



Commission for
Communications Regulation

Multi-band Spectrum Release

Information Memorandum

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An Coimisiún um Rialáil Cumarsáide

Commission for Communications Regulation

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Chapter 1

1 Introduction

- 1.1 In Document 11/75¹, ComReg published a draft Information Memorandum and draft secondary legislation setting out the processes and procedures for the broader spectrum release proposals it had developed, following extensive consultation concerning the 800 MHz, 900 MHz and 1800 MHz spectrum bands as detailed in Document 11/60².
- 1.2 In Document 12/25³, ComReg set out its response to consultation and final Decision on these broader spectrum release proposals. Interested Parties are referred to Document 12/25, and to previous documents in the consultation process for a description and summary of ComReg's multi-band spectrum release proposals, as reflected in its Decision D04/12 contained in Chapter 8 of Document 12/25.
- 1.3 In light of its Decision as set out in Document 12/25 and its consideration of all submissions received in response to Document 11/75 (see Response to Consultation Document 12/50 being published at the same time as this document) and having regard to its obligations under Regulation 9(4) of the Authorisation Regulations, ComReg now publishes this Information Memorandum, which details the processes and procedures ComReg will employ to implement its Decision 04/12 as detailed in Document 12/25.

1.1 Legal Framework and Agreement

- 1.4 In preparation of this Information Memorandum, ComReg has been guided by its statutory functions, objectives and duties relevant to management of Ireland's radio frequency spectrum (which are outlined in Annex 2 of Document 12/25A) and the findings of its RIA

¹ ComReg Document 11/75 – Multi-band Spectrum Release, Draft Information Memorandum - published 24 October 2011

² 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.

³ ComReg Document 12/25 – Response to Consultation and Decision on Multi-band Spectrum Release [D04/12] - published 16 March 2012.

analysis (which are set out in Chapter 3 of ComReg Document 12/25 and Annex 4 of Document 12/25A).

- 1.5 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 matters⁴ 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.
- 1.6 In addition, Interested Parties should note the requirement to be authorised to provide an electronic communications network or service in Ireland.⁵ Interested Parties can consult ComReg's website⁶ for further details, and in particular, ComReg document 03/81R3⁷.
- 1.7 Chapters 2, 3, 4 and 5 of this Information Memorandum contain the terms of the agreement which Interested Parties will agree to in participating in the Award Process and attention is specifically

⁴ See section 6 of the Wireless Telegraphy Act, 1926, as amended by section 182 of the Broadcasting Act 2009.

⁵ 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.

⁶ See www.comreg.ie/licensing_and_services/general_authorisation.551.html for further details.

⁷ 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

drawn to these Chapters given the important and potentially binding provisions contained therein.⁸

1.2 The Spectrum Bands

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

Frequency Band	Frequency Pairing (FDD)		Number of 2 × 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 included in this process

1.3 Structure of Information Memorandum

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

- **Chapter 2** details the spectrum bands and Lots included in the 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, describing in general the various award stages and sets out timelines;

⁸ Interested Parties should note that ComReg reserves the right to make amendments to the Auction Rules after the finalisation of this Information Memorandum to correct any errors therein, or to further clarify matters, whether identified by ComReg, its consultants or Interested Parties, where such amendments are necessary or appropriate to ensure that the Auction Rules and the EAS operate in the manner intended by ComReg, as set out in the Information Memorandum. ComReg will promptly bring any such amendments to the attention of interested parties. Interested Parties are reminded that they are obliged to bring any errors to ComReg's attention promptly.

- **Chapter 4** details the Auction Rules and provides substantial information on the Auction component of the Award Process; and
 - **Chapter 5** provides additional details on the legal terms and conditions that are applicable to this Award Process.
 - Annexes:
 1. Glossary
 2. Draft Regulations
 3. Part 4 of Schedule 1 to the Draft Regulations
 4. Rebate Methodology applicable to GSM Licensees
 5. Application Form
 6. Methodology for (a) Minimum Price split between Reserve Price and Spectrum Usage Fees and (b) Early Liberalisation Rebates in spreadsheet form
 7. Worked example of the Activity Rules for the Primary Bid Rounds and caps on Supplementary Bids
 8. Determination of Winning Bids and Base Prices; and
 9. Implications of Final Price Cap.
- 1.10 Please also note that ComReg has engaged a reputable consultancy organisation to ensure that its confidentiality and security processes before, during and after the Auction are appropriate for this Award Process.
- 1.11 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.

Chapter 2

2 The Spectrum Bands & Licences

- 2.1 In this Award Process, ComReg intends to award Liberalised Use Licences which will permit the use of apparatus for wireless telegraphy (“apparatus”) in specific frequency assignments in the Bands for the deployment of terrestrial systems capable of providing Electronic Communications Services (“ECS”).
- 2.2 The terms and conditions attached to Liberalised Use Licences are described in subsection 2.2 of this document and are set out in the final draft Regulations and the final indicative Liberalised Use Licence as set out in Annex 2 and Annex 3 of this document respectively. Among other things, these Licences are being made available in two Time Slices, where:
- Time Slice 1 commences on 1 February 2013 (or such other date as may be specified by ComReg)⁹ and expires on 12 July 2015 (or such other date as may be specified by ComReg); and
 - Time Slice 2 commences on 13 July 2015 (or such other date as may be specified by ComReg) 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 described in subsection 2.3 of this document and are set out in the final draft Regulations in Annex 2 of this document.

⁹ Note the commencement date of Lots in Time Slice 1 or Time Slice 2 could be brought forward or deferred depending on specific circumstances:

- the commencement date of some Lots in Time Slice 1 may be brought forward in time in line with the Advanced Commencement procedure as discussed in subsection 2.2.2 of this Information Memorandum; and/or
- the commencement date of some Lots in Time Slice 1 or Time Slice 2 could be delayed (such as due to circumstances outside of ComReg’s control) as discussed in subsection 2.2.2 of this Information Memorandum. Subsection 2.2.6 of this document sets out ComReg’s process for refunding or adjusting the Liberalised Use Licence fees associated with such delayed commencement.

2.1 The Spectrum Bands in the Award Process

- 2.4 In this Award Process, rights of use of spectrum in the 800 MHz band, the 900 MHz band and the 1800 MHz bands 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 (“Generic Lots”); and
 - Lots which are only available to specific bidders (“Party-Specific Lots”).

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”).¹⁰ On the basis of the Department of Communications, Energy and Natural Resources’ (DCENR) announcement, and information available on the digital switchover process,¹¹ 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) Generic Lots available to all Bidders in Time Slice 1; and
 - Six (6) Generic Lots available to all Bidders in Time Slice 2.

¹⁰

See:

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

¹¹ Information on the digital switchover process and the digital terrestrial television service ‘Saorview’ is available via various websites including www.goingdigital.ie and www.saorview.ie

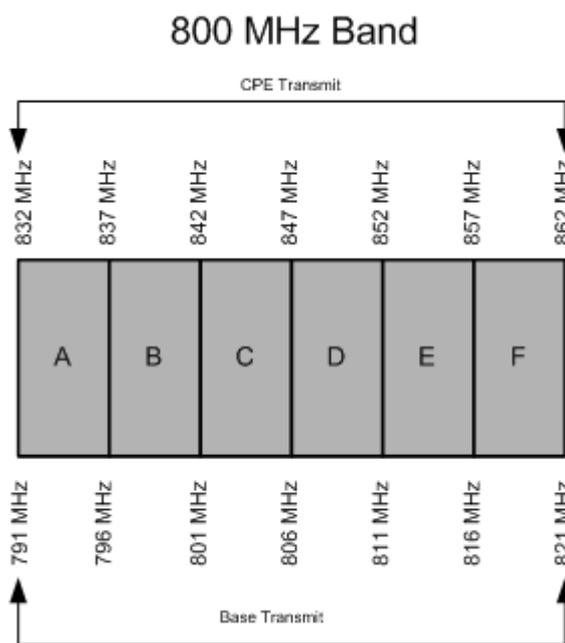


Figure 1: The 800 MHz band

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.

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, Telefónica O2 and Vodafone each

currently hold a GSM Licence in respect of 2 x 7.2 MHz of paired spectrum in the 900 MHz band.

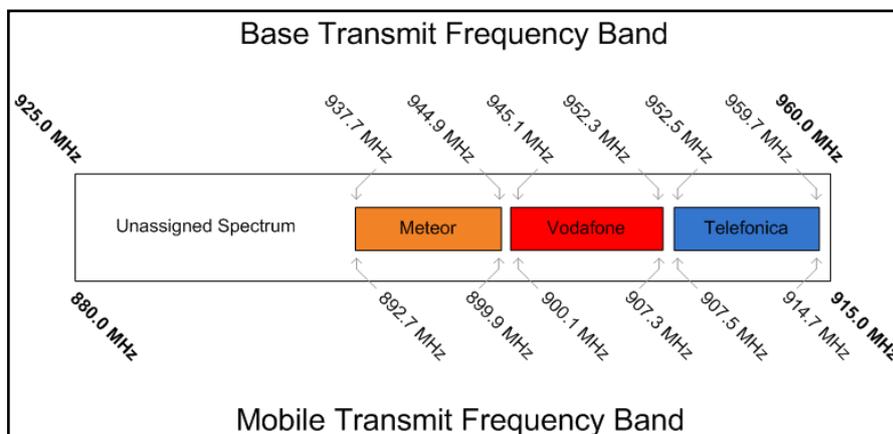


Figure 2: The current spectrum assignments in the 900 MHz band

- 2.9 The GSM Licences held by Telefónica O2 and Vodafone are Interim GSM 900 MHz Licences which are due to expire on 31 January 2013 (i.e. immediately before the expected commencement date of Time Slice 1) and, following expiry, it is intended that 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 decision to make available an “early liberalisation option”¹² in respect of certain existing GSM 900 MHz and GSM 1800 MHz rights of use, two (2) Lots in the 900 MHz band in Time Slice 1 will be available to Meteor only, as Party-Specific Lots under the Auction Rules. 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) Generic Lots available to all Bidders and two (2) Party-Specific Lots available to Meteor; and
 - in Time Slice 2 there are seven (7) Generic Lots available to all Bidders.
- 2.12 Details on the frequency assignments associated with these Lots are set out in Table 3 of below.

¹² See paragraph 3.4.12 of Decision D04/12 in Chapter 8 of Document 12/25.

Frequency Band	Name of Lot	Uplink / Downlink Frequency	Name of Lot in Time Slice 1 ¹³	Name of Lot in Time Slice 2
900 MHz	A	880.0 - 885.0 MHz 925.0 - 930.0 MHz	900/1/A	900/2/A
900 MHz	B	885.0 - 890.0 MHz 930.0 - 935.0 MHz	900/1/B	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

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, Telefónica O2 and Vodafone each currently hold a GSM 1800 MHz Licence in respect of 2 x 14.4 MHz of paired spectrum in the 1800 MHz band.

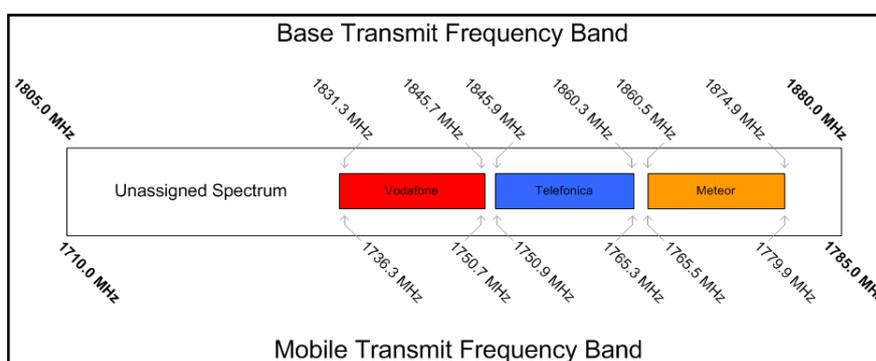


Figure 3: The current spectrum assignments in the 1800 MHz band

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 Telefónica O2 and Vodafone are due to expire on

¹³ In Time Slice 1, two (2) Lots in the 900 MHz band are Party-Specific Lots. The specific location of these Party-Specific Lots will be determined, along with the position of all other Lots, in the Assignment Stage of this Award Process. See Chapters 3 and 4 of this document for further details.

31 December 2014 (i.e. approximately 6 ½ months before the end date of Time Slice 1). On the basis of ComReg’s decision to make available an “early liberalisation option” in respect of certain existing GSM 900 and GSM 1800 rights of use, nine (9) Lots in the 1800 MHz band in Time Slice 1 are available to selected Bidders only. Three (3) of these Lots are available only to each of Meteor, Telefónica O2 and Vodafone as Party-Specific Lots under the Auction Rules. 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) Generic Lots available to all Bidders, three (3) Party-Specific Lots available to Meteor, three (3) Party-Specific Lots available to Telefónica O2 and three (3) Party-Specific Lots available to Vodafone; and
- in Time Slice 2 there are fifteen (15) Generic Lots available to all Bidders.

2.16 Details on the frequency assignments associated with these Lots are 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	1800/1/I	1800/2/I

¹⁴ In Time Slice 1 nine (9) Lots in the 1800 MHz band are Party-Specific Lots. The specific location of these Party-Specific Lots will be determined, along with all other Lots, in the Assignment Stage of this Award Process. See Chapters 3 and 4 of this document for further details.

Frequency Band	Name of Lot	Uplink / Downlink Frequency	Name of Lot in Time Slice 1 ¹⁴	Name of Lot in Time Slice 2
		1845.0 - 1850.0 MHz		
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

2.2 Liberalised Use Licence – Terms and Conditions¹⁵

2.17 The following describes the principal terms and conditions associated with a Liberalised Use Licence. These terms and conditions are set out in the final Draft Regulations and the final indicative Liberalised Use Licence as set out in Annex 2 and Annex 3 to this document.

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, 900 MHz band and 1800 MHz bands.

2.19 It is a "non-exclusive" 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, including;

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.

- EC Decision 2010/267/EU¹⁶ in respect of the 800 MHz band; and
- EC Decision 2009/766/EC¹⁷ as amended¹⁸ in respect of the 900 MHz and 1800 MHz bands.

2.20 As set out in the final draft Regulations:

- a “non-exclusive” licence, means that ComReg is not precluded from authorising the keeping and possession by other persons of other apparatus for wireless telegraphy “on a non-interference and non-protected basis” in one or more of the 800 MHz, the 900 MHz and the 1800 MHz bands;¹⁹ and
- “on a non-interference and non-protected basis” means a basis on which no harmful interference may be caused to any Radiocommunication Service, and on which no claim may be made for the protection of apparatus operating on this basis against harmful interference originating from Radiocommunication Services.

2.2.2 Liberalised Use Licence Duration

2.21 Lots in this Award Process are being made available in two Time Slices and the duration of any Liberalised Use Licence issued to a Winning Bidder is defined by reference to the Lots won in Time Slice 1 and Time Slice 2.

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

¹⁶ 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)

¹⁷ 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. (2009/766/EC)

¹⁸ In April 2011 EC Decision 2011/251/EU amended EC Decision 2009/766/EC.

¹⁹ As discussed in section 5.8.1 of Document 12/25, it is standard practice in Ireland that spectrum bands licensed to particular licensees are also made available to other Wireless Telegraphy apparatus on a non-interference and non-protected basis. ComReg does not presently foresee any material change in its policy on non-exclusivity over and above that already applied in other licensing regimes in Ireland.

- where a Winning Bidder wins Lots in Time Slice 1 only, the expected 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 Winning Bidder wins Lots in Time Slice 2 only, the expected duration of its Liberalised Use Licence will be 15 years where the Liberalised Use Licence commences on 13 July 2015; and
- where a Winning Bidder wins Lots in both Time Slice 1 and Time Slice 2, the expected duration of its Liberalised Use Licence will be 17 years, 5 Months and 12 days where the Liberalised Use Licence commences on 1 February 2013.

	Commencement Date	Expiry Date
Time Slice 1	1 February 2013 (or such other date as may be specified by ComReg)	12 July 2015 (or such other date as may be specified by ComReg)
Time Slice 2	13 July 2015 (or such other date as may be specified by ComReg)	12 July 2030

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

- 2.23 There is no implied or express right of renewal, extension or any other form of prolongation of a Liberalised Use Licence beyond the expiry date of Time Slice 2 as specified herein.
- 2.24 Significantly prior to the expiry of Liberalised Use Licences at the end of Time Slice 2, ComReg intends to consider the future use of the Bands, including identifying the appropriate process for dealing with the spectrum released due to the expiration of Liberalised Use Licences.

Potential for delayed commencement of Liberalised Use Licences in Time Slice 1 or Time Slice 2 for Lots in the 800 MHz, 900 MHz and/or 1800 MHz bands

- 2.25 It should be noted that circumstances outside ComReg's reasonable 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 dates of Time Slice 1 and/or Time Slice 2 identified above.²⁰

- 2.26 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, Applicants acknowledge and accept same.
- 2.27 Subsection 2.2.6 below details the refunds of Licence fees payable to a Winning Bidder or the adjustment of Licence fees payable by a Winning Bidder as the case may be, in the event of delayed access to Lots in Time Slice 1 and 2.
- 2.28 To the extent permitted by law, ComReg's aggregate liability for all losses or damages of any nature arising from delayed access to Lots in Time Slice 1 and/or 2 is expressly limited to the refunds or adjustments of Licence fees as set out in subsection 2.2.6 of this Information Memorandum and, by submitting an Application, Interested Parties agree to same.

Advanced commencement of Liberalised Use Licences in Time Slice 1 in the 800 MHz, 900 MHz and/or 1800 MHz bands

- 2.29 In this Award Process it is possible for a Liberalised Use Licence to be issued with a commencement date earlier than 1 February 2013 (i.e. the expected commencement date of Lots in Time Slice 1). As set out below there are two methods of obtaining such advanced commencement. These are not mutually exclusive and ComReg may use both of these approaches.
- 2.30 **Advanced Commencement Method 1:** In line with ComReg's decision as set out in Document 12/25²¹, where an Existing GSM Licensee wins a Liberalised Use Licence for Lots 900/1A and 900/1/B or where a non-Existing GSM Licensee wins a Liberalised Use Licence for Lot 900/1/A, an advanced commencement of its Liberalised Use Licence will be made available to this Licensee in respect of these specific Lots. The advanced commencement date associated with these Lots will be notified to the Winning Bidders (and Existing GSM Licensees if applicable) before the

²⁰ 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.

²¹ See paragraph 3.4.10 of Decision D04/12 in Chapter 8 of Document 12/25

commencement of the Assignment Stage and shall be 5 months from the date of the Assignment Round in the Award Process.

- 2.31 **Advanced Commencement Method 2:** In line with ComReg's decision as set out in Document 12/25²² and without prejudice to an Liberalised Use Licence issued using Advanced Commencement Method 1 above, once the outcome of the Assignment Stage is known, Winning Bidders can apply to ComReg to have the commencement date of their Liberalised Use Licence brought forward for specific Lots in the 800 MHz, 900 MHz and/or 1800 MHz bands in Time Slice 1. 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 Transition Project Plan (see subsection 3.8).; and
 - whether the Lots won by the Winning Bidder would reasonably be required for transitional activities which have yet to occur in the relevant Band.

- 2.32 Where a Liberalised Use Licence is to be issued with an advanced commencement date for specific Lots, the SUF payments (see subsection 2.2.5) and/or the Rebates (see Annex 4) associated with this Liberalised Use Licence will be adjusted to account for this advanced commencement using the methodology as set out in this document.

2.2.3 Licence Conditions Applicable to all Liberalised Use Licences

- 2.33 This section describes the conditions which are applicable to all Liberalised Use Licences.

Coverage and roll-out and associated compliance reporting conditions

- 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 or not the Licensee is an Existing Mobile Network Operator ("Existing MNO") and will be set as follows:

²² See paragraph 3.4.11 of Decision D04/12 in Chapter 8 of Document 12/25

- for a Licensee that is 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 Licensee that is not an Existing MNO, 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, such a Licensee 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.

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 Licence²³ so long as 35% of the population of the 70% coverage obligation is provided via its Liberalised Use Licence.²⁴

2.36 For the purposes of determining compliance with the above coverage obligations, coverage will be measured against a distinct field-strength and/or an Ec/Io²⁵ or Block Error Rate (“BLER”) level for each type of technology that is used by the Licensee under the Liberalised Use Licence. The coverage measurement metrics as currently defined are set out in section 3 of the indicative Liberalised Use Licence in Annex 3 of this document. These measurement metrics may be amended by ComReg during the lifetime of Liberalised Use Licences (in accordance with the Authorisation Regulations).

2.37 Additionally, it is a condition of a Liberalised Use Licence that the Licensee measures every twelve months and submits an annual report to ComReg regarding its compliance with its coverage and roll-out obligations (“Coverage Compliance Report”). Details of this

²³ As discussed in section 5.5.1.3 of Document 12/25, a GSM Licence in the 900 MHz or 1800 MHz band and/or a 3G Licence in the 2100 MHz band can be used in combination with the Liberalised Use Licence to provide a seamless service to consumers. ComReg recognises that over time other spectrum rights of use and other Licence types may also be capable of being used in combination with a Liberalised Use Licence to provide a seamless service to consumers and ComReg reserves the right to amend the conditions of Liberalised Use Licences to allow such rights of use and other Licence types to count towards the coverage obligations of Liberalised Use Licences.

²⁴ For the avoidance of doubt coverage obtained by roaming onto another Licensee’s network will not count towards meeting the coverage obligation.

²⁵ Ec/Io is the ratio of the received energy per chip to the interference level.

compliance reporting condition are set out in section 3 of the indicative Liberalised Use Licence contained in Annex 3 of this document and include that:

- the Licensee shall identify in the Coverage Compliance Report whether it has either (a) met the relevant coverage and roll-out obligation specified in its Licence, or (b) failed to meet the said obligation and reasons for same;
- the measurements required for the Coverage Compliance Report shall be agreed with ComReg in advance and the compliance report shall have sufficient detail and granularity to allow ComReg to verify the Licensee's measurements;
- where the Licensee is claiming to have met its minimum coverage and roll-out obligation for the first time, the Coverage Compliance Report shall contain Drive Test Measurements. These Drive Test Measurements are to be carried out at the Licensee's own expense and to a standard as agreed with ComReg;
- upon request by ComReg,²⁶ the Licensee shall carry out Drive Test Measurements and submit these results to ComReg. These Drive Test Measurements are to be carried out at the Licensee's own expense and to a standard as agreed with ComReg; and
- the Licensee shall submit its Coverage Compliance Report each calendar year within the 31 calendar days following the anniversary of the commencement date of its Liberalised Use Licence.

²⁶ ComReg does not envisage Drive Test Measurements being required on a frequent basis, but notes that such measurements may be appropriate in circumstances where:

- a Licensee is submitting a compliance report on coverage for the first time; or
- ComReg's own verification checks, Drive Test Measurements or other information suggests that there may be discrepancies in the compliance report on coverage or the Licensee may not be meeting its coverage obligation.

Quality of Service (“QoS”) and associated compliance reporting conditions

2.38 It is a condition of a Liberalised Use Licence that the minimum Quality of Service (“QoS”) obligations²⁷ as set out in section 4 of the indicative Liberalised Use Licence contained in Annex 3 of this document are met. These QoS obligations relate to:

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

2.39 Additionally, it is a condition of a Liberalised Use Licence that the Licensee shall, every twelve months, measure and submit an annual report to ComReg on its compliance with (a) the Availability of the Network QoS standard and (b) the Voice Call QoS standard (“QoS Compliance Report”). Details of this compliance reporting condition are set out in section 4 of the indicative Liberalised Use Licence in Annex 3 of this document and include that:

- in the QoS Compliance Report the Licensee shall notify ComReg whether the Licensee has either (a) met the relevant QoS obligations as set out in its Licence, or (b) failed to meet the said obligations and reasons for same;
- the measurements required for the QoS Compliance Report shall be agreed with ComReg in advance and the compliance report shall have sufficient detail and granularity to allow the Commission to verify the Licensee’s measurements;
- upon request by ComReg,²⁸ the Licensee shall carry out Drive Test Measurements and submit these results to ComReg. These Drive Test Measurements are to be carried out at the

²⁷ As set out in section 5.6.2.4 of Document 12/25, the QoS obligations attached to a Liberalised Use Licence apply to all relevant services provided using the Spectrum Blocks licensed in Part 1 of a Licensee’s Licence. For the avoidance of doubt, this will include all relevant services of the Licensee and those services provided by any third parties via contractual or other arrangements with the Licensee that use those Spectrum Blocks.

²⁸ As for the coverage and roll-out conditions, ComReg does not envisage Drive Test Measurements being required on a frequent basis, but notes that such measurements may be appropriate in circumstances where:

- a Licensee is submitting a compliance report on QoS for the first time; or
- ComReg’s own verification checks, Drive Test Measurements or other information suggests that there may be discrepancies in the compliance report on QoS or the Licensee may not be meeting its QoS obligations.

Licensee's own expense and to a standard as agreed with ComReg; and

- the Licensee shall submit its QoS Compliance Report each calendar year within the 31 calendar days following the anniversary of the Licence Commencement Date of the Liberalised Use Licence.

Cessation of use of a terrestrial system

2.40 It is a condition of a Liberalised Use Licence that the Licensee informs ComReg of the terrestrial systems applicable to the WT apparatus licensed.

2.41 It is also a condition of a Liberalised Use Licence that, where a Licensee intends to cease the use of a terrestrial system that is used to provide services under the Liberalised Use Licence (e.g. GSM),²⁹ the Licensee is obliged to:

- a) notify ComReg of this intention at least 6 months in advance of the proposed termination date; and
- b) use reasonable endeavours at all times to ensure that any adverse effects on users of a cessation of use of a terrestrial system are minimised.

Compliance with rules to prevent spectrum hoarding

2.42 It is a condition of the Liberalised Use Licence that the Licensee comply 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 and such rules may apply to rights of use for radio frequencies associated with Liberalised Use Licences.

Assignment of rights and obligations of a Liberalised Use Licence

2.43 Assignment of rights and obligations of a Liberalised Use Licence (including trading of rights of use for radio frequencies attaching to a Liberalised Use Licence) will be permitted.

²⁹ For the avoidance of doubt the entitlement of a Licensee to cease the use of a terrestrial system without prejudice to the contractual rights of parties who have entered into contracts with the Licensee.

2.44 In relation to any such assignment of rights and obligations, among other things, it is a condition of the Liberalised Use Licence that the Licensee shall:

- notify ComReg of its intention to transfer some or all of its rights of use of radio frequencies attached to its Liberalised Use Licence;
- only transfer rights of use for radio frequencies attached to its Liberalised Use Licence in accordance with the procedures on the transfer of rights of use for radio frequencies specified by ComReg;³⁰
- not transfer rights of use for radio frequencies attached to its Liberalised Use Licence without the prior consent of ComReg, which shall not be unreasonably withheld, where ComReg has yet to specify its procedures for the transfer of rights of use for radio frequencies; and
- ensure that any Assignee³¹ enters into a valid and binding agreement to comply with all conditions and obligations under the Liberalised Use and Preparatory Licence Regulations³² and the Licences issued pursuant to these Regulations and to provide to the Assignor³³ or ComReg, as appropriate, such details as ComReg is entitled to require from a Licensee from time to time.

2.45 It should be noted that ComReg has yet to specify under Regulation 19 of the Framework Regulations its procedures on the transfer of rights of use for radio frequencies, but will be consulting on same in the near future. While ComReg would expect these procedures and measures to provide further clarity on spectrum trading in Ireland, it should be noted that any transfer of right of use would not only have to comply with electronic communication law but also applicable

³⁰ For the avoidance of doubt, any such procedures shall be in accordance with the relevant provisions of the Authorisation and Framework Regulations.

³¹ Assignee means a party to whom some or all of the rights and obligations under a Licence have been transferred.

³² A final draft of these Regulations is set out in Annex 2 of this document.

³³ Assignor means the party from whom some or all of the rights and obligations under a Licence have been transferred.

competition law (for which the Irish Competition Authority also has responsibilities³⁴).

Provision of updated information for Part 2 and Part 3 of the Licence

- 2.46 Part 2 and Part 3 of the Liberalised Use Licence details the apparatus to which the Licence relates and the location of this apparatus.
- 2.47 It is a condition of the Liberalised Use Licence that the Licensee in each calendar year in which the Licence is in force, and in any event on or before the anniversary of the Licence Commencement Date of each such year, submit updated information to ComReg in respect of Parts 2 and 3 of its Liberalised Use Licence.
- 2.48 It is ComReg's intention to publish details of Liberalised Use Licences, including information contained in Part 2 and Part 3, on its website.

Payment of fees

- 2.49 It is a condition of a Liberalised Use Licence that the Licensee shall make payment of fees as detailed in the Regulations, as set out in final draft form in Annex 2 to this document.

2.2.4 Liberalised Use Licence Technical Conditions

- 2.50 This section sets out the technical conditions which are:
- applicable to specific spectrum bands in a Liberalised Use Licence; and
 - associated with the R&TTE³⁵ and EMC³⁶ Directives.

Spectrum in the 800 MHz band

- 2.51 The technical conditions for the 800 MHz band are detailed in section 2 of the indicative Liberalised Use Licence in Annex 3 of this

³⁴ In addition to assessing mergers under competition law, the Competition Authority also assesses whether agreements have an anti-competitive object or effect.

³⁵ 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.

³⁶ Directive 2004/108/EC

document. These conditions are in accordance with the parameters set out in the Annex to Decision 2010/267/EU and, amongst other things, 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);
- comply with the out-of-block Block Edge Mask (BEM) as specified in section 2 of Annex 3 (Table 1 to Table 4 therein); and
- comply with all Memoranda of Understanding (“MoU”) agreed from time to time between ComReg and the national regulatory authority responsible for electronic communications matters in the UK, Ofcom or its successor, in relation to the 800 MHz band, including those set out in Document 12/47³⁷.

2.52 The technical conditions for the 800 MHz band have 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 9 of Document 12/25A, DTT spectrum requirements have been planned such that the first six DTT multiplexes in Ireland only use Channels 21 – 59, and not Channel 60. Channel 60 may be required for DTT in certain areas if a seventh or eighth DTT multiplex is required. However, the spectrum requirements for the seventh and eighth DTT multiplexes are being planned by ComReg on the basis that they would mainly or only use Channels 21-59.³⁸

Spectrum in the 900 MHz band and the 1800 MHz band

2.53 The technical conditions for the 900 MHz band and 1800 MHz band are detailed in section 3 of Annex 3 of this document. These conditions are in accordance with Decision 2009/766/EC as amended, and amongst other things, 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

³⁷ http://www.comreg.ie/_fileupload/publications/ComReg1247.pdf

³⁸ The technical parameters of currently licensed long term broadcast and retransmission services, both TV and Radio, is available on ComReg’s website at:

http://www.comreg.ie/radio_spectrum/technical_parameters.542.1071.html

compliance with the technical parameters set out in Decision 2009/766/EC as amended;

- 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; and
- 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:
 - Document 11/50c,³⁹
 - Document 11/50d;⁴⁰
 - Document 11/50e;⁴¹ and
 - Document 11/50f.⁴²

Compliance with the R&TTE Directive

2.54 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.

2.55 Under the R&TTE Regulations⁴³, which transpose 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 provisions 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

³⁹ MoU on Frequency Coordination between Ireland and the UK on the Frequency Bands 890-915/935-960 MHz designated for GSM

(see http://www.comreg.ie/_fileupload/publications/ComReg1150c.pdf)

⁴⁰ MoU on Frequency Coordination between Ireland and the UK on the Frequency Bands 880-890/925-935 MHz designated for E-GSM (see http://www.comreg.ie/_fileupload/publications/ComReg1150d.pdf)

⁴¹ MoU between Ireland and the UK on Coordination in the 1710-1785/1805-1880 MHz Frequency Bands (see http://www.comreg.ie/_fileupload/publications/ComReg1150e.pdf)

⁴² MoU on Frequency Coordination between Ireland and the UK on the Frequency Bands 880-915/925-960 MHz and 1710-1785/1805-1880 MHz (see http://www.comreg.ie/_fileupload/publications/ComReg1150f.pdf)

⁴³ The European Communities (Radio Equipment and Telecommunications Terminal Equipment) Regulations, 2001 (S.I. No. 240 of 2001)

things, ComReg defines the regulated interface requirements for radio services in Ireland and these interfaces are currently set out in ComReg Document 06/47R.⁴⁴ 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 any Liberalised Use Licences issued as a result of this Award Process.

- 2.56 It is a condition of a Liberalised Use Licence that the Licensee 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

- 2.57 It is a condition of a Liberalised Use Licence that the Licensee ensure that the apparatus or any part thereof, complies with the requirements set out in Annex I to the EMC Directive (Directive 2004/108/EC). In this regard, a Licensee has a duty to ensure that the electromagnetic disturbance generated by its licensed apparatus does not exceed the level above which radio and telecommunications equipment or other equipment cannot operate as intended and that equipment sold, or installations constructed, by them are appropriately immune to electromagnetic interference.⁴⁵

⁴⁴ Interface Requirements for Radio Services in Ireland (see http://www.comreg.ie/fileupload/publications/ComReg_0647R.pdf)

⁴⁵ The co-existence of ECS in the 800 MHz band with the broadcasting service in the 470-790 MHz band was considered by ComReg in Annex 9 of Document 12/25A. In particular, ComReg noted that:

- the DTT community (including householders receiving a DTT service) and Liberalised Use Licensees in the 800 MHz band have an incentive to co-operate with each other in order to minimise the possibility of interference or electromagnetic disturbances occurring between each other's services; and
- information regarding the licensed technical parameters of the DTT network in Ireland are available on ComReg's website and details of the apparatus associated with a Liberalised Use Licence is to be captured in its licence. The DTT and 800 MHz licensees should take such information into consideration when deploying their networks and considering whether additional mitigation measures (e.g. at a base station level it may be appropriate to use reduced power, additional filtering or polarisation discrimination) are required.

