



An Coimisiún um
Rialáil Cumarsáide
Commission for
Communications Regulation

Proposed Multi Band Spectrum Award

Request for views from interested parties on auction formats including potential alternative options or modifications to ComReg's proposed auction format

Information Notice

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Chapter 1

1 Introduction

- 1.1 In Document 19/124, the Commission for Communications Regulation (“ComReg”) set out its response to consultation and draft Decision on its proposed award process in respect of spectrum rights of use in the 700 MHz Duplex, 2.1 GHz, 2.3 GHz 2.6 GHz FDD and 2.6 GHz TDD bands (“Proposed Award”)¹.
- 1.2 Five submissions were received in response to Document 19/124, being from:
- Eircom Limited and Meteor Mobile Communications Limited, collectively referred to as the Eir Group (“Eir”);
 - Imagine Communications Group Limited (“Imagine”);
 - Mr. Liam Young;
 - Three Ireland (Hutchison) Limited (“Three”); and
 - Vodafone Ireland Limited (“Vodafone”).
- 1.3 The non-confidential versions of these submissions are now published in Document 20/56s². It should be noted that ComReg is continuing its assessment of claims of confidentiality over some of these submissions and may publish an updated version of these submissions as appropriate in due course.
- 1.4 In the proposals put forward in the submissions to Document 19/124³, ComReg received views in relation to alternative auction formats and modifications to its proposed auction format, as well as a request from one respondent to carry out an additional Regulatory Impact Assessment (“RIA”)⁴ on auction formats.

¹ ComReg Document 19/124 – *Proposed Multi Band Spectrum Award - Response to Consultation and Draft Decision on the 700 MHz Duplex, 2.1 GHz, 2.3 GHz and 2.6 GHz Bands* – published 20 December 2019.

² ComReg Document 20/56s – *Non-confidential submissions received to Document 19/124*– published 06 July 2020.

³ ComReg will consider the submissions received to Document 19/124 further in developing its response to consultation and final substantive Decision on the Proposed Award.

⁴ In Three’s submission to Document 19/124, it states that:

“ComReg has not carried out a RIA that specifically compares its proposed auction format with alternative formats or modified versions of ComReg’s proposal. Given that it is controversial and that two of the current MNOs have argued against it, a RIA that takes into account the specific circumstances of the current award is warranted” (p8).

- *“In keeping with its regulatory obligations, ComReg should now carry out a Regulatory Impact Assessment that compares the two auction types under the specific circumstances that apply for this award and takes into account the above points,”* (p18).

1.1 Potential auction format options

- 1.5 ComReg aims to publish its response to consultation and final substantive Decision on the Proposed Award in Q4 2020. In order to further inform its consideration of the appropriate auction format for the Proposed Award, and taking account of the suggestions contained in the responses to Document 19/124, ComReg is seeking views from interested parties on the five auction format options, some of which have multiple sub-options, as outlined in this document. These five options are summarised below and discussed in more detail in Chapter 2.
- 1.6 **Option 1** refers to ComReg's current preferred auction format as set out in Document 19/124, being a combinatorial clock auction ("CCA"), and which includes the "Exposure Pricing" proposal as set out in Document 20/32 (see further below).⁵
- 1.7 **Options 2, 3 and 4** refer to alternative auction formats put forward by respondents, namely:
- a simultaneous multi-round ascending ("SMRA") auction and a variant of same with two 2.1 GHz lot categories instead of Time Slices;
 - a simple clock auction ("SCA") with relaxed activity rules; and
 - a combinatorial multi-round ascending ("CMRA") auction.
- 1.8 **Option 5** refers to potential modifications to Option 1 in light of the price asymmetry concerns raised by Three in its submission to Document 19/124. It consists of the following seven sub-options.
- 1.9 The first three sub-options under Option 5 are proposed by Three and are:
- CCA with amended rules for a joint cap of 2 × 25 MHz in the 700 MHz Duplex on two winners for the purposes of winner and price determination;
 - CCA with amended rules for a joint cap of 2 × 25 MHz in the 700 MHz Duplex on two winners for the purposes of price determination only; and/or
 - CCA with amended rules for a third lot value cap.

⁵ ComReg Document 20/32 - *Proposed Multi Band Spectrum Award – Draft Information Memorandum and Draft Regulations* – published 13 May 2020.

1.10 In the context of considering other potential means by which to mitigate Three's stated concerns⁶, ComReg is also seeking views on four further sub-options under Option 5, being:

- increase 700 MHz Duplex reserve prices;
- place a higher value on unsold 700 MHz Duplex lots in price determination;
- introduce non-linear 700 MHz Duplex reserve prices; and/or
- use weighted Vickrey nearest prices.

1.11 In addition, ComReg observes that, in light of its concerns, it is open to Three to return a 2 x 5 sub-1 GHz block to ComReg so that all existing MNOs would have the same quantum of sub-1 GHz Spectrum rights prior to the Proposed Award. This would thus allow all three MNOs to bid for the same number of 700 MHz lots (or other sub-1 GHz lots if returned and included) in the Proposed Award.

1.12 The options identified above are further detailed in Chapter 2 of this document with some commentary on same.

1.13 ComReg is now inviting views from interested parties on these options with the publication of this Information Notice.

1.2 Submissions to ComReg Document 20/32

1.14 In Document 20/32, ComReg published its draft Information Memorandum and draft regulations for the Proposed Award ("Draft IM"). Among other things, the Draft IM:

- details the rules and procedures that ComReg intends to employ in the implementation of its substantive proposals as currently set out in its draft Decision (Chapter 9 of Document 19/124); and
- set out ComReg's proposals regarding the information policy on Exposure Pricing.

1.15 Four submissions have been received to Document 20/32, being from Eir, Imagine, Three and Vodafone. ComReg is currently assessing the confidentiality of the submissions and will publish the non-confidential versions of these submissions in due course.

1.16 For the purposes of this Information Notice, ComReg observes that these submissions do not raise additional auction format options over and above those set out in this document.

⁶ For the avoidance of doubt, ComReg has not formed any views on Three's concerns as set out in its submission to Document 19/124. These will be addressed in ComReg's forthcoming response to consultation and final Decision.

- 1.17 ComReg will consider these submissions further in developing its response to consultation and final Decision on the Proposed Award and its response to consultation and final Information Memorandum.

1.3 Update on compatibility issues in the 2.6 GHz and 2.3 GHz bands

- 1.18 Over the last number of months, and also in the context of Covid-19 Temporary ECS Licensing, ComReg has had extensive and positive interactions with the Irish Aviation Authority (“IAA”) on advancing solutions to address the compatibility issue between MFCN in the 2.6 GHz Band and aeronautical radars operated by the IAA in the 2.7 GHz band by installing filters at three radars in Dublin, Cork and Shannon, and decommissioning another radar in Dublin.
- 1.19 ComReg will continue to engage with the IAA on this matter and will provide information on progress and timelines for addressing the compatibility issue at each of the four radars when available.
- 1.20 In a similar manner, ComReg continues to engage with Eir to address the compatibility issue of MFCN in the 2.3 GHz Band and Eir’s Rurtel system, and further information will be provided when available.

1.4 Key MBSA2 milestones and timelines

- 1.21 A summary of the key milestones in the MBSA2 project, with completion dates or projected completion dates as appropriate, is set out in Table 1 below.
- 1.22 Note that the projected dates are indicative and are subject to various factors, including but not limited to the nature and substance of submissions received to this and other related MBSA2 work streams.

Table 1: Key MBSA2 milestones and completion dates or projected completion dates.

