalised Licence;

- (2) ensure that Apparatus in the 800 MHz band complies with the Decision of 2010, and that Apparatus in the 900 MHz band and 1800 MHz band complies with the Decision of 2009;
- (3) ensure that Apparatus installed, maintained, possessed or kept under the Licences is capable of operating on the radio frequency spectrum specified in the Liberalised Use Licence;
- (4) ensure that where the Apparatus is worked or used, as appropriate, it is used only on such radio frequency spectrum as specified in the Liberalised Use Licence;
- (5) ensure that the radio frequency spectrum specified in the Liberalised Use Licence shall be used in an efficient manner;
- (6) comply with any rules to prevent spectrum hoarding as laid down by the Commission under the Framework Regulations;
- (7) ensure that it makes payment of the fees set out in Regulation 8 of these Regulations;
- (8) furnish, such information and reports relating to the operation of the Apparatus as may be requested by the Commission from time to time;
- (9) ensure that the Apparatus or any part thereof, shall be installed, maintained, and where a Liberalised Use Licence is held worked and used, so as not to cause Harmful Interference;
- (10) ensure that the Apparatus or any part thereof, shall be installed and maintained, and, additionally, where a Liberalised Use Licence is held, worked and used, complies with Annex 1 of the EMC Directive;
- (11) comply with any special conditions imposed under section 8 of the Act of 1972 and subject to which these Licences are deemed by subsection (3) of that section to be issued;

- (12)(a) notify the Commission, not less than 6 months prior to the proposed cessation of any technology, as listed in the Schedules to these Regulations to which the Liberalised Use Licence relates and;
- (b) 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;
- (13) upon becoming aware of any event likely to materially affect their ability to comply with these Regulations, or any conditions set out or referred to in the Licences, notify the Commission of that fact in writing within 5 business days;
- (14) comply with all obligations under relevant international agreements relating to the use of Apparatus or the frequencies to which they are assigned;
- (15) Only 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;
- (16) notify the Commission of its intention to Assign the right of use of a Liberalised Use Licence, under paragraph 15 of this Regulation and the effective transfer of the rights and obligations under these Regulations and the Licence, and this notification shall be in accordance with the procedures specified by the Commission from time to time.
- (17) ensure that if the address of the Licensee or the person to whom a Licence has been assigned changes, the Licensee or Assignee shall, as soon as possible, but within 28 days, notify the Commission in writing of the change;
- (18) ensure that an Assignee is contractually obliged to comply with all obligations under these Regulations and Licences issued pursuant to them, and to provide to the Assignor such details as the Commission may request from time to time.

Enforcement, Amendment, Withdrawal and Suspension

7. (1) Enforcement by the Commission of compliance by a Licensee with conditions attached to their Licence shall be in accordance with the Authorisation Regulations.
- (2) The Commission may amend the Licence from time to time in accordance with the Authorisation Regulations.
- (3) Without prejudice to paragraph (2) of this Regulation, at the request of the Licensee, the Commission may, if it considers it appropriate to do so, amend the Licence by adding to, deleting from or altering the radio frequency spectrum specified in the Licence, on which the Apparatus may be used. Any such amendment shall be effected by notice in writing from the Commission specifying the amendment and given to the Licensee or sent to the Licensee at the address specified in the Licence or notified to the Commission pursuant to the Licence.
- (4) A Licence may be suspended or withdrawn by the Commission in accordance with the Authorisation Regulations.
- (5) A Licence may be suspended or withdrawn by the Commission if, after the grant of a Licence pursuant to these Regulations, it emerges that the Winning Bidder to whom the Licence was granted, a Connected Person or an Insider has breached the Auction Rules.

Licence Fees

8. (1) The following fees may be charged:
 - (2) The fee for a Liberalised Use Licence is the sum of the Upfront Fee and the Spectrum Usage Fees over the duration of the Licence less any rebates applicable to the Licensee, as identified in the Information Memorandum.
 - (3) The Upfront Fee is determined by the Auction and is the sum of the Base Price and the Additional Price.

- (4) If the outcome of the Auction indicates that demand for rights of use for radio frequencies in the 800 MHz band, the 900 MHz band and the 1800 MHz band, or some or all of them, exceeds supply, then the Base Price is determined using the pricing methodology decided upon by the Commission and detailed in the Information Memorandum.
- (5) If the outcome of the Auction indicates that demand for rights of use of radio frequencies in the 800 MHz band, the 900 MHz band and the 1800 MHz band, or some or all of them, is less than supply, then the Base Price is the sum of the Reserve Prices for all of the Spectrum Units, in the Liberalised Use Licence. The Reserve Price, per Spectrum Unit, per spectrum band is detailed in Table 1 below:

Table 1: Reserve Price⁷⁴ per Spectrum Unit per spectrum band and per Time Slice

Spectrum Band	Reserve Price per Spectrum Unit in Time Slice 1	Reserve Price per Spectrum Unit in Time Slice 2
800 MHz band	€3.34 million	€8.48 million
900 MHz band	€3.34 million	€8.48 million
1800 MHz band	€1.67 million	€4.24 million

- (6) The Additional Price for a Liberalised Use Licence is determined using the pricing methodology set out in the Information Memorandum.
- (7) The Spectrum Usage Fee for a Liberalised Use Licence is the sum of the Spectrum Usage Fees associated with each Spectrum Unit in the Liberalised Use Licence as set out in paragraph 8 below.
- (8) For each Spectrum Unit in a Liberalised Use Licence, the Spectrum Usage Fee for a one year Licence period is the sum of:

⁷⁴ The reserve prices will be revised pursuant to an updated benchmarking exercise prior to publication of this Statutory Instrument. [NOTE TO BE REMOVED IN FINAL S.I.]

- (a) €1.21 million and the CPI Adjustment per Lot in the 800 MHz band;
 - (b) €1.21 million and the CPI Adjustment per Lot in the 900 MHz band; and
 - (c) €0.605 million and the CPI Adjustment per Lot in the 1800 MHz band.
- (9) If a Liberalised Use Licence is granted or renewed for a part of a year then the Spectrum Usage Fee in respect of that Licence to be paid by the Licensee shall be calculated on a pro rata daily basis until its expiry.
- (10) The rebates in respect of the fee for a Liberalised Use Licence will be determined in accordance with the methodology set out in the Information Memorandum.
- (11) The Upfront Fees specified in paragraphs, (3), (4), (5) and (6) of this Regulation less any applicable rebates shall be paid to the Commission on a date specified by the Commission in accordance with the Information Memorandum, by way of banker's draft or such other means and on such other terms, if any, as the Commission may decide. Where the date of payment falls on a Saturday, a Sunday or a public holiday, payment shall be made on or before the last working day before the date on which payment would otherwise have fallen due.
- (12) The Spectrum Usage Fees specified in paragraphs, (7), (8), (9) and (10) of this Regulation, less any applicable rebates, shall be paid to the Commission prior to the first grant of a Liberalised Use Licence or the renewal of the Liberalised Use Licence, as the case may be, by way of banker's draft or such other means and on such other terms, if any, as the Commission may decide. Where the date of payment falls on a Saturday, a Sunday or a public holiday, payment shall be made on or before the last working day before the date on which payment would otherwise have fallen due.
- (13) If a Liberalised Use Licence is suspended or withdrawn under Regulation 7(4) or Regulation 7(5), the Licensee shall not be entitled to be repaid any part of the Upfront

- or Spectrum Usage Fee, paid by the Licensee under this Regulation, but shall still be liable to pay any sums, including interest, that are outstanding.
- (14) If a Liberalised Use Licence is amended under Regulation 7(3), the appropriate Spectrum Usage Fee specified in paragraph (8) of this Regulation in relation to such Spectrum Units, shall be paid by the Licensee, or refunded to the Licensee, on a pro-rata basis, based on the proportion of the unexpired period of that Licence on the date of the amendment.
- (15) The fee for a Preparatory Licence is €100.
- (16) Where any payment is not made in due time, then the interest accrued on any fee under this Regulation shall be payable by the Licensee at the appropriate EURIBOR rate standing on the fee or part thereof in respect of the period between the date when such fee or part fell due and the date of payment of such fee or part.
- (17) An amount payable by a person in respect of a fee under this Regulation may be recovered by the Commission from the person as a simple contract debt in any court of competent jurisdiction.

Licensee to satisfy all Legal Requirements

10. (1) Licences granted pursuant to these Regulations do not grant to the Licensee any right, interest or entitlement other than the right to keep, and have possession of, install, and maintain, and additionally in the case of a Liberalised Use Licence, to work and use, at a specified location or locations in the State, apparatus for wireless telegraphy for terrestrial systems capable of providing Electronic Communications Services.
- (2) Nothing in these Regulations shall absolve the Licensee from any requirement in law to obtain such further or other consents, permissions, authorisations or licences as may be necessary for the provision of the service and for the exercise of his or her rights or discharge of his or her obligations under the Licences. The Licensee is

responsible for all costs, expenses and other commitments, financial or otherwise, in respect of the Licences and in the provision of terrestrial systems capable of providing Electronic Communications Services, and the Commission shall bear no responsibility whatsoever for such costs, expenses or commitments.

SCHEDULE 1

WIRELESS TELEGRAPHY ACT, 1926

WIRELESS TELEGRAPHY (Liberalised and Preparatory Licences in the 800 MHz, 900 MHz and 1800 MHz bands) REGULATIONS 2011

Liberalised Use Licence for terrestrial systems capable of providing Electronic Communications Services

Licence under section 5 of the Wireless Telegraphy Act, 1926, to keep and have possession of apparatus for wireless telegraphy for terrestrial systems capable of providing Electronic Communications Services.

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 5 of the Wireless Telegraphy Act, 1926 (No. 45 of 1926) (as substituted by section 182 of the Broadcasting Act 2009 (No. 18 of 2009), hereby grants to the Licensee specified [insert name of Licensee] of [insert address of Licensee]:

1 Authorisation to keep, have possession of, install, maintain, work and apparatus for wireless telegraphy as specified in Part 2 to this Licence and subject to the terms and conditions and restrictions set out in the Wireless Telegraphy (Liberalised Use Licence and Preparatory Licences in the 800 MHz, 900 MHz and 1800 MHz band) Regulations, 2011 (S.I. No. [XX] of 2011) (“the Regulations”), including, but not limited to, the following:

- (1) The Licensee shall ensure that it complies with all of the conditions contained within Parts 1 to 4 of this Licence; and
- (2) The Licensee shall ensure that it makes payment of all fees as detailed in the Regulations.

This Licence shall come into effect on DD/MM/YY and, subject to revocation or suspension, expires on DD/MM/YY unless renewed in accordance with these Regulations.

Signed:

For and on behalf of the Commission for Communications Regulation

Official Stamp

Part 1

- 1 **Time Slice;** *(1 or 2)*
- 2 **Commencement Date per Lot:** *DD Month 201X*
- 3 **Expiry Date per Lot:** *DD Month 20XX*
- 4 **Authorised Bands:** *800, 900 and 1800MHz as appropriate*
- 5 **Frequencies Assigned:** *From XXXX MHz to YYYY MHz*
including Raster details if appropriate

Part 2

The Apparatus to which this Licence applies

Equipment Index Reference	Technology standard	Equipment Description	Manufacturer	Model

Part 3

Apparatus Location and Details

1. 800 MHz band

Location Index	National Grid Reference	Equipment at location⁷⁵	Maximum EIRP

2. 900 MHz band

Location Index	National Grid Reference	Equipment at location⁷⁶	Maximum EIRP

⁷⁵ This should reference the Equipment Index as specified in part 2 of this schedule.