2.2.5 Fees for a Liberalised Use Licence

2.58 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 prior to the first grant of a Liberalised Use Licence and then over its duration.⁴⁶

2.59 For the avoidance of doubt, it should be noted that the grant of any Licence arising out of this Award Process (including any Preparatory Licence) is not an activity that is currently subject to Value Added Tax (“VAT”) and so all Licence fees to be paid by Licensees in connection with the Award Process will not include VAT, unless the VAT rules change in the interim.

The Upfront Fee

2.60 The Upfront Fee payable by a Winning Bidder for a Liberalised Use Licence at the end of the Auction is a spectrum-access fee that comprises:

- the Base Price associated with the Winning Bid for that Winning Bidder, payable for winning Lots in a Band in the Main Stage of the Award Process; and
- the Additional Prices for that Winning Bidder, if any, payable for the assignment of Specific Lots as a result of the Assignment Stage of the Award Process.

2.61 The Base Price is determined as follows:

- where the Main Stage of the Award Process is not required, the Base Price for a Liberalised Use Licence is the sum of the Reserve Prices for all Lots to be included in a Liberalised Use Licence. 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	€2.55 Million	€8.26 Million
900 MHz band	€2.55 Million	€8.26 Million
1800 MHz band	€1.27 Million	€4.13 Million

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

⁴⁶ As discussed further in subsection 3.7 of this document, the net fees to be paid at end of the auction will be appropriately reduced by the Deposit submitted and any applicable Rebate(s) or fee adjustments to reflect any delayed commencement.

- where the Main Stage of the Award Process is required, 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 to be included in a Liberalised Use Licence.

2.62 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 in the Assignment Stage.

The Spectrum Usage Fee

2.63 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. SUFs are due each subsequent calendar year within the duration of the Liberalised Use licence prior to the anniversary of the commencement date of the Liberalised Use Licence. SUFs are index-linked to the overall Consumer Price Index⁴⁷ (“CPI”) as published by the Central Statistics Office⁴⁸ 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.

2.64 For a Liberalised Use Licence, the SUFs are the sum of the 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:

- €1.08 Million per Lot in the 800 MHz and/or 900 MHz band plus the “CPI Adjustment”; and
- €0.54 Million per Lot in the 1800 MHz band plus the “CPI Adjustment”.

⁴⁷ 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.

⁴⁸ See www.cso.ie

- 2.65 The CPI adjustment to a SUF is to be calculated using 1 February 2013 as the common base date for the CPI (i.e. CPI = 100). When calculating the “CPI Adjustment” to the SUF associated with a Licence, ComReg will use the most up to date CPI data available to it at that time. For example, where the anniversary of the commencement date of a Liberalised Use Licence is 1 February, ComReg envisages that the most up to date CPI data available to it is likely to be CPI data from November of the previous year.⁴⁹
- 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 a Winning Bidder or a Liberalised Use Licensee 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 set out in Annex 4 of this document as permitted under the Interim GSM 900MHz Licence Regulations.
- 2.68 These defined circumstances in Annex 4 are when the GSM Licensee:
- avails of the Early Liberalisation Option 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 Stage, and these costs qualify for a rebate under the relocation costs rules and methodology as set out in Annex 4 of this document.

Payment Arrangements for Licence Fees

- 2.69 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 Application Form as set out in Annex 5 of this document
- 2.70 Where the due date for payment of Licence Fees falls on a day which is not a Working Day, payment shall be made on or before the

⁴⁹ This would take into consideration the time required for the publication of CPI data by the CSO and the administrative requirements such as invoicing the SUF to the Winning Bidder or Licensee thirty (30) calendar days in advance of anniversary of the commencement date of the Liberalised Use Licence.

last Working Day before the date on which payment would otherwise have fallen due.

- 2.71 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 due on 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 associated without prejudice to ComReg's entitlement to recover the full amount due in the Winning Bid as a simple contract debt.
- 2.72 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 constitutes non-compliance by the Licensee with its Licence conditions and ComReg may take steps to recover the sum due, including taking compliance actions in accordance with the Authorisation Regulations.
- 2.73 In addition, where payment of any fee is not made in due time, then the Licensee shall pay to ComReg interest on the fees or part thereof that is outstanding at the appropriate EURIBOR rate, between the date when such fee or part fell due and the date of payment of such fee or part.
- 2.74 An amount payable by a person in respect of an outstanding Licence fee may be recovered by ComReg from the person as a simple contract debt in any court of competent jurisdiction.

2.2.6 Refund or adjustment of Licence Fees

- 2.75 As noted in section 2.2.2 of this Document, in limited circumstances ComReg may refund or adjust Licence Fees payable by Winning Bidders due to the delayed commencement of Lots in the 800 MHz, 900 MHz and/or 1800 MHz bands in Time Slice 1 or Time Slice 2.
- 2.76 The refund or adjustment of fees 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:
- 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 or Time Slice 2 that

ComReg does not make the Lot available for Liberalised Use;⁵⁰ and

- 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 or Time Slice 2 that ComReg does not make the Lot available for Liberalised Use.

2.77 Refunds to the Winning Bidder will be paid by ComReg within 5 Working Days of its notification of delayed commencement, or if desired by the Winning Bidder these refunds can be offset against the following year's SUF (or multiple years' SUF).

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 relation to Time Slice 2, while ComReg cannot guarantee that there will be no delay, it does not expect any transitional activities to result in delayed access to Lots given the substantial time for Existing GSM Licensees and Winning Bidders to address such activities before the commencement date of Lots in Time Slice 2;
- 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; and
- to the extent permitted by law, ComReg's liability for damage or 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, Applicants agree to same.

Other refunds of Licence Fees

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

⁵⁰ To calculate the Upfront Price associated with a Lot in a Liberalised Use Licence, ComReg will use the Round Prices in the Final Primary Bid Round and other relevant information.

- 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,⁵¹ but shall be entitled to any excess SUFs paid in relation to this quantum of spectrum (which has been subject to the reduction) after the date this amendment takes effect and the Licensee no longer has a right of use over that spectrum pursuant to a Licence; or
- a reduction of the duration of one or more Lots in 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 SUFs paid in relation to the unused part of the Licence term where SUFs have already paid. Additionally the Liberalised Use Licensee will not be liable for any future SUFs on these surrendered Lots beyond the new expiry date of these Lots in its amended Liberalised Use Licence.

2.80 Where an amendment, surrender or withdrawal of a Liberalised Use Licence results 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

2.81 Enforcement of conditions of Liberalised Use Licences shall be carried out by ComReg in accordance with its statutory obligations including those set out in the Authorisation Regulations.

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

2.83 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.

2.84 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 powers, functions and duties under these Regulations. For the purposes of the exercise by ComReg of its functions under those Regulations, an authorised officer appointed

⁵¹ For the avoidance of doubt, ComReg reserves the right to offer such refunds/rebates as part of any future reassignment/re-organisation of spectrum.

thereunder may exercise the powers 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

2.85 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

2.86 Annex 2 of this document sets out the final draft Regulations which, when finalised by the Minister, will provide for the issuing of a Liberalised Use Licence on foot of the Award Process. Among other things, these final Draft Regulations specify the:

- Duration of a Licence;
- Conditions of a Licence; and
- Licence Fees.

2.87 A final indicative Liberalised Use Licence is set out in Schedule 1 to the final Draft Regulations, where:

- Parts 1 of Schedule 1 sets out commencement and expiry dates for each Spectrum Block in the Liberalised Use Licence;
- Parts 2 and 3 of Schedule 1 set out the apparatus for wireless telegraphy to which the Liberalised Use Licence applies and the location and details of same; and
- Part 4 of Schedule 1 (see Annex 3 of this document) sets out further licence conditions associated with the Liberalised Use Licence.

2.88 The final draft Regulations and the final indicative Liberalised Use Licence should be considered in conjunction with the text in this document and Document 12/25.

2.2.10 Other Considerations

Spectrum reviews and amendments to Licence conditions

2.89 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. Accordingly, ComReg may amend the rights, obligations and procedures relating to a Liberalised Use Licence from time-to-time and in accordance with the Authorisation Regulations. In considering any such action, ComReg would act reasonably and transparently and fully in accordance with its statutory objectives, functions and duties.

Spectrum pooling and sharing

2.90 ComReg's consideration of the issues associated with spectrum pooling and sharing were recently set out by it in its Radio Spectrum Strategy Statement (see section 3.5 of Document 11/88 and section 4.4 of Document 11/89 at www.comreg.ie). As set out, and with 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 responsibilities⁵²). It is only possible to make such an assessment on a case-by-case basis having regard to the specifics of a proposed arrangement and the circumstances in which the proposed arrangement would occur.⁵³

2.3 The Preparatory Licence – Terms and Conditions

2.91 The following describes the principal terms and conditions associated with the Preparatory Licence. These terms and conditions are set out in the final draft Regulations as set out in Annex 2 to this document.

2.3.1 Scope of the Preparatory Licence

2.92 A Preparatory Licence allows the Licensee to keep and have possession of, install and maintain WT apparatus for terrestrial

⁵² In addition to assessing mergers under competition law, the Competition Authority also assess whether agreements have an anti-competitive object or effect.

⁵³ 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 spectrum in the 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.

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.

2.93 It is a “non-exclusive” Licence for the national terrestrial territory of the Republic of Ireland and all WT apparatus licensed under the Preparatory Licence is required to comply with the EC decisions relevant 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.

2.94 As set out in the final draft Regulations:

- a “non-exclusive” licence, means that ComReg is not precluded from authorising the keeping and possession by other persons of other apparatus for wireless telegraphy “on a non-interference and non-protected basis” in one or more of the 800 MHz, 900 MHz and 1800 MHz bands; and
- “on a non-interference and non-protected basis” means a basis on which no harmful interference may be caused to any Radiocommunication Service, and on which no claim may be made for the protection of apparatus operating on this basis against harmful interference originating from Radiocommunication Services.

2.3.2 Preparatory Licence Duration and Renewal

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

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

2.97 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

Lot in a Preparatory Licence is likely to be 12 July 2015, as it is expected that the latest commencement date for a Lot in a Liberalised Use Licence should be 13 July 2015 (i.e. where a Licensee only wins a Lot or Lots in Time Slice 2).

- 2.98 The Preparatory Licence granted to a Licensee will be for the duration of the Licence as defined by reference to the above commencement and expiry dates of each Lot.
- 2.99 Once issued, the duration of the Preparatory Licence may be amended in accordance with the provisions of the Authorisation Regulations.

2.3.3 Licence Conditions Applicable to all Preparatory Licences

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

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

2.3.4 Fees for a Preparatory Licence

- 2.101 An administrative fee of €100.00 will be payable to ComReg prior to the issue of a Preparatory Licence.
- 2.102 Additionally before a Preparatory Licence will be issued, Winning Bidders must pay the Upfront Fee associated with its Winning Bid.

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

- 2.103 Enforcement of conditions of Preparatory Licences shall be carried out by ComReg in accordance with its statutory objectives including those set out in the Authorisation Regulations.
- 2.104 A Preparatory Licence may be suspended or withdrawn in accordance with the Authorisation Regulations.

2.105 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.

2.106 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 powers, functions and duties under these 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

2.107 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

2.108 The final draft Regulations as set out in Annex 2 of this document provide for the issuing of a Preparatory Licence on foot of this Award Process. Among other things, the Draft Regulations specify the:

- duration of a Preparatory Licence;
- conditions of a Preparatory Licence; and
- Preparatory Licence Fees.

2.109 A final indicative Preparatory Licence is set out in Schedule 2 of the final draft Regulations.

- Part 1 of Schedule 2 sets out further licence conditions associated with the Preparatory Licence; and
- Part 2 of Schedule 2 sets out the Statement of Authorised Apparatus associated with the Preparatory Licence.

2.110 The final draft Regulations and the final indicative Preparatory Licence should be considered in conjunction with the text in this document, and Document 12/25.

2.3.8 Other Considerations

Spectrum reviews and amendments to Licence conditions

2.111 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 in accordance with the Authorisation Regulations. ComReg may amend the rights, obligations and procedures relating to a Preparatory Licence from time to time in accordance with the Authorisation Regulations. In considering any such action, ComReg would act reasonably and transparently and fully in accordance with its statutory objectives, functions and duties.

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 Generic Lots are grouped into six Lot Categories (Categories 1 to 6). Table 7 provides an overview of these six Lot Categories, including for each Category:
- the Time Slice within which each Lot is available;
 - the number of Lots available;
 - the size of a Lot (in MHz);
 - the **Reserve Price** per Lot in each Lot Category and the associated annual Spectrum Usage Fees (SUFs) before Indexation; and
 - the number of **Eligibility Points** associated with a Lot for the purposes of applying the activity rules in the Main Stage of the Auction (discussed subsequently in subsections 4.3 and 4.4).
- 3.3 The 11 Party-Specific Lots are grouped into four Lot Categories (Categories 7 to 10). In line with ComReg’s Decision to include an “early liberalisation option” in the Award Process,⁵⁴ and as discussed in Chapter 2 above, these Party-Specific Lot Categories contain Lots already licensed, in whole or in part, to Existing GSM Licensees, pursuant to GSM Licences that extend beyond the commencement date of Time Slice 1.⁵⁵
- 3.4 Existing GSM Licensees can Bid in the Award Process to win some or all of these Party-Specific Lots, and thereby relinquish all, or part,

⁵⁴ See paragraph 3.4.12 of Decision 04/12 in Chapter 8 of ComReg Document 12/25

⁵⁵ The commencement date of Time Slice 1 is discussed in subsection 2.2.2.

of their Existing GSM Licences.⁵⁶ Table 8 provides an overview of Party-Specific Lot Categories, Reserve Prices, annual SUFs before Indexation 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 required and a Bidder has applied for, and therefore wins, such Lots), Existing GSM Licensees will be permitted to use the Lots which they win 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, Existing GSM Licensees will continue to hold the relevant amount of spectrum on an unliberalised basis subject to Existing Licence conditions.
- 3.6 As described in Chapter 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 (or some other date as specified by ComReg) – 12 July 2015 (or some other date as specified by ComReg);
 - Time Slice 2: 13 July 2015 (or some other date as specified by ComReg)⁵⁷ – 12 July 2030.
- 3.7 Lots in all Lot Categories, 1 to 10, will be awarded first as Lots without specific positions in the band i.e. demand expressed by Applicants in their **Application Forms** at the Application Stage (see subsection 3.3.2) and any Bids submitted by Bidders in the Main Stage (see subsections 4.3 and 4.4) will be for Lots of spectrum within a given band and Time Slice but without specific frequency assignments. Subsequently, the specific frequency assignments of each Lot won will be decided in the Assignment Stage (see subsection 4.5). This means that all Lots within a Lot Category are identical for the purposes of the Main Stage.

⁵⁶ See subsections 4.4 and 4.5 for further details on the amount of spectrum relinquished.

⁵⁷ See subsection 2.2.2 regarding possible variations in the commencement date and expiry date of the Time Slices.

Lot Category number and name	Frequency band	Licence duration ⁵⁸	Time Slice	Number of Lots available	Lot size	Reserve Price per Lot	Annual SUF per Lot (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	€2.55m	€1.08m	2
(2) 800/2	791-821MHz paired with 832-862MHz	13/07/15 to 12/07/30	2	6	2x5MHz	€8.26m	€1.08m	2
(3) 900/1	880-915MHz paired with 925-960MHz	01/02/13 to 12/07/15	1	5	2x5MHz	€2.55m	€1.08m	2
(4) 900/2	880-915MHz paired with 925-960MHz	13/07/15 to 12/07/30	2	7	2x5MHz	€8.26m	€1.08m	2
(5) 1800/1	1710-1785MHz paired with 1805-1880MHz	01/02/13 to 12/07/15	1	6	2x5MHz	€1.27m	€0.54m	1
(6) 1800/2	1710-1785MHz paired with 1805-1880MHz	13/07/15 to 12/07/30	2	15	2x5MHz	€4.13m	€0.54m	1

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

⁵⁸ Note that, as discussed in subsection 2.2.2, the commencement and expiry dates of Lots in Time Slice 1 and the commencement date of Lots in Time Slice 2 may be adjusted by ComReg.

Lot Category number and name	Frequency band	Licence duration ⁵⁹	Time Slice	Party permitted to Bid for Lots in this Lot 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	2x5MHz	€2.55m	€1.08m	See Annex4	2
(8) 1800/1/MET	1710-1785MHz paired with 1805-1880MHz	01/02/13 to 12/07/15	1	Meteor	3	2x5MHz	€1.27m	€0.54m	See Annex 4	1
(9) 1800/1/TO2	1710-1785MHz paired with 1805-1880MHz	01/02/13 to 12/07/15	1	O2	3	2x5MHz	€1.27m	€0.54m	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	2x5MHz	€1.27m	€0.54m	See Annex 4	1

Table 8: Party-Specific Lots in the Award Process

⁵⁹ Note that, as discussed in subsection 2.2.2, the commencement and expiry dates of Lots in Time Slice 1 may be adjusted by ComReg.

3.2 Process Overview and 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 an **Assignment Stage**, or an Assignment Stage only, where:
 - The **Main Stage**⁶⁰ consists of:
 - one or more **Primary Bid Rounds**, during which Bidders bid for a package of one or more Lots in particular Bands and Time Slices; and
 - a **Supplementary Bids Round**, during which Bidders can bid for many packages of Lots in particular Bands and Time Slices;
 - The **Assignment Stage** consists of a single round of bidding, the **Assignment Round**, and a **Negotiation Phase**. The Assignment Round provisionally 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 the Additional Prices to be paid by each Bidder. The Assignment Round will be followed by a two-week period in which Winning Bidders and Existing GSM Licensees (if applicable) can negotiate a re-organisation of one or more of the Bands included in the Assignment Round and notify ComReg of the revised frequency assignments; and
 - a **Notification and Grant Stage** during which ComReg will notify the Winning Bidders of their entitlement to apply for and be granted a Preparatory Licence and a Liberalised Use

⁶⁰ 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 of the Auction will not be required.

Licence in accordance with the outcome of the Award Process, subject to certain conditions including the payment of fees.

3.9 This process is illustrated in Figure 4 below.

3.10 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.

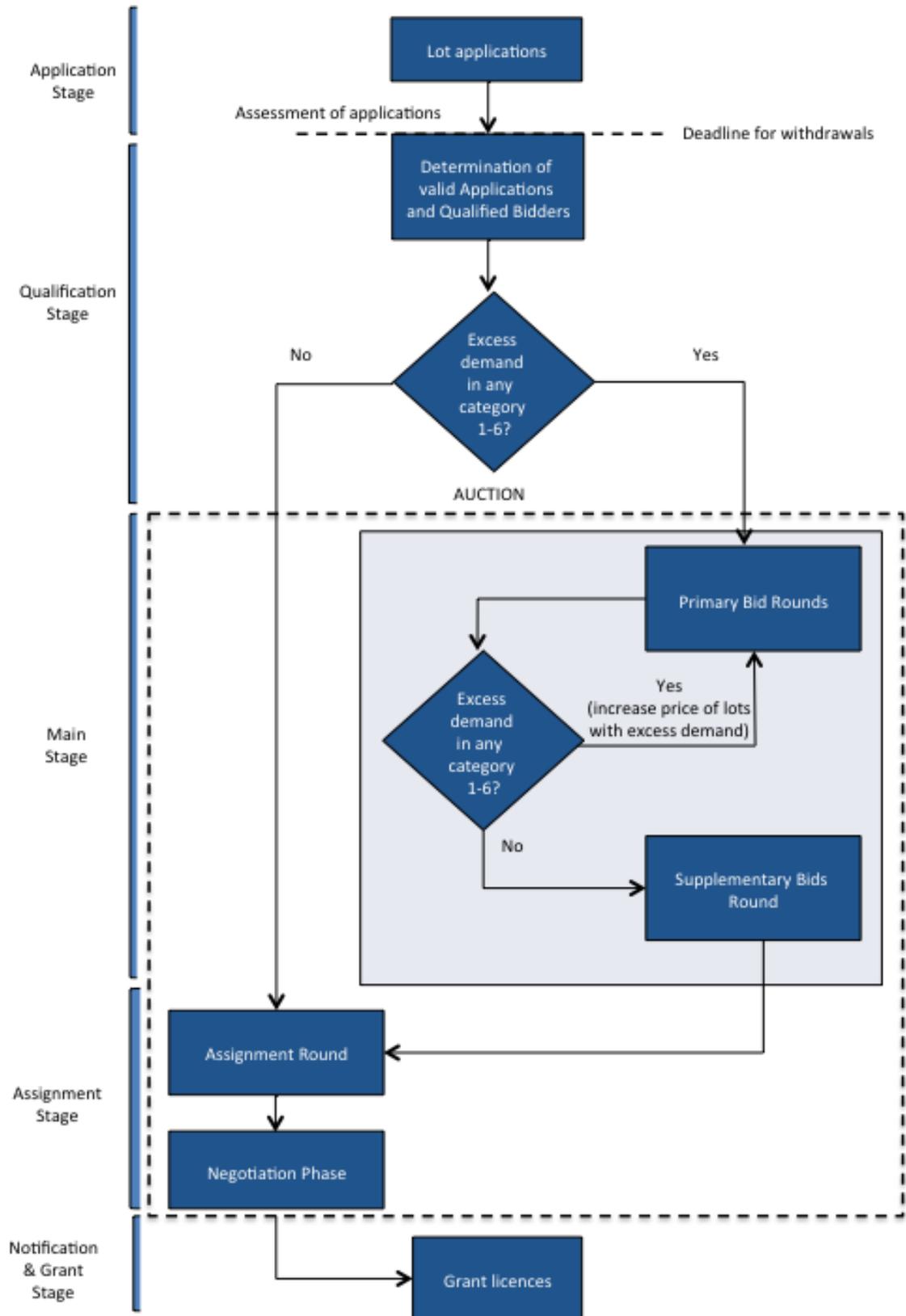


Figure 4: Overview of the Award Process

3.11 The timeline for the first two stages of the Award process (being the Application Stage and the Qualification Stage)⁶¹ is set out in the table below. ComReg reserves the right to vary these timelines as may be necessary, in order to take into account any changed or unforeseen circumstances. ComReg, in doing so, would give appropriate notification (e.g. by issuing a public notice on its website or giving notice to more selected parties, depending on the stage of the award process (e.g. Applicants, Qualified Bidders)).

Stage of process	Milestone	Timeline
Application Stage	Publication of Final Information Memorandum on ComReg's website	Friday 25 May 2012
	Presentation to Interested Parties on the Award Process and the Auction Rules	Friday 8 June 2012
	Deadline for submission of questions regarding the Award Process	16:00 (local time) on Friday 22 June 2012
	Final date for responses to questions on the Award Process to be published on ComReg's website	Friday 6 July 2012
	Deadline date for submission of Application Forms	From 10:00 (local time) on Monday 16 July 2012 to 16:00 (local time) on Friday 20 July 2012
	Deadline date for submission of Deposits	23:59 (local time) on Friday 20 July 2012
	Restrictions on auction-related communications come into effect	On submission of first Application to ComReg

⁶¹ ComReg is in a position to identify the timelines of the Application Stage and Qualification Stage as these are the first two stages of the Award Process and so there is more certainty as to the date upon which these Stages will begin and end.

Stage of process	Milestone	Timeline
Qualification Stage	Circulation of Bidder Materials for accessing and using the EAS to the Applicants;	Week beginning Monday 23 July 2012
	Mock Auction for each Applicant	Monday 30 July 2012 to Friday 3 August 2012
	Deadline for withdrawal of Application	Friday 17 August
	<p>Each Applicant to be informed by ComReg about whether it has become a Bidder or not.</p> <p>Confirmation of the requirement for a Main Stage of the Auction and notification to Bidders of scheduled start date of the first Primary Bid Round; or</p> <p>Confirmation that there is no requirement for a Main Stage and notification to Winning Bidders of Winning Bids and start date for the Assignment Stage; or</p> <p>Confirmation that that there is no requirement for a Main Stage or an Assignment Stage and notification to Winning Bidders of Winning Bids and progression to Notification & Grant Stage</p>	Friday 24 August 2012
	Return of Deposits to Applicants that have not become Qualified Bidders	Friday 31 August 2012

Table 9: Timetable for the Award Process

3.12 Regarding the later stages of the Award Process (i.e. the Main Stage, the Assignment Stage, the Notification and Grant Stage) and the Transition Project Plan, ComReg is currently not in a position to announce with certainty the timing of these stages, as the timing of

these stages depends on the outcome of previous stages in the Award Process and/or circumstances outside ComReg's control.⁶²

3.13 However during the course of the Award Process, ComReg will provide further information on the timings of these stages to the appropriate parties (e.g. Bidders, Winning Bidders, etc.). The timelines to be set out in these notifications will be in accordance with the terms set out in this document, which, among other things, states that:

- the start date of the Auction will be notified to Bidders with at least two weeks prior notice (see subsection 3.4.1);⁶³
- there will be at least three clear Working Days between the last Primary Bid Round and the start of the Supplementary Bids Round (see subsection 4.4.2);
- following the outcome of the Assignment Round a two week period will be provided to the Winning Bidders and the Existing GSM Licensees (if applicable) negotiate a re-organisation of one or more of the Bands included in the Assignment Round and notify ComReg of the revised frequency assignments to (see subsection 4.5.10);
- following the outcome of the Assignment Round a four week period will be provided to the Existing GSM Licensees to formulate the Transition Project Plan although ComReg reserves the right to choose a different deadline date particularly if retuning activities are necessary (see subsection 3.8).

3.14 References in this Chapter and throughout this 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.

⁶² For example: the outcome of the Qualification Stage will determine whether there is a need for a Main Stage or not; the end of the Main Stage determines the start date of the Assignment Stage; etc.

⁶³ Based on the timelines as set out in Table 9 above where a notification is to be sent to Qualified Bidders on Friday 24 August 2012, the earliest start date for the Main Stage would therefore be Friday 7 September 2012.

3.3 Application Stage

- 3.15 The Award Process begins on the day on which ComReg publishes the Information Memorandum, namely **25 May 2012**.⁶⁴
- 3.16 Following the publication of the Information Memorandum ComReg will provide a presentation of the details of the Award Process and of the Auction Rules. As set out in Table [3] above, this presentation is scheduled for Friday 8 June. Further details will be published on ComReg's website regarding the logistics for this presentation.
- 3.17 As set out in Table 9 above, the deadline date⁶⁵ for all Interested Parties to submit their Applications to participate in the Award Process, together with the required monetary Deposit (the "Application Date") is **20 July 2012**. This deadline date is approximately 8 weeks following the date of publication of the Information Memorandum.
- 3.18 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.
- 3.19 As part of their Applications and in order to be eligible to Bid for spectrum in this Award Process, all Interested Parties must submit:
- a completed Application Form;⁶⁶
 - a cleared monetary Deposit; and
 - any other documentation required to be annexed to the Application Form.
- 3.20 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.

⁶⁴ Table [3] sets out the timeline associated with this Award Process. If the Application Date in this Information Memorandum and that published on ComReg's website differ, the Application Date published on ComReg's website takes precedence.

⁶⁵ ComReg is under no obligation to consider Applications that have not been submitted in full by this Application Date.

⁶⁶ See Annex 5.

3.3.1 Questions

- 3.21 ComReg will allow questions to be submitted to it by Interested Parties to facilitate clarity and understanding of the Award Process and Auction Rules (see also section 5.2.5 on errors). All questions received in due time will be replied to on an ongoing basis and as far as possible within 8 Working Days. The deadline date for the submission of questions is **16:00** hours (local time) on **22 June 2012**. ComReg anticipates publishing all questions and associated answers no later than **6 July 2012**.
- 3.22 As set out in Chapter 1, ComReg has engaged a reputable consultancy organisation to ensure that its confidentiality and security processes before, during and after the Auction are appropriate for this Award Process.
- 3.23 In that regard, and for this process, questions must be submitted in written, hardcopy format only and cannot be submitted in any electronic format. Questions should be delivered by hand or courier, to the ComReg offices and addressed as follows:
- Dr Samuel Ritchie**
Multi-Band Spectrum Award
Commission for Communications Regulation
Abbey Court, Irish Life Centre
Lower Abbey Street
Dublin 1
Ireland
- 3.24 Questions should be submitted in a sealed envelope. Participants control delivery of any submission and, for example, anonymity is in the control of the participant. Please ensure that the envelope does not contain any marks which could identify the originator. Interested Parties are required to identify themselves on the question sheet within the sealed envelope.
- 3.25 Receipt of questions will be acknowledged by ComReg.
- 3.26 ComReg will publish all questions together with their associated responses on an anonymous basis on its website.
- 3.27 ComReg reserves its right to, where appropriate, amend previous responses up until **6 July 2012**, such that answers provided before

this date are for general guidance only and should not be considered final or relied upon until **6 July 2012**.

3.3.2 Application Form and Supporting Documents

3.28 The Application Form can be found in Annex 5 and must be completed by the Applicant.

3.29 Part 1 of the Application Form Administrative Information, requests the Applicant to provide, among other things, details of person(s) to be used as the direct point of contact for an Applicant for purposes of the Award Process. In completing this part of the Application Form, the Applicant must also submit

- Appropriate evidence that the persons signing the Application Forms and the persons Bidding on behalf of Applicant (“Authorised Agents”) are duly authorised by the Applicant to do so. Appropriate evidence would include:
 - 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 Directive⁶⁷ (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;

3.30 Part 2 of the Application Form, the Applicant Declaration, requests the Applicant to agreeing to be bound by the Auction Rules as set out in this document including:

- the provisions regarding agreements with third parties;
- the Auction Rules relating to confidentiality;

⁶⁷ Directive 68/151/EEC.

- non-collusion for the duration of the Award Process;⁶⁸
 - in relation to Existing GSM Licensees, 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.
 - The Applicant Declaration must be signed by the Applicant.
- 3.31 Part 3 of the Application Form, the Lot Application Form, lists all of the ten Lot Categories, the number of Lots available within each Lot Category, the Reserve Price per Lot in each Lot Category, and the number of Eligibility Points per Lot in each Lot Category. These Lot Categories are set out in Table 7 and Table 8 above. Lot Categories 7, 8, 9 and 10 are only available to specific Interested Parties.⁶⁹ 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 the event that an Auction is subsequently conducted.
- 3.32 Applicants must also submit an Ownership Structure Document as part of their respective Applications. This document must provide 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.
- 3.33 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 specific Parties that are permitted to bid for Party-Specific Lots).
- 3.34 If a Application Form includes Lots that, if awarded, would exceed the relevant spectrum caps, or includes Lots that are within a Party-Specific Lot Category and are not available to the particular Applicant then ComReg may, at its discretion contact the particular Applicant and seek to resolve the issue by having the Applicant amend its Lot Application Form. If ComReg is unable to resolve the issue in this

⁶⁸ In addition to those rules under Irish and EU competition law.

⁶⁹ These are Lots for which Existing GSM Licensees 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 GSM Licences.

manner, ComReg shall reject the Application on the basis that it is invalid and shall notify the Applicant of its decision.

- 3.35 A completed, valid Application Form represents an unconditional offer to buy the number of Lots specified by the Applicant in its 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 require a Main Stage.
- 3.36 In addition, in submitting its Application Form, an Applicant agrees to be bound by terms and conditions associated with the Award Process as set out in this Information Memorandum, which amongst other things, include:
- its acknowledgement that the commencement date of Lots in the 800 MHz, 900 MHz and 1800 MHz Bands in Time Slice 1 and/or Time Slice 2 may be delayed as specified by ComReg;
 - to the extent permitted by law, its agreement that ComReg's aggregate liability for all losses or damages of any nature arising from delayed access to Lots in Time Slice 1 and/or Time Slice 2 is expressly limited to the refunds or adjustments of Licence fees as set out in subsection 2.2.6 of this Information Memorandum.
 - its agreement that if it becomes a Winning Bidder, then its failure to obtain consents, approvals, apparatus or funding necessary to deploy a network or complete transitional activities shall be deemed to be a breach of the Auction Rules by that Winning Bidder;
 - its agreement to participate in the Assignment Stage and to be bound by its outcome;
 - its agreement to participate in the development of the Transition Project Plan and to be bound by the Transitional Rules of the Award Process; and
 - its agreement to the amendment or surrender of its Existing GSM Licence rights of use in the relevant bands (the 900MHz and/or 1800MHz bands), if applicable, in accordance with the outcome of the Award Process (i.e. availing of the early liberalisation option).

3.3.3 Deposits

- 3.37 An Applicant must submit a monetary Deposit with its Application. The required amount of the Deposit shall correspond to the sum of the Reserve Prices of Lots requested by the Applicant in its Application Form.
- 3.38 The Applicant's Deposit must be transferred to the bank account nominated by ComReg as specified in Annex 5, and is to be received as cleared funds in ComReg's account,⁷⁰ before **23:59** (11.59 PM) on the final day that Applications are permitted, namely **20 July 2012**.
- 3.39 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.
- 3.40 ComReg will place all monies received from each Applicant into an NTMA⁷¹ "Exchequer Account". Interest will be paid by ComReg on funds held by it during the Award Process and Applicants will receive all interest accrued in this account.

3.3.4 Ownership Rules

- 3.41 Bidders are subject to the ownership rules described below in order to ensure 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.