No.	Key MBSA2 milestone	Completion Date / Projected Completed Date
1	Preliminary Consultation on which spectrum bands to award (ComReg Document 18/60).	29 June 2018
2	Information Notice on improving connectivity in Ireland (ComReg Document 18/103 and consultants reports 18/103a, 18/103b, 18/103c and 18/103d)	30 November 2018

3	Response to consultation Document 18/60 and further consultation on detailed award proposals (ComReg Document 19/59R).	18 June 2019
4	Response to consultation Document 19/59R and draft Decision (Document 19/124).	20 December 2019
5	Consultation on draft Information Memorandum (Document 20/32).	13 May 2020
6	Information Notice requesting views from interested parties on auction formats including potential alternative options or modifications to ComReg's proposed auction format (Document 20/56)	06 July 2020
7	Response to consultation Document 19/124 and Information Notice Document 20/56 and publication of substantive Decision.	Q4 2020
8	Response to consultation Document 20/32 and publication of final Information Memorandum.	Q1 2021
9	Present draft licensing regulations for the consent of the Minister for Communications, Climate Action and Environment.	Q1 2021
10	Award Process begins.	Q1 2021

1.5 COVID 19: Temporary ECS licences

1.23 As noted in Section 1.2 of Document 20/32, since the publication of Document 19/124, and in response to the extraordinary situation presented by the novel coronavirus (COVID-19), ComReg has consulted upon⁷ and put in place a

⁷ See ComReg Documents 20/21, 20/23 and 20/27 available at <https://www.comreg.ie/industry/radio-spectrum/spectrum-awards/covid-19-temporary-spectrum-management-measures>.

licensing framework⁸ (with the consent of the Minister) for the temporary assignment for an overall period of up to 6 months of:

- additional spectrum rights of use in the 700 MHz Duplex and 2.6 GHz Band; and
- liberalised spectrum rights of use in the 2.1 GHz Band, as this band is otherwise currently licensed for 3G-use only.

1.24 Following applications from the three MNOs, three Temporary ECS Licences were issued as detailed below.

Table 2: Temporary ECS Licences issued due to COVID-19

Licensee	Commencement Date	Expiry Date ⁹	Spectrum Bands
Meteor Mobile Communications Limited (“Meteor”)	9 April 2020	8 July 2020	700 MHz and 2.1 GHz bands
Three Ireland (Hutchison) Limited (“Three”)	9 April 2020	8 July 2020	700 MHz and 2.1 GHz bands
Vodafone Ireland Limited (“Vodafone”)	22 April 2020	21 July 2020	700 MHz and 2.1 GHz bands

1.25 When consulting upon this temporary spectrum licensing framework, ComReg clarified that it was intended solely to address the exceptional and extraordinary situation presented by COVID-19 and is entirely without prejudice to the Proposed Award.

1.26 For the avoidance of doubt, ComReg will deal with any possible extension of temporary rights of use in a separate process but any such extension will not have any impact on the competition caps for the Proposed Award.

1.6 Structure of Document

1.27 This document is structured as follows:

⁸ See the Wireless Telegraphy (Temporary Electronic Communications Services Licences) Regulations 2020 ([S.I. No. 122 of 2020](#)).

⁹ Under the 2020 Temporary ECS Licence Regulations, Licences were granted for an initial period of 3 months, with the potential for a renewal of up to a further 3 months, with the renewed rights of use expiring no later than 6 months from the date of the Regulations (i.e. on 7 October 2020 or earlier)

- **Chapter 2** set out information on potential auction formats options, including ComReg's current proposed auction format, alternative auction formats and modifications to ComReg's current proposed auction format and seeks views on same in order to inform ComReg's final decision and any RIA on auction formats that ComReg may carry out;
- **Chapter 3** details how to submit comments in response to this document and the envisaged next steps in the process;
- **Annex 1** includes a glossary of terms; and
- **Annex 2** summarises ComReg's statutory functions, objectives and duties relevant to the management of Ireland's radio frequency spectrum.

Chapter 2

2 Options - Alternative auction formats and potential modifications to ComReg's proposed auction format

2.1 In determining how best to assign spectrum rights of use in a particular award, ComReg normally approaches the matter in two analytical stages:

- first, informed by the “Assignment Process RIA”, ComReg determines the most appropriate assignment mechanism by which to assign the particular spectrum rights of use considered appropriate for award (e.g. auction or administrative assignment)¹⁰; and
- second, if an auction is considered appropriate, ComReg separately evaluates different auction formats with a view to determining which format would best meet with ComReg’s statutory objectives, including the extent to which the different formats would promote an efficient outcome by addressing any risks to same that may arise in that particular award¹¹.

2.2 In its response to Document 19/124, Three submitted that ComReg has not carried out a RIA that specifically compares its proposed auction format with alternative formats or modified versions of ComReg’s proposal, and that a RIA which takes into account the specific circumstances of the current award is warranted. In that regard, ComReg notes that to date it has conducted the following substantive assessments:

- A draft ‘Assignment Process’ RIA in Document 19/59R and Document 19/124 where it determined that an auction is the most appropriate assignment mechanism;
- Chapter 7 (Award Type and Format) of Document 19/59R which, among other things:
 - assessed five auction formats to determine which format would best address the risks to an efficient outcome associated with the Proposed Award and, consequently, would best meet ComReg’s statutory objectives (See Annex 2); and

¹⁰ See Annex 6 of Document 19/124 and Chapter 4 of Document 19/59R for the draft “Assignment Process” RIA in the current process.

¹¹ For example, aggregation risk, substitution risk, gaming, strategic demand reduction, etc. See Chapter 7 of Document 19/59R and Chapter 6 of Document 19/124.

- assessed a range of potential spectrum competition caps in determining the proposed sub-1 GHz cap of 70 MHz;
 - Chapter 6 (Award Type and Format) of Document 19/124 which, among other things, assessed in detail the responses to Document 19/59R including:
 - alternative auction format proposals and modified versions of the award formats outlined in Document 19/59R; and
 - alternative proposals in relation to spectrum competition caps including the treatment of existing spectrum holdings.
- 2.3 In the intervening period, and in response to Document 19/124, Three has made further proposals insofar as the auction format is concerned. In light of these proposals, and in the present case, ComReg is considering whether it may be appropriate to consider the auction format options for the Proposed Award in a RIA format (“Auction Format RIA”). This would be to further aid ComReg’s and other stakeholders’ understanding of the relative merits of the proposed auction format and the alternative auction formats and their potential impact upon industry stakeholders, competition and consumers.
- 2.4 Following a summary of relevant background information, the remainder of this Chapter describes various auction format options and seeks the views of interested parties so as to inform consideration of the options under any Auction Format RIA that ComReg may undertake.

2.1 Background information

- 2.5 The proposals put forward by Three, and its request for a RIA to assess same, primarily arise from its concern that it could pay “*highly asymmetric prices*” arising from the use of the CCA auction format in conjunction with the proposed spectrum competition caps. ComReg observes that such concerns have previously been considered in Document 19/124 and Document 19/59R (see summary below).
- 2.6 Three’s response to Document 19/124 proposes a number of amendments to the currently proposed CCA design, in particular with regard to the proposed spectrum competition caps and the winner and price determination process. Therefore, in order to assist interested parties’ understanding of the potential RIA options below, ComReg firstly sets out some relevant background information regarding:
- its spectrum competition caps proposals (Section 2.1.1);
 - its substantive assessment on asymmetric pricing (Section 2.1.2); and
 - the winner and price determination process as it relates to the potential RIA options identified below (Section 2.1.3).