⁷⁶ This should reference the Equipment Index as specified in part 2 of this schedule.

3. 1800 MHz band

Location Index	National Grid Reference	Equipment at location⁷⁷	Maximum EIRP

Part 4

Licence Conditions

(as set out in Annex 2 to this Document)

⁷⁷ This should reference the Equipment Index as specified in part 2 of this schedule.

SCHEDULE 2

WIRELESS TELEGRAPHY ACT, 1926

WIRELESS TELEGRAPHY (Liberalised and Preparatory Licences in the 800 MHz, 900 MHz and 1800 MHz bands) **REGULATIONS 2011**

Preparatory Licence for terrestrial systems capable of providing Electronic Communications Services.

Preparatory Licence under section 5 of the Wireless Telegraphy Act, 1926, to keep and have possession apparatus for wireless telegraphy for terrestrial systems capable of providing Electronic Communications Services.

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 5 (as substituted by section 182 of the Broadcasting Act 2009 (No. 18 of 2009)) of the Wireless Telegraphy Act, 1926 (No. 45 of 1926), hereby grants to the Licensee specified [insert name of Licensee] of [Insert address of Licensee]:

- 1 Authorisation to keep and have possession of apparatus for wireless telegraphy specified in Part 1 to this Licence, and subject to the terms and conditions and restrictions set out in the Wireless Telegraphy (Liberalised and Preparatory Licences in the 800 MHz, 900 MHz and 1800 MHz bands) Regulations, 2011 (S.I. No. of 2011) (“the Regulations”), including, but not limited to, the following:
 - (1) The Licensee shall ensure that it complies with all of the conditions contained within the Parts of this Licence; and
 - (2) The Licensee shall ensure that it makes payment of all fees as detailed in the Regulations.

This Licence shall come into effect on DD/MM/YY and, subject to revocation or suspension, expires on DD/MM/YY unless renewed in accordance with these Regulations.

Signed:

For and on behalf of the Commission for Communications Regulation

Official Stamp

Part 1

Licence Conditions

1. The Licensee may keep, have possession of, install and maintain the Apparatus detailed in Part 2 of this Licence.
2. The Licensee shall not work or use the Apparatus detailed in Part 2 of this Licence.

Part 2

Statement of Authorised Apparatus

To Include:

1. (1) **Time Slice:** *(1 or 2)*
- (2) **Commencement Date:** *DD Month 201X*
- (3) **Expiry Date per Lot:** *DD Month 20XX*
- (4) **Authorised Band:** 800 MHz,
- (5) **Frequencies Assigned:** *From XXXX MHz to YYYY MHz including
Raster details if appropriate*
- (6) **Description of Apparatus.**

2. (1) **Time Slice:** *(1 or 2)*
- (2) **Commencement Date:** *DD Month 201X*
- (3) **Expiry Date per Lot:** *DD Month 20XX*
- (4) **Authorised Band:** 900 MHz,
- (5) **Frequencies Assigned:** *From XXXX MHz to YYYY MHz including
Raster details if appropriate*
- (6) **Description of Apparatus.**

3. (1) **Time Slice:** *(1 or 2)*
- (2) **Commencement Date:** *DD Month 201X*
- (3) **Expiry Date per Lot:** *DD Month 20XX*
- (4) **Authorised Band:** 1800 MHz,
- (5) **Frequencies Assigned:** *From XXXX MHz to YYYY MHz including
Raster details if appropriate*
- (6) **Description of Apparatus.**

EXPLANATORY NOTE

(This note is not part of the Instrument and does not purport to be a legal interpretation.)

These Regulations prescribe matters in relation to licences for apparatus for terrestrial systems capable of providing Electronic Communications Services in some or all of the 800 MHz, the 900 MHz and the 1800 MHz bands

Annex 3: Part 4 of Schedule 1 to a Liberalised Use Licence

The following sets out an indicative Part 4 of Schedule 1 to a Liberalised Use Licence.

This indicative text is based upon the draft Text set out in Annex 8 of ComReg 11/60a, with modifications to bring this text in line with the terms and conditions of the Liberalised Use Licence as set out in section 2.2 of this document.

[DRAFT] Part 4 to Schedule 1

Part 1 Licence Commencement & Termination Date

[Enter the Licence commencement date & termination date]

Part 2 General

The Frequency Bands

- The “800 MHz band” means the 791-821 MHz and 832-862 MHz paired bands;
- The “900 MHz band” means the 880-915 MHz and 925-960 MHz paired bands;
- The “1800 MHz band” means the 1710-1785 MHz and 1805-1880 MHz paired bands.

The Licensed Frequency Blocks

The frequency block(s) within which Licensed Terrestrial Systems of the Licensee shall be designed or configured to operate under this Licence (to be known as the “Licensed Frequency Block(s)”) are:

- [enter the frequency details of the 2 x 5 MHz block(s) in the 800 MHz, 900 MHz and/or 1800 MHz bands that the Licensee obtained under the Award Process]

The Licensed Terrestrial Systems and Services

This Licence allows the Licensee, in the Licensed Frequency Block(s), in accordance with the Wireless Telegraphy Act, 1926, as amended, to keep and have possession of terrestrial systems capable of providing electronic communications services that are in compliance with the technical implementing measures adopted pursuant to 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 (“Radio Spectrum Decision”). and in conformity with the standards referred to in parts 3 – 7 of this schedule.

Definitions of specific Terrestrial Systems

“GSM network” means an electronic communications network that complies with the GSM standards, as published by ETSI, in particular EN 301 502 and EN 301 511;

“UMTS network” means an electronic communications network that complies with the UMTS standards as published by ETSI, in particular EN 301 908-1, EN 301 908-2, EN 301 908-3 and EN 301 908-11;

“LTE network” means an electronic communications network that complies with the LTE Standards, as published by ETSI, in particular EN 301 908-1, EN 301 908-13, EN 301 908-14, and EN 301 908-11;

“WiMAX network” means an electronic communications network that complies with the WiMAX Standards, as published by ETSI, in particular EN 301 908-1, EN 301 908-21 and EN 301 908-22;

“Other terrestrial systems” means an electronic communications network not listed above that complies with Decision 2010/267/EU (for the 800 MHz band), and/or Decision 2009/766/EC as amended (for the 900 MHz band and 1800 MHz band).

Termination of a terrestrial system deployed in the Licensed Frequency Block(s)

Should the Licensee intend to terminate a terrestrial system that it has deployed in the Licensed Frequency Block(s), the Licensee shall notify the Commission for Communications Regulation (“ComReg”) in writing of this intention six (6) months prior to the termination date for that terrestrial system.

Provision of Maps and Data

For the purposes of carrying out coverage (see Part 4) and quality of service (see Part 5) compliance checks, the Licensee shall, on request, provide to ComReg the following:

- (a) Maps showing Coverage as defined in Part 4 to this schedule;
- (b) An up to date list of the locations of the base transceiver stations;
- (c) A mechanism for identifying the base station that is handling a call at any given time;
- (d) An adequate number of test numbers.

Part 3 Technical Conditions

The 800 MHz band

1. The Frequency Division Duplex (FDD) method shall be used. Radio transmitters that use the 791–821 MHz frequency space shall transmit in a downlink direction (i.e. ‘Base Station’⁷⁸ transmitters). Radio transmitters that use the 832–862 MHz frequency space shall transmit in an uplink direction (i.e. ‘terminals’ transmitters).
2. Terrestrial systems compatible with Decision 2010/267/EU can be deployed in the 800 MHz band.
3. Within a frequency block for which the Licence holder has a Licence, the in-block radiated power from a base station transmitter in the downlink direction must not exceed 59 dBm/5 MHz EIRP.⁷⁹
4. Outside of a frequency block for which the Licence holder has a Licence, the Licensee shall comply with the out-of-block Block Edge Mask (BEM) as specified in Table 1 to Table 4

Table 1: Baseline Requirements – Base Station BEM out-of-block EIRP limits.

Frequency Range Of Out-Of-Block Emissions	Maximum Mean Out-Of-Block EIRP	Measurement Bandwidth
832 – 862 MHz (Frequencies used for FDD uplink)	-49.5 dBm	5 MHz

⁷⁸ Repeaters are also included as a Base Station for the purposes of this Licence.

⁷⁹ EIRP stands for Equivalent Isotropically Radiated Power.

Table 2: Transition Requirements - Base Station BEM out-of-block EIRP limits per antenna over FDD downlink frequencies 791 – 821 MHz.

Frequency Range Of Out-Of-Block Emissions	Maximum Mean Out-Of-Block EIRP	Measurement Bandwidth
-10 to -5 MHz from lower block edge	18 dBm	5 MHz
-5 to 0 MHz from lower block edge	22 dBm	5 MHz
0 to +5 MHz from lower block edge	22 dBm	5 MHz
+5 to +10 MHz from lower block edge	18 dBm	5 MHz
Remaining FDD downlink frequencies	11 dBm	1 MHz

Table 3: Transition Requirements – Base Station BEM out-of-block EIRP limits per antenna (for one to four antennas) over frequencies used as guard bands.

Frequency Range Of Out-Of-Block Emissions	Maximum Mean Out-Of-Block EIRP	Measurement Bandwidth
Guard band between 790 MHz and 791 MHz	17.4 dBm	1 MHz
Duplex Gap guard band 821 – 832 MHz	15 dBm	1 MHz

Table:4 : Baseline requirements - Base Station out-of-block EIRP limits over frequencies below 790 MHz

Frequency Range Of Out-Of-Block Emissions	Conditions On Base Station In-Block EIRP, P Dbm/Mhz	Maximum Mean Out-Of-Block EIRP	Measurement Bandwidth
470 – 790 MHz	$P \geq 59$	0 dBm	8MHz
	$36 \leq P < 59$	$(P-59)$ dBm	8MHz
	$P < 36$	-23 dBm	8MHz

- The Licensee shall comply with all Memoranda of Understanding (“MoU”) agreed from time to time between ComReg and Ofcom, or its successor, in relation to the 800 MHz band.⁸⁰

The 900 MHz & 1800 band

- The Frequency Division Duplex (FDD) method shall be used.

⁸⁰ See the Draft MoU regarding this band, as presented in Annex 12 ComReg Document 11/60a.