⁷⁰ 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.

⁷¹ National Treasury Management Agency

3.42 Each Interested Party applying to take part in the Award Process is subject to ownership rules, which require that no entity in its Bidding Group is connected to or associated with any entity in another 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.

3.43 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 for a clearly defined portion of the Award Process

Bidding Groups

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

Connected Persons

3.45 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 in concert with another person or other persons Controls the Bidder;
- b) either by itself or in concert with another person or other persons has a direct or indirect Interest of 10% or more in the Bidder;
- c) is a partner¹ of the Bidder;
- d) either by itself or in concert 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;

¹ Within the meaning of the Partnership Act 1890 or equivalent legislation in the jurisdiction where the entity is formed.

- e) is Controlled by the Bidder alone or in concert 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 Bidder or any of its Controlled Persons.

Controlling Person

3.46 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 in concert with other persons has:
 - an Interest in 30% or more of the share capital of the Controlled Person;
 - 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;
- d) where the Controlling Person is capable of exercising decisive influence on the activity of the Controlled Person by means of:
 - securities, contracts or any other means, or any combination of securities, contracts or other means; and/or
 - ownership of, or the right to use all or part of, the assets of the “Controlled person”, and/or
 - rights or contracts which enable decisive influence to be exercised with regard to the composition, voting or decisions of the organs of the “Controlled Person”; and/or
 - without limitation by the foregoing, any other way
- e) In addition to the above, in determining whether influence of the kind referred to above is capable of being exercised by a “Controlling Person” over a “Controlled Person”,

regard shall be had to all the circumstances of the matter and not solely to the legal effect of any instrument

- 3.47 In the definitions of “Connected Person” and “Controlled Person” a person is “in concert” with another person circumstances where:
- a) one person Controls the other person; or
 - b) one person is Associated with the other person; or
 - c) there is an agreement or arrangement (whether or not legally binding) between those persons as to co-ordinated or concerted behaviour or activity by those persons (or either of them);
 - d) where, within the plain meaning of the expression “concerted”, the persons’ behaviour or activity is concerted.

Interest

- 3.48 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.
- 3.49 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 partner of the foregoing;
- f) any entity Controlled by any one or more of the foregoing and any partner of such entity.

Associated Bidders

3.50 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. 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

3.51 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.

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

Resolution of Bidder connections

3.53 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:

- apply for exemption from the rules on relations between Bidders;
- bring the relation to an end; or
- refrain from further participation in the Award Process.

- 3.54 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.
- 3.55 If one of the above-mentioned relations exists between two or more 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 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 both Bidders. However, the composition of the remaining Bidder and the content of its Application must remain unchanged, subject to ComReg's discretion to approve appropriate amendments.

Exemption from ownership rules

- 3.56 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 granting exemption from the ownership rules.
- 3.57 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, compliance with Section 4 of the Competition Act 2002 (as amended) and compliance with ComReg's statutory functions, objectives and duties generally. In doing so, ComReg will also ensure that competition in utilising the spectrum is promoted in order to give users the greatest possible benefits
- 3.58 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 established without undue delay to ComReg's satisfaction that:
- the Connection or the Association is temporary;
 - the Connection or the Association has not been established for the purposes of the Award Process;
 - 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

- 3.59 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.
- 3.60 In any event, the Bidder must notify ComReg of any changes whatsoever in the conditions on which its Application is based prior to the Application Date.

Joint bidding

- 3.61 A Bidding Group may be under the joint control of two or more persons. Persons wishing to Bid in consortium as a Bidding Group will be viewed as a single entity for the purposes of applying ownership rules (as detailed in subsection 3.3.4), rules on confidentiality and collusion (see subsection 3.3.5) and the Auction Rules 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.
- 3.62 The rules laid down in this subsection (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 regulatory authority.

Bidders subject to Restructuring

3.63 ComReg may, but does not guarantee to, permit an Applicant in a restructuring process to participate in the Auction subject to additional conditions to be set by ComReg on a case by case basis on receipt of the relevant disclosures. In the case of a company in examination under the Companies (Amendment) Act 1990 (“the Act of 1990”), ComReg envisages that conditions of the following form might be appropriate:

- ComReg is made a notice party to the proceedings or the Company undertakes to provide ComReg with copies of the petition papers, all reports of the examiner, all affidavits filed in the proceedings and all orders of the court in relation to the proceedings;
- the directors of the Bidder to certify that they have formed the view that it is in the best interests of the company and the creditors that the company bid in the auction;
- the examiner to provide a certificate or certificates to the effect that in his opinion, Bidding in the Auction is not likely to be to the detriment of the company or any interested party within the meaning of s7(5) of the Act of 1990 where the Bidding does not exceed a specified level, such certificate to be renewed at a new level if that becomes necessary in the course of the Auction;
- ComReg to have the right to make additional cash/deposit calls in respect of a company in a restructuring process over and above those made on other participants in the Auction; and
- ComReg to have the right, but not the obligation, to exclude the company from the auction should the court elect to decline to approve any scheme of arrangement and a receiver or a liquidator is appointed to the company.

3.3.5 Confidential Information and Bidder behaviour

3.64 This subsection sets out the rules (in addition to those rules under Irish and EU competition law) that govern the behaviour of Applicants from the time of submission of their Applications until the grant of

Licences.⁷² The Auction Rules require that any Applicant shall refrain from any action that could upset the running of the Award Process. The Auction Rules also set out 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 or connected to the Bidder.

- 3.65 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 has and will continue to comply with the Auction Rules and that it has taken all reasonable measures to ensure that its Connected Persons, employees and Insiders⁷³ have and will continue to at all times comply with these rules. 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 Applicant or Bidder, as appropriate, 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 Winning 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

- 3.66 **Confidential Information** means any information which, if known to another Bidder, may influence the amount that the Bidder is willing to Bid for Lots or the strategy it adopts in Bidding for such Lots in the Auction. Confidential Information shall include (but not necessarily be limited to) information as to a Bidder's business case, its pre-Auction activities, its Auction strategy, information as to the identity of a Bidder's Authorised Agents, or the Prices it is willing to Bid for spectrum in different bands or in different Time Slices. Confidential Information relating to individual Bidders shall also include:

⁷² Note that, in the case where a Bidder were to submit multiple Applications (where the last Application only would be considered by ComReg), the period from which the rules on Confidential Information would apply is from the submission of the first Application.

⁷³ See paragraph 3.68 for a definition of an Insider.

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

3.67 The rules regarding Confidential Information set out in this section shall apply from the date of first Application or the Application Date, whichever is the earlier, to the end of the Award Process. While Winning Bidders may wish to negotiate with other Winning Bidders during the Negotiation Phase of the Assignment Stage, confidentiality regarding the outcome of the Award Process must be maintained until ComReg makes a public announcement at the end of the Award Process as detailed in subsection 4.6

3.68 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, or it could be an auditor, consultant, lawyer, economic adviser, or other professional assisting in the preparation of a Bid. Each Bidder shall submit a list of its Insiders to ComReg, at the time of its Application, and it shall inform ComReg thereafter of every change to its list of Insiders.

3.69 Except in accordance with the Exemption from Insider Rules as discussed below, Bidding Groups and Insiders must not convey Confidential Information to any other person, including another Bidding Group or its Insiders, either by making public such information, or by communicating such information directly to another Bidding Group or its Insiders or indirectly through an intermediate source.

3.70 It is possible that at the Application Date 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 the Bidders concerned, indicating a deadline for them to apply for exemption from the rules on common Insiders;
- require the relationship of one or more of the Bidders with the common Insider to terminate insofar as the Award Process is concerned; or
- exclude the affected Bidders from further participation in the Award Process.

3.71 If the Bidders concerned are not granted an exemption by ComReg and/or they do not alter the common Insider situation to ComReg's satisfaction, then ComReg shall exclude the Bidders from further participation in the Award Process. If the relationship is brought to light later in the Award Process, ComReg may also declare the result of the Award Process as not binding, either in whole or in part, on ComReg.

3.72 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

3.73 ComReg may, in exceptional circumstances and at its sole discretion, grant exemption from the rules relating to common Insiders described above. ComReg may attach terms to any such exemption.

3.74 In considering whether to grant an exemption, ComReg will consider 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 the common Insider to the individuals acting for another Bidder.

3.75 In considering whether or not to grant an exemption, ComReg will require certain information from the Bidder, including (but not necessarily limited to) the following:

- 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 the different Bidders.

3.76 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

- 3.77 Save for the participation of Winning Bidders in the Negotiation Phase and in the preparation of a draft Transition Plan, all Bidders and Bidding Groups shall refrain from doing any of the following:
- disclosing any Confidential Information beyond the Bidder and its Connected Persons and Insiders;
 - disclosing 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 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.

The above requirements shall be binding upon all Applicants until ComReg has received the Upfront Fees and has publicly announced the final outcome of the Award Process.

- 3.78 Subject to ComReg's discretion to conclude otherwise, any merger or acquisition that may occur during the Award Process shall not be considered an act that could adversely affect the Award Process, provided that such a merger or acquisition would not result in a member of one Bidding Group also being a member of another Bidding Group.
- 3.79 Notwithstanding the provisions of the paragraphs above any member of a Bidding Group, or Insider may disclose Confidential Information to its employees, agents or other representatives, and vice versa, where this is necessary for the purposes of:
- determining the Bidder's participation and preparing for its participation in the Award Process, including its Bid 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 grant 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

- 3.80 A Bidding Group, or its Insiders may neither prior to the submission of an Application, nor after the submission of an Application and until ComReg publicly 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 which are subject to 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 which are subject to this Award Process.

3.81 A Bidder, its Connected Persons or Insiders may not either prior to or 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

3.82 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 for both Bidders or their Connected Persons, such that they are involved in the Award Process for one Bidding Group only;
- are not in possession of, do not obtain, or have knowledge of any Confidential Information concerning both Bidders or their respective Connected Persons or Insiders; and
- are involved in Bidding for one Bidder only or not at all.

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

3.84 A Bidder shall 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

- 3.85 As part of their Applications, Applicants agree to be bound by a series of possible administrative sanctions for infringement of the Auction Rules.
- 3.86 Interested Parties should note that certain breaches of the Auction Rules and other behaviours that Applicants and/or Bidders could engage in may entitle other Applicants and/or Bidders to seek redress under civil law and, moreover, may also constitute offences relating to, amongst other things, 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 on the 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.
- 3.87 In the event that an Applicant or 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. Specifically, the 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.
- 3.88 If a Bidder is excluded from the Award Process, then ComReg, at its discretion, may void some or all Bids made so far by the Bidder in question, in addition to preventing further Bids by 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 the event that ComReg considered it appropriate, all Bids and calculations made up to that point may remain valid and binding, although it reserves the right to make such alterations to the Auction as it considers appropriate at its discretion. In particular:
- if a Bidder were excluded during the Primary Bid Rounds, ComReg would typically expect to not re-run Primary Bid

Rounds already completed, although it reserves the right to do so;

- if a Bidder were excluded after the Main Stage of the Auction had been completed and results of the Main Stage had been made known to all Bidders, ComReg would not typically expect to re-run the Main Stage, although it reserves the right to do so; and
- if a bidder were excluded after the Main Stage of the Auction had been completed but results of the Main Stage had not been made known to all Bidders, ComReg would typically expect to re-calculate the outcome of the Main Stage excluding the Bids of the excluded Bidder.⁷⁴

3.89 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 Deposits paid by that Bidder during the Award Process. 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.

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

- submitting materially⁷⁵ false or misleading information to ComReg;
- failing to update ComReg, in a timely manner, in relation to any change to material information submitted within its Application or during the Award Process;
- 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;

⁷⁴ The issue of exclusion of a Bidder at the end of the Main Stage is addressed in subsection 4.4.

⁷⁵ 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.

- a Bidder or any member of its Bidding Group, or any Insider, disclosing Confidential Information to others during the period of restrictions on communications, other than in accordance with Exemption from Insider Rules as discussed above or as required for and during the Negotiation Stage;
- 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 participating in the Award Process in relation to more than one Bidding Group;
- a Bidder, its Connected Persons or Insiders canvasses directly or indirectly any member of ComReg or any person associated in any way with the Award Process; and
- any other breach of the Auction Rules contained in Chapters 3 and 4 or the agreement with ComReg described in Chapter 5.

In certain circumstances, ComReg may also suspend or withdraw a Winning Bidder's Licence(s) if, after grant of the Licence(s), it emerges that the Bidder, its Connected Persons or its Insiders breached the Auction Rules set out in Chapter 4 or the agreement with ComReg described in Chapter 5.

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

3.92 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 Act 2002, as

amended, or the Communications Regulation Acts 2002-2010 or the Specific Regulations.

3.3.6 Application procedure

3.93 In order to take part in the Award Process, Applicants must submit a completed Application Form on paper including an Ownership Structure Document and an electronic copy of same in an editable format on CD-ROM. ComReg will only accept applications during the week of **16 July 2012 to 20 July 2012** between **10.00 and 16.00 hours (Irish time)**. Applicants are required to make an appointment with ComReg to submit an application. To make an appointment to submit an Application, Applicants are required to contact **Dr Samuel Ritchie** on Working Days between **12 July 2012 and 19 July 2012**, and between 10.00 to 13:00 and 14:00 to 16.00 hours (Irish time) at:

Phone: 00 353 (0)1 804 9619

3.94 All applications will be date and time stamped. Applicants will be given a receipt acknowledging the submission of its application. Applications will not be opened until the closing date for receipt of applications has passed. Applications will be opened in the presence of an independent auditor.

3.95 An Application can be replaced at any time up to 16.00 Irish time on the last day for receipt of Applications on **20 July 2012**. In the event that an Applicant submits more than one Application prior to 16.00 on the Application Date, only the latest Application received from that Applicant will be taken into consideration.

3.96 On the submission of a second or subsequent Application prior to the deadline for submission of Applications, 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, any superseded Applications will not be returned until after the Qualification Stage of the Award Process.

3.97 No Applications will be opened by ComReg until after 16.00 hours (Irish time) on the closing date for receipt of applications.

3.98 The deadline for receipt of Deposits, as set out in subsection 3.3.2 will be 23:59 on the Application Date.

3.99 As noted at subsection 3.3.1 above, ComReg will allow questions to be submitted regarding the Award Process up until 16:00 hours (local time) on **22 June 2012**. Following that date, and onwards through to

the conclusion of the Grant & Notification 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 subsection 4.1.3 of this document (Communications with ComReg) 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

3.100 Once the Application Date has passed, ComReg will evaluate all Applications received within the specified time window on or before the Application Date, evaluate which Applications are valid⁷⁶ 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 Bidders.

3.101 Upon completion of its assessment of Applications, ComReg will inform:

- Each Applicant whether or not it has been approved by ComReg to become a Bidder;
- Each Bidder whether an Auction is required and, if so, whether a Main Stage of the Auction is required. The start date of the Main Stage of the Auction will be at least two weeks from this notification; and
- in the event that a Main Stage of the Auction is required, each Bidder of its Eligibility to submit further Bids for spectrum in the Award Process (i.e. its Initial Eligibility).

3.102 ComReg will not inform Bidders about the identity of other Bidders, or the Initial Eligibility to Bid of other Bidders. ComReg will not inform Bidders about unsuccessful Applicants who fail to become Bidders.

3.4.2 Assessment of Applications

3.103 If an Applicant fails to ensure that ComReg receives the Deposit in full associated with the Lots applied for in its Lot Application Form by

⁷⁶ Details of what constitutes a valid Application is set out in subsection 3.3.

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 Bidder and will thus not be eligible to participate in the Award Process. Alternatively, it may provide a short additional period of time for the Deposit to be topped up appropriately.

- 3.104 In the event that the Applicant does not become a Bidder by virtue of failing to make its Deposit in full, any incomplete Deposit that has been paid to ComReg will be returned soon after the end of the Qualification Stage in accordance with the timeline for the return of Deposits to unsuccessful Applicants as provided in Table 9 or as may have been extended by any grace period permitted by ComReg for the Deposit to be topped up.
- 3.105 If any aspect of an Application (other than the partial payment of a 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, requesting further information from the Applicant or deeming that Application invalid.
- 3.106 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.
- 3.107 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 Bidder. If, having determined that Applicant to be a 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 deadline 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 Bidder directly without providing opportunity for the Bidder to clarify or correct the information already provided.

- 3.108 In the case where an Applicant is declared unsuccessful in its Application on account of such deficiencies in its Application, its Deposit will be returned 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 in seeking to address such deficiencies. 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 until the grant of Licences by ComReg.
- 3.109 In the case where a Bidder's Application is considered incomplete, inaccurate, invalid or untrue retrospectively, its Deposit may or may not be returned, in whole or in part, depending on the nature and seriousness of the deficiency of its Application. In the case where at least a partial Deposit is to be returned, these funds will be returned within one week of the Bidder being informed that it is not eligible to take further part in the Award Process.
- 3.110 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 until such time that Licences have been granted.

3.4.3 Progress of the Award Process

- 3.111 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 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 possible cases, the Award Process will progress directly to the Notification & Grant Stage.

3.112 A Main Stage of the Auction is required if, for one or more of Lot Categories 1 to 6, the sum of Lots specified across all Bidders Lot Application Forms for that Lot Category exceeds the number of Lots available in that Category, i.e., if there is at least one Lot Category of Lot Categories 1 to 6 for which aggregate demand exceeds supply. Party-Specific Lot Categories will not be considered in determining the need for a Main Stage.

3.113 If a Main Stage of the Auction is required:

- all Lot Categories available for bidding on by all Bidders (Categories 1 to 6) will be included in the Main Stage of the Auction regardless of whether there was excess demand in the respective Lot Category at the Qualification Stage.
- Party-Specific Lot Categories (Categories 7 to 10) will be included in the Main Stage of the Auction if the relevant Applicant has become a Bidder, allowing it to Bid in the Main Stage of the Auction.
- 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 will be the sum of the Eligibility Points associated with the 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 specified on the relevant Bidder's Lot Application Form for a Price equal to the sum of the Reserve Prices of those Lots plus associated SUFs) will be considered as a Bid when determining the Winning Combination of Bids and associated Base 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 Lot Category plus one Price Increment. The level of the Price Increment applicable to Lot Categories 1 to 6 will be set based on the level of excess demand in that Lot Category (i.e. aggregate demand in a Lot Category less the number of Lots

available in that Lot Category), assessed based on demand expressed by Bidders at the Application Stage. The level of the Price Increment applicable to Part-Specific Lot Categories will be equal to Price Increment for the corresponding Lot Category (that is, the Lot Category with Lots in the same band in the same Time Slice) available to all Bidders. In the case where there is no excess demand in a Lot Category, no Price Increment shall be applied to Lots in that Lot Category (or the associated Party-Specific Lot Category where relevant) for the following round.

- 3.114 If the Main Stage is not required then each Bidder that has applied for Lots will automatically become a Winning Bidder, winning the Lots it applied to be awarded on its Lot Application Form.
- 3.115 At the end of the Main Stage, or if a Main Stage is not required, the Award Process will progress to the Assignment Stage.
- 3.116 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. The Assignment Stage will be run simultaneously but separately for Lots in each spectrum band and in each Time Slice in which there is such a conflict.
- 3.117 Following the resolution of any conflicts regarding the assignment of specific frequencies to Winning Bidders (and Existing GSM Licensees if applicable) via the Assignment Round, for each spectrum band the specific frequency ranges to be assigned to the Winning Bidders (and Existing GSM Licensees if applicable) in each Band and the Additional Prices to be paid for that band will be released to all Winning Bidders (and Existing GSM Licensees if applicable). This will then form the starting point for a Negotiation Phase in which Winning Bidders (and Existing GSM Licensees if applicable) will be given two weeks to agree an alternative configuration of assignments (if desired) and notify ComReg of any re-organisation of the band. For the avoidance of doubt, the two-week period for each of the 800MHz, 900MHz and 1800MHz bands will be run in parallel.
- 3.118 If, following the outcome of the Assignment Round, Winning Bidders (and Existing GSM Licensees if applicable) in a specific band negotiate and agree on an alternative assignment plan for that band within the time allowed for the Negotiation Phase, ComReg will

adopt this assignment plan for that band. If Winning Bidders (and Existing GSM Licensees if applicable) do not negotiate and notify ComReg of a re-organisation of a particular band, ComReg will assign the frequency assignments as determined by the Assignment Round. In any event, the Additional Prices determined as a result of the Assignment Round will be payable to ComReg.

- 3.119 As part of this Negotiation Phase, ComReg will permit two or more Winning Bidders (or Existing GSM Licensees if applicable) to agree to exchange equivalent assignments which they would otherwise have been allocated pursuant to the Assignment Round, providing that this is done without affecting others.
- 3.120 Following the completion of the Assignment Stage, ComReg will progress to the Notification and Grant Stage.
- 3.121 Once Applications have been submitted they constitute binding offers to purchase the Lots applied for on the Lot Application Form. However an Applicant may withdraw its Application on or before the deadline date of **Friday 17 August** as set in Table 9 without forfeiture or partial forfeiture of Deposits. 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 set of bids considered in the determination of Winning Bidders and Prices.

3.5 Main Stage

- 3.122 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 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.
- 3.123 In the Main Stage, certain Lot Categories will be Party-Specific and only available to Bid on by one specified Interested Party (assuming that this party participates in the Award Process). These Party-Specific Lots provide a mechanism by which Existing GSM Licensees with GSM Licences, which continue beyond the start date of Time Slice 1, can liberalise this spectrum to which their GSM Licences apply at a Price determined within the Auction.

3.5.1 Primary Bid Rounds and Supplementary Bids Round

- 3.124 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 Lot Categories for which a Bidder is eligible to Bid.
- 3.125 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.
- 3.126 The Supplementary Bids Round consists of a single round of bidding that follows the Primary Bid Rounds. Bidders may submit multiple Bids in this round. For each distinct package of Lots the Bidder submits a Bid for, it can specify a distinct monetary amount associated with that Bid. However, there are restrictions on the Bid Amounts that can be specified for these Bids that arise due to the Bids previously submitted during the Primary Bid Rounds. The restrictions on the monetary amounts associated with 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

- 3.127 All Bids received from Bidders are then considered together to determine the **Winning Bidders** in the Main Stage (see subsection 4.4.3), and the **Base Prices** to be paid by these Winning Bidders (see subsection 4.4.4). These comprise the initial Bids at Reserve Prices submitted via Lot Application Forms at the Application Stage, all Bids submitted in the Primary Bid Rounds and all Bids submitted in the Supplementary Bids Round.
- 3.128 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 restriction that the amount of any

Winning Bid that includes Lots in a Party-Specific Lot Category is sufficiently high that the Bidder would still win the same Lots 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 for these usage rights.

- 3.129 ComReg will determine the Base Price payable by each Winning Bidder in respect of its Winning Bid in the Main Stage. These Base Prices will be determined using an opportunity cost pricing methodology. In particular, each Winning Bid and, collectively, each and every group of Winning 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

- 3.130 All Winning Bidders in the Main Stage will receive a single block of contiguous frequencies in a band corresponding in size to the number of Lots won by them in that band in the Main Stage plus, in the case of GSM Licensees, any Party-Specific Lots for which it continues to hold a GSM Licence in Time Slice 1. These frequencies could potentially be different for the two Time Slices. However, in the event that a Winning Bidder obtains spectrum rights to an equal number of Lots in a band in each Time Slice,⁷⁷ only assignment options that relate to the same frequencies in Time Slice 1 and Time Slice 2 will be offered to that Winning Bidder in the Assignment Stage.
- 3.131 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, subject to the assignment rules as set out in subsection 4.5 of this document.

⁷⁷ This includes all Lots won in the Award Process and any Party-Specific Lots that the Winning Bidder continues to hold spectrum rights under its GSM Licence, if applicable.

3.6.1 Assignment Round

3.132 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 who continues to hold spectrum rights under its GSM Licence in the 900MHz and/or 1800MHz bands in Time Slice 1.

3.133 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 are compatible with:

- all Winning Bidders (or Existing GSM Licensees) in that band receiving contiguous frequency assignments (of a size determined by the number of Lots won in the Main Stage and, for Existing GSM Licensees in the 900MHz and 1800MHz bands, any spectrum Lots maintained pursuant to Existing GSM Licences); and
- presenting all Winning Bidders who obtain spectrum rights to an equal number of Lots⁷⁸ in a spectrum Band in Time Slice 1 and Time Slice 2, assignment options which maintain the same frequency assignments in that band for these Lots across both Time Slices; and
- with any unallocated spectrum forming a single contiguous block of frequencies.
- These assignment options will be determined separately for each Time Slice.

3.134 The Assignment Round consists of a single round of bidding in which Winning Bidders (and Existing GSM Licensees, where relevant) submit sealed Bids via the EAS for their preferred frequency assignments in each of the spectrum bands included in this Round. These Bids may be for a combination of frequency assignments across the two Time Slices in one band. However, as noted above, Bids are made separately for each band.

⁷⁸This includes all Lots won in the Award Process and any Party-Specific Lots that the Winning Bidder continues to hold spectrum rights under its GSM Licence, if applicable.

Winner and Additional Price determination

- 3.135 For each spectrum band included in the Assignment Round, there will be a separate determination of the winning Bids for specific frequency assignments in that band.
- 3.136 The Winning Combination of Bids in the Assignment Stage will be the combination of valid Bids submitted during the Assignment Round that has the highest total value of Bid Amounts, subject to limitations on assignment options described in subsection 4.5.8.
- 3.137 In respect of each winning Bid in the Assignment Round, ComReg will determine an amount which will be payable by the relevant Winning Bidders (and Existing GSM Licensee if applicable) according to an opportunity cost pricing rule (that is, Additional Prices). The key features of this rule are similar to those set out above in relation to determination of the Base Prices to be paid by Winning Bidders in the Main Stage.

3.6.2 Negotiation phase

- 3.138 Following the Assignment Round, Winning Bidders will be permitted a period of two weeks in which they can communicate with each other to negotiate a re-organisation of the band and notify ComReg of any revised frequency assignments.
- 3.139 In order to provide a starting point for the Negotiation Phase, following the completion of the Assignment Round, ComReg will notify the following information to each Winning Bidder (and Existing GSM Licensee if applicable) in each spectrum band:
- the identity of the Winning Bidders (and Existing GSM Licensee if applicable) in that spectrum band;
 - the specific frequency ranges each Winning Bidder (and Existing GSM Licensee if applicable) has been assigned in that band and each of the Time Slices in which a Bidder has won Lots in the Main Stage and/or retained GSM spectrum rights in Lots in Lot Categories 7, 8, 9 or 10 as appropriate; and
 - any Additional Prices to be paid by Winning Bidders (and Existing GSM Licensee if applicable) for specific frequency assignments in that band.
- 3.140 The purpose of this Negotiation Phase is to provide Winning Bidders (and Existing GSM Licensee if applicable) with an

opportunity to agree amongst themselves an alternative configuration of frequency assignments to facilitate contiguity of spectrum holdings, which will in turn encourages efficient use of the radio spectrum.

- 3.141 If Bidders (and Existing GSM Licensee if applicable) are able to successfully negotiate and agree on an alternative assignment plan for that band and notify ComReg within the two-week period, ComReg will adopt that frequency assignment plan for that band.
- 3.142 If Bidders (and Existing GSM Licensee if applicable) are unable to come to an alternative configuration of frequency assignments then ComReg will rely on the results from the Assignment Round.
- 3.143 To mitigate the possibility of perverse bidding incentives in the Assignment Round, Winning Bidders (and Existing GSM Licensee if applicable) will be required to pay the Additional Prices calculated as a result of Bids submitted in the Assignment Round, regardless of the outcome of the Negotiation Phase.
- 3.144 As part of this Negotiation Phase, ComReg will permit two or more Winning Bidders (and Existing GSM Licensee if applicable) to agree to exchange equivalent assignments which they would otherwise have been allocated pursuant to the Assignment Round, providing that this is done without affecting others.

3.7 Notification & Grant Stage

- 3.145 Once ComReg has determined the Base Prices 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 Specific Lots and Additional Prices to be paid for specific frequency assignments have been determined in the Assignment Stage, ComReg will notify each Bidder in writing whether or not it has been successful in acquiring Lots in the Award Process.
- 3.146 In the case of Bidders who do not win any Lots in the Award Process, ComReg will return the relevant amount of its Deposit to it (less any Deposit forfeiture imposed in accordance with the Auction Rules) within approximately two weeks of this notification.
- 3.147 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 3.150 and 3.152 below, including their obligation to pay the Upfront Fee.

- 3.148 The **Upfront Fee** to be paid by each Winning Bidder prior to a receipt of a Preparatory or Liberalised Use Licence will be the sum of its 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 date for the payment of the Upfront Fee (the “Payment Deadline”), and this date will be approximately two weeks after the release of the results of the Assignment Stage 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 Use Licence.
- 3.149 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 no later than **23.59** on the date of the **Payment Deadline**. If the amount of a Winning Bidder’s Upfront Fee, less any applicable Rebates is less than the amount of its Deposit, the relevant amount of its Deposit will be returned to this Winning Bidder by ComReg by the same date as the Payment Deadline (less any Deposit forfeiture imposed in accordance with the Auction Rules).
- 3.150 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 detailed in final draft form in Annex 2 and as described in section 2.3 of this Information Memorandum) and will among other things specify:
- the Lots to be included in the Licence and their expiry dates 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.
- 3.151 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.
- 3.152 In respect of a Liberalised Use 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 Use Licence (as detailed in final draft form in Annex 2 and Annex 3 and as described in section 2.2 of this Information Memorandum) and will among other things:

- specify the Lots to be included in the Licence in accordance with the Lots allocated to the Bidder in the Award Process;
- specify the expected commencement date of each Lot in the Liberalised Use Licence notwithstanding the possibility for the commencement date of a Liberalised Use Licence to be brought forward under the advanced commencement process or delayed beyond the expected start date of Time Slice 1;
- specify the expiry date of each Lot in the Liberalised Use Licence and the expiry date of the Liberalised Use Licence;
- note that the Winning Bidder is required to pay the Spectrum Usage Fee associated with the Liberalised Use Licence in advance of the issue of its Liberalised Use 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 Use Licence, notwithstanding the possibility for the commencement date of a Liberalised Use licence to be brought forward under the advanced commencement process or delayed beyond the expected start date of Time Slice 1;
- specify the information required by ComReg to populate Part 2 and Part 3 of the Liberalised Use Licence and state that the Winning Bidder is obliged to provide such information to ComReg in advance of the commencement date of its Liberalised Use Licence;
- note that where an Existing GSM Licensee has been allocated Lots in Lots Categories 7, 8, 9 or 10 in the Award Process, or has obtained a Liberalised Use Licence with an advanced commencement date, the Existing 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; and
- note that the Winning Bidder is required to comply with Transition Rules as set out in subsection 3.8 in order to be eligible for a Liberalised Use Licence.

3.153 Where the Winning Bidder has submitted the Upfront Fee by the Payment Deadline and complies with the conditions sets out in paragraph 3.152 above, ComReg will issue a Liberalised Use Licence to the Winning Bidder.

- 3.154 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 3.152 above, or the conditions relating to the Liberalised Use Licence as set out in paragraph 3.152 above, it will forfeit its Deposit and entitlements to a Liberalised Use Licence and a Preparatory Licence, without prejudice to ComReg's entitlement to recover the full amount due in respect of all Lots won as a simple contract debt.
- 3.155 Once a Liberalised Use Licence has been issued to a Winning Bidder, ComReg will publish on its website the text of the Liberalised Use Licence and subsequent amendments to same.

3.8 Transition Rules

- 3.156 In line with ComReg's Decision as set out in ComReg Document 12/25,⁷⁹ all Winning Bidders and Existing GSM Licensees are required to participate in the Assignment Stage of the Award Process and to abide by the Transition Rules as set out in this Information Memorandum.⁸⁰
- 3.157 Upon completion of the Assignment Round in the Assignment Stage, ComReg will notify the Winning Bidders and the Existing GSM Licensees where appropriate of the specific frequency assignments resulting from the Assignment Round and:
- will provide an opportunity to the Winning Bidders and the Existing GSM Licensees to engage in further negotiations to agree an alternative assignment round (see subsection 4.5.10); and
 - require the existing GSM Licensees to collectively formulate and submit a Transition Project Proposal to ComReg for the Transition activities in the 900MHz and 1800MHz bands prior to the commencement date of Time Slice 1.

⁷⁹ See paragraphs 3.4.6 and 3.4.18 of Decision 04/12 in Chapter 8 of ComReg Document 12/25.

⁸⁰ As discussed in subsection 4.5, if an Existing GSM Licensee or a Winning Bidder chooses not to participate in the Assignment Stage, the Existing GSM Licensee or Winning Bidder will be deemed to have made a nominal Bid of zero for all assignment options available to it and the location of the Liberalised Use or GSM spectrum rights associated with this GSM Licensee or Winning Bidder will be determined by process and procedures as set out in subsection 4.5.

3.158 The Transition Project Proposal should consider all Transition activities (i.e. both Relocation⁸¹ and Retuning⁸² activities, if necessary) and the deadline date for the submission of this proposal will be set as 4 weeks from the above notification, although ComReg reserves the right to choose a different deadline date particularly if retuning activities are necessary. The Transition Project Proposal is to be submitted to ComReg for its consideration (including the consideration of any of its agents or servants) and the consideration of other Winning Bidders in these bands.