2.1.1 ComReg's spectrum competition cap proposals

- 2.7 Table 3 below outlines the current spectrum holdings of Sub-1 GHz Spectrum. Only the three incumbent MNOs have Sub-1 GHz Spectrum holdings, with Three currently having the largest holding, having an additional 2 × 5 MHz in the 900 MHz Band compared to Eir and Vodafone.

Table 3: Pre-existing Sub-1 GHz Spectrum holdings

Band	Eir	Three	Vodafone
800 MHz	20 MHz (2 × 10 MHz)	20 MHz (2 × 10 MHz)	20 MHz (2 × 10 MHz)
900 MHz	20 MHz (2 × 10 MHz)	30 MHz (2 × 15 MHz)	20 MHz (2 × 10 MHz)
Total pre-existing sub-1 GHz holding	40 MHz	50 MHz	40 MHz

- 2.8 Three's current spectrum holdings in the 900 MHz Band are a result of:
- it winning one 2 × 5 MHz (10 MHz) Lot in the 2012 MBSA; and
 - gaining another 2 × 10 MHz (20 MHz) as a consequence of its 2014 acquisition of Telefonica Ireland.
- 2.9 In order to promote and safeguard competition by avoiding extreme asymmetric outcomes in the Proposed Award which could be detrimental to downstream competition, ComReg currently proposes to apply two sets of spectrum competition caps¹²:
- An aggregated 70 MHz (unpaired) spectrum competition cap across the 700 MHz Duplex, 800 MHz and 900 MHz Bands (i.e. "Sub-1 GHz Spectrum"), taking into account all existing holdings in these bands at the time of the Award Process, and
 - An aggregated 375 MHz (unpaired) spectrum competition cap across the 700 MHz Duplex, 800 MHz, 900 MHz, 1800 MHz, 2.1 GHz, 2.3 GHz, 2.6 GHz and 3.6 GHz Bands, (i.e. "Total Spectrum Holdings") taking into

¹² See Section 6.5 of Document 19/124,

account all existing holdings in these bands at the time of the Award Process in each of Time Slice 1 and 2¹³.

2.10 In designing its competition cap proposals, ComReg observed that while these spectrum competition caps would apply equally to all bidders, the proposed caps would of course affect bidders differently due to any pre-existing spectrum holdings. In summary, ComReg considered it appropriate to take account of existing spectrum holdings for a number of reasons.

2.11 In particular, it reflects the fact that downstream competition is affected by all relevant, available rights of use (rather than just the spectrum rights being made available in the Proposed Award), and taking into account existing spectrum holdings thereby limits the ability of bidders to accumulate spectrum rights of use in a manner which could distort competition.

2.1.2 ComReg's assessment on asymmetric pricing

2.12 The proposals put forward by Three and its request for a RIA to assess same primarily arise from its concern that it could pay highly asymmetric prices arising from the use of the CCA auction format in conjunction with the proposed spectrum competition caps. ComReg's substantive assessments of asymmetric pricing to-date are detailed in Chapter 7 of Document 19/59R and Chapter 6 of Document 19/124 and summarised below:

- Bidders paying comparable amounts is not an objective of the Proposed Award. The main objectives are set out in ComReg's statutory framework which, among other things, includes the promotion of competition and to ensure the efficient assignment and use of the radio spectrum, including by appropriately discharging its obligations in relation to, relevantly, the selection criteria for, and the spectrum fees¹⁴ arising from, the Proposed Award;
- In order to achieve an efficient assignment, asymmetric prices would be appropriate (i.e. objectively justified and non-discriminatory) if the opportunity cost imposed on Three (or any other bidder) is higher than that imposed on other bidders¹⁵.

¹³ With the exception of Eir's existing 2.3 GHz Band rights used for its Rurtel service and, in the case of 3.6 GHz Band holdings, the highest holding in any 3.6 GHz Band region held by that bidder. See paragraph 6.175 of Document 19/124.

¹⁴ Recalling that Regulation 19(2) of the Authorisation Regulations requires that fees for spectrum rights of use for electronic communications services are to be "objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose and take into account the objectives of the Regulator as set out in section 12 of the Act of 2002 and Regulation 16 of the Framework Regulations."

¹⁵ ComReg is conscious that, when there are complementarities (such as in the Proposed Award), any attempts to reduce asymmetric pricing could result in a format that is unable to support an efficient outcome if bidders' valuations for particular packages cannot be provided for.

- Asymmetric prices are not discriminatory because such prices may arise due to bidders starting from different positions and facing different levels of competition from each other. In particular:
 - Different bidders have different demand profiles and consequently will value packages differently. For example, the competition faced by Three is derived from the demand for spectrum from a variety of potential sources: Eir, Vodafone, non-MNO bidders and any entrants. It follows that their demand profiles will also vary; for example some bidders may wish to catch up with Three in terms of spectrum holdings, in which case it might face relatively strong competition for spectrum.
 - In relation to competition caps, it should be apparent that bidders may not be starting from the same position as all other bidders. When MNOs are viewed in the context of total sub-1 GHz holdings, Three is clearly not starting from the same position as Vodafone and Eir (because of its additional 2 × 5 MHz of 900 MHz spectrum); in effect, Three is not bidding for the same thing as the other MNOs and may also face a different level of competition from its rivals due to differing requirements for incremental spectrum across bidders.
 - Although there are scenarios in which Three is limited in the extent to which it can impose opportunity costs on other bidders compared to the opportunity cost others can impose on Three, this is not primarily due to the award format but rather the fact that Three would be entering the Proposed Award from a materially different position to other potential participants in terms of existing spectrum holdings.

2.13 ComReg also observed that there is no particular reason to expect that auction outcomes in which winners pay somewhat different amounts would have an adverse effect on competition in downstream service markets, because when downstream pricing decisions are made, spectrum access fees are a sunk cost and the primary determinant of pricing is the competitive environment. Indeed, given the degree of competition in the Irish market, ComReg noted that the evidence would appear to support the view that access fees are largely a sunk cost.

2.1.3 Summary of the proposed price determination process

2.14 Prior to setting out the specifics of certain options referred to below, ComReg outlines below, by way of summary, the price determination process proposed for use in the proposed CCA auction format.

2.15 Under current proposals, winning prices are based on the concept of opportunity cost. As set out in Paragraph 4.165 of the Document 20/32, the opportunity cost of a bidder, or a group of bidders, would be defined to be the difference between:

- the value of the hypothetical winning assignment in a scenario where all bids from the bidder(s) in question were excluded; and
- the value of the original winning assignment less the total bid amount from all winning bids from the bidder(s) in question.

2.16 The value of a winning assignment (both original and hypothetical) would be the total of winning bid amounts plus the value of any unassigned lots at corresponding Reserve Prices. While there may not be any unsold lots arising from the Proposed Award, for the purpose of price determination there may be unsold lots in the hypothetical winning assignment where all bids from the bidder(s) in question would be excluded. Therefore, the value attributed to unsold lots in the pricing algorithm could (theoretically at least) reduce asymmetry in prices.

2.17 In Section 2.3 below, ComReg describes some alternative options that would require changes to the proposed price determination process. ComReg notes that these proposals are without prejudice to its preliminary view in Document 19/124 that while its current proposals may result in asymmetric prices¹⁶, such asymmetries would be an appropriate outcome in order to achieve an efficient assignment, if the opportunity cost imposed on Three (or any other bidder) is higher than that imposed on other bidders. Rather, the intention is to explore whether the underlying efficiency and competition benefits of ComReg's currently preferred option could be maintained while appropriately mitigating the concerns raised by Three.