7. In the 900 MHz band, radio transmitters that use the 925–960 MHz frequency space shall transmit in a downlink direction (i.e. ‘Base Station’ transmitters). Radio transmitters that use the 880–915 MHz frequency space shall transmit in an uplink direction (i.e. ‘Terminal’ transmitters).
8. In the 1800 MHz band radio transmitters that use the 1805–1880 MHz frequency space shall transmit in a downlink direction (i.e. ‘Base Station’ transmitters). Radio transmitters that use the 1710–1785 MHz frequency space shall transmit in an uplink direction (i.e. ‘Terminal’ transmitters).
9. Terrestrial systems permitted under Decision 2009/766/EC as amended by Decision 2011/251/EU can be deployed in the 900 MHz band and/or the 1800 MHz band.
10. In the absence of bilateral or multilateral agreements between neighbouring Licensees, the Licensee deploying a GSM network in the 900 MHz and/or 1800 MHz band is required to meet the guard band obligation as set down in Decision 2009/766/EC.
11. The Licensee shall comply with all MoU agreed between ComReg and the national regulatory authority responsible for communications matters in the UK, Ofcom or its successor, in relation to the 900 MHz and 1800 MHz band, including ComReg Documents 11/50c, d, e and f.⁸¹

Part 4 Roll-out and Coverage Requirements

1. Minimum Coverage and Roll-out Requirement

[Should an existing mobile network operator obtain a new Licence]

The Licensee shall ensure the attainment of, and maintain, a demographic coverage level of at least 70% within 3 years of the Licence Commencement Date.

[Should a New Entrant obtain a new Licence]

The Licensee shall ensure the attainment of, and maintain, a demographic coverage level of a least 70% within 7 years of the Licence Commencement Date.

2. Definition of Coverage

Where the Licensee has deployed more than one terrestrial system in the 800 MHz, 900 MHz and/or 1800 MHz band, it is the combined coverage of these terrestrial systems that counts towards the minimum coverage and roll-out obligation set out in this Licence.

⁸¹ <http://www.comreg.ie/fileupload/publications/ComReg1150c.pdf> ,
<http://www.comreg.ie/fileupload/publications/ComReg1150d.pdf> ,
<http://www.comreg.ie/fileupload/publications/ComReg1150e.pdf> and
<http://www.comreg.ie/fileupload/publications/ComReg1150f.pdf>

The definition of coverage varies per frequency band and per terrestrial system and shall be calculated as follows:

800 MHz coverage metrics

For a LTE network:

- For measurement purposes – an average pilot signal field strength of 54 dB μ V/m/MHz measured outdoors at a height of 1.5m, or a Block Error Rate (BLER) of 10^{-2} measured on the Physical Downlink Control Channel (PDCCH).
- For propagation prediction systems – a pilot signal field strength of 54dB μ V/m/MHz over 95% of the area during 95% of the time.

For a UMTS network:

- For measurement purposes – an average pilot signal field strength of 49dB μ V/m/5MHz measured outdoors at a height of 1.5m or an Ec/Io \geq -8dB
- For propagation prediction systems – a pilot signal field strength of 49dB μ V/m/5MHz over 95% of the area during 95% of the time.

900 MHz coverage metrics

For a GSM network:

- For measurement purposes – an average pilot signal field strength of 46dB μ V/m/200 kHz measured outdoors at a height of 1.5m
- For propagation prediction systems – a pilot signal field strength of 46dB μ V/m/200 kHz over 95% of the area during 95% of the time.

For a UMTS network:

- For measurement purposes – an average pilot signal field strength of 50dB μ V/m/5MHz measured outdoors at a height of 1.5m or an Ec/Io \geq -8dB
- For propagation prediction systems – a pilot signal field strength of 50dB μ V/m/5MHz over 95% of the area during 95% of the time.

For a LTE network:

- For measurement purposes – an average pilot signal field strength of 55 dB μ V/m/MHz measured outdoors at a height of 1.5m, or a Block Error Rate (BLER) of 10^{-2} measured on the PDCCH.
- For propagation prediction systems – a pilot signal field strength of 55dB μ V/m/MHz over 95% of the area during 95% of the time.

1800 MHz coverage metrics

For GSM network:

- For measurement purposes – an average pilot signal field strength of 54 dB μ V/m/200 kHz measured outdoors at a height of 1.5m
- For propagation prediction systems – a pilot signal field strength of 54 dB μ V/m/200 kHz over 95% of the area during 95% of the time.

For UMTS network:

- For measurement purposes – an average pilot signal field strength of 57dB μ V/m/5MHz measured outdoors at a height of 1.5m, or an Ec/Io \geq -8dB.
- For propagation prediction systems – a pilot signal field strength of 57dB μ V/m/5MHz over 95% of the area during 95% of the time.

For LTE network:

- For measurement purposes – an average pilot signal field strength of 62dB μ V/m/MHz measured outdoors at a height of 1.5m, or a Block Error Rate (BLER) of 10⁻² measured on the PDCCH...
- For propagation prediction systems – a pilot signal field strength of 62dB μ V/m/MHz over 95% of the area during 95% of the time.

Other Technologies in the 800 MHz, 900 MHz and/or 1800 MHz bands

Insofar as, over the lifetime of this Licence, WiMAX or other technologies (may also be deployed in the 800 MHz, 900 MHz and 1800 MHz bands, ComReg will set a measurement standard⁸² for these as and when deployed.

Such measurement standards shall be defined on whatever basis appears appropriate to ComReg having regard to international standards and recommendations, but for indicative purposes are likely to be based on:

- For measurement purposes – an average pilot signal field strength of “X⁸³” measured outdoors at a height of 1.5m, or a Carrier to Interference (C/I) ratio of -YdB⁸⁴
- For propagation prediction systems – a pilot signal field strength of “X” over 95% of the area during 95% of the time.

Coverage from licensed terrestrial systems in “other designated frequency bands”

In this paragraph, “other designated frequency bands” means the 2100 MHz band, which is to say, the 1900-1980 MHz and 2110-2170 MHz paired bands.

Where the Licensee has deployed a Licensed terrestrial system(s) in “other designated frequency bands” which provides a seamless service with Licensed terrestrial systems in the 800 MHz, 900 MHz and/or 1800 MHz bands, up to 35% demographic coverage (i.e. one half) of the 70% demographic coverage obligation, as set out in paragraph 1 above, can be met using coverage provided by the Licensed terrestrial systems in these “other designated frequency bands”.

3. Reporting of Compliance

The Licensee shall measure, and submit a compliance report to ComReg on, coverage every six months, the first such six-monthly period ending on the expiration of six months from the Licence Commencement Date. The Licensee shall, within 31 days of the date on which the coverage and roll-out obligation specified in relation the Licensee in Part 4, paragraph 1, falls to be met, notify ComReg that the Licensee has either (a) met the said obligation, or (b) failed to

⁸² As with the GSM, UMTS and LTE systems, coverage will be measured using a device matching the appropriate Users Equipment standard for the system in use.

⁸³ Corrected for the bandwidth used but based on a harmonised European or International standard which would be confirmed following consultation with stakeholders.

⁸⁴ This would be the C/I ratio giving a quasi error free channel, following a standards based approach.

meet the said obligation and reasons for same. Failure by the Licensee to so notify ComReg shall be deemed to comprise non-compliance with both this reporting obligation and the relevant coverage and roll-out obligation.

4. Performance Guarantee

The Licensee shall, before the Licence Commencement Date, put in place a programme to measure coverage and monitor compliance with the Coverage and Roll-out obligations. The programme shall include provision for reporting procedures to ComReg and shall be in such form as may be agreed with ComReg or as may be specified by ComReg from time to time.

The Licensee shall submit and maintain a performance guarantee of €2 million over the full duration of the Liberalised Use Licence in respect of the Coverage and Roll-out obligations (the "Coverage Performance Guarantee"). The Coverage Performance Guarantee must be from a reputable financial institution approved of in advance by ComReg and satisfy ComReg that the €2 million funds are available to it should the Licensee fail to meet the above coverage and roll-out obligation.

In the event that the Licensee fails to meet the Coverage and Roll-out obligations, the €2 million will be payable by the Licensee on demand to ComReg.

Part 5 Quality of Service (QoS) Obligations

1. The Minimum "Availability of the Network" Standard

The "availability of the network" shall be measured in terms of "network unavailability".

"Network unavailability" means the average number of minutes per terminal per six month period for which services on the network are not available due to a network disturbance, failure or scheduled unavailability.

The Licensee shall ensure that network unavailability is less than 35 minutes (based on the weighting factors below) per six month period.

Table 5: Weighting Factors for Network Unavailability tracking all periods of network unavailability.

Service 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

The Licensee shall maintain this network log in a manner that will demonstrate to the satisfaction of ComReg that such a network log is an adequate means of assessing whether the Licensee is complying with its “availability of the network” obligation under this Licence.

The network log, or as may be appropriate part thereof, shall be made available on request to ComReg.

The Licensee shall calculate the network unavailability for any period specified by ComReg from the information recorded in the network log, and shall, upon request and within such time as may be specified by ComReg, provide ComReg with the results of the calculation.

2. The Minimum “Voice Call” Standard

Where the Licensee provides a “voice call” service on its licensed terrestrial system in the 800MHz, 900 MHz and/or 1800 MHz bands, the Licensee shall comply with the minimum “voice call” standard as set out in Table 6 below.

Table 6: The minimum “voice call” standard for each 6 month period

	Average	Worst Case
Maximum Permissible Blocking Rates This refers to the maximum percentage of total call attempts which are unsuccessful during the time consistent busy hour. ⁸⁵	2%	4%
Maximum Permissible Dropped Call Rates 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.	2%	4%
Transmission quality 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.		

⁸⁵ “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.

The Licensee shall ensure that the above Quality of Service obligations are met by the Licensee and any third party providing a service via contractual or another arrangements with the Licensee.

3. Compliance, Reporting and Performance Guarantees

The Licensee shall, before the Licence commencement date, put in place a programme to measure and monitor compliance with the Quality of Service Measure obligations (“QoS Compliance Programme”). The QoS Compliance Programme shall include provision for reporting procedures to ComReg and shall be in such form as may be agreed with ComReg or as may be specified by ComReg from time to time.

The Licensee shall submit and maintain a performance guarantee of €1 million over the full duration of the Liberalised Use Licence in respect of the Quality of Service obligations (the “Quality of Service Performance Guarantee”). The Quality of Service Performance Guarantee must be from a reputable financial institution approved of in advance by ComReg and satisfy ComReg that the €1 million funds are available to it should the Licensee fail to meet the above Quality of Service obligations.

Every six months, the Licensee shall measure, and submit a six monthly compliance report to ComReg on, (a) network unavailability and (b) the minimum voice call standard, the first such six-monthly period ending on the expiration of six months from the Licence Commencement Date.

The Licensee shall, within 31 days of the date on which each relevant Quality of Service obligation falls due for compliance, notify ComReg that the Licensee has either (a) met the said obligation, or (b) failed to meet the said obligation and reasons for same. Failure by the Licensee to so notify ComReg shall be deemed to comprise non-compliance with both this reporting obligation and the relevant Quality of Service obligations.

In the event that Licensee fails to meet the Quality of Service obligations, €1 million will be payable on demand to ComReg.

Annex 4: Rebate Methodology applicable to GSM Licensees

A 4.1 Where a winner of spectrum in the Award Process previously held or continues to hold an Existing GSM Licence, it may be entitled to a rebate in connection with its Existing GSM Licence in two defined circumstances, being

1. Existing GSM Licensee wishes to surrender some or all of its spectrum rights under its Existing GSM Licence and/or withdraw its GSM Licence at an earlier date than its Licence expiry date via the Early Liberalisation Option (see subsection 2.4.1) and/or Advanced Commencement (see subsection 2.4.2) and/or
2. incurs additional relocation costs as a result of the Assignment Round that qualify for a rebate.