3.159 ComReg envisages that this Transition Project Proposal should satisfactorily address at least the following matters:

- the identification of all Transition activities to be undertaken by the Existing GSM Licensees and the order of each activity in each band (or coordinated across both bands);
- the setting of milestone dates for each Transition activity identified. Unless otherwise indicated by ComReg⁸³ all Transition activities for both bands are to be completed by the commencement date of Time Slice 1, and the Transition Project Proposal will ensure same;
- where the Transition activities of one Existing GSM Licensee is dependent upon the Transition activities of another, this will be clearly identified in the Transition Project Proposal such that any consequential delays by 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 of its agents or servants), Existing GSM Licensees, Winning Bidders and other Interested Parties to monitor compliance with the Transition activity milestones and deliverable dates (subject to non-disclosure of properly confidential information); and

⁸¹ 'Relocation' refers to the situation where an Existing GSM Licensee obtains an equal amount or a greater amount of spectrum rights in the 900/1800 MHz band and has to relocate its network to this new spectrum location.

⁸² 'Retuning' refers to the situation where an Existing GSM Licensee obtains less or no spectrum in the 900/1800 MHz band and has to retune its network to a point within this new spectrum bandwidth.

⁸³ At the time that ComReg announces the results of the assignment round, it may review this deadline date.

- attribution and acceptance of liability for liquidated damages payable by the Existing GSM Licensee(s) to ComReg in the event of non-compliance by it/them with the Transition 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.

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

3.161 In the event that Existing GSM Licensees are unable or unwilling to submit a Transition Project Proposal by the stipulated time, ComReg will formulate and implement a Transition Project Plan, following appropriate consultation or discussion with Winning Bidders and Existing GSM Licensees. In any case, ComReg will take appropriate and effective measures to ensure that there is no undue delay in the availability of liberalised spectrum.

3.162 ComReg reserves the right to make a final and binding decision on any and all matters following appropriate consultation. In line with ComReg's Decision as set out in ComReg Document 12/25, all Winning Bidders and Existing GSM Licensees are required to abide by the Transition Project Plan.

3.163 Once the Transition 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 Transition Project Plan as appropriate.

3.8.1 Transition between Time Slice 1 and Time Slice 2

3.164 A similar Transition Project Plan and process may be adopted by ComReg for Time Slice 2 should it be possible that delays may be caused to be commence date of Lots in Time Slice 2, but to the Transition activities of Existing GSM Licensees or Winning Bidders of Lots in Time Slice 1. Depending upon the nature and extent of Transition activities required between Time Slice 1 and Time Slice 2, ComReg reserves the right to apply these 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.

3.165 If it is necessary to adopt such a Transition Project Plan and process, it will be based upon the Transition Rules as set down for the period between the award of liberalised licences and the commencement date of liberalised licences in Time Slice 1, with the exception that:

- the deadline for the completion of all Transition activities, for the second time slice is 12 July 2015; and in order to give them the fullest consideration the:
 - Transition Project Proposal related to Relocation activities are to be submitted by 12 July 2014 (one year in advance); and
 - Transition Project Proposal related to Retuning activities are to be submitted by 12 July 2013 (two years in advance).

3.8.2 Liquidated Damages

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

3.167 The total amount of liquidated damages payable by Existing GSM Licensees or Winning Bidders will be based on the refunds or adjustments 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 delays in the transitional activities of Existing GSM Licensees in these bands. Section 2.2.6 of this document contains details of the nature of refunds or adjustments payable by ComReg and shall be used by ComReg in pre-estimating the payable liquidated damages pursuant to the Transition Project Plan. These liquidated damages are payable immediately on request and are non-refundable.

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 Round 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.⁸⁴
- 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, Firefox or Chrome);
 - 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.

⁸⁴ See Table 9 for details of when Bidder Materials will be made available.

- 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 Bids to be made through other means. Procedures for the submission of Bids other than through the EAS are described in paragraph 4.19. It is in Bidders' 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** to rounds will be available to Bidders to allow them to submit Bids after the scheduled end of a round as notified by ComReg. The rules for these time extensions are explained in subsections 4.3 and 4.4. These time extensions are expected to allow Bidders the 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;
 - aggregate demand for each of Lot Categories 1 to 6 based on the Lots specified by Qualified Bidders on their Lot Application Forms;
 - the provisional Round Schedule for the first few days of the Auction (that is, the scheduled start time and end time of rounds assuming no extensions are exercised); 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. These Application Stage bids will appear in the 'History' functions of the EAS and the supplementary bids editor as bids made in Round 0.

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 (or Bids in the case of the Supplementary Bids Round) 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.⁸⁵ 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

⁸⁵ 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.

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 triggered (or, in the worst case, if a Bidder's extensions have 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 sufficient extensions 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 scheduled end time of the round in question 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 of difficulties in submitting a Bid in a round through the EAS after a round has already closed. Where notification of such difficulties 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 rules, 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 subsection 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 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 considered necessary by ComReg.

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, as described earlier. 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 separately, a total cap of 2×50 MHz of spectrum across all three bands (800 MHz, 900 MHz and 1800 MHz);
- For each Time Slice separately, a cap of 2×20 MHz of sub-1GHz spectrum (that is, spectrum in the 800 MHz band plus spectrum in the 900 MHz band); and
- For Time Slice 1 only, a cap of 2×10 MHz of spectrum in the 900 MHz band.

4.25 For the avoidance of doubt, any spectrum in the bands in respect of which an Existing GSM Licensee 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

4.26 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

4.27 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 light of this information.

4.28 The Main Stage determines the allocation of Lots in Lot Categories consisting of:

- the Lot Categories available to all Bidders in Categories 1 to 6; and
- what, if any, Lots to be awarded in respect of Party-Specific Lot Categories 7 to 10.

4.29 The Main Stage determines which Bidders will win these 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 current 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.

4.30 A Main Stage of the Auction will be required whenever there is excess demand for one or more of Lot Categories 1 to 6 given the specification of Lots made by Bidders on their Lot Application Forms. In the event that an Auction is required, the specification of Lots made by Bidders at the Application Stage will be treated as an initial Bid for this package of Lots at the relevant Reserve Prices.

4.31 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 for which they bid.

4.3.2 Primary Bid Rounds

4.32 During the Primary Bid Rounds, Round Prices for each Lot Category are announced by ComReg upon scheduling of a round. Round Prices for each of Lot Categories 1 to 6 are incremented from round to round to reflect excess demand in these Lot Categories. The Party-Specific Lots in Lot Categories 7 to 10 will have Round Prices equal to the Round Prices for equivalent Lots available to all Bidders:

- The Round Price of Lots in Lot Category 7 will be equal to the Round Price of Lots in Lot Category 3; and
- The Round Price of Lots in Lot Categories 8, 9 and 10 will be equal to the Round Price of Lots in Lot Category 5.

4.33 In each Primary Bid Round, a Bidder may bid for a single package of Lots, at a Bid Amount for that package 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).

4.34 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 Bid Rounds. These activity rules deter Bidders from only revealing their demand for Lots 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 have sufficient Eligibility to make further Bids in subsequent rounds.

4.35 Eligibility is calculated separately for the two Time Slices. It is not possible to transfer Eligibility across the two Time Slices. Where a Bidder submits a Bid in a round with associated Eligibility of less than its current Eligibility for a Time Slice, its Eligibility to bid for Lots in that Time Slice in subsequent rounds will be reduced.

4.36 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 increase activity in one Time Slice, as measured by

Eligibility Points, by decreasing activity in the other Time Slice in the same round under these activity rules.

- 4.37 Second, the rules incorporate specific features that (in certain circumstances) allow Bidders to make Bids that breach the normal condition that the Eligibility linked to a Bid should not exceed the Bidder's current Eligibility (in either Time Slice). Such Bids are termed **Relaxed Primary Bids (RPBs)**. For a Bidder to be able to bid for a package of Lots with associated Eligibility that is greater than the Bidder's current Eligibility, it is necessary for such a Bid to be consistent with the Bidder's relative preferences revealed by its previous bidding behaviour.⁸⁶
- 4.38 Relaxed Primary Bids provide an opportunity for Bidders to respond to the changing relative prices of Lots in different Lot Categories given a Bidder's revealed relative preferences.⁸⁷ 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 number of associated Eligibility Points than package *A*. The facility to make Relaxed Primary Bids means that the Bidder would be able to Bid again for package *A* if (and only if) in some later round package *B* became relatively expensive compared with package *A*.
- 4.39 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 **Chain Bid**.⁸⁸ Chain Bids are additional Bids on certain packages of Lots that have already been the subject of Bids submitted by the Bidder in earlier Primary Bid Rounds where eligibility was dropped. In some cases, Chain Bids may be required in order to make a Relaxed Primary Bid. These Chain 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.

⁸⁶ Strictly, this consistency is only required in respect of Bids made for packages of Lots submitted in Primary Bid Rounds where the Bidder dropped Eligibility.

⁸⁷ A worked example of the Activity Rules for the Primary Bid Rounds and caps on Supplementary Bids is set out in Annex 7 of this document.

⁸⁸ Note that in the draft Information Memorandum, Chain Bids were referred to as Binding Supplementary Bids. However, this terminology has been changed as it is inaccurate in its implication that Chain Bids become binding in the Supplementary Bids Round; Chain Bids are submitted and become binding simultaneous with the submission of the associated Relaxed Primary Bid during a Primary Bid Round.

- 4.40 The EAS will alert a Bidder during a Primary Bid Round where it has the option to bid for at least one package of Lots via a Relaxed Primary Bid. Where a Bidder were to select a Relaxed Primary Bid within the EAS during a Primary Bid Round, the EAS would display any associated Chain Bid(s) and the associated Bid Amounts that would need to be submitted alongside the Relaxed Primary Bid. In practice, there would typically be only a small number of such Chain Bids needed. Therefore, making a Relaxed Primary Bid simply requires the selection of the package of Lots by the Bidder; Bid Amounts for the Relaxed Primary Bid and any associated Chain Bids would be non-discretionary.
- 4.41 There is no necessity that a Bidder uses the facility to make Relaxed Primary Bids if they do not wish to do so. Relaxed Primary Bids are an entirely optional feature of the Auction Rules for Bidders.

4.3.3 Supplementary Bids Round

- 4.42 The Supplementary Bids Round 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 eligible to Bid in the first Primary Bid Round. Bid Amounts associated with Supplementary Bids are discretionary. However, there are caps and, in some cases, floors on the Bid Amount associated with any Supplementary Bids other than that for the package of Lots bid for by a Bidder in the final Primary Bid Round (the **Final Primary Package**). Both the caps and floors applicable in the case of Bids submitted in the Supplementary Bids Round are described below.
- 4.43 Bidders are not required to make any Bids during the Supplementary Bids Round if they do not wish to do so.

Floors on Supplementary Bids

- 4.44 Where a Bidder submits a Bid for a package of Lots in the Primary Bid Rounds, this represents a floor on the Bid Amount that the Bidder can submit for the same Package of Lots in the Supplementary Bids Round.
- 4.45 Where a Bidder submits multiple Bids for a package of Lots during the Primary Bid Rounds (for example, submitting a Bid for the same package of Lots in consecutive rounds), the floor for this package of

Lots in the Supplementary Bids Round will be the highest value Bid for that package of Lots submitted during the Primary Bid Rounds.

- 4.46 Therefore, Supplementary Bids can only increase the highest Bid made so far for a package of Lots (which might have been submitted as a standard Primary Bid, a Relaxed Primary Bid or a Chain Bid during the Primary Bid Rounds).
- 4.47 Where a Bidder has not submitted a Bid for a particular package of Lots during the Primary Bid Rounds, the floor on the Bid Amount that the Bidder may bid for that package of Lots during the Supplementary Bids Round will be equal to the sum of the Reserve Prices associated with the Lots included in the package.

Caps on Supplementary Bids

- 4.48 Provided that a Bidder bids for a non-zero package of Lots in the final Primary Bid Round, there is no cap on the Bid Amount that the Bidder can submit for its Final Primary Package during the Supplementary Bids Round. (If the Bidder has dropped out entirely before the end of the final Primary Bid Round, its Final Primary Package is a package of zero Lots with an associated Bid Amount of zero.) However, any other package of Lots other than the Final Primary Package is subject to two parallel systems of caps on Bids submitted during the Supplementary Bids Round: a **Final Price Cap** and a **Relative Cap**.
- 4.49 The **Final Price Cap** limits the Bid Amount of any Supplementary Bid for a package of Lots *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 Round Prices in the final Primary Bid Round (the **Revealed Value Differential**).⁸⁹ This cap applies to all packages of Lots other than the Final Primary Package.
- 4.50 If a Bidder submits a Bid for a package of Lots other than its Final Primary Package in the Supplementary Bids Round, then the additional value that its Bid expresses for any Lots additional to those in its Final Primary Package can be at most the value of those Lots at the final Round Prices. Consequences of the Final Price Cap are discussed in detail in Annex 9.
- 4.51 The **Relative Cap** limits the Bid Amount that a Bidder can submit during the Supplementary Bids Round for any package of Lots which

⁸⁹ Note that the concept of a Revealed Value Differential is inherent in the Relative Cap also.

the Bidder did not have sufficient Eligibility to bid for in the final Primary Bid Round.⁹⁰ This is intended to ensure that the preferences across different packages expressed by a Bidder's Bids submitted during the Supplementary Bids Round are consistent with the Bids that the Bidder submitted during the Primary Bid Rounds. This mechanism is intended to provide incentives for straightforward bidding during the Primary Bid Rounds.

- 4.52 The Relative Cap limits the Bid Amount of a Supplementary Bid for a package of Lots X relative to the highest Bid Amount submitted for the package of Lots (the **Constraining Package**) Bid on 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 (in at least one Time Slice) by bidding for the Constraining Package. The Bid Amount that the Bidder can subsequently submit for X in excess of the Bid Amount for the Constraining Package is limited to the Revealed Value Differential between these packages of Lots given the Round Prices in the Constraining Round.
- 4.53 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 associated Eligibility (in at least one Time Slice) that is strictly lower than E (and so has lower Eligibility in the following round), then the Bid made in that round for Y will determine the Relative Caps on all packages with Eligibility E (and indeed all packages for which this is the last round that the Bidder will have Eligibility to bid for them) All such packages will have package Y as their Constraining Package. However, if the Bidder does not drop Eligibility in either Time Slice, then no relative caps are created by its Bid in that Primary Bid Round.

4.3.4 Winner and price determination

- 4.54 The Winning Bids are selected from amongst all the Bids received in the Main Stage, including Bids for all packages of Lots submitted in the Primary Bid Rounds and all Bids submitted in the Supplementary Bids Round, plus the Bids for a single package of Lots at Reserve Prices submitted by each Bidder during the Application Stage. The selection of Winning Bids from this pool of Bids maximises the total

⁹⁰ 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.

value of Winning Bids, subject to accepting at most one Bid from each Bidder and ensuring that Winning Bids can be satisfied given the available spectrum. Further specific restrictions apply before Party-Specific Lots 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 a similar Lot available to all Bidders. This process of selecting the Winning Bids on the basis of optimisation is called **winner determination**.

- 4.55 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 specific Party will be disregarded and the Lot will be treated as if it were available to all Bidders. 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.
- 4.56 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 subsections 4.4.3 and 4.4.4 below.

4.4 Detailed Rules for the Main Stage

- 4.57 This section provides a detailed description of the rules applying to the Main Stage.⁹¹

4.4.1 Primary Bid Rounds

Schedule for Primary Bid Rounds

- 4.58 Primary Bid Rounds are scheduled at ComReg's discretion.
- 4.59 There is no minimum or maximum length for a Primary Bid Round. However, ComReg does not anticipate setting Primary Bid Round Schedules with an round duration of less than 30 minutes or greater

⁹¹ Interested Parties should note that ComReg reserves the right to make amendments to the Auction Rules after the finalisation of this Information Memorandum to correct any errors therein, or to further clarify matters, whether identified by ComReg, its consultants or Interested Parties, where such amendments are necessary or appropriate to ensure that the Auction Rules and the EAS operate in the manner intended by ComReg, as set out in the Information Memorandum. ComReg will promptly bring any such amendments to the attention of interested parties. Interested Parties are reminded that they are obliged to bring any errors to ComReg's attention promptly.

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, each Working Day prior to an Auction Day, ComReg would typically expect to issue a notice of its indicative plans with regard to the number of rounds of the Auction to be run the following Auction Day. However, this will be issued as guidance only. Due to the provisions for extensions of rounds and the potential for exceptional circumstances to arise, it is not possible to give a firm timetable giving the start time of each round well in advance. The actual start time of the next round will be notified after the completion of the preceding round in line with the notice requirements.

- 4.60 All Primary Bid Rounds will be scheduled to run between 10.00 and 16.00 Irish time on Working Days assuming that no extensions are triggered.
- 4.61 There is no upper bound on the number of Primary Bid Rounds that may be run in a day, (save those imposed by available time), although ComReg does not anticipate running more than eight Primary Bid Rounds in a single day.
- 4.62 There will be a minimum duration of 30 minutes between Primary Bid Rounds and Bidders will be notified of the Round Schedule for a Primary Bid Round through the EAS at least 15 minutes in advance of the scheduled start time of the round. Upon announcement of the start time of the next Primary Bid Round, each Bidder will also be informed about:
- the duration and end time of the Primary Bid Round assuming no extensions are exercised;
 - the Round Price for Lots in each Lot Category applicable during 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 in paragraph 4.111 *et seq.* below).
- 4.63 If no extensions are exercised, a Primary Bid Round will close at the scheduled round end time; the round will not be closed earlier than this, even if each Bidder has already submitted a Bid.

Bid submission

- 4.64 All Lots in Lot Categories 1 to 6 are available for all Bidders to Bid on in each Primary Bid Round (subject to the activity rules). All Lots in Lot Categories 7 to 10 are available for only one specific Bidder to Bid on.
- 4.65 During a Primary Bid Round, a Bidder may submit a Primary Bid for only one package of Lots given the activity rules. However, in the case of a Relaxed Primary Bid, this Bid may require that Chain Bids be submitted on one or more packages of Lots that have already been subject to a Primary Bid in an earlier Primary Bid Round. The necessary Chain Bids, with associated Bid Amounts equal to the minimum amount required to maintain the Relative Caps applicable to the package subject to the Relaxed Primary Bid, will be calculated by the EAS, and notified to the Bidder at the point where the Bidder checks a Relaxed Primary Bid for validity. These Chain Bids will be submitted simultaneous with the submission of the Relaxed Primary Bid. Therefore, even in this case, the Bidder need only identify a single package of Lots to submit a Bid for in a Primary Bid Round.
- 4.66 In all cases, during a Primary Bid Round, a 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 package of Lots 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 this subsection 4.4).
- 4.67 To enter a Bid in the EAS, a Bidder must select the number of Lots that it wishes to acquire in each Lot Category given Round Prices using the drop down boxes provided on the electronic Bid form in the EAS.
- 4.68 The monetary amount of a Bid, its **Bid Amount**, is determined as follows:
- for each Lot Category, the number of Lots in that Category included in the Bid multiplied by the relevant Round Price for that Lot Category; and
 - these values will be summed across all Lot Categories.
- 4.69 It is not possible for a Bidder to choose the Bid Amount associated with the Bid it submits during any Primary Bid Round.

- 4.70 Bid submission follows the two-step process described in subsection 4.1.3.
- 4.71 A Bid is a binding offer to buy a specified package of Lots for a price not exceeding the Bid Amount. Each Bid will only be considered in its entirety and will not be sub-divided.
- 4.72 During the Primary Bid Rounds, Bidders have the option to submit a Zero Bid, i.e. to bid for zero Lots in all of the available Lot Categories for a Bid Amount of zero. Following such a Bid, the Eligibility of a Bidder that has submitted a Zero Bid will be set to zero (for both Time Slices) in the following and all subsequent Primary Bid Rounds. When a bidder has zero Eligibility in both Time Slices, it is not possible to submit any further Primary Bids, including Relaxed Primary Bids. This does not prevent a Bidder from making subsequent Supplementary Bids in the Supplementary Bids Round.
- 4.73 If a Bidder fails to submit a Bid within the Round Schedule, or the Round Schedule extended by an extension period if that the Bidder has an extension remaining, the EAS will automatically enter a Zero Bid on the Bidder's behalf.

Activity rules for Primary Bids

- 4.74 The **activity** associated with a Bid for a package of Lots is determined independently for each Time Slice. In respect of a Time Slice, activity is determined as follows:
- a) for each Lot Category falling into the Time Slice considered, the number of Lots in that Lot 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.
- 4.75 The total Eligibility of a Bidder for the first Primary Bid Round, referred to as its Initial Eligibility, is set by the Lots specified on the Bidder's Application, as described in subsection 3.3, and subject to the receipt of the required Deposit.
- 4.76 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. These Relaxed Primary Bids are described in outline in subsection 4.3.2 and in detail in subsection 4.4.

- 4.77 For each subsequent Primary Bid Round, each Bidder's **Eligibility** in a Time Slice is equal to the smaller of
- the Bidder's Eligibility in that Time Slice in the previous Primary Bid Round; or
 - the Bidder's activity in that Time Slice in the previous Primary Bid Round.
- 4.78 Therefore, in the case that a Bidder submits a Relaxed Primary Bid that strictly exceeds its current Eligibility in one Time Slice, but its activity in the other Time Slice is strictly less than its current Eligibility in that Time Slice, its Eligibility in the former Time Slice will be maintained and its Eligibility in the latter Time Slice will be reduced.
- 4.79 Thus, over successive Primary Bid Rounds, a Bidder's Eligibility in a Time Slice can stay the same or fall, but can never increase.
- 4.80 The EAS will not allow any Bidder to submit a Bid which 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 directed to return to the Bid form to revise its selected Bid.
- 4.81 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.
- 4.82 Within a Time Slice, Bidders may switch Eligibility between different Lot Categories from one Primary Bid Round to the next. Therefore, 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. However, 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

- 4.83 In certain circumstances (defined in this subsection), a Bidder ('B') will be permitted to make a Bid whose associated activity exceeds its

current Eligibility in one or both Time Slices. This is called a Relaxed Primary Bid.

- 4.84 Relaxed Primary Bids are not permitted for packages that exceed B's Initial Eligibility in respect of either Time Slice. A Bid may only be made for a single package of Lots in a Primary Bid Round (subject to the need for making associated Chain Bids for other packages discussed below).
- 4.85 As with standard Primary Bids, a Relaxed Primary Bid must be for a Bid Amount equal to the price of the package of Lots at current Round Prices. B is not able to choose the Bid Amount associated with a Relaxed Primary Bid.
- 4.86 To make a Relaxed Primary Bid on some package of Lots X at the current Round Prices, Chain Bids may be required on one or more packages of Lots that B bid on in previous Primary Bid Rounds (as specified below).
- 4.87 Chain Bids may be required on the packages of Lots which were subject to Bids by B which were:
- a) submitted since the most recent Primary Bid Round in which B was eligible for package of Lots X ; and
 - b) submitted in a round in which the B reduced its Eligibility to Bid in one or both Time Slices.
- 4.88 Let Primary Bid Round M_1 be the most recent round in which B was eligible to bid for package X . A Chain Bid may be required on the Constraining Package Z_1 that was subject to a Bid in Primary Bid Round M_1 unless B has already made a Bid of a sufficiently large amount. The amount of the required Chain Bid for package of Lots Z_1 is equal to:
- a) The Bid Amount associated with the Relaxed Primary Bid for X (i.e. the price of package of Lots X at current Round Prices); minus
 - b) The difference in price between package of Lots X and package of Lots Z_1 at the Round Prices in Primary Bid Round M_1 .
- 4.89 Where B has previously made a Bid⁹² for package of Lots Z_1 in a previous Primary Bid Round at a Bid Amount that is at least this

⁹² This is irrespective of whether this is a previous Primary Bid, Relaxed Primary Bid or Chain Bid.

level, no Chain Bid for Z_1 is required in this round in support of Relaxed Primary Bid X.

- 4.90 If B is currently eligible to bid for package of Lots Z_1 defined above, then no other Chain Bids are required in order to submit a Bid for Relaxed Primary Bid X.
- 4.91 Conversely, if B is not currently eligible to bid for package of Lots Z_1 , let M_2 be the most recent Primary Bid Round in which B was eligible to bid for Z_1 . A Chain Bid may be required on the Constraining Package of Lots Z_2 that was subject to a Primary Bid in round M_2 , unless B has already made a Bid of a sufficiently large amount. The amount of this Chain Bid for package of Lots Z_2 is equal to:
- a) The amount of the Chain Bid for Z_1 (determined above) minus
 - b) The difference in price between Z_1 and Z_2 at the Round Prices in round M_2 .
- 4.92 Where B has previously made a Bid for package of Lots Z_2 in a previous Primary Bid Round at a Bid Amount of at least this level, no Chain Bid for Z_2 is required in this round.
- 4.93 If B is currently eligible to bid for package of Lots Z_2 defined above, then no further Chain Bids are required.
- 4.94 Conversely, if B is not currently eligible to bid for Z_2 then at least one further Chain Bid is required. The further Chain Bids required are defined sequentially in the same manner as follows.
- 4.95 Assume that B is not eligible to bid for a previously defined package of Lots Z_k subject to a required Chain Bid. Determine the most recent Primary Bid Round M_{k+1} in which B was eligible to bid for Z_k . A Chain Bid may be required on the package Z_{k+1} that was subject to a Primary Bid in round M_k . The amount of this Chain Bid for package Z_{k+1} is equal to:
- a) The amount of the Chain 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.
- 4.96 Where B 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.
- 4.97 If B is currently eligible to bid for Z_{k+1} then no further Chain Bids are required. Otherwise, repeat the procedure in the paragraph above.

- 4.98 For B to be permitted to make a Relaxed Primary Bid on the package X, it is necessary that none of the associated Chain Bids defined above exceed the price of the package subject to the Chain Bid at current Round Prices.
- 4.99 If one or more of the associated Chain Bids exceed the price of the package of Lots (in respect of which the Chain Bid which is to be made) at current Round Prices, 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 a Relaxed Primary Bid might be possible for that package in some later Primary Bid Round depending on the subsequent evolution of Round Prices.
- 4.100 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 Chain 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 Chain Bids will be entered by the EAS.
- 4.101 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

- 4.102 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 over the duration of the Licence. In respect of Bidders other than Winning Bidders this commitment remains in force until ComReg announces the conclusion of the Award Process as specified in paragraph 5.31 of this document and in respect of Winning Bidders this commitment remains in force in line with the terms and conditions as set out in document.
- 4.103 A Bid will remain valid for the duration of the Award Process unless it is replaced by a Bid for the same package of Lots by the same Bidder for a higher Bid Amount in a subsequent Primary Bid Round or in the Supplementary Bids Round, or it is voided by ComReg pursuant to the Auction Rules.

Round Prices

- 4.104 In all Primary Bid Rounds, the Round Price for each Party-Specific Lot Category will be set equal to the Round Prices of the corresponding Lot Category open to all Bidders in the same spectrum band and Time Slice. 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	Lot 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

- 4.105 In the first Primary Bid Round, the Round Price for each Lot Category open to all Bidders (Lot Categories 1 to 6) will be set equal to the Reserve Price for that Lot Category plus one price increment in the case where there is excess demand for a Lot Category given the specification of Lots made by Bidders on their respective Lot Application Forms. In subsequent Primary Bid Rounds, for each of Lot Categories 1 to 6, the Round Price will be increased if in the previous round there was excess demand for Lots in that Lot Category. The Round Prices for Lot Categories 7 to 10 will be determined by the Round Prices for matching categories 3 and 5 according to Table 10.
- 4.106 For each of Lot Categories 1 to 6, excess demand in that Category exists in a round if the number of Lots demanded by Bidders in that Lot Category in the round is greater than the number of Lots available in that Lot Category, taking into account all valid Bids.
- 4.107 For each of Lot Categories 1 to 6 in which there is no excess demand in a given round, the Round Price of Lots in that Lot Category in the following Round will remain unchanged.
- 4.108 For each of Lot Categories 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.

4.109 In any case, the Round Price for any Lot Category will not increase by more than 20% from one Primary Bid Round to the next. Round prices will be given in units of 1,000 euros.

4.110 For the avoidance of doubt, the Round Price of any Lot Category will not be reduced during the Primary Bid Rounds.

Extension rights

4.111 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 the Round Schedule of a Primary Bid Round, the round will automatically be extended for that particular Bidder, and one of its remaining extension rights will be 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 relevant round.

4.112 The extension period will end 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.

4.113 Bidders that have already submitted a Bid within the Round Schedule of the relevant round cannot take any further action during the extension period. Where one or more Bidders exercise an extension right, Bidders that have already submitted a Bid during the Round Schedule will be informed that the round has been extended and should wait for the announcement that the extension period has ended.

4.114 Bidders that have not submitted a Bid during a Primary Bid Round and have no extension rights remaining will not be able to submit a Bid during the extension period, and a Zero Bid will be entered automatically on their behalf.

4.115 Each Bidder starts the Primary Bid Rounds with two extension rights.

4.116 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 period between Round Schedules of consecutive Primary Bid Rounds. Additional extension rights will not be granted within the Round Schedule of a Primary Bid Round.

- 4.117 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.
- 4.118 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. However, where there is evidence to support the case of a Bidder or Bidders, ComReg has an overarching discretion to extend a round or to make other rulings in the event of significant technical difficulties.
- 4.119 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.
- 4.120 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

- 4.121 During the Primary Bid Rounds, ComReg may give notice to one or more Bidders that they need to increase their Deposits (a **Deposit Call**) to an amount specified by ComReg. Where a Bidder's Deposit falls below 50% of their highest Bid made so far in the Auction, ComReg reserves the right to require the Bidder to increase its deposit to at least 50% of its highest Bid. ComReg will specify a deadline not less than three Working Days from giving notice by which time the required funds must have been received as cleared funds in the bank account specified by ComReg during the Award Process (details of which are provided in Annex 5).

- 4.122 In the case of a Bidder that is in the course of a restructuring process ComReg reserves the right to make such Deposit Calls as it deems appropriate.
- 4.123 ComReg reserves the right to not schedule Primary Bid Rounds in the period between giving notice of a Deposit Call to one or more Bidders and the deadline for the receipt of funds or the actual receipt of cleared funds, whichever occurs earlier.
- 4.124 In the event that a Bidder fails to meet the Deposit Call 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

- 4.125 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, aggregate demand for lots in each of Lot Categories 1 to 6 and the Round Price for each Lot Category in the first Primary Bid Round. Information about the Initial Eligibility of other specific Bidders will not be provided.
- 4.126 At the end of a Primary Bid Round, ComReg will release to each Bidder information about:
- the aggregate demand for Lots in each of Lot Categories 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.
- 4.127 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.
- 4.128 At the end of the last Primary Bid Round and before the start of the Supplementary Bids Round, ComReg will provide information about the demand for 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.

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

End of the Primary Bid Rounds

- 4.131 The Primary Bid Rounds end following the end of a round 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.
- 4.132 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.
- 4.133 ComReg will only terminate the Primary Bid Rounds where there is still excess demand in at least one Lot Category 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 further Primary Bid Rounds.

4.4.2 The Supplementary Bids Round

Schedule for the Supplementary Bids Round

- 4.134 The Round Schedule and duration of the Supplementary Bids Round will be announced by ComReg following the completion of the Primary Bid Rounds.
- 4.135 There will be at least three clear Working Days between the last Primary Bid Round and the start of the Supplementary Bids Round.

4.136 ComReg has discretion over the Round Schedule and duration of the round. However, ComReg anticipates that the round will take place between 9.00 and 18.00 hours on a single Working Day, and last for at least 6 hours.

4.137 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 Bids Round is distinct from the extension rights available during the Primary Bid Rounds.

Bid submission

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

- the restriction that only the appropriate Bidder may bid on a Party-Specific Lot Category;
- the general provisions of the Spectrum Caps detailed in subsection 4.2; and
- no package having activity exceeding the Bidder's Initial Eligibility.

4.139 A Bidder may submit only one Bid form in the Supplementary Bids Round. However, this may contain many Bids for different packages of Lots. A Bid form may consist of Bids for up to 3,000 packages of Lots (including those packages on which Bids were submitted during the Primary Bid Rounds).

4.140 The Bid Amount associated with each Supplementary Bid is discretionary, (subject to the restrictions set out in this subsection 4.4.2 below). All Supplementary Bids must be in units of 1,000 euros.

4.141 Bid submission will follow the two-step process described in subsection 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 and any necessary revision must be completed within the time limits for the Supplementary Bids Round.

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

- 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;
- Determining minimum and maximum Bid Amounts for Supplementary Bids on specific packages of Lots based on the Bids entered so far into the EAS;
- Downloading a set of provisional Supplementary Bids from the EAS; and
- Uploading a set of provisional Supplementary Bids to the EAS.

4.143 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 and can be used to enter and check Supplementary Bids. However, these Supplementary Bids can only be submitted during Round Schedule of the Supplementary Bids Round itself (or within the associated extension where applicable).

Validity of Supplementary Bids

4.144 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 as specified in paragraph 5.31 of this document and in respect of Winning Bidders this commitment remains in force in line with the terms and conditions as set out in document.

4.145 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

4.146 Supplementary Bids may increase previous Bids or be for new packages

- 4.147 Bidders may submit at most one Supplementary Bid for any specific package of Lots. Any such Supplementary Bid on a package of Lots already subject to one or more Bids made during the Primary Rounds (regardless of whether these are standard Primary Bids, Relaxed Primary Bids or Chain Bids) must exceed the highest Bid Amount submitted by that Bidder for that package of Lots during the Primary Bid Rounds.
- 4.148 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 package of Lots.
- 4.149 All Supplementary Bids must be no less than the sum of the Reserve Prices associated with the component Lots within the package.