2.2 Policy issues and objectives for an 'Auction Format' RIA

Policy issues

2.18 The primary policy issue for any Auction Format RIA¹⁷ would be to determine what auction format would be the most appropriate by which to assign rights of

¹⁶ ComReg also observes that the extent of this asymmetry, if any, is not currently clear given that Three's concerns appear to largely arise from the assumption that there would be no new entrant bidders for 700 MHz Duplex lots. Further, to the extent that only the three MNOs placed bids for 700 MHz Duplex lots, competition between Eir and Vodafone is likely to be significant. Both are likely to have a strong requirement for 2x10 MHz. In particular, Eir is likely to have particular interest in obtaining two lots given existing asymmetries and the need to expand market share in line with its recent investment in rolling out additional infrastructure. Similarly, Vodafone is likely to have an additional incentive to obtain three 700 MHz lots in order to reduce the existing Sub-1 GHz Spectrum asymmetry relative to Three. Finally, the CCA format would provide good incentives to do so as competing for a third block would not affect the winning price of winning only two blocks.

¹⁷ Interested parties are reminded of the general RIA framework as described in revised draft 'Spectrum for Award' RIA which is contained in Annex 5 of Document 19/124.

use in the Proposed Award having regard to ComReg's statutory framework and associated objectives and the particular facts and circumstances of the Proposed Award.

Objectives

2.19 ComReg aims to design and carry out this assignment process in accordance with its broader statutory objectives (as outlined in Annex 2) including the promotion of competition in the electronic communications sector.

2.20 The focus of any Auction Format RIA would be to assess the impact of the proposed measure(s) (see potential regulatory options below) on stakeholders, competition and consumers. ComReg would then identify and implement the most appropriate and effective means by which to assign spectrum rights of use across both substitutable and complementary bands, while achieving its objectives of:

- assigning rights of use in the 700 MHz Duplex, the 2.1 GHz Band, the 2.3 GHz Band and the 2.6 GHz Band in line with relevant EC Decisions¹⁸ and other relevant legislation;
- selecting those to whom such rights may be granted on the basis of objective, transparent, non-discriminatory and proportionate selection criteria;
- imposing fees for rights of use for radio frequencies which reflect the need to ensure the optimal use of the radio frequency spectrum and its obligation to ensure that any such fees are objectively justified, transparent, non-discriminatory and proportionate;
- giving due weight to the achievement of the objectives set out in section 12 of the Act of 2002 and Regulations 16 and 17 of the Framework Regulations;
- promoting the interests of the economic development of the State and the electronic communications sector; and
- choosing regulatory measures which maximise the benefits for consumers in terms of price, choice and quality.

2.21 Further, a key objective in designing and carrying out this assignment process is to seek to encourage the efficient use and ensure the effective management of the radio frequency spectrum. ComReg's assessment of same typically involves identifying and describing several risks that may arise in the particular

¹⁸ For example:

- EC Decision 2008/477/EC of 13 June 2008 ("2.6 GHz EC Decision");
- (EU) 2016/687 of 28 April 2016 ("700 MHz EC Decision").
- Decision 2012/688/EU of 5 November 2012 ("2.1 GHz Decision").

award, and assessing which auction formats would best mitigate those risks while ensuring spectrum is awarded to those users who value it the most.

2.22 In Document 19/59R, ComReg noted that the main risks associated with the Proposed Award are: aggregation risks, gaming opportunities, strategic demand reduction, inefficiently unsold lots, substitution risks, bidder information deficits and complexity.

2.23 Interested parties should have regard to the policy issue to be addressed and the relevant objectives in achieving same when assessing each of the options outlined in Section 2.3.

2.3 Identifying the regulatory options

2.24 ComReg notes that an open format for the Proposed Award would be likely to lead to a more efficient outcome as more information would be made available to each bidder prior to determining their final sets of bids. ComReg also notes that all respondents favour an open award format. Consequently, and while ComReg previously assessed the use of a sealed bid combinatorial auction in Document 19/59R, it does not propose to consider this auction format further.

2.25 While some of the potential options listed below have previously been considered in the Award Type and Format Chapter of Documents 19/59R (Chapter 7) and 19/124 (Chapter 6), and the associated DotEcon reports, these options may be appropriate for further consideration within a RIA framework.

2.26 The remainder of this Section is structured as follows:

- First, Section 2.3.1 to Section 2.3.4 describes four auction formats previously subject to consultation which could form Options 1 – 4 of an Auction Format RIA; and
- Second, Section 2.3.5 provides a number of additional proposals which, if considered appropriate, would be referred to as Option 5 (or sub options of same) in an Auction Format RIA. In particular:
 - Options 5(a) to 5(c) refer to options proposed by Three in its response to Document 19/124; and
 - Options 5 (d) to 5 (g) refer to other options identified by ComReg that could potentially mitigate the pricing asymmetry risks raised o by Three¹⁹.

¹⁹ For the avoidance of doubt, ComReg has not formed any views on Three's concerns as set out in its submission to Document 19/124, which will be addressed in ComReg's forthcoming response to consultation and final Decision.

2.3.1 Option 1: CCA with Exposure Pricing

2.27 A description of the CCA and how it would operate is provided in Section 7.2.2 of Document 19/59a²⁰.

2.28 ComReg's preliminary view, as outlined in Document 19/124, was that the CCA is the auction format best suited to deal with the risks associated with the Proposed Award. The assessment of alternative auction formats against these risks is set out in detail in Section 7.3 of Document 19/59R and Section 6.1.4 of Document 19/124. This preliminary view was formed following consideration of the following:

- Submissions to Document 18/60, Document 19/59R and Document 19/124; and
- The advice of ComReg's expert advisors, DotEcon, including its Award Design Report (Document 19/59a) and its assessment of consultation responses to Document 19/59R (Document 19/124a).

2.29 In Document 20/32 ComReg proposes to provide additional information to bidders during the Main Stage of the Proposed Award regarding what a bidder would pay at most for a particular package if the clock rounds stopped with no excess demand and it won that package ("Exposure Pricing"). ComReg will make a final determination on whether to include Exposure Pricing following an assessment of all information provided by respondents to Document 20/32 and any other advice it may receive. In that regard, ComReg may include Exposure Pricing as part of Option 1 or include as a separate Option 1(b) where Option 1(a) would be a CCA without Exposure Pricing.

2.30 Three submits that the use of the CCA is inappropriate and the wrong format to achieve ComReg's stated objectives for this award process. For example, it submits that:

- the CCA does not protect smaller MNOs or market entrants and exposes these bidders to paying significantly higher prices than Vodafone;
- the interaction of the proposed spectrum competition caps with the CCA would expose Three to paying significantly more than its two rival MNO bidders for the same thing (or being knocked out of the 700 MHz Duplex contest altogether);
- ComReg's concerns regarding aggregation risk are wrong, have been given too much weight and can be substantially addressed by removing the proposed Time Slices;

²⁰ Document 19/59a, 'DotEcon Report - Proposed award process for rights of use in the 700 MHz, 2.1 GHz, 2.3 GHz and 2.6 GHz bands', published 18 June 2019.
<https://www.comreg.ie/publication/dotecon-report-proposed-award-process-for-rights-of-use-in-the-700-mhz-2-1-ghz-2-3-ghz-and-2-6-ghz-bands/>

- strategic demand reduction in an SMRA is very unlikely to prevent an efficient outcome, but there is a real risk that prices and allocation in a CCA are distorted because bidders adopt very different strategies; and
- the efficiency case for allowing non-uniform prices is rather unlikely to apply in the specific circumstances of this award.

2.31 Eir reserves its position on the choice of auction format and submits that absent material improvements it is unable to support the CCA. However, it also noted that it was pleased to learn that additional information would be provided during the clock rounds and *“improved transparency to address pricing uncertainty would be a substantial improvement...”*.