Circumstance 1: The early release of some or all of the spectrum rights associated with a GSM Licence via the Early Liberalisation Option and/or Advanced Commencement

A 4.2 Where an Existing GSM Licensee requests the early release of some or all of the spectrum rights associated with its GSM Licence under the Early Liberalisation Option and/or Advanced Commencement possibility, the calculation of the rebate is designed to place the existing GSM Licensee in a comparable situation to that it would have faced had it bought a GSM Licence of shorter duration and/or with less spectrum bandwidth when the GSM Licence commenced.

A 4.3 As discussed in chapter 2 of this document there are six (6) GSM Licences currently in the 900 MHz and 1800 MHz bands. Each of these GSM Licences has defined spectrum rights and a summary of these are set out in Table 11 below.

Licensee	GSM Licence Category	Commencement Date	Expiry Date	Spectrum Bandwidth
Meteor	GSM 900	13 July 2000	12 July 2015	2 x 7.2 MHz
O2	Interim GSM 900	16 May 2011	31 January 2013	2 x 7.2 MHz
Vodafone	Interim GSM 900	16 May 2011	31 January 2013	2 x 7.2 MHz
Meteor	GSM 1800	13 July 2000	12 July 2015	2 x 14.4 MHz
O2	GSM 1800	1 January 2000	31 December 2014	2 x 14.4 MHz
Vodafone	GSM 1800	1 January 2000	31 December 2014	2 x 14.4 MHz

Table 11: Details of the GSM Licences.

A 4.4 In calculating the rebate where some or all of the spectrum rights assigned in an Existing GSM Licence are surrendered to avail of the Early Liberalisation Option and/or Advanced Commencement, there are two GSM Licence fee categories to be considered, the SUF and the GSM Access fee. The “early release” rebate is the sum of the rebates associated with each of these fee categories.

A) SUF

A 4.5 The SUF relates to the annual (or shorter duration if appropriate) spectrum usage fee that is paid by each Licensee in advance of the first grant of its Licence, and subsequently in advance of each renewal. The SUF varies per GSM Licence category as set out in Table 12 below.

Licence Category	Annual SUF
GSM 900	Regulation 8(1)(a)(i) of SI 339 of 2003 specifies the annual SUF fee as <ul style="list-style-type: none"> • €25,395 per 200 kHz duplex channel
GSM 1800	Regulation 8(1)(a)(ii) of SI 339 of 2003 specifies the annual SUF fee as: <ul style="list-style-type: none"> • €12,697 per 200 kHz duplex channel for the first block of 24 channels • €19,046 per 200 kHz duplex channel for the second block of 24 channels • €25,395 per 200 kHz duplex channel for the third block of 24 channels
Interim GSM 900	Regulation 9(1) of SI 189 of 2011 specifies the annual SUF fee as: <ul style="list-style-type: none"> • €71,338 per 200 kHz duplex channel

Table 12: The Annual SUF for a GSM Licence

A 4.6 The rebate associated with the GSM SUF is to be calculated as follows:

- ComReg will compute the GSM SUF for the amended GSM Licence based upon the new licence expiry date (or surrender date) and/or the amended quantum of spectrum;
- If the Existing GSM Licensee has already paid a GSM SUF for the time-period and/or spectrum released early, ComReg will compare the GSM SUF already paid against the GSM SUF for the amended GSM Licence. Any excess GSM SUF paid would then count towards the “early release” rebate.

B) GSM Access fee:

A 4.7 The GSM Access fee relates to an upfront payment made at the start of the GSM Licence. The GSM Access fee is only relevant to the GSM 900 and GSM 1800 Licences, as no such spectrum fee was paid in relation to Interim GSM Licences. Details of the GSM Access fee paid for the GSM 900 and GSM 1800 Licences are set out in Table 13 below.

Licensee	GSM Licence Category	GSM Access fee (IR£=0.787564)
Meteor	GSM 900	IR£3.75 Million (€4.762 Million)
Meteor	GSM 1800	IR£7.5 Million (€9.253 Million)
O2	GSM 1800	IR£5.686 Million (€7.220 Million)
Vodafone	GSM 1800	IR£5.69 Million (€7.225 Million)

Table 13: The GSM Access fee for the GSM 900 and GSM 1800 Licences

A 4.8 The rebate associated with the GSM Access Fees is to be based upon the original GSM Access fee (as set out above), adjusted:

- Firstly for the difference in the EURIBOR⁸⁶ rate from the GSM Licence commencement date to the most recent EURIBOR data available to ComReg at the time the Final Decision on these spectrum bands is made⁸⁷; and
- Secondly for the proportion of time by which the original GSM Licence is shortened. This will be calculated on a pro-rata daily basis (e.g. if a GSM Licence is released 2 years in advance of its licence expiry date, then the pro-rata adjustment factor will be $\frac{2}{15}$); and
- Finally, adjusted for the proportion of spectrum released from the GSM Licence (e.g. if 2 x 7.2 MHz of spectrum is released from a GSM 1800 Licence, then the pro-rata adjustment factor will be 50% (i.e. 7.2/14.4)).

C) “Early release” Rebate and offsetting against Liberalised Fees:

A 4.9 The “Early Release Rebate” is the sum of the rebate associated with the GSM SUF and the rebate associated with the GSM Access fee. As the “Early Release Rebate” is linked to the existing GSM Licensee

⁸⁶ EURIBOR is used as a proxy for a reasonable rate of return had the money forgone been invested at the licence commencement date.

⁸⁷ At the time publication of ComReg Document 11/60, the relevant EURIBOR rates were as follows:

- a 43.8% EURIBOR adjustment for the GSM 900 and GSM 1800 Licences of Meteor based upon their 13 July 2000 commencement date; and
- a 42.7% EURIBOR adjustment for the GSM 1800 Licences of O2 and Vodafone based upon their 1 January 2000 commencement date.

These rates will be updated in ComReg’s final decision Document on this Award Process.

winning a Liberalised Use Licence, ComReg will offset the “Early Release Rebate” against payable Liberalised Use Licence fees⁸⁸.

Circumstance 2: Additional relocation costs are incurred as a result of the Assignment Round that qualify for a rebate

- A 4.10 As discussed in Chapter 2 of this Document, two scenarios⁸⁹ have been identified where it is appropriate to provide a rebate for relocation costs that would not otherwise have been incurred (namely the “relocation” rebate).
- A 4.11 **Scenario 1:** In a given spectrum Band, an Existing GSM Licensee does not avail of the Early Liberalisation Option (partially or fully) and does not win liberalised spectrum in this the Band in the Time Slice 1 or Time Slice 2.
- A 4.12 In this scenario, the “relocation” rebate will be equal to the relocation costs necessitated as a result of the Assignment Stage, as determined by ComReg via the process for determining the relocation costs as outlined below.
- A 4.13 **Scenario 2:** In a given spectrum band, an Existing GSM Licensee wins liberalised spectrum rights in this spectrum band in Time Slice 2, but does not avail of the Early Liberalisation Option (partially or fully) nor win liberalised spectrum rights in the Band in Time Slice 1.
- A 4.14 In this scenario, the “relocation” rebate will be for the additional time-value-of-money costs associated with bringing forward the relocation activities necessitated as a result of the Assignment Stage, but not the relocation costs themselves. To determine this “relocation” rebate, it is first necessary to determine the relocation costs, as outlined below. Following this the time-value-of-money adjustment factor will be applied to the relocation costs.
- A 4.15 The time-value-of-money adjustment factor will be determined using the methodology as defined by ComReg in its Final Decision on its Multi-Band Spectrum Release.

⁸⁸ Where possible, the “early release” rebate will be offset against the Upfront Fee as determined in the Award Process. Otherwise the “early release” rebate will be offset against the Spectrum Usage Fee (SUF) of the Liberalised Use Licence.

⁸⁹ For the avoidance of doubt, 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.

A 4.16 Note, in ComReg Document 11/60, ComReg proposed that the time-value-of-money adjustment factor would:

1. use an appropriate Weighted Average Cost of Capital (WACC);
2. consider whether it is appropriate to consider changes to the relocation costs for the time period between when these costs are actually incurred and when they would have been incurred in the future⁹⁰; and
3. be adjusted pro-rata to the quantum of time involved. In this regard, ComReg noted that the quantum of time involved would vary per Existing GSM Licence and would be:
 - a. approximately 2 years 5½ months for Meteor’s existing GSM 900 and GSM 1800 spectrum rights (i.e. the relocation activities would be brought forward from before 12 July 2015 to before 31 January 2013); and
 - b. 1 year 11 months for O2 and Vodafone’s existing GSM 1800 spectrum rights (i.e. the relocation activities would be brought forward from before 31 December 2014 to before 31 January 2013).

Process for determining the relocation costs

A 4.17 As the relocation costs of an Existing GSM Licensee have not yet been incurred, it is not yet possible to precisely state the “relocation” rebate amount applicable to a GSM Licensee. However, the following sets out the process steps for determining such the relocation costs.

1. Once an Existing GSM Licensee has relocated its Licence to the spectrum assigned to it in the Assignment Stage and provided that this GSM Licensee qualifies for compensation under Scenario 1 or

⁹⁰ ComReg recognises that it will be necessary to make certain assumptions about the future cost of relocation activities in 2014 or 2015 (i.e. the time the GSM operator would have been required to relocate under the terms of its existing GSM Licence) compared to current cost levels, as these future costs are unknown. For example one could assume that the future nominal cost of relocation:

- is the same as the present-day nominal cost of relocation; or
- is the same as the present day nominal cost of relocation adjusted for inflation (e.g. CPI).

Scenario 2 above, the GSM Licensee submits its relocation costs to ComReg;

2. ComReg will examine these relocation costs to determine that:
 - a. these costs have been incurred directly as a result of the Assignment Stage and these costs would not have otherwise been incurred as a result of the Award Process,
 - b. such costs are objectively justified and proportionate,
 - c. such costs are discounted in respect of any “upgrade” of equipment that was not required exclusively⁹¹ to accommodate the Assignment Stage; and
 - d. In determining such costs, ComReg reserves the right to have the relocation costs independently verified⁹².

Publication of relocation cost information and offsetting against Licence fees

- A 4.18 Based upon the outcome of step 2 above, the “relocation” rebate to a Existing GSM Licensee will be:
- a. Scenario 1: The relocation costs as determined in step 2 above; or
 - b. Scenario 2: The relocation costs as determined in step 2 above adjusted for the time-value-of-money adjustment factor.

A 4.19 Where an Existing GSM Licensee wins a Liberalised Use Licence in the Award Process, ComReg will offset the “relocation” rebate against the Liberalised Use Licence fees. Where the GSM Licensee

⁹¹ For instance if a band selective repeater is replaced with a more flexible remotely tuneable device ComReg may allow the costs of only like for like replacement.

⁹² Red-M/Vilicom have prepared two reports for ComReg which have studied the relocation activities and estimated costs in the 900 MHz band (ComReg Document 10/71c) and the 1800 MHz band (ComReg Document 10/105b). For a ‘typically’ sized network and based upon the amount of labour required, its costs and relevant equipment costs, these reports estimate that relocations costs would be of the order of:

- €500,000 in the 900 MHz band
- €240,000 (1 relocation), €255,000 (2 relocations in quick succession) and €130,000 (the relocation activity quickly follows the 900 MHz activity) in the 1800 MHz band.

does not win a Liberalised Use Licence in the Award Process, ComReg will offset the “relocation” rebate against future GSM Licence fees.