The Final Primary Package

- 4.150 There is no limit on the Supplementary Bid that may be made for the package of Lots bid for in the final Primary Bid Round, provided this package contains at least one Lot in some Lot Category (i.e. is not a Zero Bid). This package will be referred to as the **Final Primary Package**.
- 4.151 If the Bidder has ceased bidding for packages containing at least one Lot prior to the last Primary Bid Round, the final Primary Bid Round package is taken to be a Zero Bid (i.e. a Bid Amount of zero for no Lots in any category).

Final price cap relative to the Final Primary Package

- 4.152 All Supplementary Bids are subject to a **Final Price Cap** relative to the Bid submitted for the Final Primary Package.
- 4.153 Specifically, if F is the Final Primary Package, then, for any other package of Lots X , the Supplementary Bid for X may not exceed:
- the highest Bid for F (which may be a Primary Bid, Relaxed Primary Bid or a Supplementary Bid for this package of Lots (if one has been made)); plus
 - the difference in the price of X and F at the Round Prices prevailing in the final Primary Bid Round.

Relative caps

- 4.154 Relative caps apply to Supplementary Bids for any packages that the bidder has insufficient eligibility to bid for in the final Primary Bid

Round (i.e. packages whose eligibility in one or both Time Slices strictly exceeds the Eligibility of that Bidder in the final Primary Round)..

4.155 Specifically, the Supplementary Bid for any such package of Lots X with Eligibility is subject to a Relative Cap calculated as follows:

- Suppose that the Bidder was last eligible to bid for package of Lots X in round n (the Constraining Round);
- In round n , the Bidder's Primary Bid was for some package of Lots Y (the Constraining Package);
- the Supplementary Bid for X cannot exceed the Bid for Y (i.e. the Supplementary Bid for Y or the highest Bid in the Primary Bid Rounds if no Supplementary Bid was submitted for Y) plus the price difference between the price of X and Y at the Round Prices that prevailed in round n .

4.156 Notice that package of Lots Y above will itself be subject to a Relative Cap in respect of some other package of Lots, 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 of Lots X relative to the last Bid made for a package of Lots not exceeding the Bidder's Eligibility in the final Primary Round.

4.157 Notice also that together the Final Price Cap and the Relative Cap have the consequence of creating *absolute* maximum Bids on all Supplementary Bids for any Bidder who did not submit a bid for a package containing at least one Lot in the final Primary Bid Round. Such a Bidder would have a Zero Bid as its Final Primary Package. All other packages of Lots would have strictly larger Eligibility and so be subject to Relative Caps linking back eventually to a zero Final Primary Package whose Bid Amount was necessarily zero.

Final Primary Bid was a Relaxed Primary Bid

4.158 In the event that the Primary Bid submitted 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 a 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 of Lots that the Bidder had insufficient Eligibility to bid for in the final Primary Round.

- 4.159 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 the 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 package of Lots 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 highest Bid in the Primary Bid Rounds if no Supplementary Bid was submitted for Y) plus the price difference between the price of F and Y at the Round Prices in round n .
- 4.160 The effect of this rule is that those packages of Lots which were subject to Chain Bids at the time that the Relaxed Primary Bid was submitted become coupled to the Final Primary Package. Supplementary Bids for these packages of Lots and the Final Primary Package may need to be increased together in order to satisfy all the constraints. The EAS will identify the Chain Bids that need to be increased if the Bidder makes a Supplementary Bid for the Final Primary Package in such a case.
- 4.161 Examples of this situation are discussed in Annex 7, which includes a comprehensive worked example.

4.4.3 Winner Determination

- 4.162 Annex 8 provides a more formal mathematical description of the material in this subsection.
- 4.163 Following the end of the Supplementary Bids Round, ComReg will determine the combination of Winning Bids. This will determine the number of Lots won by Bidders. The specific frequencies assigned to Winning Bidders will be subsequently determined in the Assignment Stage.
- 4.164 In order to determine the Winning Bidders, all Bids submitted in the Award Process are considered. This will include as Bids the specification of Lots at Reserve Prices made on Bidders' Lot Application forms, the highest Bid submitted for packages of Lots bid for during the Primary Bid Rounds (whether during the Primary Bid Rounds or the Supplementary Bids Round) and Supplementary Bids for packages of Lots not bid for during the Primary Bid Rounds. It will also include a notional "Zero Bid" for each Bidder (i.e. a Bid Amount of zero for a package of no Lots), which represents the case of that

Bidder not being allocated any of the packages of Lots it bid for during the Award Process thus far.

Notional release scenarios

- 4.165 A notional release scenario is a specification of a number of Lots in each of Lot Categories 7 to 10 that does not exceed the number of Lots available in each respective Lot Category. A scenario includes the possibility of zero Lots being specified in one or more of these Lot Categories. These represent all the various possibilities for liberalising spectrum currently licensed to Existing GSM Licensees.
- 4.166 For each notional release scenario, there is a corresponding total number of Lots released in the 900 MHz and 1800 MHz bands for Time Slice 1. Table 10 gives the correspondence between Lot Categories 7 to 10 and the matching categories open to all Bidders that correspond to the same spectrum band and Time Slice. Therefore, the number of notionally released Lots in the 900MHz band is simply the number of Lots in Lot Category 7 specified by the scenario. The number of notionally released Lots in the 1800MHz band is the total number of Lots in Lot Categories 8, 9 and 10 specified by the scenario.
- 4.167 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 in the 900MHz band and three Lots in the 1800MHz band for Time Slice 1 being notionally released and available for allocation. Such an outcome can only occur if Existing GSM Licensees win back these notionally released Lots in open competition with other Bids made for spectrum in these bands in Time Slice 1. This requirement is imposed by the procedure described below.
- 4.168 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 in Lot Categories 1 to 6) plus the notionally released spectrum from Existing GSM 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 to 7 Lots in the 900 MHz band, and from 6

to 9 Lots in the 1800 MHz band 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 that 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 Lots within which it has spectrum licensed for GSM use in the 900 MHz band, so only Meteor's Bids containing two Lots of 900/1/MET are considered.
- c) To the set of compatible Bids, add a Zero Bid for each Bidder. (This creates the hypothetical possibility that the releaser of spectrum might not be re-awarded its released spectrum unless it has submitted a sufficient Bid 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 number of 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 at least one potentially winning combination in which every Bidder submitting 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 Lot 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).

4.169 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

- 4.170 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.
- 4.171 Given the Winning Scenario, if there is just one potential Winning Combination of Bids, this is the **Winning Combination**.
- 4.172 If there is more than one potential Winning Combination of Bids in the Winning Scenario, a combination will be selected that maximises the number of Bidders winning at least as many Lots in each Lot Category as in their respective Final Primary Packages. If there is more than one such combination meeting this criterion, the tie amongst such combinations will be broken at random. This will be the Winning Combination.

Partial liberalisation

- 4.173 In the event that some but not all of the Party-Specific Lots of a Bidder in the same Party-Specific Lot Category are within the Winning Combination of Bids, the Lot partially held shall be the first Lot to be relinquished in exchange for the right to use a 2 × 5 MHz Lot in the same band and Time Slice. For the avoidance of doubt where this partial liberalisation relates to:
- Party-Specific Lot Category 7, the first Lot to be relinquished will be that relating to 2 × 2.2 MHz of the Bidder's Existing GSM Licence; and
 - Party-Specific Lot Category 8, 9 or 10, the first Lot to be relinquished will be that relating to 2 × 4.4 MHz of the Bidder's Existing GSM Licence.
- 4.174 All further spectrum relinquished by Existing GSM Licensees will be in 2 × 5 MHz Lots.
- 4.175 Any Party-Specific Lots retained as part of the Existing GSM Licence will be required to comply with the technical co-existence rules as set down in EC Decision 2009/766/EC as amended and the GSM raster plan. This may require the Existing GSM Licensee to

relinquish one or two additional GSM channels of 2×200 kHz as the maximum amount of GSM channels that can be maintained in a 2×5 MHz Lot is:

- 24 GSM channels (i.e. 2×4.8 MHz) where no adjacent Lots are assigned to another Licensee; and
- 23 GSM channels (i.e. 2×4.6 MHz) where one adjacent Lot is assigned to another Licensee.

4.4.4 Base Price determination

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

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

4.178 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 a Party-Specific Lot pays a sufficient amount that there is not another Bidder (or Bidders) who would be prepared to pay more than the Existing GSM Licensee 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.

4.179 The procedure described above for determining Winning Bidders 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 upon hypothetically removing the Bids of a group of Bidders.

4.180 In particular, let $V_{re-opt}(I \setminus C)$ 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 removed from the determination of the Winning Combination.

4.181 In this re-optimisation, only scenarios that were original determined to be feasible and in which each of the excluded releasers (i.e. Bidders in C who notionally release spectrum in the Winning

Scenario) does not release more lots in each of the release category than it was allocated in the Winning Scenario are considered.

- 4.182 In each of these scenarios, the re-optimisation selects one winning bid for each of the included bidders $I \setminus C$ subject to the requirement that the winning packages can be satisfied from the notional supply in the scenario and that all releasers which are included in the re-optimisation and who release spectrum in that scenario win it back. All other bidders included in the re-optimisation are allocated one of their compatible bids for this scenario, which may be the zero bid in the re-optimisation. Lots assumed to be released by the excluded bidders in C are included in the notional supply. This procedure is described in detail in Annex 8.
- 4.183 The re-optimised value $V_{re-opt}(I \setminus C)$ is then determined as the maximum re-optimised sum of winning bids achieved by one of the scenarios considered in the re-optimisation.

- 4.184 The Base Prices that Winning Bidders pay must satisfy the constraints

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

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.

- 4.185 Subject to these constraints and the constraints that the Base Prices must be at least the Reserve Prices of the packages of Lots in the Winning Combination and below or equal to the Winning Bids, the sum of the Base Prices is minimised.
- 4.186 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

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

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.

- 4.187 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 the package of Lots allocated to that Bidder. Finally, if these Base Prices are not amounts in units of 1,000 euros, they are rounded up to the nearest 1,000 euros.

Deposit Calls following the Supplementary Bids Round

- 4.188 At the end of the Supplementary Bids Round, and prior to the notification to Bidders on the outcome of the Main Stage, ComReg may give notice to one or more Bidders that they need to increase their Deposits to an amount specified by ComReg.
- 4.189 ComReg reserves the right to issue a Deposit Call of up to 100% of a Bidder's highest Bid at this point.
- 4.190 If a Deposit Call is issued, ComReg will specify a deadline not less than three Working Days from giving notice by which time the required funds must have been received as cleared funds in the bank account specified by ComReg during the Award Process (details of which are provided in Annex 5).
- 4.191 ComReg will not notify the outcome of the Main Stage in the period between issuing notice of a Deposit Call to one or more Bidders and the deadline for the receipt of funds or the actual receipt of cleared funds, whichever occurs earlier.
- 4.192 In the event that ComReg issues a Deposit Call following the completion of the Main Stage of the Auction but before the results of the Main Stage have been announced to Bidders, and one or more Bidders do not provide their required funds by the deadline set by ComReg, ComReg reserves the right to fully exclude any such Bidder and re-run the Winner and Price Determination algorithm excluding all Bids submitted by any such Bidder during the Award Process.

End of the Main Stage

- 4.193 Once ComReg has determined the Winning Bids and the Base Prices, and any Deposit Calls where issued, have been fulfilled, the

outcome of the Main Stage will be announced to Bidders. The following information will be notified:

- The number of Lots won by each Bidder in each Lot Category will be released to all Bidders; and
- 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 at this stage.

4.5 The Assignment Stage

4.5.1 Overview

4.194 The purpose of the Assignment Stage is to determine the specific frequencies to be assigned to Winning Bidders in the Award Process⁹³ and any Existing GSM Licensees retaining their unliberalised GSM Licences in the 900 MHz and 1800 MHz bands in Time Slice 1. The frequency assignment will be determined separately for each spectrum band (800 MHz, 900 MHz and 1800 MHz). For each band, the determination of frequency assignments in both Time Slices will be made together and the outcomes will be constrained so that Bidders winning the same amount of spectrum in a band (including any Party-Specific Lots held under an Existing GSM Licence) in both Time Slices will obtain the same frequency assignments in each Time Slice.

4.195 The Assignment Stage will consist of:

- an Assignment Round which will provisionally determine the specific frequencies to be awarded to Winning Bidders (and Existing GSM Licensees if applicable) in each band in line with the packages of Lots allocated to these parties; and
- a Negotiation Phase which will allow a specific period for Winning Bidders (and Existing GSM Licensees if applicable) in each band to negotiate a re-organisation of the band using the provisional frequency plan resulting from the Assignment Round as a starting point.

4.196 During the Assignment Round, each Winning Bidder (and Existing GSM Licensee if applicable) may submit Bids for assignment options

⁹³ 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).

in each of the bands in which it has been allocated Lots (or, in respect of Time Slice 1, has an Existing GSM Licence which has not been liberalised within the Award Process) and which is included in the Assignment Round.

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

- 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:
 - There is at least one Winning Bidder of Lots in Lot Category 3 (900MHz Lots in Time Slice 1); or
 - 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:
 - There is at least one Winning Bidder of Lots in Lot Category 5 (1800MHz Lots in Time Slice 1); or
 - At least one Lot in any of the Party-Specific Lot Categories 8, 9 or 10 is won in the Main Stage (that is, any Party-Specific 1800MHz Lot in Time Slice 1); or
 - There is at least two Winning Bidders of Lots in Lot Category 6 (1800MHz Lots in Time Slice 2).

4.198 If a band is included in the Assignment Stage, assignment options for a Winning Bidder (and Existing GSM Licensee if applicable) will include all alternative blocks of contiguous frequencies equal to the number of Lots allocated to it in the Main Stage for the relevant Time Slice plus any spectrum retained by Existing GSM Licensees in the 900MHz or 1800MHz bands. Assignment options are subject to a number of specific constraints, detailed in subsections 4.5.4 and 4.5.5 below.

4.199 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

- 4.200 The Round Schedule 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).
- 4.201 Upon scheduling of the Assignment Round, the EAS⁹⁴ will display for each Bidder (and Existing GSM Licensee if applicable) its frequency assignment options within each spectrum band, given the constraints on assignment options detailed in subsections 4.5.4 and 4.5.5 below. These assignment options will be available for that Bidder (and Existing GSM Licensee if applicable) to submit Bids for during the Assignment Round.
- 4.202 There will be at least one clear Working Day between the Supplementary Bids Round and the Assignment Round.
- 4.203 ComReg has discretion over the Round Schedule and duration of the round. However, ComReg anticipates that this round will take place between 9.00 and 18.00 hours on a single Working Day, and last for at least 2 hours.
- 4.204 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 distinct from the extension rights in the Main Stage.

4.5.3 Frequencies assigned to Lots

- 4.205 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 2 × 5 MHz 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).

⁹⁴ Additionally, in exceptional circumstances, ComReg reserves the right to run the Assignment Round via other means (e.g. sealed envelopes).

4.206 Lots allocated in Lot Categories 3 and 4, and all Lots in Category 7 (whether retained unliberalised by the Existing GSM Licensee or allocated in the Award Process) will be assigned frequencies in the 900MHz band.⁹⁵ For each Winning Bidder (and Existing GSM Licensee if applicable), 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 2×5 MHz 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 Lots in Category 7, the number of 2×5 MHz Lots already held or partially held by it at the start of the Award Process, regardless of whether or not Lots in this Lot Category were allocated within the Award Process⁹⁶.

4.207 Lots allocated in Lot Categories 5 and 6, and all Lots in Categories 8, 9 and 10 (whether retained unliberalised by the Existing GSM Licensees or allocated in the Award Process) will be assigned frequencies in the 1800 MHz band. For each Winning Bidder (and Existing GSM Licensee if applicable), the amount of spectrum assigned in the 1800 MHz band in each Time Slice in the Assignment Stage will correspond to:

- a) the number of 2×5 MHz 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

⁹⁵ Where an Existing GSM Licensee retains some, but not all, of its spectrum rights in Lot Categories 7, 8, 9 or 10 (as appropriate), the number of GSM channels that can be maintained by the Existing 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 an Existing 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.

⁹⁶ Where the relevant GSM 900MHz Licensee does not win any Lots in Lot Category 7 in the Award Process, the spectrum entitlements of the GSM 900MHz Licence do not change i.e. it is entitled to use a spectrum bandwidth of 2×7.2 MHz in Time Slice 1 for GSM use only in line with its respective GSM Licence expiry dates. The location of this GSM licence in the 900MHz band is to be determined by the Assignment Stage 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.

- b) in the case of Lots in Categories 8, 9 and 10, the number of 2 × 5 MHz Lots already held or partially held by it at the start of the Award Process, regardless of whether or not Lots in these Lot Categories were allocated within the Award Process.⁹⁷

4.208 Frequencies available for assignment in the 800MHz band, 900MHz band and 1800MHz bands are described in subsection 2.1 above.

4.5.4 Assignment options

- 4.209 An **assignment option** is a specification of a frequency for each Time Slice corresponding in size to the number of Lots won (or spectrum retained unliberalised by an Existing GSM Licensee in the case of 900 MHz and 1800 MHz Lots) in that Time Slice and forming one contiguous block. An assignment option may specify different frequencies for the two Time Slices.
- 4.210 Assignment options within a band will be limited, so that the full assignment of spectrum to every Winning Bidder (and Existing GSM Licensee if applicable) to be assigned frequencies in that band will be contiguous. Each Winning Bidder (and Existing GSM Licensee if applicable) will only be able to Bid on assignment options that assign frequencies to the Lots it has been allocated in a contiguous block and which are compatible with other Winning Bidders (and Existing GSM Licensee if applicable) receiving the Lots they have been allocated in the same band in contiguous blocks.
- 4.211 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 (and Existing GSM Licensee if applicable) in that band and 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

⁹⁷ Where the relevant GSM 1800MHz Licensee does not win any Lots in Lot Categories 8, 9, or 10 in the Award Process (as appropriate), the spectrum entitlements of the relevant GSM 1800MHz Licence do not change i.e. it is entitled to use a spectrum bandwidth of 2 x 14.4MHz in Time Slice 1 for GSM use only in line with its respective GSM Licence expiry dates. The location of this GSM licence in the 1800MHz band is to be determined by the Assignment Stage 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.

restrictions on where the unassigned block of spectrum will be located within the band in that Time Slice.

4.212 If there is no need to include a spectrum band in the Assignment Round given the conditions as set out in paragraph [4.193] and there is only a single 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 and 4.5.5, will be either the lowermost or uppermost Lots available within the given band. No Additional Price will be due for the assignment of frequencies in this circumstance.

4.5.5 Constraints on assignment options in the Assignment Round

4.213 During the Assignment Round, Winning Bidders (and any Existing GSM Licensees that retained spectrum unliberalised in the 900 MHz or 1800 MHz bands) will be invited to submit Bids for specific assignment options as determined by ComReg.

4.214 For each of the spectrum bands included in the Assignment Round, ComReg will determine a set of assignment options available to each Winning Bidder (and Existing GSM Licensee if applicable). Specifically, for each Winning Bidder (and Existing GSM Licensee if applicable) 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 Lots in Lot Category 7 which have not been won in the Main Stage;
 - in the case of Meteor in the 1800 MHz band, any Lots in Lot Category 8 which have not been won in the Main Stage;
 - in the case of Telefónica O2 in the 1800 MHz band, any Lots in Lot Category 9 which have not been won in the Main Stage; and

- in the case of Vodafone in the 1800 MHz band, any Lots in Lot Category 10 which have not been won in the Main Stage.
- any option for assigning frequencies to a particular Winning Bidder (and Existing GSM Licensee if applicable) is consistent with all other Winning Bidders (and Existing GSM Licensees if applicable) that have been allocated Lots in the same spectrum band each receiving contiguous spectrum;
- assignment options for any Winning Bidders that have been allocated the same number of Lots in a band in both Time Slices (including any Party-Specific Lots retained under an Existing GSM Licence held by this Winning Bidder) will only contain spectrum assignments that are continuous across both Time Slices (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.

4.5.6 Bid Submission

4.215 Within the Round Schedule for the Assignment Round, participating Winning Bidders (and any Existing GSM Licensees in the 900MHz and 1800MHz bands who retain existing GSM-only usage rights 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.

4.216 For each Winning Bidder (and Existing GSM Licensee if applicable), its Bid form will provide a list of all assignment options available to it in each of the spectrum bands in which it is allocated Lots and for which further bidding is possible. Each Bidder may submit a Bid for every assignment option listed on their Bid form.

4.217 The Bid Amount associated with each assignment Bid is discretionary. Assignment Bids must be in multiples of whole euros.

The minimum Bid Amount for each assignment option is zero. There is no upper limit on the Bid amount for assignment options.⁹⁸

4.218 For each Winning Bidder (and Existing GSM Licensee if applicable), for assignment options for which no Bid is submitted, that Winning Bidder (and Existing GSM Licensee if applicable) will be deemed to have submitted a Bid of zero for all of such assignment options. If a Winning Bidder (and Existing GSM Licensee if applicable) fails to submit a Bid form during the Round Schedule for the Assignment Round (or during the associated extension), then it will be deemed to have submitted a Bid Amount of zero for every assignment option in every spectrum band for which it was eligible to Bid.

4.5.7 Validity of Bids in the Assignment Round

4.219 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 each specified assignment option that is less than or equal to the Bid Amount submitted for that assignment option.

4.220 A Bid submitted during the Assignment Round and identified as valid under paragraph 4.13 remains valid unless it is voided by ComReg (pursuant the Auction Rules).

4.5.8 Winner and Price Determination

Winner Determination

4.221 Following the end of the Assignment Round, ComReg will determine the winning Assignment Round Bids in each band based on Bids submitted by all Winning Bidders (and Existing GSM Licensees if applicable) during the Assignment Round plus Zero Bids for the assignment options of each Bidder (and Existing GSM Licensee if applicable) for which the Bidder (and Existing GSM Licensee if applicable) did not itself submit a Bid during the Assignment Round.

⁹⁸ Note that all Bidders eligible to participate in the Assignment Round are guaranteed to be allocated the amount of spectrum in each Lot Category that they were allocated in the Main Stage. Bids will affect which of the possible 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 band and Time Slice where they are eligible to make a Bid.

4.222 For each band, the winning Assignment Round Bids are the combination of valid Bids submitted during the Assignment Round of greatest total value amongst all valid Assignment Round Bids submitted, subject to the conditions that:

- exactly one Bid is accepted from each Bidder (and Existing GSM Licensee if applicable) in each band;
- each Bidder is assigned the same amount of spectrum in each band and in each Time Slice as they were allocated in the Main Stage plus any spectrum retained by Existing GSM Licensees for GSM-only usage in Lot Categories 7, 8, 9 or 10 as appropriate;
- each Bidder (and Existing GSM Licensee if applicable) receives contiguous frequencies within a band and Time Slice;
- the frequency ranges included in the winning Assignment Round Bids do not overlap;
- any winners of the same number of Lots in a band in both Time Slices (including any Party-Specific Lots retained under an Existing GSM Licence held by this Winning Bidder) receive a spectrum assignment that is continuous across both Time Slices; and
- for Lots in a given spectrum band, any unsold Lots are allocated as a contiguous block.

4.223 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.

4.224 Each Bidder (and Existing GSM Licensee if applicable) will have exactly one winning Assignment Round Bid in each spectrum band in which they have been allocated Lots in the Main Stage (or retained spectrum under an Existing GSM Licence). The winning Assignment Round Bid may be an automatically generated Zero Bid for an assignment option on which the Bidder has not submitted an Assignment Round Bid.

Additional Price Determination

4.225 In each spectrum band where there were two or more winning Assignment Round Bidders in at least one Time Slice in the Assignment Round, Additional Prices will be determined.

- 4.226 Additional Prices are determined in each spectrum band jointly for all winning Assignment Round Bidders in a single calculation. The procedure described above for determining winners in a spectrum band has an associated total value of winning Assignment Round Bids, W . For the purposes of defining the Additional Prices, it is necessary to re-evaluate the total value of winning Assignment Round Bids upon hypothetically removing the Assignment Round Bids of a group of Bidders.
- 4.227 In particular, let $W(I \setminus C)$ denote the re-evaluated sum of winning Assignment Round 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.
- 4.228 The Additional Prices that the winning Assignment Round 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 Round 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.

- 4.229 Subject to these constraints and that the Additional Prices must be non-negative, the sum of the Additional Prices is minimised.
- 4.230 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.

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

4.5.9 End of the Assignment Round

4.232 Once ComReg has determined the winning Assignment Round Bids and the Additional Prices, the outcome of the Assignment Round (that is, the provisional outcome of the Assignment Stage subject to the outcome of the Negotiation Phase) will be notified to Winning Bidders (and Existing GSM Licensee if applicable). The following information will be provided to the Winning Bidders (and Existing GSM Licensee if applicable) in each spectrum band:

- the identity of the Winning Bidders (and Existing GSM Licensee if applicable) in that spectrum band in the Assignment Round;
- the specific frequency ranges assigned in the Assignment Round to each Winning Bidder (and Existing GSM Licensee if applicable) 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 Lot Categories 7, 8, 9 or 10 as appropriate.
- Each Winning Bidder (and Existing GSM Licensee if applicable) in each band will be told the Additional Price that would apply to its own winning Assignment Round Bid and the winning Assignment Round Bid of all other Winning Bidders (and Existing GSM Licensees if applicable) in that band were the outcome of the Assignment Round to hold.

4.233 From this point, it is considered that the Negotiation Phase is in progress.

4.5.10 Negotiation Phase

4.234 Following the completion of the Assignment Round and the release of the provisional frequency assignment plan and associated Additional Prices to be paid, Winning Bidders (and Existing GSM Licensees if applicable) will be provided with the opportunity engage in further negotiations. Winning Bidders (and Existing GSM Licensees if applicable) will be allowed a two-week period in which they will have the opportunity to agree amongst themselves an

alternative configuration of assignments. This will allow Winning Bidders (and Existing GSM Licensees if applicable) a chance to negotiate a re-organisation of the band to facilitate contiguity of spectrum holdings that will encourage efficient use of spectrum won.

- 4.235 Winning-Bidders (and Existing GSM Licensees if applicable) will be permitted a period of two weeks following the end of the Assignment Round to negotiate a re-organisation of the band and notify ComReg of revised frequency assignments. If Bidders generate and agree on an alternative assignment plan for the band, ComReg will adopt this plan for that band. Otherwise, ComReg will progress to the Notification and Grant Stage based on the outcome of the Assignment Round.
- 4.236 Further as part of this Negotiation Phase, ComReg will allow two or more Winning Bidders (and Existing GSM Licensees if applicable) to 'swap' equivalent assignments which they would otherwise have been allocated pursuant to the Assignment Round, providing that this is agreed among these parties and does not affect the other parties. This would require only the consent of those parties swapping frequencies, which might not be all parties. Unaffected Winning Bidders (and Existing GSM Licensees if applicable) from the Assignment Round would have no power to block this negotiation outcome.
- 4.237 As a result of the Negotiation Phase, the Additional Prices payable by Winning Bidders (and Existing GSM Licensees if applicable) will be those Additional Prices determined by the Assignment Round.

4.5.11 End of the Assignment Stage

- 4.238 Once ComReg has determined the Winning Bids in the Assignment Stage and the Additional Prices, the outcome of the Assignment Stage (that is, the outcome of the Assignment Round or the outcome of the Negotiation Phase) will be notified to Bidders (and Existing GSM Licensees if applicable). The following information will be released:
- Each Bidder (and Existing GSM Licensees if applicable) will be informed about the specific frequency ranges assigned to each Bidder (and Existing GSM Licensees if applicable) in each of the bands and in each of the Time Slices in which it has won Lots in the Main Stage and/or retained GSM spectrum rights in Lot Categories 7, 8, 9 or 10 as appropriate.

- Each Winning Bidder (and Existing GSM Licensees if applicable) in each band will be informed about the Additional Price that will apply to its own winning Assignment Round Bid in that band. This information will not be released to other Bidders at this point in the process.

4.6 End of Auction

4.6.1 Closing of the Auction

4.239 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 notified to all Bidders and in tandem made public.

4.240 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 Time Slice 1, where applicable; and
- the Upfront Fee to be paid by each Winning Bidder, including a break-down of the Base Price and any Additional Prices for specific frequency assignments.

4.6.2 Upfront Fees

4.241 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 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 Information Memorandum is being made available by ComReg solely for the purposes of assisting prospective Bidders in deciding whether they wish to proceed to participate in the Award Process in accordance with the terms of this Information Memorandum 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, when using it for the stated purposes above, prospective Bidders are strictly subject to the terms and conditions set out in this Information Memorandum.
- 5.2 In this Information Memorandum an “**Interested Party**” shall have the meaning ascribed to this expression in the Glossary to this Information Memorandum.
- 5.3 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 the information, opinions or statements (or the basis on which they are premised) contained in this Information Memorandum or in any of the documents referred to herein;
 - ii. any omissions, errors or misstatements contained in this Information Memorandum or in any documents referred to herein;
 - iii. the software used to implement the Award Process’ electronic auction system; and
 - iv. 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.
- 5.4 To the extent permitted by law, any liability and/or loss of any nature arising from this Information Memorandum and its use by Interested Parties is expressly disclaimed.

- 5.5 Without prejudice to the foregoing and to the extent permitted by law, ComReg's aggregate liability for all losses or damages or any nature arising from delayed access to Lots in Time Slice 1 and/or Time Slice 2 is expressly limited to the refunds or adjustments of Licence Fees as set out in subsection 2.2.6 of this Information Memorandum.
- 5.6 To the extent permitted by law, Interested Parties shall not be entitled to rely on the contents of this 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 in subsection 5.2.6 of this chapter;
 - ii. they will be awarded any spectrum at the end of the Award Process;
 - iii. bidding in any particular manner will, of itself, guarantee success in the Award Process;
 - iv. ComReg will during the term of any licence 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
 - v. 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.
- 5.7 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.
- 5.8 In accessing this 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 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.
- 5.9 All dates in this 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.

- 5.10 Whilst the information in this 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 views. ComReg reserves the right to amend this Information Memorandum and any information or documents contained or referred to herein in accordance with paragraph 5.30 of this Chapter 5.
- 5.11 Nothing in this 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 save for ComReg's obligations to return deposits in certain circumstances. 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 their own cost in relation to the Award Process. The publication of this 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.
- 5.12 Any conflict of interest or potential conflict of interest – including but not limited to any conflict arising under the rules set out in sections 3.3.4 and 3.3.5 of this Information Memorandum - must be disclosed to ComReg by any Interested Party or by any prospective or actual Bidder 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.
- 5.13 This 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 12/25 and Decision D04/12.

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 Information Memorandum, this Information Memorandum shall take precedence.

- 5.14 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.
- 5.15 The legal and contractual obligations described in this Chapter of the Information Memorandum are imposed on Interested Parties who are furnished with or who download 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 (see subsection 3.3 and Annex 5).
- 5.16 This Information Memorandum and all matters arising out of or in connection with or in any way related to this 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

5.17 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 with the exception that an Applicant may withdraw its Application on or before the deadline date of **Friday 17 August** as set in Table 9 of Chapter 3. 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 Applicant declaration which forms part of the Application (see Annex 5); and
- iii. the Auction Rules and Transition Rules described in section 5.2.3 below.

5.18 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.

5.19 All Applications will be assessed in accordance with subsection 3.4 of this Information Memorandum.

5.20 For the avoidance of doubt, the contract described in this subsection 5.2.1 is in addition to and not in substitution for the contract described in paragraph 5.15 above, which binds all parties in receipt of this Information Memorandum to the provisions of this Chapter. In the event that an Applicant withdraws its Application on or before the deadline date of Friday 17 August, such Applicant will remain bound the contract described in paragraph 5.15.

5.2.2 Canvassing

5.21 Interested Parties must not canvass directly or indirectly any staff or the Commissioners of ComReg or any person associated in any way with the Award Process. Failure to comply with this requirement may

result in an Application being deemed invalid or disqualification from the Award Process. This does not restrict an Applicant from making any representations through the communications channels specified in this Information Memorandum.

5.2.3 Auction and Transition Rules / Collusion / Improper Influence

5.22 The Award Process and Auction Rules described in this Information Memorandum and its Annexes 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 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. For the avoidance of doubt, this publicity prohibition shall prevent Interested Parties and/or their agents from making any public statements or statements likely to be made public whatsoever concerning the Award Process and/or this Information Memorandum.
- 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 Interested Parties. 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 or the granting of related licence or licences at any time.

5.2.5 Errors

5.25 If Interested Parties discover any error or omission 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 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 functions, objectives and duties. ComReg reserves the right, for any reason whatever at its discretion:

- to reject Applications which do not comply with the Auction Rules;
- not to proceed with any part of the Award Process described in this Information Memorandum;
- not to provide an Interested Party with any additional information;
- not to implement any arrangement contemplated by this 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.