2.32 ComReg observes that Option 1 appears to be supported by:

- Vodafone in its submission to Document 19/124²¹; and
- Imagine in its submission to Document 18/60²².

2.3.2 Option 2: Simultaneous Multi-Round Ascending Auction (“SMRA”)

2.33 A description of the SMRA and how it would operate is provided in Annex A of Document 19/59A.

2.34 ComReg notes that some respondents to Document 19/59R and Document 19/124 proposed the use of a SMRA format. ComReg discusses the SMRA format in the context of the following two potential options:

- Option 2(a) – SMRA with Time Slices as per Document 20/32; and
- Option 2(b) – SMRA with two 2.1 GHz Band lot categories and no Time Slices.

Option 2(a) – SMRA with Time Slices

2.35 ComReg provided its preliminary views on an SMRA format in Document 19/59R²³. Therein, it noted that an SMRA is mechanically simple and provides bidders with various degrees of information regarding the demand for spectrum during the award²⁴. However, ComReg was of the preliminary view that an SMRA was unsuitable for the Proposed Award for several reasons, including that:

²¹ For example, Vodafone noted *“the representation from others to replace the CCA auction format, but believe that CCA must be used if the Award contains a Time-Slices element.”*

²² Given the recent experience of the CCA auction process of 3.5GHz Imagine believes that CCA is a suitable mechanism for the auction and allocation of this spectrum.

²³ See Section 7.3 Document 19/59R.

²⁴ For example, information about specific bids placed by bidders, aggregate demand for each lot/lot category, or whether or not prices need to increase for a lot/lot category.

- bidders bidding on a combination of lots may be exposed to the risk of ending up being the standing high bidder for (and winning) some but not all of the lots it requires (i.e. aggregation risk);
- it is vulnerable to a range of gaming strategies, especially when bidding is for multiple lots across various lot categories (as is the case in the Proposed Award);
- it exposes bidders to substitution risks as it is not possible to eliminate switching impediments under the traditional activity rules; and
- bidders (in particular smaller bidders) would have incentives to inefficiently reduce demand earlier under this auction format in an attempt to end the auction at lower prices.

2.36 ComReg also observed that while the SMRA can be modified to some degree in an attempt to mitigate these issues (so called hybrid SMRAs) such modifications (e.g. bid withdrawals) would not eliminate the risks entirely (see Chapter 7 Document 19/59R) and could impose other risks on bidders. For example, bid withdrawals may further increase the scope for gaming strategies aimed at reducing competition.

2.37 In response to Document 19/59R, an SMRA was proposed by Three and suggested as one of two possible formats by Vodafone. In summary:

- Vodafone submitted that “*open, simultaneous, multi-round auctions (whether **SMRA** or CCA) are the most efficient way to assign new spectrum*” (emphasis added)²⁵.
- Three submitted that regulators that had previously used the CCA were now returning to formats inspired by the traditional SMRA, such as the clock auction format for new awards. This, Three claimed, was due to the potential for inefficiency and grossly asymmetric pricing, arising from the use of a CCA format²⁶.
- Three also recounted its consultant NERA’s suggestion that ComReg consider using DotEcon’s hybrid clock-SMRA design, as used for the UK 5G award (2018) and proposed for the forthcoming Netherlands 5G award.²⁷

2.38 In Document 19/124, ComReg considered these suggestions but remained of the preliminary view that an SMRA was not appropriate on this occasion for a number of reasons, including:

²⁵ Vodafone response to Document 19/59, Page 13.

²⁶ Three response to Document 19/59R, Page 17.

²⁷ Ibid, Page 53.

- bidders may have strong incentives to reduce demand early in an attempt to end the auction at lower prices as continuing to compete for lots they do not expect to win would only serve to increase the price of lots they do win.
- uniform pricing (i.e. all bidders paying a common price per lot) may not be compatible with an efficient assignment as it is likely to boost incentives to distort bidding behaviour to moderate prices and soften competition.
- the specific recommendation of a hybrid SMRA in the Netherlands was based on the expressed view that there were no significant synergies between the lots on offer and no explicit concern about possible complementarities for new entrants²⁸.

2.39 An SMRA was also proposed by Vodafone and Three in response to Document 19/124:

- Vodafone recapped its previously stated views²⁹ in response to Document 19/59R (see above) but also noted “*the representation from others to replace the CCA auction format, but believe that CCA must be used if the Award contains a Time-Slices element.*”³⁰

2.40 Three made a number of submissions regarding SMRAs in its response to Document 19/124, including that:

- A well-designed SMRA format (such as the hybrid SMRA-clock format that DotEcon developed for UK regulator Ofcom and has proposed for forthcoming awards in Austria and the Netherlands) would deliver an appropriate outcome³¹.
- An SMRA would be more likely to deliver outcomes consistent with ComReg’s obligations and objectives and, as far as Three is aware, it is also the format adopted by every other Member State to date for their 5G awards³².
- Demand reduction in an SMRA is very unlikely to prevent an efficient outcome³³.

²⁸ Alternatively, in the Proposed Award, ComReg is conscious that there are complementarities in the Proposed Award and an SMRA may be unable to support an efficient outcome if bidders’ valuations for particular packages cannot be provided for.

²⁹ Vodafone response to Document 19/124, Page 7.

³⁰ Ibid – Page iii.

³¹ Three response to Document 19/124, page24.

³² Ibid, Page 4.

³³ Ibid, Page 9.

- Given the large amount of spectrum available in this auction, all bidders should be well equipped to manage their own aggregation risk in the context of an SMRA³⁴.
- Three submits that an SMRA should benefit a market entrant over a CCA for this award, as the incentives for MNOs to accommodate their demand are greater, and entrants are less exposed to over-paying for any spectrum that they do manage to win (see discussion of weaker bidders below)³⁵.
- The uniform price rule under an SMRA creates a powerful disincentive, in Three's view, for bidders to express inflated values if they are not sure they are strong enough to win.³⁶

Option 2(b) –SMRA with two 2.1 GHz Band lot categories

2.41 In its response to Document 19/59R, Three proposed an SMRA format with two 2.1 GHz Band lot categories³⁷ and, in this regard, submitted that³⁸:

- It would make lots easier to value making bidding decisions in the auction simpler.
- It would remove the necessity for combinatorial bidding, meaning a simpler auction format could be used such the hybrid clock-SMRA format proposed by DotEcon in the Netherlands.
- The removal of Time Slices for 2.1GHz Band lots would mean no time slicing in other capacity bands.
- It should encourage straightforward bidding in the auction and promote price discovery.

2.42 In Document 19/124³⁹, ComReg outlined its preliminary view that such an approach would be unsuitable for the Proposed Award because it would:

- Fragment demand across two lot categories of different duration thereby softening competition during the award and create obvious incentives for tacit collusion, whereby bidders compete less

³⁴ Ibid, Page 9.

³⁵ Ibid, Page 9.

³⁶ Ibid, Page 13.

³⁷ The first lot category would consist of 9 lots (October 2022 – June 2040). The second lot category would consist of 3 lots (March 2027 – June 2040).

³⁸ Three response to Document 19/59R, Page 29.

³⁹ Document 19/124 - Proposed Multi Band Spectrum Award - Response to Consultation and Draft Decision The 700 MHz Duplex, 2.1 GHz, 2.3 GHz and 2.6 GHz Bands, published 20 December 2019 - See Section 4.4.3.

<https://www.comreg.ie/publication/proposed-multi-band-spectrum-award-response-to-consultation-and-draft-decision-the-700-mhz-duplex-2-1-ghz-2-3-ghz-and-2-6-ghz-bands>

intensively, or not at all, in order to avoid the risk driving up prices for all bidders in both categories.