A 4.20 Subject to the provisions of ComReg’s guidelines on the treatment of confidential information as set out in ComReg Document 05/24, ComReg will publish on its website all relocation cost information received and the “relocation” rebate as determined by ComReg.

Annex 5: Lot application form

A 5.1 The submission of this Lot Application Form as part of a complete application represents a binding offer to license the Lots specified herein in exchange for the upfront and annual fees linked to each of the specified Lots. The Lot Application Form, including Lots in all Lot categories, Reserve Prices and associated eligibility points are presented in Table 14 below. Note that for a Lot Application Form to be valid, it must:

- Adhere to the Auction Rules on spectrum caps; and
- Include only Lots that the Applicant is eligible to be awarded.

A 5.2 All Deposits are to be paid into ComReg's bank account. Transfers to ComReg's account should be made to:

Bank of Ireland, 6 Lower O'Connell Street, Dublin 1.
Account Number: 17806887
Sort Code: 90-00-33
BIC Code: BOFIIIE2D
IBAN No: IE62 BOFI 9000 3317 8068 87.

A 5.3 If making a bank transfer/EFT, please ensure that:

- Reference is "Multi-band Spectrum Award"
- Your Bank quotes your Account Number (if an existing ComReg account holder) in making the transfer to ComReg.
- You forward details of the date of and amount of payment, including "Multi-Band Spectrum Award" as the subject of the correspondence, to our Accounts Department (accounts@comreg.ie).

Lot Category number and name	Number of Lots available	Lot size	Reserve Price per Lot	Eligibility points per Lot	Number of Lots in Lot Category applied for	Eligibility points associated with Lots applied for in Lot Category
(1) 800/1	6	2x5MHz	€3.34m	2		
(2) 800/2	6	2x5MHz	€8.48m	2		
(3) 900/1	5	2x5MHz	€3.34m	2		
(4) 900/2	7	2x5MHz	€8.48m	2		
(5) 1800/1	6	2x5MHz	€1.67m	1		
(6) 1800/2	15	2x5MHz	€4.24m	1		
(7) 900/1/MET	2	2x5MHz	€3.34m	2		
(8) 1800/1/MET	3	2x5MHz	€1.67m	1		
(9) 1800/1/TO2	3	2x5MHz	€1.67m	1		
(10) 1800/1/VOD	3	2x5MHz	€1.67m	1		

Table 14: Lot Application Form

Annex 6: Administrative forms

Administrative information form

- A 6.1 For an application to be complete, the administrative information listed in Table 15 below must be provided. Note that the Applicant name provided will be that to whom licences will be awarded where relevant. Contact details for Authorised Agents are those that will be used by ComReg for circulating Bidder materials for the Auction and for contacting the Bidder during the Auction if necessary.

Information required	Information provided
Name of Applicant*	Name:
Complete postal address of registered office , or if it does not have a registered office, the principal place where it carries on business, and, if different, address to which all communications will be sent regarding the Award Process	Address 1: Address 2 (if different):
Telephone/ fax number for Applicant	Telephone: Fax:
Bank details of Applicant (for the purpose of returning part or all of the Applicant's Deposit where applicable)	Name of Bank and address of relevant branch: Account Number: Sort Code: BIC Code: IBAN No:
Name of Applicant's Authorised Agent 1**	Name:
Position of Applicant's Authorised Agent 1	Position:
Telephone numbers, fax number and e-mail address of Applicants Authorised Agent 1	Telephone (fixed): Telephone (mobile): Fax: Email:
Specimen signature of Applicant's Authorised Agent 1 Witnessed By	Signature 1: Name: Position: Signature:
Name of Applicant's	Name:

Information required	Information provided
Authorised Agent 2***	
Position of Applicant's Authorised Agent 2	Position:
Telephone numbers, fax number and e-mail address of Applicants Authorised Agent 2	Telephone (fixed): Telephone (mobile): Fax: Email:
Specimen signature of Applicant's Authorised Agent 2 Witnessed By	Signature: Name: Position: Signature:

Table 15: Applicant administrative information form

* Note: In the case of Applicants that are bodies corporate, attach a certified copy of Certificate of Registration along with Articles of Association and Memorandum of Association or equivalent together with a certified translation thereof into English or Irish, where the original is not in English or Irish. Company Secretary or authorised signatory is required to certify the copy.

** Note: Authorised Agents must be authorised to bind the Bidder and to take all decisions or communicate all decisions connected with the Auction on the Bidder's behalf including, but not limited to, the authority to submit Bids in respect of any of Lots available in the Award Process and to commit to payment of the necessary amount if the Bidder is granted spectrum in any spectrum band in either Time Slice.

*** Note: Applicants can authorise one more person, who could act as the Alternate Authorised Agent in case of unavailability of the primary Authorised Person. In case of any duplication of submissions made on behalf of the Bidder by different Authorised Agents, the submission made by the first Authorised Agent would be considered as final and binding.

Appropriate evidence of the authorisation of Authorised Agents, as set out in more detail in paragraph 3.27 must be attached hereto.

Bidder declaration

The concepts of "Associated Persons", "Bidder", "Bidding Group", "Connected Person", "Confidential Information", "Insider", "Legal Entity" and "Mobile Operator" for the purposes of this declaration shall be construed as defined in Chapter 3 of the information Memorandum.

We, the undersigned, being Authorised Agents of [•] (the "**Bidder**") hereby undertake, warrant and declare, and to the extent that anything contemplated hereunder remains to be done, covenant, both on our own behalf and on behalf of the Bidder, having made all reasonable inquiries that:

- A 6.2 The Bidder is entitled to submit the Application and participate in the Award Process, and the Bidder has obtained all necessary declarations of consent, permissions and approvals.

- A 6.3 The Bidder has ensured and will ensure that all information and all declarations contained in the Application and appendices attached thereto are correct and accurate.
- A 6.4 The Bidder has and will ensure that the Bidder, discloses Confidential Information only to the extent it is necessary and then only to other parties within the Bidder's own Bidding Group or to persons who, prior to such disclosure, are Insiders in relation to the same Bidder and that the Bidder shall take all reasonable measures with a view to ensuring that the person who receives such Confidential Information complies with clauses 5–8 below.
- A 6.5 The Bidder has ensured and will ensure that the Bidder, the Bidder's employees, board of management, board of directors and persons connected with the Bidder or Insiders refrain from disclosing information to parties other than as specified in clause 3 until the Licences have been issued and from exchanging information with other parties regarding the Bidder's strategy for use of the Licence or Licences.
- A 6.6 The Bidder has ensured and will ensure that the Bidder - and, to the best knowledge of the Bidder, any Connected Persons and any Insiders - prior to the submissions of the Application as well as until the date on which the Licences have been issued, shall refrain from entering into agreements with other Bidders or their Connected Persons in relation to matters concerning the Auction.
- A 6.7 The Bidder has ensured and will ensure that the Bidder - and, to the best knowledge of the Bidder, any Connected Persons and any Insiders - neither prior to the submission of the Application, nor after the submission thereof and until the Licences have been issued, shall enter into agreements or establish any understanding with a provider of equipment or software which:
- regulates such provider's possibility of supplying equipment or software to another Bidder or their Connected Persons concerning the planning, establishment or operation of a network using the frequencies dealt with in this Award Process, or
 - regulate the Prices or other terms and conditions that a provider of equipment or software may offer another Bidder or their Connected Persons in connection with the planning,

establishment or operation of a network using the frequencies dealt with in this Award Process.

- A 6.8 The Bidder has ensured that agreements already entered into or understandings already established, as mentioned in the first sentence hereof, have been terminated, including to the best knowledge of the Bidder, any Connected Persons and any Insider have ensured such agreements or understandings have been terminated.
- A 6.9 The Bidder has ensured and will ensure that the Bidder - and, to the best knowledge of the Bidder, any Connected Persons and any Insider - do not enter into agreements or establish any understanding with a third party, either prior to or during the Award Process, for the access to or the use of the Bidder's network or networks using the frequencies dealt with in this Award Process, if the agreement or the understanding directs such third party not to participate or limits such third party's ability to participate in the Award Process.
- A 6.10 The Bidder has ensured that agreements already entered into or understandings already established, as mentioned in the above paragraph, have been terminated, including to the best knowledge of the Bidder, any Connected Persons and any Insider have ensured such agreements or understandings have been terminated.
- A 6.11 The Bidder has ensured and will ensure that the Bidder – and, to the best knowledge of the Bidder, any Connected Persons and any Insiders – both prior to and after the submission of an Application and until the Licences have been issued, refrains from any action that could have an adverse effect on the Award Process.
- The Bidder shall comply at all times with (and shall procure that its personnel, Insiders and Connected Persons, to the extent appropriate, shall comply with):
 - the Auction Rules contained in Chapters 3 and 4 of the Information Memorandum;
 - the Award Process rules contained in Chapter 5 of the Information Memorandum;
 - the Transition Rules contained in subsection 3.8 of the Information Memorandum; and
 - with this Declaration and the Information Memorandum generally;

from the date of submission of its Application until the conclusion of the Award Process.

- A 6.12 The Bidder has ensured and will ensure that prior to the filing of its Application, the Bidder take all reasonable measures with a view to identifying its Connected Persons and Associated Persons.
- A 6.13 The Bidder has and will ensure that in accordance with subsection 3.3.4 after submitting its Application, that all relevant changes to its ownership structures are notified to ComReg.
- A 6.14 The Bidder or, in case the Bidder is a partnership, a joint venture or equivalent, the relevant partners or participants is not in suspension of payments, liquidation, or bankruptcy or winding-up proceedings.
- A 6.15 The Bidder is not, or, in case the Bidder is a partnership, a joint venture or equivalent, the relevant partners or participants are not, nor is expected to be involved in any disputes which may in any material and adverse way affect the Bidder's possibility of complying with the terms of the Licence, if the Bidder is awarded such Licence.

For and on behalf of the Bidder:

(Signature of those persons who are empowered to bind the Bidder or otherwise authorised to bind the Bidder)

If the Bidder is partnership, a joint venture or equivalent, the declarations in clauses A 6.14 and A 6.15 is also signed by the relevant partners or participants:

As partner/participant:

Annex 7: Worked example of activity rules for Primary Rounds and caps on Supplementary Bids

Example of a Bidder who drops out before the final Primary Bid Round

- A 7.1 This annex presents an example of a Bidder bidding across a number of Primary Bid Rounds and then making some Supplementary Bids. For simplicity, the example only considers Bids for packages consisting of Lots in two categories, 800/1 and 800/2.
- A 7.2 Suppose that the Bidder in question has no Party-specific Lot Categories for which it can Bid and is only interested in two categories, 800/1 and 800/2. The Bidder has the following valuations for different packages of Lots across these Lot categories:

Package name	Number of 800/1 Lots	Number of 800/2 Lots	Assumed valuation	Activity of package
1	2	1	€64m	(4,2)
2	1	3	€88m	(2,6)
3	2	3	€92m	(4,6)

Table 16 and activity: Packages of Lots and corresponding valuations

- A 7.3 Suppose that the Bidder selected package 3 in its application. This means that the Bidder has an initial eligibility of 4 eligibility points in the first Time Slice and 6 eligibility points in the second Time Slice. This will be treated as an initial Bid for package 3 at the reserve price, i.e. €32.12m⁹³ which is 2x€3.34m (Reserve Price of a 800/1 Lot) plus 3x€8.84m (Reserve Price of a 800/2 Lot).
- A 7.4 If an auction is run, then there exists at least one Lot Category that is oversubscribed given the selection of Bids made in the application. For the purposes of this example, suppose that this oversubscription occurred in one or more categories other than 800/1 and 800/2 and that there was no excess in either of these two categories. Therefore, the Round Prices will be equal to the reserve prices for

⁹³ Reserve prices are subject to a final benchmarked adjustment and are used here by way of example only.

the first Primary Bid Round as there is no price increment needed for either of these two categories.