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. Save as otherwise expressly stated in this Information Memorandum, 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, 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 Information Memorandum is not (and will not be deemed to be) a waiver of that provision and does not prejudice 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 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 The conclusion of the Award Process as set out in subsection 4.6, shall be without prejudice to the accrued rights, and obligations of ComReg and Interested Parties pursuant to this Chapter 5. The provisions of this 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. :

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

Annex 1: Glossary

A1.1 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 final Draft Regulations 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 – 821 MHz paired with 832 – 862 MHz
900MHz band	The frequency range 880 – 915 MHz paired with 925 – 960 MHz
1800MHz band	The frequency range 1710 – 1785 MHz paired with 1805 – 1880 MHz

2100 MHz Band	1920 – 1980 MHz paired with 2110 – 2170 MHz, and 1900 – 1920 MHz
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.
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. A valid Application is a binding commitment to pay the sum of the Reserve Prices (and SUFs) for all Lots contained in the package of Lots specified on the Applicant's Lot Application Form.
Application Date	The date by which Interest Parties must submit an Application to participate in the Award Process together with the required monetary Deposit.
Application Form	The Application Form, as set out in Annex 5 of this Document, to be delivered as part of an Application consisting of: <ul style="list-style-type: none"> • Part 1: Administrative Information • Part 2: Applicant Declaration

	<ul style="list-style-type: none"> • Part 3: Lot Application Form • any supporting documentation required to be delivered including Ownership Structure
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 and including the Application Date.
Assignment Round	The single round of bidding in the Assignment Stage, scheduled simultaneously but run independently for each band, during which Winning Bidders (and Existing GSM Licensees if applicable) may submit one or more Bids to be assigned Specific Lots within the bands in which they have won Lots (or retain Lots for which they hold Existing GSM Licences).
Assignment Stage	The stage of the Auction where Winning Bidders (and Existing GSM Licensees if applicable) are allocated Specific Lots in accordance with the number of Lots they have been allocated.
Assignee	Assignee means a party to whom some or all of the rights and obligations under a Licence have been transferred
Assignor	Assignor means the party from whom some or all of the rights and obligations under a Licence have been transferred
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 (1 to 6) 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 Day	A day upon which the one or more rounds of the Auction are scheduled to run.

Auction Rules	Rules and procedures relating to the Auction, as presented in this Information Memorandum and its Annexes.
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 (the Bid 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 and associated Initial Deposit 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.
Bidder Materials	Information made available to Qualified Bidders to regarding the EAS

Chain Bid	A 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.
Communications Provider	A provider of electronic communications networks or services as those terms are defined in the Framework Regulations.
Confidential Information	Details of what may constitute Confidential Information for the purposes of this Award Process are provided 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.
Constraining Round	The Primary Bid Round associated with a particular Constraining Package.
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	<p>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.</p> <p>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.</p>

Deposit Call	A notice given by ComReg to one or more Bidders that they need to increase their Deposits to at least the amount specified by ComReg in its notice.
Draft Regulations	Means the Wireless Telegraphy “Liberalised Use and Preparatory Licences in the 800 MHz, 900 MHz and 1800 MHz bands” final draft Regulations as set out in Annex 2 of this document.
Drive Test Measurement	Measurements collected using a motor vehicle
Early Liberalisation Rebate	A rebate given to an Existing GSM Licensee if it is successful in winning spectrum rights of use in Time Slice 1 and as a consequence foregoes the remainder of its GSM licence in a given spectrum band, as detailed in Annex 4.
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	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 calculated for each time slice and is equal to: <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.
Eligibility Points	The numerical expression of a Bidder’s ability to make further Bids.
Excess Demand	Demand for Lots in any one of Lot Categories 1 to 6 that exceeds supply of Lots in that Lot Category.
Existing GSM Licence	A Licence relating to GSM-only rights of spectrum use in the 900MHz and/or 1800MHz bands in Time Slice 1.
Existing GSM	A holder of a Licence relating to GSM-only rights of spectrum use

Licensee	in the 900MHz and/or 1800MHz bands in Time Slice 1.
Existing Licence	A Licence currently held under a Wireless Telegraphy Regulation.
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 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 of Lots in question and the Final Primary Package at the Round Prices 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 Category	A Lot Category containing Lots that can be bid for by any Bidder.
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	A Licence issued under the Wireless Telegraphy (GSM Mobile Telephony Licence) (Amendment) Regulations 2003 (S.I. 339 of

Licence	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 an Existing 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 Application Form, submitted to ComReg at the Application Stage.
Indexation	The adjustment of prices for inflation. The index of inflation that will be used will be the Consumer Price Index as published by the Central Statistics Office.
Insider	Shall have the meaning ascribed to it in section 3.3.5
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 Licence (or a Liberalised Licence)	A Licence issued under Schedule 1 of the Regulations (as may be amended prior to enactment) in the 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 GSM 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).
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 number of Generic Lots allocated to different Bidders and the associated Prices in the case where there is excess demand for Lots in any of Lot Categories 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.
Minimum Price	The price per Lot in a Lot Category at the beginning of the Award Process. This price is the combination of the Reserve Price and SUF.
Negotiation Phase	The two week period allowed after the Assignment Stage where successful Bidders can attempt to agree alternative assignment for spectrum rights of use won in the Award Process.
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), and Licences are granted to Winning Bidders and Deposits are returned to Unsuccessful Bidders.
Package of Lots	<p>A selection of one or more 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 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>

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 Time Slice 1. Such Lots can only be Bid for by specific Existing GSM Licensees,. Where these Lots are won by their Existing GSM 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 Licensee will remain as GSM-only.
Payment Deadline	The last day upon which Winning Bidders can increase their Deposits to the level of their Upfront Fee in order to receive Liberalised Use Licences for the Lots assigned to them within the Award Process.
Preparatory Licence	A Licence issued under Schedule 2 of the Regulations (as may be amended prior to enactment) 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	In the case of Lot Categories 1 to 6, the increase of the price of Lots in a Lot Category from one round of the Auction to the next based on demand expressed for Lots in that Lot 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). 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 Lot Category available to all Bidders 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).
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 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.
Qualified Bidder	An Applicant who, following consideration of its Application by ComReg, has been informed, in accordance with subsection 3.4, that its Application is compliant and that it is entitled to participate in the Award Process.
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.
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 (the Constraining Package) at the Round Prices prevailing in the same Primary Bid Round (the Constraining 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. These conditions surrounding the submission of Relaxed Primary Bids and the associated bids they may require in order to preserve relative preferences are detailed in subsection 4.4.
Relocation	An Existing GSM Licensee relocating to a different spectrum assignment within a spectrum band compared to its existing spectrum assignment.
Relocation Rebate	A rebate given to an Existing GSM Licensee if it incurs a relocation cost as a result of the Assignment Stage that it would not have incurred otherwise, as detailed in Annex 4.

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.
Retuning	An Existing GSM Licensee reducing its existing spectrum assignments to a smaller assignment as a result of the Award Process.
Round Price	The Price per Lot of each Generic Lot within a specified Lot Category in a given round.
Round Schedule	The scheduled start and end time of a 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	Explicit maximum limits set on the amount of spectrum that any one Bidder can be awarded in the Award Process. These are: <ul style="list-style-type: none"> • 2 × 20 MHz of sub-1GHz spectrum in a Time Slice; • 2 × 50 MHz of spectrum in a Time Slice; and • 2 × 10 MHz of 900MHz spectrum in Time Slice 1.
Spectrum Usage Fees (SUFs)	Annual Fees which a successful Bidder must pay in respect of spectrum rights of use assigned in the Award Process.
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 (floor) and, in some cases, a maximum (cap), 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 Lots for a Bid Amount specified by the Bidder. The specified Bid Amount for each Supplementary Bid submitted in this round will be subject to a

	minimum (floor) and, in some cases, a maximum (cap), as set out in the activity rules for the Auction.
Time Slice	<p>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 (800 MHz, 900 MHz, 1800 MHz) are being allocated, and each Licence shall be in respect of one Time Slice:</p> <ul style="list-style-type: none"> • 1 February 2012 – 12 July 2015; and • 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).
Transition	Relocating or retuning of existing spectrum assignments
Transition Project Plan	A plan which outlines interim milestones for retuning and relocation activities for Existing GSM Licensees.
Transition Rules	Rules regarding transition, as set out in section 3.8 of this document
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 Price/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 Combination.
Winning Bidder	A Bidder that wins at least one Lot in the Award Process.
Winning Combination of Bids	The optimum allocation of Lots among Bidders.
Working Day	A day on which the clearing banks are open for business in Ireland.
Zero Bid	<p>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.</p> <p>A Zero Bid will be submitted automatically in the case that a Bidder fails to submit a Bid within the Round Schedule of a round, or within 30 minutes of the scheduled end time of a round where the Bidder had at least one extension right at the beginning of the round.</p>

A1.2 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

A1.3 Primary and Secondary Legislation

SI	Statutory Instrument
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2002 Act	The Communications Regulation Act 2002 (No. 20 of 2002), as amended ⁹⁹
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)

⁹⁹ Includes the Communications Regulation (Amendment) Act 2007 and the Communications Regulation (Premium Rate Services and Electronic Communications Infrastructure) Act 2010.

The Minister	Minister for Communications, Energy and Natural Resources
Specific Regulations	Specific Regulations has the same meaning as set out in Regulation 2 of Framework Regulations 2011 (S.I. No. 333 of 2011)

A1.4 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
BEM	Block Edge Mask
Combinatorial Clock Auction (CCA)	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.
CPI	Consumer Price Index
Ec/Io	The ratio of the received energy per chip to the Interference level
ECN	Electronic Communications Network as defined under the Framework Regulations
ECS	Electronic Communications Service as defined under the Framework Regulations
eircom Group	Eircom, Meteor Mobile Communications or Meteor
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
GDP	Gross Domestic Product
GHz	Gigahertz (1,000,000,000 Hertz)
GNI	Gross National Income
GNP	Gross National Product
GSM	Global System for Mobile Communications
Hertz	Unit of Frequency
H3GI	Hutchison 3G Ireland
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

SUF	Spectrum Usage Fee
Telefónica	Telefónica O2 Communications (Ireland) Ltd
UMTS	Universal Mobile Telecommunications System.
Vodafone	Vodafone Ireland Limited
WACC	Weighted Average Cost of Capital
WiMAX	Worldwide Interoperability for Microwave Access

Annex 2: Draft Regulations

STATUTORY INSTRUMENTS

S.I. No. of 2012

**WIRELESS TELEGRAPHY (LIBERALISED USE AND PREPARATORY
LICENCES IN THE 800 MHz, 900 MHz AND 1800 MHz BANDS)
REGULATIONS 2012**

S.I. No. of 2012

WIRELESS TELEGRAPHY (LIBERALISED USE AND PREPARATORY LICENCES IN THE 800 MHZ, 900 MHZ AND 1800 MHZ BANDS) REGULATIONS 2012

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 6 (as substituted by section 182 of the Broadcasting Act 2009 (No. 18 of 2009)) of the Wireless Telegraphy Act 1926, (No. 45 of 1926) and with the consent of the Minister for Communications, Energy and Natural Resources, pursuant to section 37 of the Communications Regulation Act 2002 (No. 20 of 2002), hereby makes the following regulations:

Citation

These Regulations may be cited as the Wireless Telegraphy (Liberalised Use and Preparatory Licences in the 800 MHz, 900 MHz and 1800 MHz bands) Regulations, 2012.

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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 to 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 Wireless Telegraphy Act 1926 (No. 45 of 1926);

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

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

“Additional Price” has the meaning 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 one or more of the 800 MHz, the 900 MHz and the 1800 MHz bands;

“Assignee” means a party to whom some or all of the rights and obligations under a Licence have been transferred;

“Assignor” means the party from whom some or all of the rights and obligations under a Licence have been transferred;

“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;

“Auction Rules” means the rules and procedures relating to the Auction as set out in the Information Memorandum;

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

- “Base Price” has the meaning set out in the Information Memorandum;
- “Bidder” has the meaning set out in the Information Memorandum;
- “Commission” means the Commission for Communications Regulation;
- “CPI” means the Consumer Price Index as published from time to time by the Central Statistics Office or its successor;
- “CPI Adjustment” means a negative or positive adjustment of the SUF, calculated using the CPI according to the methodology 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 meanings assigned to them in the Framework Regulations;
- “EURIBOR” means the Euro Interbank Offered Rate;
- “Framework Regulations” means European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 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 25 May 2012 and set out in the Commission’s Document numbered 12/52 for the purposes of outlining in detail the processes and procedures the Commission would follow in running the Auction;

“Liberalised Use Licence” means a Non-exclusive 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;

“Non-exclusive”, in relation to a Licence, means that the Commission is not precluded from authorising the keeping and possession by other persons of other apparatus for wireless telegraphy on a Non-Interference and Non-Protected Basis in one or more of the 800 MHz, the 900 MHz and the 1800 MHz bands;

“Non-Interference and Non-Protected Basis” means that the use is subject to no harmful interference being caused to any Radiocommunication Service, and on which no claim may be made for the protection of apparatus used on this basis against harmful interference originating from Radiocommunication

Services;

“Preparatory Licence” means a Non-exclusive 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 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 its parameters, by means of the propagation properties of radio waves and used for the purposes of navigation, including obstruction warning;

“Reserve Price” means the relevant price as detailed in Table 1 of Schedule 3;

“Spectrum Block” means a 5 MHz paired block of spectrum in any of the 800 MHz, 900 MHz or 1800 MHz bands, respectively;

“Spectrum Usage Fee” or “SUF” has the meaning set out in the Information Memorandum;

“Time Slice 1” means the time period commencing on 1 February 2013 and ending on 12 July 2015 or on such other date or dates as may be specified by the Commission under Regulation 5 of these Regulations;

“Time Slice 2” means the time period commencing on 13 July 2015 and ending on 12 July 2030, or on such other date or dates as may be specified by the Commission under Regulation 5 of these Regulations;

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

“Upfront Fee” has the meaning set out in the Information Memorandum;

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

“Working Day” means a day which is not a Saturday or Sunday or a public holiday.

- (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 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) Liberalised Use Licences, and
- (b) Preparatory Licences,

in the form of the respective Licences set out in Schedules 1 and 2 to these Regulations.

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Application for the Grant and Form of Licences

4. (1) Application for the grant of any Licence to which these Regulations apply shall be made by a Winning Bidder 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) 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 the Licence concerned to the person.
- (3) The Commission may grant a Liberalised Use Licence or a Preparatory Licence to which these Regulations apply following payment by the applicant of the relevant fees prescribed in Regulation 8.
- (4) A Liberalised Use Licence to which these Regulations apply shall be in the form specified in Schedule 1, 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, 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 of Licences

5. (1) The commencement date of a Preparatory Licence to which these Regulations apply shall be set by the Commission and specified in the Preparatory Licence. Unless it has been withdrawn or had its duration amended under Regulation 7(2) and in accordance with the Authorisation Regulations, a Preparatory Licence to which these Regulations apply, shall in any event expire on such date as may be determined by the Commission and as specified in the Preparatory Licence.
- (2) (a) The commencement date of a Liberalised Use Licence to which these Regulations apply shall be specified in the Liberalised Use Licence, and, in respect of:
- (i) Time Slice 1, shall be 1 February, 2013 or such other date as may be specified by the Commission; and
 - (ii) Time Slice 2, shall be 13 July, 2015 or such other date as may be specified by the Commission.
- (b) A Liberalised Use Licence to which these Regulations apply, unless it has been withdrawn or had its duration amended under Regulation 7(2) and in accordance with the Authorisation Regulations, shall in any event expire:
- (i) in the case of Time Slice 1 on 12 July 2015 or such other date as may be specified by the Commission; and
 - (ii) in the case of Time Slice 2 on 12 July 2030.

Conditions of Licences

6. It shall be a condition of any Licence to which these Regulations apply, that the Licensee shall:
- (1) ensure that it complies with the conditions contained within the Licence concerned and these Regulations;
 - (2) ensure that any 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 worked or used on such radio frequency spectrum:
 - (a) as specified in the Liberalised Use Licence; or
 - (b) to which the Licensee has a right of use for radio frequencies pursuant to an agreement entered into with a holder of a licence under the Act of 1926 in accordance with procedures specified by the Commission, if any, from time to time,or both;
 - (5) comply with any rules to prevent spectrum hoarding as may be laid down by the Commission under the Framework Regulations;
 - (6) ensure that it makes payment of the fees set out in Regulation 8;
 - (7) ensure that in each calendar year in which the Licence concerned is in force, and in any event on or before the anniversary of the Licence Commencement Date of each such year, it submits updated information to the Commission in respect of Parts 2 and 3 of its Liberalised Use Licence;
 - (8) furnish such information and reports 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, complies with Annex 1 of the EMC Directive;
 - (11) comply with any special conditions imposed under section 8 of the Act of 1972;
 - (12) (a) notify the Commission, not less than 6 months prior to the proposed cessation of use of any terrestrial system listed in Schedule 1 to which the Liberalised Use Licence relates and;
 - (b) use all reasonable endeavours, to ensure that any adverse effects on users from the cessation of use of a terrestrial system are minimised;
 - (13) upon becoming aware of any event likely to materially affect its ability to comply with these Regulations, or any conditions set out or referred to in any Licence, notify the Commission of that fact in writing within 5 Working 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) notify the Commission of its intention to transfer any rights of use for radio frequencies attaching to a Licence under paragraph 16;
 - (16) subject to paragraph 17, only transfer the rights of use for radio frequencies attaching to a Licence in accordance with procedures as may be specified by the Commission from time to time on the transfer of rights and obligations of a Wireless Telegraphy licence;
 - (17) where the Commission has not yet put in place procedures governing the transfer of rights of use for radio frequencies attaching to Licences, not, without the prior consent of the Commission, which shall not be unreasonably withheld, transfer any such rights of use attaching to a Licence;
 - (18) ensure that if the address of the Licensee or its Assignee changes, the Licensee or Assignee shall, as soon as possible, but in any event within 28 days, notify the Commission in writing of the change;

- (19) ensure that any Assignee enters into a valid binding agreement to comply with all obligations under both these Regulations and the Licences issued pursuant to these Regulations and to provide to the Assignor or Commission, as appropriate, such details as the Commission is entitled to require from a Licensee from time to time.

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Enforcement, Amendment, Withdrawal and Suspension

7. (1) Enforcement by the Commission of compliance by a Licensee with conditions attached to its Licence shall be in accordance with the Authorisation Regulations.
- (2) The Commission may amend any Licence from time to time in accordance with the Authorisation Regulations.
- (3) Without prejudice to paragraph (2), at the request of the Licensee, the Commission may, if it considers it appropriate to do so, amend a Licence by adding to, deleting from, or altering the radio frequencies 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 and these Regulations.
- (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 Licensee has breached the Auction Rules.

Licence Fees

8. (1) 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 or adjustments or refunds applicable to the Licensee, as identified in the Information Memorandum.
- (2) The Reserve Price per Spectrum Block, per Spectrum band and per Time Slice, is detailed in Table 1 of Schedule 3.
- (3) The Additional Price for a Liberalised Use Licence is determined using the pricing methodology set out in the Information Memorandum.
- (4) The Spectrum Usage Fee for a Liberalised Use Licence is the sum of the SUFs associated with each Spectrum Block in the Liberalised Use Licence as set out in paragraph 5.
- (5) The annual Spectrum Usage Fee payable shall be:
- (a) the sum of €1.08 million and the CPI Adjustment for each Spectrum Block in the 800 MHz band;
 - (b) the sum of €1.08 million and the CPI Adjustment for each Spectrum Block in the 900 MHz band;
 - (c) the sum of €0.54 million and the CPI Adjustment for each Spectrum Block in the 1800 MHz band; and
 - (d) in the case of a Spectrum Usage Fee, for a period of less than one year, the SUF for each Spectrum Block shall be the relevant sum as detailed in sub paragraphs (a), (b) and (c) , adjusted on a pro rata daily basis for such period.
- (6) Where the commencement date of the Liberalised Use Licence is delayed in Time Slice 1 or in Time Slice 2 due to circumstances as described in the Information Memorandum, a Licensee shall be entitled to an adjustment of the Licence Fees payable or a refund of Licence Fees already paid, as provided for in section 2.2.6 of the Information Memorandum.
- (7) The Upfront Fees specified in paragraphs, (2) and (3) of this Regulation less any rebates, adjustments or refunds applicable to the Licensee 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 day other than a Working Day, payment shall be made on or before the last Working Day before the date on which payment would otherwise have fallen due.

- (8) The Spectrum Usage Fees specified in paragraphs, (4) and (5) of this Regulation, less any rebates, adjustments or refunds applicable to the Licensee, shall be paid to the Commission prior to the grant of a Liberalised Use Licence or prior to the anniversary of the Licence Commencement Date of each respective calendar year within the duration 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 day other than a Working Day, payment shall be made on or before the last Working Day before the date on which payment would otherwise have fallen due.
- (9) 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.
- (10) If the amount of radio frequency spectrum specified in a Liberalised Use Licence is reduced under Regulation 7(3), the Licensee may be entitled to a refund of Spectrum Usage Fees already paid and a reduction on future SUFs on a pro-rata basis having regard to the nature of the amendment. The Licensee shall not be entitled to any refund of its Upfront Fee;
- (11) If the duration of a Liberalised Use Licence is reduced at the request of the Licensee, the Licensee may be entitled to a refund of Spectrum Usage Fees already paid, on a pro-rata basis having regard to the reduced duration. The Licensee shall not be entitled to any refund of its Upfront Fee;
- (12) The fee for a Preparatory Licence is €100.

- (13) Failure by a Licensee to make an Spectrum Usage Fee payment on or before the date it falls due under paragraph 8 of this Regulation constitutes non-compliance by the Licensee with these Regulations. The Commission, in addition to enforcement actions in accordance with Regulation 7 of these Regulations, may take steps to recover the fees due in accordance with paragraphs (14) and (15) of this Regulation.
- (14) Where payment of any fee is not made in due time, then the Licensee shall pay to the Commission interest on the fees or part thereof that is outstanding at the appropriate EURIBOR rate, between the date when such fee or part fell due and the date of payment of such fee or part.
- (15) 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.

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Licensee to satisfy all Legal Requirements

9. (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.

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SCHEDULE 1

WIRELESS TELEGRAPHY ACT, 1926**WIRELESS TELEGRAPHY (LIBERALISED AND PREPARATORY
LICENCES IN THE 800 MHZ, 900 MHZ AND 1800 MHZ BANDS)
REGULATIONS 2012****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 (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]:

Authorisation to keep and have possession of apparatus for wireless telegraphy for terrestrial systems capable of providing Electronic Communications Services as specified in Part 2 to this Licence, subject to such apparatus being installed, maintained, worked and used in accordance with 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, 2012 (S.I. No. [XX] of 2012) (“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 (the “Licence Commencement Date”) and, subject to revocation, suspension or withdrawal, expires on DD/MM/YY (the “Licence Expiry Date”).

Signed:

For and on behalf of the Commission for Communications Regulation

Official Stamp

Part 1

Commencement and Expiry dates per Spectrum Block

Authorised Band	Name of Spectrum Block	Uplink / Downlink Frequency Assigned to Spectrum Block	Commencement Date per Spectrum Block	Expiry Date per Spectrum Block
<i>800, 900 or 1800MHz as appropriate</i>	<i>Block A, B, C etc.</i>	<i>From XXXX MHz to YYYY MHz including Raster details if appropriate</i>	<i>DD Month 201X</i>	<i>DD Month 20XX</i>

Part 2

The Apparatus to which this Licence applies

Equipment Index Reference	Terrestrial System	Equipment Description	Manufacturer	Model

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Part 3

Apparatus Location and Details

(1) 800 MHz band

Location Index	Latitude and Longitude	Equipment at location	Maximum EIRP¹⁰⁰

(2) 900 MHz band

Location Index	Latitude and Longitude	Equipment at location	Maximum EIRP

(3) 1800 MHz band

Location Index	Latitude and Longitude	Equipment at location	Maximum EIRP

¹⁰⁰ EIRP is the Equivalent Isotropically Radiated Power

Part 4

Licence Conditions

As detailed in Annex 3 of the Information Memorandum

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SCHEDULE 2

WIRELESS TELEGRAPHY ACT, 1926**WIRELESS TELEGRAPHY (LIBERALISED AND PREPARATORY
LICENCES IN THE 800 MHZ, 900 MHZ AND 1800 MHZ BANDS)
REGULATIONS 2012****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 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 (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]:

Authorisation to keep and have possession of apparatus for wireless telegraphy for terrestrial systems capable of providing Electronic Communications Services as specified in Part 2 to this Licence, subject to such apparatus being installed and maintained in accordance with 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, 2012 (S.I. No. of 2012) (“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 (the “Licence Commencement Date”) and, subject to revocation, suspension or withdrawal, expires on DD/MM/YY (the “Licence Expiry Date”).

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.

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Part 2**Statement of Authorised Apparatus****To Include:**

Authorised Band	Name of Lot	Uplink / Downlink Frequency Assigned to Lot	Commencement Date of Lot	Expiry Date of Lot	Description of Apparatus
<i>800, 900 or 1800MHz as appropriate</i>	<i>Block A, B, C etc.</i>	<i>From XXXX MHz to YYYY MHz including Raster details if appropriate</i>	<i>DD Month 201X</i>	<i>DD Month 20XX</i>	

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SCHEDULE 3

Reserve price per Spectrum Block, per Spectrum band and per Time Slice**Table 1: Reserve price per Spectrum Block, per Spectrum band and per Time Slice**

Spectrum Band	Reserve Price per Spectrum Block in Time Slice 1	Reserve Price per Spectrum Block in Time Slice 2
800 MHz band	€2.55 million	€3.26 million
900 MHz band	€2.55 million	€3.26 million
1800 MHz band	€1.27 million	€1.13 million

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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 Wireless Telegraphy 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

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Annex 3: Part 4 of Schedule 1 to the Draft Regulations

Part 4 to Schedule 1 of the draft Regulations Licence Conditions

Section 1 General

1) The Frequency Bands

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

2) The Licensed Spectrum Blocks

“Licensed Spectrum Block(s)” means the Spectrum Blocks set out in Part 1 of the Licence.

3) The Terrestrial Systems and Services

“Terrestrial Systems” means 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 Section 1 –4 of this Schedule.

4) Provision of Maps and Data

For the purposes of carrying out coverage (see Section 3) and quality of service (see Section 4) compliance checks, the Licensee shall, on request, provide to the Commission the following:

- (a) Maps showing Coverage as defined in Section 3 of this Schedule;
- (b) An up-to-date list of the locations of the 'Base Station'¹⁰¹ transmitters;
- (c) An adequate number of test numbers.

Section 2: Technical Conditions

1) The 800 MHz band

1. The Frequency Division Duplex (FDD) method shall be used. Radio transmitters that use the 791 to 821 MHz frequency space shall transmit in a downlink direction (i.e. 'Base Station' transmitters). Radio transmitters that use the 832 to 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 Spectrum 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 a mean in block power of 59 dBm/5 MHz EIRP.¹⁰²
4. Outside of a Spectrum 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 below

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

¹⁰¹ Repeaters are also included as a Base Station for the purposes of this Licence.

¹⁰² 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 to 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/10 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

5. The Licensee shall comply with all Memoranda of Understanding (“MoU”) agreed from time to time between the Commission and the national regulatory authority responsible for communications matters in the UK, (“Ofcom”), or its successor, in relation to the 800 MHz band, including ComReg Document 12/47.¹⁰³

2) The 900 MHz and 1800 MHz bands

6. The Frequency Division Duplex (FDD) method shall be used.
7. In the 900 MHz band, radio transmitters that use the 925 to 960 MHz frequency space shall transmit in a downlink direction (i.e. ‘Base Station’ transmitters). Radio transmitters that use the 880 to 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 to 1880 MHz frequency space shall transmit in a downlink direction (i.e. ‘Base Station’ transmitters). Radio transmitters that use the 1710 to 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 system¹⁰⁴ 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 as amended by Decision 2011/251/EU.
11. The Licensee shall comply with all MoU agreed from time to time between the Commission and the Ofcom, or its successor, in relation to the 900 MHz and 1800 MHz band, including ComReg Documents 11/50c, d, e and f.¹⁰⁵

¹⁰³ <http://www.comreg.ie/fileupload/publications/ComReg1247.pdf>

¹⁰⁴ As defined in Decision 2009/766/EC as amended by Decision 2011/251/EU.

¹⁰⁵ <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> .

Section 3: Roll-out and Coverage Requirements

1) Minimum Coverage and Roll-out Requirement

In the case of an existing GSM or 3G licensee, which for the avoidance of doubt excludes MVNOs without GSM or 3G spectrum rights of use, being granted a Liberalised Use Licence?

The Licensee shall ensure the attainment of, and maintain, a coverage level of at least 70% of the population within 3 years of the Licence Commencement Date as set out in the Licence.

In the case of entity that does not have a GSM or 3G licence, which by definition includes MVNOs which do not have GSM or 3G spectrum rights of use, being granted a Liberalised Use Licence.

The Licensee shall ensure the attainment of, and maintain, a coverage level of at least 35% of the population within 3 years and 70% of the population within 7 years of the Licence Commencement Date as set out in the Licence.

2) Definition of Coverage

Where the Licensee has deployed more than one Terrestrial System in the 800 MHz, the 900 MHz and/or the 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.

Determining whether the Licensee has coverage shall be calculated as follows:

- For measurement purposes, an average pilot signal will be measured outdoors at a height of 1.5m;
- For propagation prediction systems a pilot signal over 95% of the area during 95% of the time is required;
- The coverage level specification per frequency band, per bandwidth and per Terrestrial System is set out in Table 5 below.
 - Where both a FS and an Ec/Io or BLER metric are specified in Table 5 for a particular Terrestrial System (i.e. UMTS and LTE), an area will be deemed to have coverage where the Ec/Io or BELR exceeds the levels as set out in Table 5, even if the Field Strength is less than the value shown in the Table 5.

- Where a FS metric is the only metric specified in Table 5 for a particular Terrestrial System (i.e. GSM), an area will be deemed to have coverage where the Field Strength in Table 5 below is met.

Table 5: The coverage level specification per frequency band, per bandwidth and per terrestrial system

Terrestrial Systems ¹⁰⁶ and bandwidth	800MHz FS (dB(μV/m))	800MHz Ec/Io or BLER	900MHz FS (dB(μV/m))	900MHz Ec/Io or BLER	1800MHz FS (dB(μV/m))	1800MHz Ec/Io or BLER
GSM (0.2MHz)	45	N/A	46	N/A	54	N/A
UMTS (5MHz)	49	-8	50	-8	57	-8
LTE (5MHz)	47	10 ⁻²	48	10 ⁻²	55	10 ⁻²
LTE (10MHz)	44	10 ⁻²	45	10 ⁻²	52	10 ⁻²
LTE (15MHz)	42.5	10 ⁻²	43.5	10 ⁻²	50.5	10 ⁻²
LTE (20MHz)	41	10 ⁻²	42.5	10 ⁻²	49.5	10 ⁻²

Where:

FS = Field Strength;

BLER = Block Error Rate; and

Ec/Io = The ratio of the received energy per chip to the interference level.

¹⁰⁶ As defined in EC Decision 2009/766/EC as amended by Decision 2011/251/EU.

Other Terrestrial Systems in the 800 MHz, the 900 MHz or the 1800 MHz bands

Insofar as, over the lifetime of this Licence, WiMAX¹⁰⁷ or other terrestrial systems¹⁰⁸ may also be deployed in one or more of the 800 MHz, the 900 MHz and the 1800 MHz bands, the Commission will set a measurement standard¹⁰⁹ for these when appropriate.

Such measurement standards shall be defined on whatever basis appears appropriate to the Commission having regard to, amongst other things, international standards and recommendations, but for indicative purposes these standards are likely to be based on:

- For measurement purposes – an average pilot signal field strength of “X¹¹⁰” measured outdoors at a height of 1.5m, or a Carrier to Interference (C/I) ratio of –Y dB¹¹¹
- For propagation prediction systems – a pilot signal field strength of “X” over 95% of the area during 95% of the time.

Coverage from 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 to 1980 MHz band and the 2110 to 2170 MHz band.

Where the Licensee has deployed one or more than one terrestrial system in other designated frequency bands on foot of a licence or licences granted under section 5 of the Act of 1926, which provides or provide a seamless service with Terrestrial

¹⁰⁷ As defined in EC Decision 2009/766/EC as amended by Decision 2011/251/EU.

¹⁰⁸ “Other terrestrial systems” means an electronic communications network not otherwise listed in this Annex that complies with Decision 2010/267/EU (for the 800 MHz band) or Decision 2009/766/EC as amended by Decision 2011/251/EU (for the 900 MHz band and 1800 MHz band), as applicable.

¹⁰⁹ As with the GSM, UMTS and LTE Terrestrial Systems, coverage will be measured using a device matching the appropriate Users Equipment standard for the system in use.

¹¹⁰ Corrected for the bandwidth used but based on a harmonised European or International standard which would be confirmed following consultation with stakeholders.

¹¹¹ This would be the C/I ratio giving a quasi error free channel, following a standards based approach.

Systems in one or more than one of the 800 MHz, 900 MHz and 1800 MHz bands, up to 35% of the population coverage (that is to say, one-half) of the 70% of the population coverage obligation set out in Section 3(1) above may be met using coverage provided by the terrestrial systems in these other designated frequency bands.

3) Reporting of Compliance

Every twelve months, the Licensee shall measure and submit an annual compliance report to the Commission on coverage.

The measurements required for this compliance report shall be agreed with the Commission in advance and the compliance report shall have sufficient detail and granularity to allow the Commission to verify the Licensee's measurements.

Where the Licensee is claiming to have met the minimum coverage and roll-out obligation set out in Section 3(1) above for the first time, the compliance report shall contain drive test measurements.¹¹² These drive test measurements are to be carried out at the Licensee's own expense and to a standard as agreed with the Commission.

Upon request by the Commission,¹¹³ the Licensee shall carry out drive test measurements and submit these results to the Commission. These drive test measurements are to be carried out at the Licensee's own expense and to a standard as agreed with the Commission.

The Licensee shall submit this compliance report each calendar year within 31 days of the anniversary of the Licence Commencement Date of the Liberalised Use Licence.