- It could also expose Eir to strategic bidding aimed at artificially increasing the price of the shorter lots.

2.43 In its response to Document 19/124, Three reiterated its view that an SMRA with two 2.1 GHz lot categories is an appropriate format for the Proposed Award based on the following arguments⁴⁰:

- Eir would have an obvious defensive strategy if other MNOs sought to drive the price of lots in the second lot category.
- Eir would be advantaged relative to Three and Vodafone as the shorter lots are not a good substitute for longer ones and thus it believes that there is greater risk for Three and Vodafone to switch back and forth than there may be for Eir.
- The risk that MNOs identify a natural split of lots in the 2.1 GHz Band is a general issue that applies regardless of how the lots are packaged and the incentives for tacit collusion therefore do not apply.

2.44 In response to Document 19/124, Vodafone submitted that it did not support Three's two lot category proposal⁴¹ for the following reasons:

- This solution was used in Germany and, having engaged with its experts who participated in the German award, Vodafone believes that it is not a good solution.
- The issues noted by DotEcon (fragmentation of competition, targeting lots and tacit collusion) played a significant part in that auction where parties bid for lots that were desired by others, causing significant distortion in the auction.

2.3.3 Option 3: Simple Clock Auction (“SCA”) with relaxed activity rules.

2.45 A description of the SCA and how it would operate is provided in Annex A of Document 19/59A.

2.46 In its response to Document 19/59R, Eir proposed a SCA due to the use of the “pay as bid” approach and the following claimed advantages⁴²:

- There is no uncertainty over the amount that would need to be paid if a bid won, hence bidders could easily decide whether or not they could afford to submit a particular bid.

⁴⁰ Three response to Document 19/124,, Page 10.

⁴¹ See page 3 of Vodafone's submission to Document 19/124, published in Document 20/56s.

⁴² Eir response to Document 19/59R, page 10.

- There would be no need (or opportunity) to submit bids for amounts that are significantly in excess of the price that would need to be paid if the bid won, hence there would be no issues for bidders that would be unable or unwilling to do so.
- Budget constrained bidders would be in a far stronger position to submit bids consistent with their full valuations up to the overall limit of their budget.
- Bidders that submit 'gaming' bids would risk having to pay the full amount of their bids if they won.
- There is no risk that a bidder would come out of the auction with nothing unless they have submitted a bid for nothing.

2.47 Eir also proposed that the SCA be used in conjunction with relaxed activity rules⁴³ for the following reasons:

- It would allow bidders to submit bids consistent with their preferences throughout the auction, provided that they took care to not submit bids inconsistent with their true preferences in eligibility reducing rounds.
- It would be more transparent and less complex than a CCA or CMRA and would mitigate some of the risks associated with same (e.g. price transparency and complexity).

2.48 In Document 19/124⁴⁴, ComReg was of the preliminary view that an SCA with relaxed activity rules would be unsuitable for the proposed Award Process for several reasons, including that:

- It would not provide bidders with enough flexibility to express their demand for different combinations of packages.
- Such an approach is open to the risk of inefficiently unsold lots and measures to mitigate this are insufficient to ensure an efficient outcome in an important award.
- It is not possible to adopt a relaxed activity rule in the SCA without introducing potential for gaming that would allow bidders to hide their demand or distort prices.

2.49 ComReg did not receive any responses to Document 19/124 regarding the matter of SCA with relaxed activity rules.

⁴³ Eir described this rule as “one that allowed bids for spectrum packages having an associated eligibility in excess of the bidder’s eligibility limit for the round if that bid would nevertheless be consistent with the preferences between packages revealed by that bidder in earlier eligibility reducing rounds.”

⁴⁴ See Section 6.1.3 and Section 6.1.4.

2.3.4 Option 4: Combinatorial multi-round ascending (“CMRA”) auction format

2.50 A description of the CMRA auction format and how it would operate is provided in Section 7.2.3 of Document 19/59A.

2.51 In its response to Document 19/59R, Eir noted that the CMRA format may be suitable due to the claimed advantages of the “pay as bid” format.⁴⁵ However, in same response, Eir expressed concern that there may be a greater risk of price asymmetry in a CMRA favouring stronger bidders compared to a CCA. The complexity and limited previous history of CMRA auctions was also identified as a concern.

2.52 In Document 19/124, ComReg observed that a CMRA would:

- Allow for package bidding (thereby eliminating aggregation risks), and would mitigate substitution risks by allowing bidders to make a range of mutually-exclusive bids for alternative packages;
- Feature an open stage that would help to mitigate bidder information deficits, reducing the risk of an inefficient outcome.
- Mitigate the risk of inefficiently unsold lots, provided that bidders submit a sufficiently rich set of bids that reflects their demand for alternative packages.

2.53 However, ComReg was of the preliminary view that a CMRA format would be unsuitable for the Proposed Award because the format is relatively novel and, with the large number of lots available in the Proposed Award, it could be challenging for bidders who wish to maintain a large list of bids as such bidders may need to reconsider and update many bids on a round-by-round basis⁴⁶.

2.54 ComReg did not receive any responses to Document 19/124 with regard to the CMRA format.

2.3.5 Option 5: CCA with amended rules

2.55 In its submission to Document 19/124, Three proposes that, if a CCA is to be used, the following three amendments could be made to ComReg’s current preferred auction format:

- Option 5(a) – CCA with joint cap of 2 × 25 MHz in the 700 MHz Duplex on any two winners; or

⁴⁵ Eir response to Document 19/59R, Page 10

See: <https://www.comreg.ie/publication/non-confidential-submissions-to-document-19-59r-and-other-relevant-material>

⁴⁶ The CCA requires bidders to consider their final set of bids only once in the supplementary bids round.

- Option 5(b) – CCA with joint cap of 2 × 25 MHz in the 700 MHz Duplex on any two winners for price determination; and
- Option 5(c) – CCA with a third 700 MHz Duplex lot value cap.

2.56 In the context of considering other potential means by which to mitigate Three's stated concerns⁴⁷, ComReg is also seeking views on four further sub-options under Option 5, being:

- Option 5(d) - Increase 700 MHz Duplex reserve prices;
- Option 5(e) - Introduce non-linear 700 MHz Duplex reserve prices;
- Option 5(f) – Increase the value of unsold 700 MHz Duplex lots in price determination; and
- Option 5(g) - Use weighted Vickrey nearest prices.

2.57 In relation to Option 5, ComReg seeks the views of interested parties on Three's stated concerns in relation to asymmetric prices and whether any of the options under Option 5 would be necessary and appropriate to address any such concerns (noting ComReg's statutory framework including, among other things Regulations 11(2) and 19 of the Authorisation Regulations).

Option 5(a) – CCA with a joint cap of 2 × 25 MHz in 700 MHz Band on two winners for the purposes of winner and price determination

2.58 Three proposes a joint cap of 2 × 25 MHz on 700 MHz Duplex across any two bidders to be implemented alongside the sub-1 GHz cap (i.e. the winner determination process would not allow an outcome in which two bidders each won three of the six available 700 MHz lots). Three also suggests that this approach should involve other rule changes:

- The closing rule for the clock rounds would be amended so bidding would continue if only two bidders remained competing for three 700 MHz lots each.
- Rule changes to ensure that the auction outcome was not distorted by missing bids.

2.59 Three favours this latest proposal for a number of reasons including:

- It would have the effect of removing scenarios where both Vodafone and Eir each win 2 × 15 MHz in the winner and price determination.

⁴⁷ For the avoidance of doubt, ComReg has not formed any views on Three's concerns as set out in its submission to Document 19/124, which will be addressed in ComReg's forthcoming response to consultation and final Decision.