A 7.5 The following table provides an overview of Bids that the Bidder makes across seven successive Primary Bid Rounds given the Round Prices of the two categories of Lots. This table shows the payoff associated with each of the three packages (i.e. the valuation less the price of the package) given the Round Prices. We adopt the assumption that the Bidder will in each round Bid on its most preferred package being the package with the highest surplus amongst those for which it is able to Bid. This package is shown in orange and is assumed to be the package that is Bid for in each round. This assumption about bidding behaviour made solely for the purposes of illustrating how the activity rules on Primary Bids operate.

Round	Round Price of 800/1 Lots (€m)	Round Price of 800/2 Lots (€m)	Price of Bid for package 1	Payoff of package 1	Price of Bid for package 2	Payoff of package 2	Price of Bid for package 3	Payoff of package 3	Eligibility (First Time Slice, second Time Slice)	Activity (First Time Slice, second Time Slice)	Type of Bid
1	3.34	8.48	15.52	48.84	29.86	59.22	33.2	59.88	(4,6)	(4,6)	Standard
2	5	9	19	45	32	56	37	55	(4,6)	(2,6)	Standard
3	10	10	30	34	40	48	50	42	(2,6)	(2,6)	Standard
4	14	20	48	16	74	14	88	4	(2,6)	N/A	Relaxed
5	19	21	59	5	82	6	101	-9	(2,6)	(2,6)	Standard
6	20	23	63	1	89	-1	109	-17	(2,6)	N/A	Relaxed
7	25	25	75	-11	100	-12	125	-33	(2,6)	(0,0)	Zero Bid

Table 17: Bid submitted in the Primary Bid Rounds

Activity and eligibility

- A 7.6 In round 1, the Bidder Bids for package 3, which has an activity of (4,6). Therefore, the Bidder maintains its eligibility to Bid in both Time Slices in round 2.
- A 7.7 In round 2, the Bidder Bids for package 2, which has activity (2,6). Therefore, the Bidder drops eligibility in the first Time Slice, but not the second.
- A 7.8 In round 3, the Bidder Bids again for package 2, so maintains its eligibility in both Time Slices.

Relaxed Bid in Round 4

- A 7.9 In round 4, prices for the Lot Categories 800/1 and 800/2 are €14m and €20m respectively.
- A 7.10 The Bidder's preferred package at these Round Prices is package 1. As the Bidder does not have sufficient eligibility to Bid on this package, it can only make a relaxed Bid for this package. Given the Round Prices, it is possible to make such a Bid, as explained below.
- A 7.11 The last time the Bidder was eligible to Bid for package 1 was in round 2. However, in round 2, the Bidder Bid on package 2. It may need to raise its Bid for package 2.
- A 7.12 The amount of a Binding Supplementary Bid for package 2 is determined in the following way:
- The Bid amount at current Round Prices for package 1 in round 4 is €48m;
 - Package 1 cost €19m back in round 2;
 - Package 2 cost €32m back in round 2.
- In order to make this Bid, the Bidder will also have to submit a Binding Supplementary Bid for package 2 at a Bid amount of €48m - (€19m-€32m)= €61m. This is higher than the Bidder's highest Bid for package 2 so far of €40m (made in round 3).

- A 7.13 The Bidder is currently eligible to Bid for package 2, so no further Binding Supplementary Bids are needed.
- A 7.14 Finally, for a Bidder to be able to submit a Relaxed Primary Bid, it is necessary that none of the associated Binding Supplementary Bids exceed the price of the package at current Round Prices. At current Round Prices, package 2 would cost €74m.
- A 7.15 Therefore, the Relaxed Primary Bid for package 1 at €48m is permitted, with an associated Binding Supplementary Bid being required for package 2 at €61m.

Round 5

- A 7.16 The eligibility carried forward into round 5 is (2,6). This is unchanged from round 4 as the Bidder made a Relaxed Primary Bid.
- A 7.17 In Round 5, the Bidder's most preferred package is package 2, which it is eligible to Bid for. It submits a standard Primary Bid at €32m.

Relaxed Bid in Round 6

- A 7.18 In round 6, suppose that the Round Prices for Lot Categories 800/1 and 800/2 are €20m and €23m respectively. The Bidder's preferred package at these Round Prices is package 1. In this round, it does not have sufficient eligibility to Bid on package 1.
- A 7.19 It can, however, make a Relaxed Primary Bid for this package. The Bid amount required for package 1 at these Round Prices is €63m.
- A 7.20 The last time the Bidder was eligible to Bid for package 1 was in round 2. In round 2, the Bidder Bid on package 2. The amount of a binding Supplementary Bid is determined in the following way:
- a) the Bid amount at current Round Prices for package 1 in round 4 is €63m;
 - b) package 1 cost €19m back in round 2;
 - c) package 2 cost €32m back in round 2.

Therefore, in order to make this Bid, the Bidder will also have to submit a Binding Supplementary Bid for package 2 at a Bid amount of €63m - (€19m-€32m)= €76m.

- A 7.21 However, in this case the Bidder had already submitted a Primary Bid for package 2 at €82m in round 5, so no Binding Supplementary Bid needs to be made.
- A 7.22 Finally, as the Bidder is currently eligible to Bid for package 2, we do not need to consider any other packages that might need to be subject to Binding Supplementary Bids.
- A 7.23 The Bidder can submit a Relaxed Primary Bid of 63 for package 1 and no further Binding Supplementary Bid is needed in this case.
- A 7.24 The eligibility of (2,6) carried forward to the next round unchanged, as this is a round in which a Relaxed Primary Bid was made.

Dropping out in Round 7

- A 7.25 In round 7, the Round Prices have increased to a level at which it is not profitable to Bid for any package given the Bidder's valuations. The Bidder submits a zero Bid. If any further rounds were run, then the Bidder's eligibility would be zero. However, we assume that round 7 is the final Primary Bid Round.

End of the Primary Bid Rounds

- A 7.26 At the end of the Primary Bid Rounds, the Bidder will have placed the Bids shown in the following table, where the highest Bid for each package is highlighted in blue.

Round in which Bid was placed	Package Bid for	Amount of Bid (€m)	Type of Bid
1	3	32.12	Standard PB
2	2	32	Standard PB
3	2	40	Standard PB
4	1	48	Relaxed PB
4	2	61	Binding Supplementary Bid to support RPB
5	2	82	Standard PB
6	1	63	Relaxed PB
7	0	0	Zero Bid

Supplementary Bids

- A 7.27 In the Supplementary Bids Round, the Bidder can place additional Bids. Any Supplementary Bid for a package must exceed the highest Bid made for that package so far.
- A 7.28 This Bidder had a Final Primary Package consisting of a zero package (i.e. no Lots in any category). Because the Bidder dropped out before the final Primary Bid Round, there will effectively be an absolute cap on each of the Supplementary Bids that can be submitted.
- A 7.29 All packages will be subject to a Final Price Cap relative to the Final Primary Package. As in this case the Final Primary Package is the zero package, this means that no Supplementary Bid can exceed the price of the package in the final Primary Bid Round.
- A 7.30 The relative caps apply in the following way. The last round in which the Bidder was able to Bid for package 2 was round 7 (the final Primary Bid Round) in which it Bid for the zero package. Therefore, the relative cap constrains the Supplementary Bid to at most the price of package 2 in the final Primary Bid Round. Therefore, for package 2 the relative cap imposes exactly the same cap as the Final Price Cap.
- A 7.31 The last round in the Bidder was eligible to Bid for package 3 was round 2, in which the Bidder Bid for package 2. In round 2, package 3 would have cost

€37m, whereas package 2 cost €32m. Therefore, any Supplementary Bid for package 3 is limited to the Bid for package 2 plus €5m (that is, €37m - €32m).

A 7.32 Coincidentally, round 2 was also the last round in which the Bidder was eligible to Bid for package 1, though it Bid for package 2. In round 2, package 1 cost €19m, whereas package 2 cost €32m. Therefore, any Supplementary Bid for package 1 is limited to the Bid for package 2 plus -€13m (that is, €19m - €32m).

A 7.33 The following table provides an overview of the constraints Supplementary Bids the Bidder submits as well as an explanation of the relative and Final Price Caps. In this table, HB(X) stands for the "highest Bid submitted for package X".

Package	Minimum Supplementary Bid	Relative cap	Final Price Cap
1	€63m	HB(2) - €13m	€75m
2	€82m	€100m	€100m
3	€32.12m	HB(2) + €5m	€125m

A 7.34 Therefore, the Bidder could make a Supplementary Bid for package 2 at any level between €82m and €100m. Suppose, for example, that the Bidder decided to make a Supplementary Bid at its valuation of this package, €88m.

A 7.35 In this case, any Bid for package 3 would be capped at €93m (i.e. HB(2) of €88m plus €5m). However, the Bidder could, if it wished, Bid its valuation of €92m. Also, any Bid for package 1 would be capped at €75m (i.e. HB(2) of €88m less €13m). Again, the Bidder would be able to Bid at its valuation of €64m if it wished.

Example of a Bidder active in the final Primary Bid Round

Supplementary Bids if round 5 was the final Primary Bid Round

A 7.36 Suppose that we modify the earlier example and suppose that round 5 had been the final Primary Bid Round. In this case, the Bidder's Final Primary Package and the Primary Round finish with the Bidder making a standard Primary Bid for package 2.

A 7.37 In this scenario, the Bids received during the Primary Bids Rounds would be as given in the following table. Notice that the highest Bid for package 1 is now lower as a result of disregarding rounds 6 and 7.

Round in which Bid was placed	Package Bid for	Amount of Bid (€m)	Type of Bid
1	3	32.12	Standard PB
2	2	32	Standard PB
3	2	40	Standard PB
4	1	48	Relaxed PB
4	2	61	Binding Supplementary Bid to support RPB
5	2	82	Standard PB

A 7.38 Because the Bidder was active on a non-zero package (package 2) in the final Primary Bid Round, there is no limit on the Supplementary Bid that can be entered for this package.

A 7.39 Final Price Caps apply to all the other packages, limiting them to the highest amount Bid for the Final Primary Package (package 2) plus the difference in the prices of the package in question and package 2 at the final prices. In round 5, the prices of packages 1, 2 and 3 were €59m, €82m and €101m respectively. Therefore, package 1 is limited to the highest Bid for package 2 plus -€23m (that is, €59m - €82m). Package 3 is limited to the highest Bid for package 2 plus €19m (that is, €101m - €82m).