In the compliance report the Licensee shall notify the Commission whether it has either (a) met the relevant coverage and roll-out obligation specified in relation to

¹¹² Drive Test Measurement are measurements collected using a motor vehicle

¹¹³ The Commission does not envisage drive test measurements being required on a frequent basis, but notes that such measurements may be appropriate in circumstances where:

- a Licensee is submitting a compliance report on coverage for the first time;
- the Commission's own verification checks, drive test measurements or other information suggests that there may be discrepancies in the compliance report on coverage or the Licensee may not be meeting its coverage obligation.

the Licensee in Section 3 (1) above, or (b) failed to meet the said obligation and reasons for same.

Failure by the Licensee to so notify the Commission shall be deemed to comprise non-compliance with both this reporting obligation and the relevant coverage and roll-out obligation.

Section 4: 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” and reported on an annual basis.

"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 network” means any Terrestrial System which uses the Licensed Spectrum Blocks.

The Licensee shall ensure that network unavailability is less than 35 minutes (based on the weighting factors set out in Table 6 below) per six month period.

Table 6: Weighting Factors for Network Unavailability tracking all periods of network unavailability.

Network Unavailability, Weighting Factors (divide duration of each network event by weighting factor)			
	Monday to Friday	Saturday	Sunday
For periods between 07.00 and 24.00	1	2	4
For periods between 00.00 and 07.00	4	8	16

The Licensee shall maintain this network log in a manner that will demonstrate to the satisfaction of the Commission 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 the Commission.

The Licensee shall calculate the network unavailability for any period specified by the Commission from the information recorded in the network log, and shall, upon request and within such time as may be specified by the Commission, provide the Commission with the results of the calculation.

2) The Minimum “Voice Call” Standard

Where the Licensee and/or any third party via contractual or other arrangements with the Licensee, provides a “voice call” service on a Terrestrial System which uses the Licensed Spectrum Blocks, the Licensee shall comply with the minimum “voice call” standard as set out in Table 7 below.

Table 7: The minimum “voice call” standard for each 6 month period for annual reporting

	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. ¹¹⁴	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 as or better than the speech quality associated with the GSM Standard and GSM Technical Specifications of the European Telecommunications Standards Institute (“ETSI”). The Licensee shall ensure that appropriate echo treatment equipment is used and that it is properly configured.		

¹¹⁴ “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.

“voice calls” does not include Voice over Internet Protocol (“VoIP”) calls

Where a “voice call” service is provided by the Licensee and any third party via contractual or other arrangements with the Licensee, the minimum voice call standard shall be calculated by combining the “voice call” measurements of the Licensee with that of the third party.

3) Reporting on Compliance

Every twelve months, the Licensee shall measure, and submit an annual compliance report to the Commission on (a) the availability of the network QoS standard and (b) the voice call QoS standard.

The measurements required for this compliance report shall be agreed with the Commission in advance and the compliance report shall have sufficient detail and granularity to allow the Commission to verify the Licensee’s measurements.

Upon request by the Commission ¹¹⁵ the Licensee shall carry out drive test measurements and submit these results to the Commission. These drive test measurements are to be carried out at the Licensee’s own expense and to a standard as agreed with the Commission.

The Licensee shall submit this compliance report each calendar year within 31 days of the anniversary of the Licence Commencement Date of the Liberalised Use Licence.

In the compliance report the Licensee shall notify the Commission whether the Licensee has either (a) met the relevant QoS obligations as set out in Section 4 (1) and Section 4 (2) above, or (b) failed to meet the said obligations and reasons for same.

Failure by the Licensee to so notify the Commission shall be deemed to comprise non-compliance with both this reporting obligation and the relevant Quality of Service obligations.

¹¹⁵ The Commission does not envisage drive test measurements being required on a frequent basis, but notes that such measurements may be appropriate in circumstances where:

- a Licensee is submitting a compliance report on QoS for the first time;
- the Commission’s own verification checks, drive test measurements or other information suggests that there may be discrepancies in the compliance report on QoS or the Licensee may not be meeting its QoS obligations.

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Annex 4: Rebate Methodology applicable to GSM Licensees

A 4.1 There are two types of rebate to which an Existing GSM Licensee could be entitled:

- **An Early Liberalisation Rebate** – If an Existing GSM Licensee wishes to surrender some or all of its spectrum rights under its Existing GSM Licence via the Early Liberalisation Option.
- **A Relocation Rebate** – If an Existing GSM Licensee incurs additional relocation costs as a result of the Assignment Round and such additional costs qualify for a rebate.

A 4.2 Each of these rebates is considered further below.

A4.1 Early Liberalisation Rebates

A 4.3 An Early Liberalisation Rebate will be granted to an Existing GSM Licensee if that Licensee requests the early release of some or all of the spectrum rights associated with its GSM Licence under the Early Liberalisation Option.

A 4.4 An Early Liberalisation Rebate may consist of two parts: one in relation to access fees and one in relation to SUFs.

A 4.5 The rebate associated with the GSM Access Fee will be calculated as per the methodology set out in annex 6 of this document. This annex contains a spreadsheet¹¹⁶ which shows the detail of ComReg's calculation of the rebate associated with GSM Access Fees based on the following assumptions:

- The rebate is paid in September 2012;¹¹⁷

¹¹⁶ This spreadsheet was developed using Microsoft® Excel and a relatively recent version of Microsoft Excel should be used to view it, ComReg makes no representation that this spreadsheet will provide correct or appropriate results if readers modify the spreadsheet or its input parameters in any way. It is provided to facilitate understanding of the methodology used by ComReg only.

¹¹⁷ This date is used for illustrative purposes only and does not necessarily reflect the month in which the rebate will be paid. This date will be determined by the overall auction timetable.

- Original licences end on 31 January 2013 (and new licences commence on 1 February 2013¹¹⁸); and
- The licensee relinquishes the total spectrum allocation of its original GSM licence¹¹⁹

and allows interested parties to determine the effect of alterations in these assumptions on the rebates payable.

A 4.6 The rebate associated with the GSM SUF will be calculated as follows:

- ComReg will compute the GSM SUF payable 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 is 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 form part of the Early Release Rebate.

Relocation Rebates

A 4.7 A Relocation Rebate will be granted to compensate licensees for relocation costs in the following circumstances:

- *Scenario 1:* where an Existing GSM Licensee does not avail of the Early Liberalisation Option in the first time slice and does not win spectrum in the second time slice. In such cases, the Relocation Rebate will be equal to the relocation costs necessitated as a result of the Assignment Stage. The relocation costs incurred by the Licensee will be examined by ComReg, as set out below, to determine the Relocation Rebate.
- *Scenario 2:* where an existing GSM licensee does not avail of the Early Liberalisation Option in the first time slice and wins spectrum in the second time slice. In such cases, the Relocation Rebate will consist of

¹¹⁸ A change to this licence commencement date would be reflected in the rebate granted.

¹¹⁹ This would be adjusted on a pro-rata basis in circumstances where an existing licensee liberalises less than its entire GSM allocation in either the 900MHz or 1800 MHz band.

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 the Relocation Rebate under Scenario 2, the relocation costs incurred by the Licensee will be examined by ComReg as set out below.

When the total relocation cost has been determined, a time-value-of-money adjustment factor will be calculated based on the quantum of time involved, i.e. the period of time by which relocation activities are brought forward such that they occur before the commencement date of new Liberalised Licences, rather than the before the original licence expiry date¹²⁰. The time-value-of-money adjustment factor will be based on an appropriate discount factor. ComReg will consider whether it is appropriate to consider changes to the level of relocation costs for the time period between when these costs are actually incurred and when they would have been incurred in the future.¹²¹

- *Scenario 3:* If a licensee can reasonably prove to ComReg that it has directly incurred relocation costs as a result of the Full Assignment Round that it would not have otherwise incurred at some point in time, ComReg will consider applications for a Relocation Rebate. The relocation costs incurred by the Licensee will be examined by ComReg, as set out below, to determine the Relocation Rebate.

A 4.8 Where additional costs result from a negotiated assignment (resulting from the Negotiation Phase), ComReg considers that such costs are a matter for the winning Bidders themselves and will not provide compensation.

ComReg's examination of relocation costs

¹²⁰ In the case of Meteor's existing GSM 900 MHz and GSM 1800 MHz spectrum rights and based on the expected 1 February 2013 commencement date, relocation activities would be brought forward by approximately 2 years 5½ months ; and

In the case of O2 and Vodafone's existing GSM 1800 MHz spectrum rights, relocation activities would be brought forward by approximately 1 year 11 months based on this expected commencement date.

¹²¹ 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) compared to contemporaneous cost levels, as these future costs are unknown.

- A 4.9 In order for ComReg to grant a Relocation Rebate to an Existing GSM Licensee, the Existing GSM Licensee must pre-notify ComReg of its expected relocation costs for information purposes.
- A 4.10 ComReg will examine these relocation costs to determine if such costs are objectively justified and proportionate. The Licensee must demonstrate to ComReg that any costs submitted as part of a Relocation Rebate application 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 or would only have been incurred at a later date. If relocation costs include upgrades of equipment that are not required exclusively for the purpose of the Assignment Stage, these costs may be disallowed, or appropriately discounted by ComReg. ComReg reserves the right to have the relocation costs independently evaluated and/or verified.¹²²
- A 4.11 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 from potential recipients of a Relocation Rebate and details of any Relocation Rebates granted by ComReg.

¹²² 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 (where the relocation activity quickly follows the 900 MHz activity) in the 1800 MHz band.

Annex 5: Application Form¹²³

Applicants must complete Parts 1, 2 and 3 of this application form. Any additional documentation required to be supplied by the applicant as part of its application is to be appended to this application form.

Part 1: Administrative Information

For an application to be complete, the administrative information listed in

Table 11 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	

¹²³ A writeable PDF format of this form will be made available on the ComReg website.

Information required	Information provided
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** (Block capitals)	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:

Information required	Information provided
	Position: Signature:
Name of Applicant's Authorised Agent 2*** (Block capitals)	Name:
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 11: Administrative information

* 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 per paragraph 3.29 of the Information Memorandum, must be attached hereto.

Part 2: Applicant Declaration

The concepts of “Associated Persons”, “Applicant”, “Bidding Group”, “Connected Person”, “Confidential Information”, “Insider”, “Legal Entity” and “Mobile Operator” for the purposes of this declaration shall be construed as defined in the information Memorandum.

We, the undersigned, being Authorised Agents of [_____] (the “**Applicant**”) 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 Applicant, having made all reasonable inquiries that:

1. The Applicant is entitled to submit the Application and participate in the Award Process, and the Applicant has obtained all necessary declarations of consent, permissions and approvals.
2. The Applicant has ensured and will ensure that all information and all declarations contained in the Application and appendices attached thereto are correct and accurate.
3. The Applicant has and will ensure that the Applicant, discloses Confidential Information only to the extent it is necessary and then only to other parties within the Applicant's own Bidding Group or to persons who, prior to such disclosure, are Insiders in relation to the same Applicant and that the Applicant shall take all reasonable measures with a view to ensuring that the person who receives such Confidential Information treats it as confidential at all times.
4. The Applicant has ensured and will ensure that the Applicant, the Applicant's employees, board of directors (where applicant is a body corporate) and persons connected with the Applicant or Insiders refrain from disclosing Confidential Information to parties other than as specified in paragraph 3 above until the Licences have been issued and from exchanging Confidential information with other parties regarding the Applicant's strategy for obtaining and use of the Licence or Licences.
5. The Applicant will ensure that the Applicant and any Connected Persons and any Insiders - shall refrain from entering into agreements or negotiations with a view to entering into agreements with other interested parties or their Connected Persons in relation to matters concerning the Award Process,

including without prejudice to the generality of the foregoing agreements relating to spectrum, network or infrastructure sharing, from the time at which this Application is submitted to the date of the issue of the Liberalised Licences..

6. The Applicant has ensured and will ensure that the Applicant - and, to the best knowledge of the Applicant, 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 Applicant 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 Applicant or their Connected Persons in connection with the planning, establishment or operation of a network using the frequencies dealt with in this Award Process.

The Applicant has ensured that agreements already entered into or understandings already established, as mentioned in this paragraph 6 , have been terminated, and to the best knowledge of the Applicant, any Connected Persons and any Insider have ensured that any such agreements or understandings have been terminated.

7. The Applicant has ensured and will ensure that the Applicant - and, to the best knowledge of the Applicant, any Connected Persons and any Insider - does 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 Applicant'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.
8. The Applicant 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 Applicant, any Connected Persons and any Insider have ensured such agreements or understandings have been terminated.

9. The Applicant has ensured and will ensure that the Applicant – and, to the best knowledge of the Applicant, 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.
10. The Applicant shall comply with the Auction Rules as contained in the Information Memorandum including, without limitation, the provisions of Chapter 5 at all times and shall procure that its personnel, Insiders and Connected Persons, to the extent appropriate, shall also comply with the Auction Rules from the date of publication of the Information Memorandum until the commencement of the Licences awarded in Time Slice 1.
11. The Applicant has ensured and will ensure that prior to the filing of its Application, the Applicant takes all reasonable measures with a view to identifying its Connected Persons and Associated Persons.
12. The Applicant will ensure that, in accordance with subsection 3.3 of the Information Memorandum, after submitting its Application all relevant changes to its ownership structures are notified to ComReg.
13. Save as disclosed in an appendix attached to this Declaration, the Applicant is (i) not, or, in case the Applicant is a partnership, a joint venture or equivalent, the relevant partners or participants are not, nor is expected to be subject to an insolvency process including, without prejudice to the generality of the foregoing, liquidation, examinership, receivership, bankruptcy, winding-up proceedings or equivalent proceedings in other jurisdictions and (ii) capable of paying its debts as they fall due.
14. Save as disclosed in an appendix attached to this Declaration, the Applicant is not, or, in case the Applicant 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 Applicant's possibility of complying with the terms of the Licence, if the Applicant is awarded such Licence.

15. The Applicant agrees that any disclosure made under paragraph 13 and/or paragraph 14 above must contain sufficiently clear and detailed information to allow ComReg assess the Applicant’s capacity to participate in the Award Process, to comply with the Auction Rules and to comply with the terms of the Licence. The Applicant agrees that ComReg’s decision further to any assessment in this respect shall be final and that ComReg reserves the right to, where necessary and proportionate, seek further information or clarification from an Applicant, to specify the level of detail required and the timescales within which it must be provided. The Applicant agrees that any failure to cooperate fully with this disclosure requirement may result in an Applicant’s application being deemed invalid or in subsequent disqualification of the Applicant from the Award Process.

Applicant Name: _____

For and on behalf of the Applicant:

(Signature of those persons who are empowered to bind the Applicant or otherwise authorised to bind the Applicant)

Name in block capitals: _____

Date (DD/MM/YYYY):

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If the Applicant is a partnership, a joint venture or equivalent, the Declaration must also be signed by the relevant partners or participants:

As partner/participant:

(Signature)

Name in block capitals: _____

Date (DD/MM/YYYY):

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Part 3: Lot Application Form

The submission of this Lot Application Form as part of a complete application represents a binding offer to licence 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 Table12 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.

All Deposits are to be paid into ComReg's bank account. Transfers to ComReg's account should be made to:

Bank of Ireland, 2 College Green, Dublin 2, Ireland.
 Account Number: 96614639
 Sort Code: 90-00-17
 BIC Code: BOFIE2D
 IBAN No: IE96 BOFI 9000 1796 6146 39

If making a bank transfer/EFT, please ensure that:

- Reference is "MBSA"
- Your Bank quotes your Account Number (if an existing ComReg account holder) in making the transfer to ComReg.

Information Required	Information Provided
Applicant Name:	
Total no. Lots applied for:	
Total amount of Deposit:	

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	2 × 5MHz	€2.55m	2		
(2) 800/2	6	2 × 5MHz	€8.26m	2		
(3) 900/1	5	2 × 5MHz	€2.55m	2		
(4) 900/2	7	2 × 5MHz	€8.26m	2		
(5) 1800/1	6	2 × 5MHz	€1.27m	1		
(6) 1800/2	15	2 × 5MHz	€4.13m	1		
(7) 900/1/MET	2	2 × 5MHz	€2.55m	2		
(8) 1800/1/MET	3	2 × 5MHz	€1.27m	1		
(9) 1800/1/TO2	3	2 × 5MHz	€1.27m	1		
(10) 1800/1/VOD	3	2 × 5MHz	€1.27m	1		

Table 12: Lot Application Form

Applicant Name:

(Signature of those persons who are empowered to bind the Applicant or otherwise authorised to bind the Applicant)

Name in block capitals:

Date (DD/MM/YYYY):

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Application Checklist

Tick the boxes to ensure that all the required information is included in your application. A complete application must consist of the following:

A 5.1 Part 1: Administrative Information - All sections of Table 11 completed and signed.

- Appropriate evidence for signatory of Application as specified in paragraph 3.29
- Ownership Structure Document as specified in paragraph 3.32

Part 2: Applicant Declaration signed

Part 3: Lot Application Form completed and signed

Application Procedure

The application procedure is set out in subsection 3.3.6 of the Information Memorandum and states that

In order to take part in the Award Process, Applicants must submit a completed Application Form on paper including an Ownership Structure Document and an electronic copy of same in an editable format on CD-ROM. ComReg will only accept applications during the week of **16 July 2012 to 20 July 2012** between 10.00 and 16.00 hours (Irish time).

Applicants are required to make an appointment with ComReg to submit an application. To make an appointment to submit an Application, Applicants are required to contact **Dr Samuel Ritchie** on Working Days between **12 July 2012 and 19 July 2012**, and between 10.00 to 13:00 and 14:00 to 16.00 hours (Irish time) at:

Phone: 00 353 (0)1 804 9619

All applications will be date and time stamped. Applicants will be given a receipt acknowledging the submission of its application. Applications will not be opened until the closing date for receipt of applications has passed. Applications will be opened in the presence of an independent auditor.

An Application can be replaced at any time up to 16.00 Irish time on the last day for receipt of Applications on **20 July 2012**. In the event that an Applicant submits more than one Application prior to 16.00 on the Application Date, only the latest Application received from that Applicant will be taken into consideration.

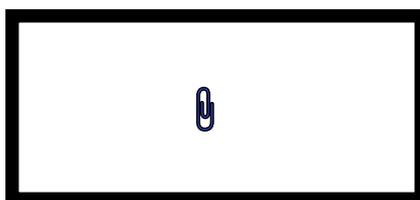
On the submission of a second or subsequent Application prior to the deadline for submission of Applications, the Applicant must return the receipt for the prior Application to ComReg. This receipt will be endorsed to indicate that the earlier Application had been superseded and will not be evaluated. However, any superseded Applications will not be returned until after the Qualification Stage of the Award Process.

No Applications will be opened by ComReg until after 16.00 hours (Irish time) on the closing date for receipt of applications.

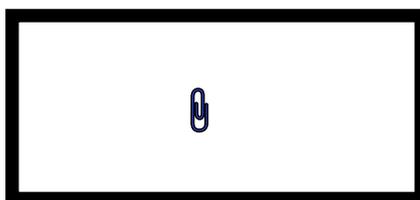
The deadline for receipt of Deposits, as set out in subsection 3.3.2 of the Information Memorandum will be 23:59 on the Application Date of **20 July 2012**.

Annex 6: Methodology for (a) Minimum Price split between Reserve Price and Spectrum Usage Fees and (b) Early Liberalisation Rebates in spreadsheet form

A 6.1 The methodology for the minimum price split between Reserve Price and Spectrum Usages Fees (SUF) is set out in spreadsheet form here:



A 6.2 The methodology used to determine Early Liberalisation Rebates (SUF) is set out in spreadsheet form here:



Annex 7: Worked Example of Activity Rules for the Primary Bid Rounds and Caps on Supplementary Bids

- A 7.1 This annex presents an updated example of a Bidder bidding across a number of Primary Bid Rounds and then making some Supplementary Bids¹²⁴. For simplicity, the example only considers Bids for packages consisting of Lots in two Lot Categories, 800/1 and 800/2. The example is shown in several variations by reducing the number of auction rounds to illustrate the different possible types of Final Primary Packages.
- 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 Lot 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	Bidders ¹²⁵ valuation	Activity of package ¹²⁶
1	2	1	€64m	(4,2)
2	1	3	€88m	(2,6)
3	2	3	€92m	(4,6)
4	1	1	€45m	(2,2)

Table 13: Packages of Lots and corresponding valuations and activity

- 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 Time Slice 1 and 6 Eligibility Points in Time Slice 2. This will be treated as an initial Bid for package 3 at the reserve price, i.e.

¹²⁴ All figures used in this Annex except in respect of Reserve Prices have been chosen as examples to reveal certain features of the Auction and accordingly, they do not represent any belief on behalf of ComReg or DotEcon that any such figures are likely to be achieved in the Auction.

¹²⁵ While Bidders will have their own approaches to valuing spectrum, for the purposes of this example, this can usefully be thought of as being the net present value of the profit that the Bidder expects it would make if it obtained Licences in respect of the packages at zero cost.

¹²⁶ (Time Slice 1, Time Slice 2).

€29.88m¹²⁷ which is $2 \times \text{€}2.55\text{m}$ (Reserve Price of a 800/1 Lot) plus $3 \times \text{€}8.26\text{m}$ (Reserve Price of a 800/2 Lot).

A 7.4 For the Main Stage of the Auction to be run, then there must exist at least one Lot Category that is oversubscribed given the aggregate demand for Lots from all of the Bids made. For the purposes of this example, suppose that this excess demand occurred in one or more categories other than 800/1 and 800/2 and that there was no excess demand in either of these two categories at the Application Stage. Therefore, the Round Prices will be equal to the reserve prices for the first Primary Bid Round as there is no price increment needed for either of these two categories.

A7.1 Primary Bid Rounds

A 7.5 The following table provides an overview of Bids that the Bidder makes across seven successive Primary Bid Rounds given the Round Prices¹²⁸ of the two Lot Categories. 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, in each round, the Bidder will Bid on its most preferred package (the package with the highest payoff amongst those for which it is able to Bid). This package is shown in blue and is assumed to be the package that is Bid for in each round. This assumption about bidding behaviour is made solely for the purposes of illustrating how the activity rules on Primary Bids operate.

¹²⁷ Reserve prices are used here by way of example only.

¹²⁸ To render the example more easily understandable the cap on the increase in the prices of lots per round is ignored in this Annex.

Round	Round Price of 800/1 Lots (€m)	Round Price of 800/2 Lots (€m)	Package 1 (2,1)		Package 2 (1,3)		Package 3 (2,3)		Package 4 (1,1)		Eligibility (Time Slice 1, Time Slice 2)	Activity (Time Slice 1, Time Slice 2)	Type of Bid
			Price	Payoff	Price	Payoff	Price	Payoff	Price	Payoff			
1	2.55	8.26	13.36	50.64	27.33	60.67	29.88	62.12	10.81	34.19	(4,6)	(4,6)	Standard
2	5	9	19	45	32	56	37	55	14	31	(4,6)	(2,6)	Standard
3	10	10	30	34	40	48	50	42	20	25	(2,6)	(2,6)	Standard
4	14	20	48	16	74	14	88	4	34	11	(2,6)	(4,2)	Relaxed
5	19	21	59	5	82	6	101	-9	40	5	(2,2)	(2,6)	Relaxed
6	20	23	63	1	89	-1	109	-17	43	2	(2,2)	(2,2)	Standard
7	25	25	75	-11	100	-12	125	-33	50	-5	(2,2)	(0,0)	Zero Bid

Table 14: Bid submitted in the Primary Bid Rounds

Round 1

A 7.6 The Bidder's preferred package at the Round Prices for round 1 is package 3, which has an activity of (4,6). The Bidder is eligible to Bid for this package.

A 7.7 The Bidder's Eligibility for the following round in each Time Slice is equal to the smaller of the Bidder's Eligibility and the Bidder's activity in that Time Slice in the current round. We therefore calculate the Eligibility of the Bidder for round 2 as follows:

- a) The activity associated with the Bid for package 3 in Time Slice 1 is 4, which is equal to the Bidder's Eligibility in this Time Slice. Therefore, the Bidder's Eligibility for Time Slice 1 will be maintained at 4.
- b) The activity associated with this Bid in Time Slice 2 is 6, which is equal to the Bidder's Eligibility in this Time Slice. Therefore, the Eligibility of the Bidder for Time Slice 2 will be maintained at 6.
- c) Thus the Eligibility for round 2 is (4,6).

Round 2 (bidder drops Eligibility)

A 7.8 The Bidder's preferred package at the Round Prices for round 2 is package 2, which has an activity of (2,6). The Bidder is eligible to Bid for this package.

A 7.9 We calculate the Eligibility of the Bidder for round 3 as follows:

- a) The activity associated with the Bid for package 2 in Time Slice 1 is 2, which is smaller than the Bidder's Eligibility in this Time Slice. Therefore, the Bidder's Eligibility for Time Slice 1 will be reduced to 2.
- b) The activity associated with this Bid in Time Slice 2 is 6, which is equal to the Bidder's Eligibility in this Time Slice. Therefore, the Eligibility of the Bidder for Time Slice 2 will be maintained at 6.

A 7.10 Thus the Eligibility for round 3 is (2,6).

Round 3

A 7.11 The Bidder's preferred package at the Round Prices for round 2 is again package 2. The Bidder is eligible to Bid for this package, and maintains its Eligibility by continuing to Bid on the same package.

A 7.12 Thus the Eligibility for round 4 is (2,6).

Round 4 (Relaxed Primary Bid, bidder drops Eligibility)

A 7.13 The Bidder's preferred package at the Round Prices for round 4 is package 1. The Eligibility of this package exceeds the Eligibility of the Bidder in Time

Slice 1. However, given the Round Prices in round 4, the bidder may submit a Relaxed Primary Bid for this package, as explained below.

A 7.14 We first establish the Relative Cap that applies to Bids for package 1, and identify the Constraining Package that might require a Chain Bid:

- a) The last round in which the Bidder was eligible to Bid for package 1 was round 2; therefore, round 2 is the Constraining Round.
- b) In round 2, the Bidder Bid on package 2. Therefore, package 2 is the Constraining Package for calculating the Relative Cap on the Bids for package 1. A Chain Bid may be required for package 2.
- c) The Revealed Value Differential for calculating the Relative Cap is the difference in price between the package subject to the Relative Cap (package 1) and the Constraining Package (package 2) in the Constraining Round (round 2). The price of these packages in the Constraining Round was €19m for package 1 and €32m for package 2. Therefore, the Revealed Value Differential is $€19m - €32m = -€13m$.
- d) The highest Bid that the Bidder may submit for package 1 cannot exceed the highest Bid that the Bidder submits for package 2 **minus** €13m.

A 7.15 The Bid amount of the Chain Bid for package 2 is determined in the following way:¹²⁹

- a) The Bid Amount for package 1 at the Round Prices in round 4 is €48m.
- b) This Bid Amount cannot exceed the highest Bid for package 2 minus €13m.
- c) Therefore, to be able to make the Relaxed Primary Bid for package 1 in round 4, the Bidder must, by the end of round 4, have made a bid for for package 2 of at least $€48m + €13m = €61m$.
- d) The minimum Bid Amount for package 2 identified in c) above is higher than the highest Bid that the Bidder has submitted for package 2 so far (the Primary Bid of €40m made in round 3). Therefore, the Bidder must submit a Chain Bid of €61m for package 2 in order to be able to make a Relaxed Primary Bid for package 1 in round 4.

A 7.16 In order for a Relaxed Primary Bid for package 1 to be permissible, it is necessary that none of its associated Chain Bids exceed the price of the package subject to the Chain Bid at current Round Prices. The required Bid

¹²⁹ In practise the EAS will calculate the level of any Chain Bids required.

Amount for the Chain Bid on package 2 is €61m, and the price of this package in round 4 is €74m. Therefore, this requirement is met in relation to the Chain Bid for package 2.

A 7.17 We now need to check whether any further Chain Bids might be required, for the Bidder to be able to submit the Chain Bid for package 2. The Bidder is currently eligible to Bid for package 2, and hence no further Chain Bids are needed.

A 7.18 Therefore, the Relaxed Primary Bid for package 1 at €48m is permitted, provided that the Bidder also submits a Chain Bid of €61m for package 2.

A 7.19 We calculate the Eligibility of the Bidder for round 5 as follows:

- a) The activity associated with the Relaxed Primary Bid for package 1 in Time Slice 1 is 4, which is greater than the Bidder's Eligibility in this Time Slice. Therefore, the Bidder's Eligibility for Time Slice 1 will be maintained at 2.
- b) However, the activity associated with this Bid in Time Slice 2 is 2, which is smaller than the Bidder's Eligibility in this Time Slice. Therefore, the Eligibility of the Bidder for Time Slice 2 will be reduced to 2.
- c) Thus the Eligibility for round 5 is (2,2).

Round 5

A 7.20 The Bidder's preferred package at the Round Prices for round 5 is package 2. The Eligibility of this package exceeds the Eligibility of the Bidder in Time Slice 2. However, given the Round Prices in round 5, the bidder may submit a Relaxed Primary Bid for this package, as explained below.

A 7.21 As before, we first establish the Relative Cap that applies to Bids for package 2, and identify the Constraining Package that might require a Chain Bid:

- a) The last round in which the Bidder was eligible to Bid for package 2 was round 4; therefore, round 4 is the Constraining Round.
- b) In round 4, the Bidder Bid on package 1. Therefore, package 1 is the Constraining Package for calculating the Relative Cap on the Bids for package 2. A Chain Bid may be required for package 1.
- c) The Revealed Value Differential for calculating the Relative Cap is the difference in price between the package subject to the Relative Cap (package 2) and the Constraining Package (package 1) in the Constraining Round (round 4). The price of these packages in the Constraining Round was €74m for package 2 and €48m for package

1. Therefore, the Revealed Value Differential is €74m – €48m = €26m.

- d) The highest Bid that the Bidder could submit for package 2 cannot exceed the highest Bid that the Bidder submits for package 1 **plus** €26m.

A 7.22 The Bid Amount of the Chain Bid required for package 1 is determined in the following way:¹³⁰

- a) The Bid Amount for package 2 at the Round Prices in round 5 is €82m.
- b) This Bid Amount cannot exceed the highest Bid for package 1 plus €26m.
- c) Therefore to be able to make the Relaxed Primary Bid for package 2 in round 5, the Bidder must, by the end of round 5, have made a bid for for package 1 of at least €82m – €26m = €56m.
- d) The minimum Bid Amount for package 1 identified in c) above is higher than the highest Bid that the Bidder has submitted for package 1 so far (the Relaxed Primary Bid of €48m made in round 4). Therefore, the Bidder must submit a Chain Bid of €56m for package 1 in order to be able to make a Relaxed Primary Bid for package 2 in round 5. Let “*CH1*” denote this Chain Bid for package 1.

A 7.23 In order for a Relaxed Primary Bid for package 2 to be permissible, it is necessary that none of its associated Chain Bids exceed the price of the package subject to the Chain Bid at current Round Prices. The required Bid Amount for the Chain Bid on package 1 is €56m, and the price of this package in round 5 is €59m. Therefore, this requirement is met in relation to the Chain Bid *CH1*.

A 7.24 We now need to check whether any further Chain Bids might be required, for the Bidder to be able to submit the Chain Bid *CH1*.

A 7.25 The Eligibility of package 1 exceeds the Bidder’s Eligibility in Time Slice 1. Therefore, Bids for package 1 are subject to a Relative Cap, described in paragraph A 7.14 and the ability to submit the Chain Bid *CH1* is determined in the following way:

- a) The Bid Amount for *CH1* is €56m.
- b) This Bid Amount cannot exceed the highest Bid for package 2 minus €13m.

¹³⁰ In practise the EAS will calculate the level of any Chain Bids required.

- c) Therefore, the highest Bid that the Bidder submits for package 2 must be at least €56m + €13m = €69m.
- d) This Bid Amount is higher than the highest Bid that the Bidder has submitted for package 2 so far (the Chain Bid of €61m made in round 4). Therefore, the Bidder must increase its Bid for package 2 in order to make the Chain Bid *CH1*. However, the Bidder wishes to submit a Relaxed Primary Bid for package 2 in this round, with a Bid Amount of €82, and therefore exceeding the Bid Amount of €69 that would be required for the Chain Bid *CH1* to be possible. Therefore, this requirement will be satisfied without need of any further Chain Bids.

A 7.26 As there are no further constraints on the Bids for these packages, the Relaxed Primary Bid for package 2 at €82m is permitted, provided that the Bidder also submits a Chain Bid of €56m for package 1.

A 7.27 We calculate the Eligibility of the Bidder for round 6 as follows:

- a) The activity associated with the Relaxed Primary Bid for package 2 in Time Slice 1 is 2, which is equal to the Bidder's Eligibility in this Time Slice. Therefore, the Bidder's Eligibility for Time Slice 1 will be maintained at 2.
- b) The activity associated with this Bid in Time Slice 2 is 6, which is greater than the Bidder's Eligibility in this Time Slice. Therefore, the Eligibility of the Bidder for Time Slice 2 will be maintained at 2.
- c) Thus the Eligibility for round 6 is (2,2).

Round 6

A 7.28 The Bidder's preferred package at the Round Prices for round 6 is package 4, which has an activity of (2,2). The Bidder is eligible to Bid for this package.

A 7.29 We calculate the Eligibility of the Bidder for round 7 as follows:

- a) The activity associated with the Bid for package 4 in Time Slice 1 is 2, which is equal to the Bidder's Eligibility in this Time Slice. Therefore, the Bidder's Eligibility for Time Slice 1 will be maintained at 2.
- b) The activity associated with this Bid in Time Slice 2 is 2, which is equal to the Bidder's Eligibility in this Time Slice. Therefore, the Eligibility of the Bidder for Time Slice 2 will be maintained at 2.

A 7.30 Thus the Eligibility for round 7 is (2,2).