- It would place Three on a more level playing field with Eir and Vodafone with respect to pricing, as Three would also *de facto* be guaranteed to pay reserve price for its first 700 MHz lot in the event that there are only three bidders for 700MHz Duplex lots.

2.60 ComReg firstly observes that greater specificity is required in relation to why the rule changes are required and how they would operate in practice. For instance, the closing rule for the clock rounds and in terms of accounting for 'missing bids'.

2.61 ComReg also has the following preliminary observations/queries regarding Option 5(a):

- I. The joint cap would appear to place a restriction on bidders other than Three, not for the purpose of preventing distortions to competition⁴⁸, but rather to address Three's concerns in relation to the price it might have to pay for 700 MHz Duplex spectrum.
- II. It would preclude spectrum holding outcomes that would be permitted under ComReg's current spectrum competition cap proposals⁴⁹. In particular, it would prevent the potential for both Vodafone and Eir to obtain 70 MHz of sub-1 GHz spectrum.
- III. ComReg questions whether it would amount to an effective reservation of some 700 MHz Duplex spectrum for Three in the event that only the existing MNOs competed for 700 MHz Duplex spectrum.
- IV. Assuming the existing MNOs were the only bidders for 700 MHz Duplex spectrum, it would appear to preclude an outcome where Three would have a lower amount of sub 1-GHz spectrum than both competing MNOs post award. In effect, it would prevent an outcome where Three has 5 sub-1 GHz lots post award in contrast to Vodafone or Eir who could still end up having 5 sub-1 GHz lots post award.
- V. Whether the introduction of new closing rules for the clock rounds and steps to prevent missing bids would create undue additional complexity.

2.62 In addition, the queries raised in relation to Option 5 (b) below would also apply to Option 5 (a) given that Option 5 (a) includes amendments to winner and price determination whereas Option 5 (b) concerns just price determination.

⁴⁸ The main purpose of a competition cap is to ensure that the distribution of spectrum rights in an award is determined by competition among bidders, subject to ensuring that extreme asymmetric outcomes which could harm downstream competition do not emerge from the award. Three's proposal does not relate to this purpose.

⁴⁹ See Section 7.7 of Document 19/59R and Document 6.5 of Document 19/124.

Option 5 (b) – CCA with a joint cap of 2 × 25 MHz in 700 MHz Band on two winners for purposes of price determination

2.63 Three proposes a CAA with a joint cap of 2 × 25 MHz in the 700 MHz Band on two winners for the purposes of price determination. This option is described by Three in its response to Document 19/124. (See Document 20/56s) as follows:

“if ComReg was not prepared to eliminate an outcome where Eir and Vodafone each win three lots each, then it could opt to only apply the proposed joint cap for the purposes of price determination (i.e. identifying alternative bid sets used to calculate opportunity cost) not winner determination. Such a rule would address the price setting asymmetry without foreclosing allocation outcomes.”


2.64 ComReg’s preliminary view is that greater specificity is required in relation to the “*alternative bid sets*” (i.e. what “*alternative bids sets*” should be used under this option).

2.65 Notwithstanding, ComReg has the following preliminary observations/queries: around Option 5(b):

- Whether the exclusion of certain bid combinations for determining opportunity cost could reduce incentives to bid truthfully thereby polluting the price discovery process and compromising the efficiency of the award.
- Whether excluding certain combinations of bids from the price determination could lead to prices that do not fully reflect opportunity cost pricing and the benefits of same⁵⁰.

Option 5 (c) – CCA with a third lot value cap

2.66 Three proposes a cap on the marginal value that a bidder can express for its third lot in the 700 MHz Band, such that it cannot be higher than the final clock price. Three supports this proposal for the following reasons.

- [   ].⁵¹
- [  ].

2.67 ComReg has the following preliminary observations/queries with regard to Option 5(c).

⁵⁰ Opportunity cost pricing provides bidders with incentives to compete for additional spectrum and provides good incentives for bidders to make bids that reflect their actual relative valuations for the different packages that bidders consider they could win.

⁵¹ [ ].

- I. Whether it would result in bidding restrictions that could be justified on competition grounds. In particular, it would appear to limit the bid amounts that bidders could place for lots that are permitted by the spectrum competition cap. This could restrict potentially efficient outcomes that could have arisen absent any such restriction. (e.g. Vodafone and/or Eir winning a third 700 MHz lot).
- II. Whether bidders have a value in being able to effectively guarantee winning their final primary package and whether a bidder whose final primary package included three 700 MHz lots would be permitted to submit a supplementary bid that would guarantee it would win those Lots^{52,53}.
- III. Whether it would unduly advantage Three by limiting Eir's and Vodafone's ability to compete for a third 700 MHz lot.
- IV. Whether the assumption that all bidders (including potential new entrants) do not have an increasing marginal valuation for a third 700 MHz lot is correct and would not compromise the efficient assignment of spectrum rights of use.⁵⁴
- V. Whether the proposed rule changes would create excessive complexity such that it would compromise the ability of the Exposure Pricing functionality to operate correctly and provide useful information to bidders.

Option 5 (d) Increase 700 MHz Reserve Prices

2.68 ComReg sets minimum prices by reference to a conservative lower bound estimate of the market value of the spectrum that is likely to be below final prices. This approach encourages competition while also discouraging frivolous bidders and means that final prices would ultimately be determined by the bidders in the proposed auction and not ComReg.

2.69 Increasing Reserve Prices for 700 MHz lots could potentially reduce pricing asymmetry by increasing the value of an unsold lot in the price determination process described above (Section 2.1.2). Because each incremental lot⁵⁵ would have to cover a higher amount (i.e. the increased Reserve Price) the scope for

⁵² Subject to cautionary remarks outlined in Annex 7 of Document 20/32 (i.e. 'Implications of the Final Price Cap).

⁵³ Bidders who did not have three 700 MHz lots included in its final primary package would already be subject to the relative caps;

⁵⁴ For example, Vodafone could potentially have an increasing valuation for a third 700 MHz lot in order to remove the sub-1 GHz asymmetry that currently exists between it and Three;

⁵⁵ Under the proposed opportunity cost pricing approach, the Reserve Price of individual lots could affect the additional cost of winning a larger spectrum package. The opportunity cost approach imposes the reserve price floor and ensures that lots are only awarded when the incremental value of releasing additional lots exceeds the reserve price. ComReg notes that this approach already assists in reducing potential asymmetry by ensuring that additional lots are at a minimum subject to the Reserve Price.

certain bidders to be assigned additional spectrum relatively cheaply would be reduced.

2.70 For illustrative purposes only, when determining the price for Eir and Vodafone under the hypothetical winning assignment (where there are no entrant bidders), there would be at least one unsold lot (depending on whether Eir and Vodafone made bids for one, two or three 700 MHz lots and whether Three bids for zero, one or two lots) which would be valued at Reserve Price for price determination purposes. The higher the Reserve Price, the higher the value of the hypothetical winning assignment, which consequentially lowers the price for both Vodafone and Eir compared to Three⁵⁶.

2.71 ComReg has the following preliminary observations/queries around Option 5(d).

- I. whether increasing Reserve Prices would reduce the pricing asymmetry as described above.
- II. whether there is scope to increase Reserve Prices given their already conservative nature.

2.72 In relation to II above, to the extent that interested parties already consider Reserve Prices to be close to market value, ComReg seeks views on whether and how such prices could lead or not to a significant pricing asymmetry.