A 7.40 There are also relative caps on packages 1 and 3. In both cases, the Bidder was last eligible to Bid for these packages in round 2. The relative caps are determined by the Round Prices in round 2 and, therefore, are exactly the same as in the previous scenario with seven rounds.

Package	Minimum Supplementary Bid	Relative cap	Final Price Cap
1	€63m	HB(2) - €13m	HB(2) - €23m
2	€82m	NONE as Final Primary Package	NONE as Final Primary Package
3	€32.12m	HB(2) + €5m	HB(2) + €19m

A 7.41 Notice that the Final Price Cap is the tighter constraint on package 1, where the tightest constrain on package 3 is the relative cap.

A 7.42 If the Bidder decided to make a Bid at its valuation of €88m for package 2, this would imply caps on package 1 of €75m on package 3 of €93m. These caps would permit the Bidder to Bid at its valuations for packages 1 and 3.

A 7.43 For the avoidance of doubt, the calculation of caps on Packages 1 and 3 based only on Primary Bids submitted for Package 2. The value of a Bid made for Package 2 in the Supplementary Bids Round will not affect the value of the caps on Packages 1 and 3.

Supplementary Bids if round 6 was the final Primary Bid Round

A 7.44 If the Primary Bid Rounds end after the sixth round, then the Bidder's final Primary Bid is a Relaxed Primary Bid. The Final Primary Package is package 1.

A 7.45 The Bids made over the Primary Rounds are listed below, with the highest Bid for each package shaded.

Round in which Bid was placed	Package Bid for	Amount of Bid (€m)	Type of Bid
1	3	32.12	Standard PB
2	2	32	Standard PB
3	2	40	Standard PB
4	1	48	Relaxed PB
4	2	61	Binding Supplementary Bid to support RPB
5	2	82	Standard PB
6	1	63	Relaxed PB

A 7.46 A Final Price Cap applies to every package except the Final Primary Package (package 1). In round 6, the prices of packages 1, 2 and 3 at the Round Prices were €63m, €89m and €109m respectively. Therefore, the Final Price Cap limits

A 7.47 any Supplementary Bid for package 2 to the highest Bid for package 1 plus €26m (that is, €89m – €63m); and

A 7.48 any Supplementary Bid for package 3 to the highest Bid for package 1 plus €46m (that is, €109m – €63m).

Package	Minimum Supplementary Bid	Relative cap	Final Price Cap
1	€63m	HB(2) – €13m	NONE as Final Primary Package
2	€82m	Same as Final Price Cap	HB(1) + €26m
3	€32.12m	HB(2) + €5m	HB(1) + €46m

A 7.49 The relative caps apply in the following way. First, package 1 is subject to a relative cap. The last round in which the Bidder was eligible to Bid for package 1 was round 2. In round 2, package 1 cost €19m, whereas package 2 cost €32m. Therefore, any Supplementary Bid for package 1 is limited to the Bid for package 2 plus -€13m (= €19m - €32m).

- A 7.50 The Bidder was still eligible to Bid for package 2 in the final Primary Bid Round, when it Bid for package 1. However, package 1 became the Final Primary Package. Therefore, the relative cap on package 2 is exactly the same as the Final Price Cap and so is redundant.
- A 7.51 The last round in the Bidder was eligible to Bid for package 3 was round 2, in which the Bidder Bid for package 2. In round 2, package 3 would have cost €37m, whereas package 2 cost €32m. Therefore, any Supplementary Bid for package 3 is limited to the highest Bid for package 2 plus €5m (that is, €37m - €32m).
- A 7.52 Notice that a link is created between the Bids for packages 1 and 2 by these constraints. Given a Supplementary Bid of X for package 1, a Supplementary Bid in the range $X+€13m$ to $X+€26m$ is needed for package 2 to satisfy the constraints (as well as the Bid being at least €82m). It would not be possible to Bid less than $X+€13m$ for package 2, otherwise the relative cap on package 1 would not be met. It is not possible to Bid more than $X+€26m$ for package 2 otherwise the Final Price Cap would not be met.
- A 7.53 If the Bidder Bid its valuation of €64m for package 1, then it would be necessary for any Bid for package 2 to be:
- a) at least €82m, as this is the highest Bid so far for package 2;
 - b) at least €75m, to satisfy the relative cap on package 1; and
 - c) no more than €90m to satisfy the final price cap on package 2.

Notice that this would allow the Bidder to Bid its valuation of 88 for package 2.

- A 7.54 Given these Supplementary Bids for packages 1 and 2, there would be caps on the Bid for package 3 of €93m (due to the relative cap against package 2) and €110m (due to the final price cap). Therefore, the Bidder would be able to Bid at most €93m for package 3. Again, this permits a Bid at its valuation of €92m.

Annex 8: Determination of Winning Bids and Base Prices

Annex 8: Determination of winning bids and base prices

1 Winner determination

1.1 Packages and bids

Any package of lots can be written as a vector $x = (x_1, \dots, x_K)$ giving the number of lots in each category. This representation writes out the Party-specific lot categories in full. In particular, suppose that categories $1, \dots, k$ are open to all bidders (these are called *regular* categories within this annex to distinguish them clearly from the Party-specific categories) and categories $k + 1, \dots, K$ which are Party-specific.

Let I be the set of all bidders. The j^{th} bid of bidder i is for a package $x_{ij} \in \mathbb{Z}_+^K$. Let $\beta_i(x_{ij})$ be amount of bidder i 's bid for package x_{ij} . Assume throughout that each bidder's bids always includes a zero bid (i.e. a package of zero lots at a zero bid) to represent the possibility that the bidder is not awarded any lots.

Let $X \in \mathbb{Z}_+^K$ be the available supply of lots. For the regular categories, this is just the number of lots available for allocation. In the case of each of the Party-specific categories, this the number of lots that the permitted bidder can bid for at maximum (which correspond to spectrum the bidder already holds on an unliberalised basis).

Let $X^- = (X_1, X_2, \dots, X_k) \in \mathbb{Z}_+^k$ denote the supply of lots in regular categories ignoring the Party-specific categories.

1.2 Party-specific lot categories and remapping

Each of the categories $k + 1$ to K can only be bid for by one bidder. Let R_{k+1}, \dots, R_K respectively be the bidders can bid for each of these Party-specific categories. Let

$$R = \{i \in I \text{ s.t. } i = R_r \text{ for some } r = k + 1, \dots, K\}$$

be the set of all bidders able to bid for at least one Party-specific lot category. It is possible that a bidder $i \in R$ could be able to bid for more than one Party-specific lot category.

Any Party-specific lot in one of the categories $k + 1$ to K has a corresponding unique regular category (i.e. one of categories 1 to k) which has the same frequency band and time slice. Let M_{k+1}, \dots, M_K be the *matching regular categories* corresponding to each of the Party-specific categories.

In the case at hand, we have that $k = 6$ and $K = 10$. Then $M_7 = 3$ and $M_8 = M_9 = M_{10} = 5$.

Given a package x consisting of K categories, let $T(x) \in \mathbb{Z}_+^k$ denote the corresponding package with k categories obtained by mapping the Party-specific categories into regular

categories. After this re-mapping of lots in Party-specific categories into their matching regular category, the number of lots in the r^{th} category is given by

$$(T(x))_r = x_r + \sum_{s=k+1}^K \delta_r^{M_s} x_s \quad (1)$$

where δ is the indicator function

$$\delta_r^s = \begin{cases} 1 & \text{if } r = s \\ 0 & \text{if } r \neq s \end{cases}$$

In the case at hand we would have that $T(1, 2, 3, 0, 0, 0, 2, 1, 1, 1) = (1, 2, 5, 0, 3, 0)$ as the final three categories are mapped to the fifth category and the seventh category to the third category.

1.3 Notional release scenarios

A *notional release scenario* $s = (0, \dots, 0, s_{k+1}, \dots, s_K)$ is a package containing some number of lots (including possibly zero) in each Party-specific category such that $s_r \leq X_r$ for all $r = k+1, \dots, K$, and containing no lots in any regular category.

Let S be the set of all notional release scenarios. The number of release scenarios is given by

$$|S| = \prod_{r=k+1}^K (1 + X_r).$$

The set of *compatible bids* $C_i(s)$ for bidder i that are compatible with a particular notional release scenario s are defined in the following way:

- For any bidder $i \notin R$ who cannot bid for any Party-specific lots, the set of compatible bids consists of all bids made by that bidder.
- For any bidder $i \in R$, the set of compatible bids is all those bids which, in every Party-specific categories available to bidder i , contains the same number as specified by the scenario. That is, a package x subject to a bid by bidder i is included if and only if $x_r = s_r$ for every $r \in \{k+1, \dots, K\}$ for which $i = R_r$. A zero bid is added to the set of compatible bids if it is not already present.

For a supply scenario s , define the total number of lots available to be those in the regular categories augmented by the notionally released lots in the Party-specific lots specified by the scenario (treating those Party-specific lots as belonging to the matching regular category). The lots available in scenario s is $X^- + T(s)$. Notice that the lots available consists of just k categories of lots, as any Party-specific categories are collapsed in the regular categories.

1.4 Provisional winner determination within one scenario

Given a scenario $s \in S$, a provisionally winning combination of bids is a solution to the following optimisation problem:

$$\max_{x_i} \sum_{i \in I} \beta_i(x_i) \quad \text{s.t.} \quad x_i \in C_i(s) \quad \sum_{i \in I} T(x_i) \leq X^- + T(s) \quad (2)$$

There may be multiple combinations of provisionally winning bids that are optimal.

This optimisation problem involve selecting one bid from the set of compatible bids for each bidder (which could be the zero bid) such that, on mapping any Party-specific lots to their corresponding regular categories, the lots available are not exceeded. Notice that this involves only k categories of lots, as bids for Party-specific spectrum are mapped into demand for the matching regular category and the supply of lots in that category increase accordingly. Therefore, bidders for Party-specific categories are treated as competing with bidders for the matching regular category.

A scenario s is *feasible* if there exists a combination of winning bids $(x_i^*)_i$ such that, for any bidder $j \in R$, if $s_r > 0$ and $R_r = j$ for some Party-specific category r (i.e. the bidder notionally releases some lots in the scenario) then $x_j^* \neq 0$. Therefore, if a scenario is feasible, then each bidder notionally releasing spectrum wins this spectrum back. Notice that it is sufficient to require that this bidder *not* be allocated its zero bid, as all its compatible bids for the scenario involve it winning back *exactly* the released spectrum (this is a consequence of the definition of compatible bids made above). The definition of the feasibility of a scenario does not place any requirements on the winning bids of bidders not able to bid for any Party-specific lots categories (i.e. not in R) nor bidders able to bid for Party-specific lots, but not assumed to be releasing any such lots within the scenario (i.e. a bidder $j \in R$ for which if $R_r = j$ then $s_r = 0$).

Let $v(s) = \sum_i \beta_i(x_i^*)$ denote the total value of the winning bids in the scenario. Notice that this quantity can be defined regardless of the selection of any tie (if there are tied winning combinations).