Round 7 (Bidder drops out)

A 7.31 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 and therefore the Bidder's Eligibility will be reduced to 0 in both Time Slices.

A 7.32 If any further rounds were run, then the Bidder would not be able to place any further Primary Bids.

End of the Primary Bid Rounds

A 7.33 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	29.88	Standard Primary Bid
2	2	32	Standard Primary Bid
3	2	40	Standard Primary Bid
4	1	48	Relaxed Primary Bid
4	2	61	Chain Bid
5	2	82	Relaxed Primary Bid
5	1	56	Chain Bid
6	4	43	Standard Primary Bid
7	0	0	Zero Bid

A7.2 Supplementary Bids Round

A 7.34 In the Supplementary Bids Round, Bidders may submit Supplementary Bids subject to both the Relative Caps that arise from Primary Bid Rounds in which they dropped Eligibility and the Final Price Cap relative to their Final Primary Package. Below we consider some variations based on the example above to show how these caps are determined in the Supplementary Bids Round depending on whether the Bidder submitted Zero Bid, a standard Primary Bid or a Relaxed Primary Bid in the final Primary Bid Round.

Example of a Bidder who submits the Zero Bid in the final Primary Bid Round

A 7.35 Suppose that round 7 is the final Primary Bid Round. The Final Primary Package for this Bidder is the zero package (i.e. no Lots in any Lot Category). Because all packages will be capped relative to the Bid for the zero package, and given that the Bidder may not submit a Supplementary Bid for the zero package, there will effectively be an absolute cap on each of the Supplementary Bids that the Bidder can submit.

A 7.36 The Relative Caps for each one of the four packages in the example are determined in the following way.

A 7.37 Relative Cap for **package 1**:

- a) The last round in which the Bidder was eligible to Bid for package 1 was round 2; therefore, round 2 is the Constraining Round.
- b) In round 2, the Bidder Bid on package 2. Therefore, package 2 is the Constraining Package for calculating the Relative Cap on the Bids for package 1.
- c) The Revealed Value Differential for calculating the Relative Cap is the difference in price between the package subject to the Relative Cap (package 1) and the Constraining Package (package 2) in the Constraining Round (round 2). The price of these packages in the Constraining Round was €19m for package 1 and €32m for package 2. Therefore, the Revealed Value Differential is €19m – €32m = – €13m.
- d) The highest Bid that the Bidder submits for package 1 cannot exceed the highest Bid that the Bidder submits for package 2 **minus** €13m.

A 7.38 Relative Cap for **package 2**:

- a) The last round in which the Bidder was eligible to Bid for package 2 was round 4; therefore, round 4 is the Constraining Round.
- b) In round 4, the Bidder Bid on package 1. Therefore, package 1 is the Constraining Package for calculating the Relative Cap on the Bids for package 2.
- c) The Revealed Value Differential for calculating the Relative Cap is the difference in price between the package subject to the Relative Cap (package 2) and the Constraining Package (package 1) in the Constraining Round (round 4). The price of these packages in the Constraining Round was €74m for package 2 and €48m for package 1. Therefore, the Revealed Value Differential is €74m – €48m = €26m.
- d) The highest Bid that the Bidder submits for package 2 cannot exceed the highest Bid that the Bidder submits for package 1 **plus** €26m.

A 7.39 Relative Cap for **package 3**:

- a) The last round in which the Bidder was eligible to Bid for package 3 was round 2; therefore, round 2 is the Constraining Round.

- b) In round 2, the Bidder Bid on package 2. Therefore, package 2 is the Constraining Package for calculating the Relative Cap on the Bids for package 3.
- c) The Revealed Value Differential for calculating the Relative Cap is the difference in price between the package subject to the Relative Cap (package 3) and the Constraining Package (package 2) in the Constraining Round (round 2). The price of these packages in the Constraining Round was €37m for package 3 and €32m for package 2. Therefore, the Revealed Value Differential is €37m – €32m = €5m.
- d) The highest Bid that the Bidder submits for package 3 cannot exceed the highest Bid that the Bidder submits for package 2 **plus** €5m.

A 7.40 Relative Cap for **package 4**: the Eligibility of package 4 does not exceed the Bidder's Eligibility in the final Primary Bid Round, and therefore package 4 is not subject to a Relative Cap.

A 7.41 In addition to the Relative Caps, all packages are 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 none of the Supplementary Bids that the Bidder may submit can exceed the price of the package in the final Primary Bid Round. Therefore, each package is subject to a Final Price Cap equal to the price of the package in the final Primary Bid Round.

A 7.42 The following table provides an overview of the caps that would apply to the Supplementary Bids that the Bidder can submit. In this table, HB(X) stands for the "highest Bid submitted for package X".

Package	Relative Cap	Final Price Cap
1	HB(2) – €13m	€75m
2	HB(1) + €26m	€100m
3	HB(2) + €5m	€125m
4	NONE	€50m

A 7.43 Notice that the Bids for packages 1 and 2 are mutually capped in relation to each other. However, the Relative Caps simply require that the difference between the Bid Amounts set for packages 2 and 1, i.e. the difference HB(2) – HB(1), cannot be smaller than €13m and cannot be greater than €26m.

A 7.44 Given these caps, which result from bidding for the most preferred package in each Primary Bid Round, the Bidder can reflect its true valuations in its Supplementary Bids. The table below shows the Supplementary Bid Amounts that would reflect the Bidder's valuations and the resulting caps:

Package	Supplementary Bid Amount	Relative cap	Final Price Cap
1	€64m	€88m – €13m = €75m	€75m
2	€88m	€64m + €26m = €90m	€100m
3	€92m	€88m + €5m = €93m	€125m
4	€45m	NONE	€50m

Example of a Bidder who submits a standard Primary Bid in the final Primary Bid Round

A 7.45 Suppose now that round 6 is the final Primary Bid Round, in which the Bidder submitted a standard Primary Bid. The Final Primary Package (which the Bidder Bid for in round 6) is package 4.

A 7.46 The Relative Caps for packages 1, 2 and 3 are calculated as detailed in paragraphs A 7.37 to A 7.40 above.

A 7.47 All packages except the Final Primary Package are subject to a Final Price Cap relative to the Final Primary Package (package 4). The Final Price Cap limits the Bid Amount for any Package other than package 4 to be no greater than:

- a) the highest Bid that the Bidder submits for package 4; plus
- b) the difference in price between package 4 and the package subject to the Final Price Cap in the final Primary Bid Round.

A 7.48 The price of package 4 in the final Primary Bid Round (round 6) was €43m. The prices of the other three packages in the final Primary Bid Round, and the corresponding Final Price Caps are as follows:

- a) The price of package 1 in round 6 was €63m, therefore the highest Bid that the Bidder may submit for package 1 cannot exceed the highest Bid that the Bidder submits for package 4 **plus** €20m (resulting from the difference between €63m and €43m).
- b) The price of package 2 in round 6 was €89m, therefore the highest Bid that the Bidder may submit for package 2 cannot exceed the highest Bid that the Bidder submits for package 4 **plus** €46m (resulting from the difference between €89m and €43m).
- c) The price of package 3 in round 6 was €109m, therefore the highest Bid that the Bidder may submit for package 3 cannot exceed the highest Bid that the Bidder submits for package 4 **plus** €66m (resulting from the difference between €109m and €43m).

A 7.49 The following table provides an overview of the caps that would apply to the Supplementary Bids that the Bidder can submit. In this table, HB(X) stands for the "highest Bid submitted for package X".

Package	Relative cap	Final Price Cap
1	HB(2) – €13m	HB(4) + €20m
2	HB(1) + €26m	HB(4) + €46m
3	HB(2) + €5m	HB(4) + €66m
4	NONE	NONE

A 7.50 Notice that no caps apply to the Supplementary Bid Amount that the Bidder can submit for package 4.

A 7.51 Given these caps, which result from bidding for the most preferred package in each Primary Bid Round, the Bidder can reflect its true valuations in its Supplementary Bids. The table below shows the Supplementary Bid Amounts that would reflect the Bidder's valuations and the resulting caps:

Package	Supplementary Bid Amount	Relative cap	Final Price Cap
1	€64m	€88m – €13m = €75m	€45m + €20m = €65m
2	€88m	€64m + €26m = €90m	€45m + €46m = €91m
3	€92m	€88m + €5m = €93m	€45m + €66m = €111m
4	€45m	NONE	NONE

Example of a Bidder who submits a Relaxed Primary Bid in the final Primary Bid Round

A 7.52 Suppose now that round 5 is the final Primary Bid Round, in which the Bidder submitted a Relaxed Primary Bid. The Final Primary Package (which the Bidder Bid for in round 5) is package 2.

A 7.53 The Relative Caps for packages 1, 2 and 3 are calculated as detailed in paragraphs A 7.37 to A 7.40 above.

A 7.54 All packages except the Final Primary Package are subject to a Final Price Cap relative to the Final Primary Package (package 2). The Final Price Cap limits the Bid Amount for any Package other than package 2 to be no greater than:

- a) the highest Bid that the Bidder submits for package 2; plus
- b) the difference in price between package 2 and the package subject to the Final Price Cap in the final Primary Bid Round.

A 7.55 The price of package 2 in the final Primary Bid Round (round 5) was €82m. The prices of the other three packages in the final Primary Bid Round, and the corresponding Final Price Caps are as follows:

- a) The price of package 1 in round 5 was €59m, therefore the highest Bid that the Bidder may submit for package 1 cannot exceed the highest Bid that the Bidder submits for package 2 **minus** €23m (resulting from the difference between €59m and €82m).
- b) The price of package 3 in round 5 was €101m, therefore the highest Bid that the Bidder may submit for package 3 cannot exceed the highest Bid that the Bidder submits for package 2 **plus** €19m (resulting from the difference between €101m and €82m).
- c) The price of package 4 in round 5 was €40m, therefore the highest Bid that the Bidder may submit for package 4 cannot exceed the highest Bid that the Bidder submits for package 2 **minus** €42m (resulting from the difference between €40m and €82m).

A 7.56 The following table provides an overview of the caps that would apply to the Supplementary Bids that the Bidder can submit. In this table, HB(X) stands for the "highest Bid submitted for package X".

Package	Relative cap	Final Price Cap
1	HB(2) – €13m	HB(2) – €23m
2	HB(1) + €26m	NONE
3	HB(2) + €5m	HB(2) + €19m
4	NONE	HB(2) – €42m

A 7.57 Notice that all packages are subject to at least one cap.

A 7.58 Given these caps, which result from bidding for the most preferred package in each Primary Bid Round, the Bidder can reflect its true valuations in its Supplementary Bids. The table below shows the Supplementary Bid Amounts that would reflect the Bidder's valuations and the resulting caps:

Package	Supplementary Bid Amount	Relative cap	Final Price Cap
1	€64m	€88m – €13m = €75m	€88m – €23m = €65m
2	€88m	€64m + €26m = €90m	NONE
3	€92m	€88m + €5m = €93m	€88m + €19m = €107m
4	€45m	NONE	€88m – €42m = €46m

Annex 8: Determination of Winning Bids and Base Prices

A8.1 Winner Determination

A 8.1 This section provides a formal description of the procedure for determining Winning Bidders, Winning Bids and Base Prices.

Packages, Bidders and Bids

A 8.2 Any package of Lots can be written as a vector $x = (x_1, \dots, x_K)$ giving the number of Lots in each Lot Category. This representation writes out the Party-Specific Lot Categories in full. In particular, suppose that Lot Categories $1, \dots, k$ are available for allocation to any Bidder (these are called regular Lot Categories within this annex to distinguish them clearly from the Party-Specific Categories) and Lot Categories $k + 1, \dots, K$ which are Party-Specific.

A 8.3 Let I be the set of all Bidders. The j^{th} Bid of Bidder i is for a package of Lots $x_{ij} \in \mathbb{Z}_{\geq 0}^K$. Let $\beta_i(x_{ij})$ be the Bid Amount associated with Bidder i 's Bid for package of Lots x_{ij} . Assume throughout that each Bidder's Bids always include a Zero Bid (i.e. a package of zero lots for a Bid Amount of zero) to represent the possibility that the Bidder is not awarded any Lots.

A 8.4 Let $X \in \mathbb{Z}_+^K$ be the available supply of Lots. For the regular Lot Categories, this is just the number of Lots available for allocation. In the case of each of the Party-Specific Lot Categories, this is the maximum number of Lots that the permitted Bidder can submit a Bid for in this Lot Category (which correspond to spectrum the Bidder already holds on an unliberalised basis).

A 8.5 Let $X^- = (X_1, X_2, \dots, X_k) \in \mathbb{Z}_+^k$ denote the supply of Lots in regular Lot Categories ignoring the Party-Specific Lot Categories.

Party-Specific Lot Categories

A 8.6 Each of the Lot Categories $k + 1$ to K can only be bid for by one Bidder. Let R_{k+1}, \dots, R_K respectively be the Bidders that can bid for each of these Party-Specific Lot 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.

A 8.7 Any Party-Specific Lot in one of Lot Categories $k + 1$ to K has a corresponding unique regular Lot Category (i.e. one of Lot Categories 1 to k) which is in the same frequency band and corresponds to the same Time

Slice. Let M_{k+1}, \dots, M_K be the matching regular Lot Categories corresponding to each of the Party-Specific Lot Categories.

A 8.8 In the case at hand, we have that $k = 6$ and $K = 10$, as shown in the following table.

r	Lot Category	Type of category	Matching Lot Category (M_r)	Supply (X_r)
1	800/1	Regular	-	6
2	800/2	Regular	-	6
3	900/1	Regular	-	5
4	900/2	Regular	-	7
5	1800/1	Regular	-	6
6	1800/2	Regular	-	15
7	900/1/MET	Party-Specific	3	2
8	1800/1/MET	Party-Specific	5	3
9	1800/1/TO2	Party-Specific	5	3
10	1800/1/VOD	Party-Specific	5	3

A 8.9 Therefore, using this notation, we have $M_7 = 3$ and $M_8 = M_9 = M_{10} = 5$.

Flattening packages of Lots

A 8.10 Given a package of Lots x consisting of all K Lot Categories, let $T(x) \in \mathbb{Z}_+^k$ denote the corresponding “flattened” package of Lots with k regular Lot Categories. This is obtained by treating Lots in the Party-Specific Lot Categories as if they were in the matching regular Lot Categories. Let $T_r(x)$ denote the number of Lots in the r^{th} Lot Category of the flattened package of Lots. After “flattening”, the number of Lots in the r^{th} Lot Category is given by:

$$T_r(x) = x_r + \sum_{s=k+1}^K \delta_r^{M_s} x_s$$

where δ is the indicator function

$$\delta_r^s = \begin{cases} 1 & \text{if } r = s \\ 0 & \text{if } r \neq s \end{cases}$$

i.e., $\delta_r^{M_s} = 1$ if regular Lot Category r is a matching Lot Category for the Party-Specific Lot Category s (and zero otherwise).

A 8.11 For example, 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 Lot Categories are mapped to the fifth Lot Category and the seventh Lot Category is mapped to the third Lot Category in the flattened package of Lots.

Notional release scenarios

A 8.12 A notional release scenario $s = (0, \dots, 0, s_{k+1}, \dots, s_K)$ is a package containing some number of Lots (including possibly the case of zero) in each Party-Specific Lot Category such that $s_r \leq X_r$ for all $r = k + 1, \dots, K$, and containing no Lots in any regular Lot Category.

A 8.13 Let S be the set of all notional release scenarios. The number of release scenarios is given by

$$|S| = \prod_{r=k+1}^K (1 + X_r).$$

In the case at hand, we have $|S| = 3 \times 4 \times 4 \times 4 = 192$.

Compatible bids

A 8.14 The set of **compatible bids** $C_i(s)$ is the set of packages of Lots bid for by Bidder i that are compatible with a particular notional release scenario s . They 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 packages of Lots subject to Bids by that Bidder;
- For any Bidder $i \in R$, the set of compatible Bids is all those packages of Lots subject to Bids which, in every Party-Specific Lot Category available to Bidder i , contains exactly the same number of Lots as specified by the scenario. That is, a package of Lots 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 package is added to the set of compatible Bids if it is not already present.

Notional supply

A 8.15 For a particular notional release scenario s , the notional supply is defined to be:

- the total number of Lots available for award in the regular Lot Categories; plus

- the notionally released Lots in the Party-Specific Lot Categories specified by the scenario (treating those Party-Specific Lots as belonging to the matching regular Lot Category).

A 8.16 Therefore, using the “package flattening” notation developed above, the notional supply in scenario s is $X^- + T(s)$. Notice that the Lots available in the notional supply consists of just k categories of lots, as any Party-Specific Lot Categories are flattened in the regular Lot Categories.

A 8.17 For example, with the notional release scenario $s = (0,0,0,0,0,0,2,1,1,1)$, we have that $T(s) = (0,0,2,0,3,0)$ and so the notional supply is $(6,6,7,7,9,15)$.

Provisional winner determination within one scenario

Value of a scenario

A 8.18 Given a notional release scenario $s \in S$, the scenario-specific winners are found by solving the following winner determination problem. This selects one compatible Bid for each Bidder (which could be that Bidder's zero Bid) to maximise the total value of Winning Bids whilst allocating no more Lots than are available in the notional supply of that scenario.

$$\max_{x_i} \sum_{i \in I} \beta_i(x_i) \text{ s.t. } x_i \in C_i(s) \quad \sum_{i \in I} T(x_i) \leq X^- + T(s)$$

A 8.19 Notice that this winner determination effectively involves only k Lot Categories, as Bids for Party-Specific Lot Categories are flattened into demand for the matching regular Lot Category. Therefore, Bidders for Party-Specific Lot Categories are treated as competing with Bidders for the matching regular Lot Category. The supply of Lots is increased according to the number of Lots presumed released within the notional release scenario.

A 8.20 There may be multiple combinations of scenario-specific Winning Bids $(x_i^*)_{i \in I}$ that are optimal. Let $v(s) = \sum_i \beta_i(x_i^*)$ denote the total value of the Winning Bids in the scenario, which will be called the **value of the scenario**. (This quantity is the same for any optimal combination of scenario-specific Winning Bids in the event of ties.)

Feasible scenarios

A 8.21 A notional release scenario s is **feasible** if there exists a combination of scenario specific Winning Bids $(x_i^*)_{i \in I}$ such that, for any Party-Specific Lot Category r with $s_r > 0$, the Bidder R_r for that Lot Category does not win its Zero Bid, i.e. $x_{R_r}^* \neq 0$. Therefore, if a scenario is feasible, then each Bidder notionally releasing spectrum wins this spectrum back.

A 8.22 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.¹³¹

A 8.23 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 Lot Categories (i.e. not in the set of Bidders R). Also, it does not place any requirement on Bidders able to bid for Party-Specific Lots, but assumed to be not releasing any such Lots within the scenario (i.e. a Bidder $j \in R$ for which if $R_r = j$ then $s_r = 0$).

A 8.24 Notice that there could be a number of optimal Winning Combinations of Bids with equal value. The definition of feasibility requires that there is at least one of these combinations in which every Bidder notionally releasing spectrum wins it back in that combination.

Scenario selection and the Winning Combination of Bids

Winning scenario

A 8.25 Let $F \subseteq S$ denote the set of all **feasible notional release scenarios**. There is always at least one feasible scenario, as the zero scenario (with no released Lots in any Lot Category) is always feasible. The **winning scenario** s^* is chosen from F in order to maximise $v(s)$. Let V be the value of the winning scenario:

$$V = \max_{s \in F} v(s)$$

A 8.26 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 Lot Categories. Notice that this quantity is a function of 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 after application of this tie-breaking rule, a winning scenario is chosen at random from the optimal scenarios satisfying this requirement.

Winning Bids

A 8.27 Given the winning scenario s^* , the **Winning Combination of Bids** is the solution to the winner determination problem for this scenario as described above in which every Bidder notionally releasing spectrum wins at least this

¹³¹ Scenarios with strictly positive notional release in at least one party-specific lot category for which no compatible release Bids were received can never be feasible, as the respective releaser would always be allocated its Zero Bid in such a scenario. In practice, such scenarios do not have to be considered in the winner determination.

back (i.e. for any Party-Specific Lot Category r with $s_r > 0$, the Bidder R_r for that Lot Category has a non-zero Winning Bid package $x_{R_r}^* \neq 0$).

A 8.28 In the event of there being multiple Winning Combinations of Bids, in which every Bidder notionally releasing spectrum wins at least this back (i.e. for any Party-Specific Lot Category r with $s_r > 0$, the Bidder R_r for that Lot Category has a non-zero Winning Bid package $x_{R_r}^* \neq 0$), ties amongst these combinations are broken by first maximising the number of Bidders winning packages of Lots that contain at least as many Lots in each Lot Category as Bid for in the final Primary Bid Round. If a tie still remains, this is broken at random amongst the remaining Winning Combinations of Bids (having applied the previous criteria).

A8.2 Determination of Base Prices

Re-optimised values

A 8.29 Base Prices are determined by the opportunity costs of Winning Bidders, both individually and for each and every group of winners.

A 8.30 In order to determine opportunity cost for some set of winners $E \subset I$, we need to consider the counterfactual situation in which the Bids of the Bidders in E are excluded and the Winning Bidders re-determined. This procedure defines a re-optimised value $V_{\text{re-opt}}(I \setminus E)$ for the total of Winning Bids if the Bidders E are hypothetically excluded.

A 8.31 We now define a **counterfactual value** for the case that Bidders E are hypothetically excluded and only Bidders $I \setminus E$ remain. Let $v_{\text{re-opt}}(I \setminus E, s)$ denote the re-optimised value of the notional release scenario s if Bidders E are included. This is the solution to the re-optimisation

$$\max_{x_i} \sum_{i \in I \setminus E} \beta_i(x_i) \quad \text{s.t.} \quad \sum_{i \in I \setminus E} T(x_i) \leq X^- + T(s)$$

$$x_i \in C_i(s)$$

$$x_i \neq 0 \text{ if } i = R_r \text{ for } s_r > 0$$

A 8.32 This re-optimisation picks one Winning Bid for each of the included Bidders subject to the requirements:

- that the winning packages can be satisfied from the notional supply in the scenario;
- Bids are compatible with the scenario; and
- All releasers that are included in the re-optimisation and who notionally release spectrum in that scenario win it back.

Notice that Lots assumed to be released by the excluded Bidders in E are included in the notional supply.

A 8.33 The counterfactual value $V_{\text{re-opt}}(I \setminus E)$ on excluding Bidders E is then defined to be the maximum over relevant feasible scenarios:

$$V_{\text{re-opt}}(I \setminus E) = \max_{s \in F} v_{\text{re-opt}}(I \setminus E, s) \quad \text{s.t.} \quad s_r \leq s_r^* \text{ if } R_r = j \text{ for some } j \in E$$

A 8.34 We only re-optimize over feasible scenarios in which each of the excluded releasers does not release more Lots in each of the Party-Specific Lot Categories than it was allocated in the winning scenario.

Identification of minimum sum of prices subject to core constraints

A 8.35 This section describes the methodology for the determination of Base Prices in the Main Stage of the Auction.

A 8.36 Let $\rho = (\rho_1, \dots, \rho_K)$ denote the Reserve Prices for each Lot Category. Let p_i be the Base Price to be paid by Bidder i .

A 8.37 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.

A 8.38 The prices p_i are required to satisfy the constraints that they do not exceed the winning Bid and are at least equal to the package Reserve Price, i.e.

$$p_i \leq \beta_i^*$$

$$p_i \geq \rho \cdot x_i^*$$

A 8.39 They are also required to satisfy the constraints that

$$\sum_{i \in E} p_i \geq \sum_{i \in E} \beta_i^* - V + V_{\text{re-opt}}(I \setminus E)$$

for any subset E of Winning Bidders. Notice that if this condition holds for any subset E of Winning Bidders, then it also holds for any subset of Bidders $E \subseteq I$. These constraints ensure that each group of Winning Bidders pay their collective opportunity cost.

A 8.40 Base Prices are then determined as a solution to the following optimisation problem

$$\min_{p_i} \sum_{i \in I} p_i \quad \text{s.t.} \quad p_i \leq \beta_i^* \quad \forall i \in I$$

$$p_i \geq \rho \cdot x_i^* \quad \forall i \in I$$

$$\sum_{i \in E} p_i \geq \sum_{i \in E} \beta_i^* - V + V_{\text{re-opt}}(I \setminus E) \quad \forall E \subseteq I$$

A 8.41 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 ("Minimum Revenue Core) denote the set of all price vectors (p_1, p_2, \dots, p_I) which are solutions to this linear programme. If the set MRC contains just one element, these are the Base Prices.

Selection amongst ties

A 8.42 In the event that there are multiple combinations of Base Prices that are optimal in the previous problem (i.e. lie in MRC), a unique set of Base Prices will be chosen from MRC by the following procedure.

A 8.43 First, Vickrey prices p_i^{Vickrey} are calculated according to

$$p_i^{\text{Vickrey}} = \beta_i^* - V + V_{\text{re-opt}}(I \setminus \{i\})$$

where $V_{\text{re-opt}}(I \setminus \{i\})$ is the re-optimised value when only Bidder i is excluded.

A 8.44 Then Base Prices must be solutions to the optimisation

$$\min_{p_i} \sum_i (p_i - p_i^{\text{Vickrey}})^2 \quad \text{s.t.} \quad (p_1, \dots, p_I) \in \text{MRC}$$

This is a strictly convex quadratic optimisation subject to linear constraints. It has thus a unique solution.

Annex 9: Implications of Final Price Cap

A 9.1 This annex considers the implications of the Final Price Cap for bidding strategies 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 the winning of spectrum¹³². Bidders should carry out their own analysis in this regard.

A9.1 Notation¹³³

A 9.2 Let I denote the set of all Bidders. Let $\beta_i(x)$ denote the highest Bid of 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.

A 9.3 Let x_i^f denote the Final Primary Package Bid for by Bidder i in the final Primary Bid Round. Let X be the available supply of Lots and

$$x_0^f = X - \sum_{i \in I} x_i^f$$

be the vector of provisionally unallocated Lots at the end of the final Primary Bid Round. Let p^f be the Lot prices in the final Primary Bid Round.

A9.2 Analysis

A 9.4 We focus on one particular Bidder $j \in I$. We consider the effect if this Bidder increases its Bid for its Final Primary Package by the value of any provisionally unallocated Lots at the end of the final Primary Bid Rounds plus a small increment.

$$(A) \quad \beta_j(x_j^f) = p^f \cdot x_j^f + p^f \cdot x_0^f + \epsilon$$

where ϵ is some small amount. (In the subsequent analysis, this will resolve any ties.) As Supplementary Bids need to be divisible by €1000, ϵ could be as small as €1000 in practice.

¹³² See in particular paragraph A 9.20 below for one potential reason why bidders applying the strategy set out herein may fail to win spectrum.

¹³³ This annex uses the same vector and set notation as used in Annex 8 unless otherwise indicated.

A 9.5 Regardless of the bidding strategies adopted by rival Bidders $i \neq j$, all their Bids are bounded by the Final Price Cap. For any package x_i , the Final Price Cap requires that

$$\beta_i(x_i) \leq \beta_i(x_i^f) + p^f \cdot (x_i - x_i^f).$$

A 9.6 Therefore, for any packages x_i , by adding these Final Price Caps across Bidders $i \neq j$ we have that

$$(B) \quad \sum_{i \neq j} \beta_i(x_i) \leq \sum_{i \neq j} \beta_i(x_i^f) + \sum_{i \neq j} p^f \cdot (x_i - x_i^f)$$

A 9.7 Now for any feasible outcome $(x_i)_{i \in I}$ giving package x_i to Bidder i ,

$$\sum_i x_i \leq X.$$

A 9.8 Therefore, from the definition (A) of Bidder j 's Supplementary Bid $\beta_j(x_j^f)$ for its Final Primary Package x_j^f we have that

$$\beta_j(x_j^f) = p^f \cdot \left[x_j^f + X - \sum_i x_i^f \right] + \epsilon \geq p^f \cdot \left[\sum_i x_i - \sum_{i \neq j} x_i^f \right] + \epsilon$$

which on rearranging gives that any feasible outcome $(x_i)_{i \in I}$ must satisfy

$$(C) \quad \beta_j(x_j^f) - p^f \cdot x_j \geq p^f \cdot \sum_{i \neq j} (x_i - x_i^f) + \epsilon$$

A 9.9 Combining inequalities (B) and (C) implies that for any feasible outcome $(x_i)_{i \in I}$ and regardless of the Bid strategy adopted by rival Bidders $i \neq j$

$$(D) \quad \sum_i \beta_i(x_i^f) \geq p^f \cdot x_j + \sum_{i \neq j} \beta_i(x_i) + \epsilon$$

A 9.10 Now suppose that in some alternative feasible outcome $(x_i)_{i \in I}$ Bidder j wins with a Bid with $\beta_j(x_j) \leq p^f \cdot x_j$. It follows immediately from inequality (D) that $(x_i)_{i \in I}$ cannot be an optimal outcome as the total value of Winning Bids is strictly lower than in the outcome $(x_i^f)_{i \in I}$ in which each Bidder receives its Final Primary Package.

A 9.11 This demonstrates that provided Bidder j makes a Bid for its Final Primary Package x_j^f according to the rule (A), then an optimal outcome in which Bidder j does not win its Final Primary Package must result in Bidder j winning some alternative package $x_j \neq x_j^f$ where $\beta_j(x_j) > p^f \cdot x_j$. No assumption has been made about the Bids of Bidders $i \neq j$ other than that they satisfy the Final Price Cap. This result also holds irrespective of

whether Bidder j 's final Primary Bid was a standard Primary Bid or a Relaxed Primary Bid.

A9.3 Implications

- A 9.12 An implication of this result is that if Bidder j bids for its Final Primary Package according to rule (A) and increases its Bid for no other package to more than that package's price in the final round, then the Bidder will win its Final Primary Package regardless of the Bids made by other Bidders.
- A 9.13 In particular, if Bidder j makes a Bid for its Final Primary Package x_j^f according to the rule (A), then it cannot win a package $x_j \neq x_j^f$ which is subject to a Primary Bid, but for which no further Supplementary Bid has been made. This is because such a Primary Bid must have been placed in a round prior to the final round at prices no greater than p^f and so $\beta_j(x_j) \leq p^f \cdot x_j$.
- A 9.14 In the case that a Bidder's Final Primary Bid is a standard Primary Bid (i.e. not a Relaxed Primary Bid) then it is possible for the bidder to raise its Bid for its Final Primary Package according to rule (A) and make no other Supplementary Bids. Therefore, the Bidder can ensure that it wins its Final Primary Package if it is prepared to raise its Bid by a sufficient amount.
- A 9.15 In the case that a Bidder's final Primary Bid is a Relaxed Primary Bid, there will be another package x_j^1 that is a Constraining Package setting a Relative Cap on its Final Primary Package x_j^f . x_j^1 is the package bid for in the last round that Bidder j was eligible to bid for x_j^f . In turn, x_j^1 may be subject to a Relative Cap on a Constraining Package x_j^2 and so on. Eventually this sequence terminates with some package x_j^n that the Bidder was eligible to bid for in the last round. x_j^1, \dots, x_j^n are all packages bid for in rounds where Bidder j dropped Eligibility. Let p_j^1, \dots, p_j^n denote the prices applying in these rounds.
- A 9.16 Therefore, any Supplementary Bid $\beta_j(x_j^f)$ is subject to the following chain of Relative Caps

$$\begin{aligned}\beta_j(x_j^f) &\leq \beta(x_j^1) + p_j^f \cdot (x_j^f - x_j^1) \\ \beta_j(x_j^1) &\leq \beta(x_j^2) + p_j^1 \cdot (x_j^1 - x_j^2) \\ &\vdots \\ \beta_j(x_j^n) &\leq \beta(x_j^{n-1}) + p_j^{n-1} \cdot (x_j^{n-1} - x_j^n)\end{aligned}$$

A 9.17 As a result, it is possible that in order to increase $\beta_j^f(x_j^f)$ to the Bid Amount specified by rule (A), it could be necessary to increase one or more of Bids $\beta_j(x_j^1), \dots, \beta_j(x_j^n)$ to a level exceeding the price in the final Primary Round. In such a case, we cannot conclude that Bidder j would necessarily win its Final Primary Package x_j^f . However, even in this case if Bidder j makes no Supplementary Bids for any other packages, then it will win **either** its Final Primary Package x_j^f **or** one of the associated Constraining Packages x_j^k for which $\beta_j(x_j^k) > p^f \cdot x_j^k$.

A9.4 Provisionally unallocated lots

A 9.18 Note that the analysis above holds without modification in the case of there being Party-Specific Lots. However, the available supply of Lots in each category X must then include all Lots potentially available for allocation, including all Party-Specific Lots. Therefore, in the event that one or more Party-Specific Lot that could be won by the Bidder entitled to bid on them are not provisionally allocated at the end of the final primary round (i.e. that Bidder retains some or all existing GSM spectrum), then such lots must be considered as provisionally unallocated Lots within the analysis above.

A 9.19 For this reason, the auction rules provide for the disclosure of the demand for Party-Specific Lots in the final Primary Round, though this information will be not be revealed in previous rounds.

ComReg maintains the right to make a Deposit Call after the Supplementary Bids Round. Therefore, in the case that one or more Bidders failed to meet this Deposit Call, it is possible that their Bids could be excluded from the determination of Winning Bids. Such an occurrence would affect the analysis above, as the provisionally unallocated Lots, x_0^f , above would be affected by the exclusion of one or more Bidders. As a result, there is no absolute guarantee that a Bidder pursuing strategies of the form discussed above can win its Final Primary Package.