1.5 Scenario selection and the winning combination of bids

Let \hat{S} denote the set of all feasible scenarios. The winning scenario s^* is chosen from \hat{S} in order to maximise $v(s)$.

It is possible that there could be multiple optimal scenarios with the same value. In this case, the scenario is chosen to maximise the total quantity of notionally released spectrum (in MHz) allocated in the Party-specific categories. Notice that this quantity is a function s only and does not depend on the winning combination of bids within the scenario, as by construction all notionally released spectrum is allocated.

If there are still ties amongst scenarios, these a winning scenario is chosen at random.

Given the winning scenario s^* , the winning combination of bids is the solution to the winner determination problem (2) above for this scenario. In the event of there being multiple winning combinations, one is selected at random.

2 Base price determination

This section provides a fuller description of the methodology for the determination of base prices. Let $\rho = (\rho_1, \dots, \rho_K)$ denote the reserve prices for each lot category.

2.1 Partial values

Section 1 describes a procedure for taking a set of bids and determining the winning bidders. In order to define the base prices, we need to reapply this winner determination procedure to certain sets of hypothetical bids.

In particular, given the entire set of bidders I , the winner determination procedure defines a total value of winning bids $V(I)$. Notice that this total value is well-defined even if there are tied combinations of winning bids.

Given a subset $C \subset I$ of these bidders, we can define a new set of hypothetical bids where:

- For any bidder $i \in C$, all bids made by that bidder are excluded;
- For any bidder $i \in I \setminus C$, all bids made by that bidder are included.

Given these hypothetical bids, recompute the winning bids using the procedure in Section 1 (including re-determination of the winning scenario). The total value of winning bids in this hypothetical situation will be denoted $V(I \setminus C)$.

2.2 Pricing constraints

Suppose that winning bids have been determined. Let x_i^* be bidder i 's winning package and let β_i^* be the bid amount of bidder i 's winning bid. The winning bid amount will be zero if bidder i does not win any lots at all.

Let p_i be the base price for bidder i . These prices are required to satisfy the constraints that they do not exceed the winning bid and are at least equal to the reserve price

$$p_i \leq \beta_i^* \tag{3}$$

$$p_i \geq \rho \cdot x_i^* \tag{4}$$

These prices are also required to satisfy the constraints that

$$\sum_{i \in C} (\beta_i^* - p_i) \leq V(I) - V(I \setminus C) \tag{5}$$

for any subset C of winning bidders.¹ These constraints require that each group of winning bidders pay their collective opportunity cost.

2.3 Minimisation of total price

Base prices are required to be a solution to the optimisation problem

$$\begin{aligned} \min_{p_i} \sum p_i \quad \text{s.t.} \quad & p_i \leq \beta_i^* & \forall i \in I \\ & p_i \geq \rho \cdot x_i^* & \forall i \in I \\ & \sum_{i \in C} (\beta_i^* - p_i) \leq V(I) - V(I \setminus C) & \forall C \subseteq I \end{aligned} \quad (6)$$

This problem is a linear programme. It is possible that there could be multiple solutions to this problem, but these will form a convex polytope.

Let MRC denote the set of all price vectors (p_1, p_2, \dots, p_I) which are solutions to this linear programme. If this set contains just one element, these are the base prices and the following step is not required.

2.4 Selection amongst ties

In the event that there are multiple combinations of base prices that are optimal in the previous problem, a unique set of base prices will be determined by the following procedure. First, Vickrey prices p_i^V are calculated according to the formula

$$p_i^V = \beta_i^* - V(I) + V(I \setminus \{i\}) \quad (7)$$

where $V(I \setminus \{i\})$ is the re-optimised value of excluding just bidder i 's bids.

Then base prices must satisfy

$$\min_{p_i} \sum_i (p_i - p_i^V)^2 \quad \text{s.t.} \quad (p_1, \dots, p_I) \in \text{MRC}$$

This is a strictly convex quadratic optimisation subject to linear constraints. Therefore, it has a unique solution.

3 Impact of the final price cap

This section discusses the implications of the final price cap for bidders seeking to win their Final Primary Packages in the Supplementary Bids Round. The analysis presented is intended to aid bidders' consideration of appropriate bidding strategies. However ComReg makes no warranty or representation that any strategy suggested herein is necessary or sufficient to ensure winning. Bidders should carry out their own analysis in this regard.

¹If this condition holds for any subset C of winning bidders, then it also holds for any subset of bidders C .

3.1 Notation

As before, let I denote the set of bidders. Let $\beta_i(x)$ denote the highest bid of a bidder $i \in I$ for package x regardless of how this bid was made. This bid could be an initial bid at reserve prices (resulting from the selection of lots on a bidder's application form), a primary bid, a relaxed primary bid or a supplementary bid if one has been made.

Let x_i^f denote the final primary package of bidder i . Let p^f be the round prices applying in the final primary bid round.

The final price cap requires that for any package x and any bidder $i \in I$

$$\beta_i(x) \leq \beta_i(x_i^f) + p^f \cdot (x - x_i^f) \quad (8)$$

Let X be the available supply of lots in each category.

3.2 Knockout strategy ignoring Party-specific lots

It is convenient to conduct the analysis in two steps. First, we ignore the issue of Party-specific lots. This means that we can treat X as a fixed supply of lots available for allocation. Second, we generalise the argument to apply to the case in which there are Party-specific lots.

Under the simplifying assumption of a fixed supply X of lots,

$$x_0^f = X - \sum_{i \in I} x_i^f$$

is the number of unallocated lots in the final clock round.

Now suppose that some particular bidder j adopts the strategy of increasing its final primary bid by an amount equal to the value of the unallocated lots in the final primary round plus some smallest possible increment ϵ (say €1000). This means that

$$\beta_j(x_j^f) = p^f \cdot x_j^f + p^f \cdot x_0^f + \epsilon$$

which can be rewritten as

$$\beta_j(x_j^f) = p^f \cdot x_j^f + p^f \cdot X - p^f \cdot \sum_{i \in I} x_i^f + \epsilon = p^f \cdot X - p^f \cdot \sum_{i \neq j} x_i^f + \epsilon. \quad (9)$$

Suppose that for any other package $x \neq x_j^f$, bidder j does not increase any existing primary bid in the supplementary bids round. Since any primary bid already made must have been made at prices no higher than p^f for each lot category, this implies that

$$\beta_j(x) \leq p^f \cdot x \quad \text{for any } x \neq x_j^f.$$

We now show that this strategy results in bidder j winning its final primary package x_j^f regardless of the bidding strategy adopted by all other bidders. Consider a potential alternative outcome x_i for each $i \in I$ which is feasible to satisfy given the available supply X , so

$$\sum_{i \in I} x_i \leq X \quad (10)$$

From this feasibility condition (10) and the definition of bidder j 's supplementary bid for its final primary package (9), we have that

$$\beta_j(x_j^f) \geq p^f \cdot \sum_i x_i - p^f \cdot \sum_{i \neq j} x_i^f + \epsilon = p^f \cdot x_j + p^f \cdot \sum_{i \neq j} (x_i - x_i^f) + \epsilon$$

and so

$$\beta_j(x_j^f) - p^f \cdot x_j \geq p^f \cdot \sum_{i \neq j} (x_i - x_i^f) + \epsilon \quad (11)$$

Now summing the final caps across all bidders apart from bidder j , we have a cap on the total of bids from bidders other than j in the alternative outcome

$$\sum_{i \neq j} \beta(x_i) \leq \sum_{i \neq j} \beta_i(x_i^f) + p^f \cdot \sum_{i \neq j} (x_i - x_i^f)$$

and so rearranging

$$p^f \cdot \sum_{i \neq j} (x_i - x_i^f) \geq \sum_{i \neq j} [\beta(x_i) - \beta_i(x_i^f)] \quad (12)$$

Therefore, combine the inequalities (11) and (12), we obtain that

$$\beta_j(x_j^f) - p^f \cdot x_j \geq \sum_{i \neq j} [\beta(x_i) - \beta_i(x_i^f)] + \epsilon$$

which gives on rearrangement that

$$\sum_{i \in I} \beta_i(x_i^f) \geq p^f \cdot x_j + \sum_{i \neq j} \beta(x_i) + \epsilon \quad (13)$$

Now in any alternative outcome in which bidder j does not receive its final package, we have that $p^f \cdot x_j \geq \beta(x_j)$ and from inequality (13) we obtain

$$\sum_i \beta_i(x_i^f) > \sum_i \beta_i(x_i)$$

Therefore, if bidder j does not receive its final package in the alternative outcome, then the alternative outcome cannot be optimal, as it is dominated by every bidder receiving its final primary package.

3.3 Generalisation to the case of Party-specific lots

The argument above can be extended to the case of Party-specific lots. In this section, suppose that lots are as described in Section 1.1, with categories $1, \dots, k$ being regular lots and categories $k + 1, \dots, K$ being Party-specific lots. The key observation is that any Party-specific lots can be re-mapped to the matching regular lot categories, as discussed above in Section 1.2.

In particular, the final price cap (8) can be rewritten as

$$\beta_i(x) \leq \beta_i(x_i^f) + \hat{p}_f \cdot [T(x) - T(x_i^f)]$$

where $T(x)$ is a package of lots in the first k categories and \hat{p}_f is the vector of final prices, truncated to the first k lots. Here $T(x)$ remaps any Party-specific lots to their matching regular category and adds on this demand to the demand for regular lots. This version of the final price cap holds because any Party-specific lots always have the same round price as the match regular lot category.

Now consider an alternative allocation $(x_i)_i$ that we wish to ensure does not overturn an outcome in which bidder j wins its final package x_j^f . Such an alternative allocation needs to satisfy the feasibility condition

$$\sum_{i \in I} T(x_i) \leq T(X).$$

Therefore, the preceding argument can be applied directly to a situation with k categories in which we consider final bids to be for the packages $T(x_i^f)$ and the supply of lots to be $T(X)$. This means that if bidder j makes a supplementary bid for its final package x_j^f at a level just above its final primary bid plus the value of any unsold lots given supply, i.e.

$$\beta_j(x_j^f) = \hat{p}_f \cdot T(x_j^f) + \hat{p}_f \cdot T(X) - \hat{p}_f \cdot \sum_{i \in I} T(x_i^f) + \epsilon$$

and does not make supplementary bids for other packages, it will win its final package regardless of the bids of other bidders as a result of the final price cap applying to those bidders. Now using the fact the round prices are the same for Party-specific categories and the matching regular categories, this supplementary bid for bidder j can be written more simply as

$$\beta_j(x_j^f) = p_f \cdot x_j^f + p_f \cdot X - p_f \cdot \sum_{i \in I} x_i^f + \epsilon \quad (14)$$

This can be interpreted as bidder j increasing its final primary bid by a small increment ϵ plus the total value of unsold lots at the round prices p_f applying in the final round. When considering the number of unsold lots, it is necessary to include any lots in bidder-specific categories that have not been subject to bids in the final primary round.

The information policy for the primary bid rounds provides for the demand for lots in the Party-specific categories to be revealed to all bidders in the final primary bid round. Aggregate demand in the regular categories is revealed to all bidders at the end of each final primary bid round. Therefore, the information necessary to implement the rule in equation (14) will be available to bidders during the supplementary bids round.