2.73 To the extent that interested parties consider that increasing Reserve Prices may be warranted, ComReg seeks views on the extent of any increase. For example, the DotEcon Benchmarking Report conservatively estimated a minimum price range of €0.44 - €0.66⁵⁷ per MHz per capita for 700 MHz. The proposed minimum price is set using a price of €0.44 per MHz per capita at the lower end of the range. In order to provide a higher value for unsold lots in the price determination a higher price per MHz per capita within the existing range, for example €0.66, could be used.

2.74 In providing views on the above matters, ComReg would remind interested parties to bear in mind that:

- setting higher Reserve Prices could choke off efficient demand for spectrum, both in terms of an individual lot and any incremental spectrum demand from any bidder; and

⁵⁶ The difference between the hypothetical winning assignment and the original winning assignment acts as a discount from a bidders winning bid (i.e. the higher the difference, the greater the discount and the lower the price paid). When determining the price for Three, if Vodafone and Eir submitted bids for the maximum 3 lots each there would be no hypothetical unsold lot.

⁵⁷ The benchmarking report used a range of €0.38 - €0.57 which was for a 15 year period. The latest figures reflect a 20 year period as per the draft Decision and draft IM.

- setting higher Reserve Prices closer to market-clearing levels comes with an associated risk of spectrum going unsold due to award design inefficiencies.

Option 5 (e) Place a higher value on 700 MHz unsold lots in Price Determination

- 2.75 This proposal directly relates to the price determination process described in Section 2.1.3. This would be a more direct way of reducing the 700 MHz pricing asymmetry through the price determination process compared with increasing Reserve Prices. In effect, the Reserve Price would remain the same, however, for the purpose of price determination any unsold 700 MHz lots would have a higher, separate valuation. The likely impact of this proposal would be that any asymmetry in price between Three and Vodafone/Eir would be reduced via an increase in prices paid by Vodafone and Eir.
- 2.76 This valuation could be based on different approaches, including:
- a) A benchmarking estimate that is above the 700 MHz Reserve Price; or
 - b) Alternative valuations expressed by other bidders for a third lot.
- 2.77 In relation to (a), in order to provide a higher value for 700 MHz unsold lots in the price determination, a higher price per MHz per capita could be used within the range referred to in Paragraph 2.75 above.
- 2.78 In relation to (b), ComReg could estimate the value other bidders place for a 700 MHz lot and use that value as the value of a hypothetically unsold lot in price determination.
- 2.79 The benefit of this approach is that because it only applies to price determination, it would not require an increase in Reserve Prices of 700 MHz lots more generally with the consequent risk of choking off demand. However, this approach raises a number of additional issues that would require further consideration.
- 2.80 ComReg has the following preliminary observations/queries around Option 5(e).
- I. whether it would be consistent with the Minimum Revenue Core (MRC) pricing methodology as set out in the draft IM (ComReg Document 20/32), where the intention is to minimise auction revenue subject to winners paying enough to justify not assigning those lots to other bidders (i.e. more revenue could be raised than is strictly necessary to ensure an efficient outcome).
 - II. whether moving away from the MRC approach would create incentives to deviate from truthful bidding because winning prices would not be

the lowest possible to ensure that winners pay just enough for the losers to be content with the auction outcome (i.e. it could create incentives for bidders to bid lower than they would have under MRC).

- III. whether it would lead to a contradiction in how ComReg assigns lots. On the one hand, ComReg would be willing to assign a lot for any price greater or equal to the Reserve Price. On the other hand, in price determination, by valuing 700 MHz unsold lots⁵⁸ (hypothetical or otherwise) at some price above the Reserve Price, ComReg would appear to be expressing a value for that lot(s) up to that price and only release it if bidders place a value greater or equal to that value.
- IV. whether estimating the value of a 700 MHz lot through the methods referred to above would be sufficiently reliable and robust (noting that benchmarking is used to estimate conservative prices below final prices) for the purpose of valuing lots in price determination and whether other approaches are available.

Option 5 (f) Introduce non-linear 700 MHz Reserve Prices

- 2.81 This proposal would involve setting non-linear 700 MHz Reserve Prices whereby, for a given lot category, the reserve price per lot for a combination of lots in that category would increase with the number of lots included. For example, and illustrative purposes only, the reserve price for two 700 MHz lots would be more than twice the reserve price for one 700 MHz lot, and the reserve price for three 700 MHz lots would be more than 3/2 times the reserve price for two 700 MHz lots that reflect the incremental value of different blocks within possible spectrum packages (i.e. packages with one, two or three 700 MHz lots).
- 2.82 This could reduce the asymmetry as no bidder would be able to be assigned two or three 700 MHz lots below a certain level (which would likely be higher than the sum of individual Reserve Prices). Such Reserve Prices would form part of the price determination process. For example, to the extent that each bidder was assigned two lots each (a potential outcome in the Proposed Award) the price paid would also have to be at least the Reserve Price for a package of two lots (which would likely be higher than the sum of the Reserve Price for two individual lots).
- 2.83 ComReg has the following preliminary observations/queries around Option 5(f).
- whether there is likely to be increasing or decreasing marginal valuations associated with incremental 700 MHz lots (e.g. two 700 MHz may have a higher valuation than the sum of the value for two individual lots).

⁵⁸ The purpose of valuing unsold lots at the Reserve Price is to prevent any Bidder being assigned an incremental lot at a price below the Reserve price.

- whether introducing non-linear 700 MHz Reserve Prices would reduce the pricing asymmetry as described above.
- whether non-linear reserve prices would reduce the risk of choking off demand of smaller bidders (who may be interested in lower amounts of spectrum) compared to increasing 700 MHz Reserve Prices more generally
- whether it would be appropriate to introduce non-linear reserve prices for the 700 MHz Duplex only, with linear Reserve Prices for the remaining bands.⁵⁹

2.84 ComReg would separately explore the extent to which there is increasing and/or decreasing values for additional lots following consideration of the responses to this consultation.

Option 5 (g) Use Weighted Vickrey nearest prices

2.85 The Vickrey-nearest Minimum Revenue Core (MRC) rule set out in the draft Information Memorandum requires that every possible group of winners must pay at least its joint opportunity cost (i.e. the best alternative that could be obtained by reassigning the lots awarded to that group of winners amongst other bidders).

2.86 The Vickrey nearest approach includes an adjustment mechanism that ensures that every subset of winners would jointly pay a price that is sufficient to outbid the offers made in competing bids. This reduces the scope for prices that may be considered unfair where an alternative bidder would have had a bid that was greater than the sum of the individual opportunity costs.

2.87 An alternative to this approach would be to use a '*weighted Vickrey nearest*' approach, minimising the weighted sum of squares, where the weight is the size of the corresponding winner's winnings, which may be defined in many different ways. For example, in the case of the Canadian 600 MHz auction⁶⁰, it was the value of the lots in the winning package at Reserve Prices.⁶¹ Alternatively, the weight could be measured against the number of 700 MHz lots assigned to each particular bidder.

⁵⁹ This approach might lead to excessive complexity if used for all bands. The particular issue raised by Three primarily concerns the 700 MHz Band. In that regard, such an approach may reduce any complexity concerns as there are only six 700 MHz lots available.

⁶⁰ <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11499.html>

⁶¹ While such an approach could be useful in spectrum awards where the size of winning packages is likely to be significantly different across Bidders, ComReg is of the preliminary view that the use of such a rule in the Proposed Award would be unlikely to reduce the asymmetry in prices between MNOs (which appears to be Three's concern) because competition during the award means that there is unlikely to be a significant difference between the size of each MNOs winning package

2.88 ComReg has the following preliminary observations/queries around Option 5(g):

- whether introducing '*weighted Vickrey nearest prices*' would reduce the pricing asymmetry as described above.
- whether it (weighted according to number of 700 MHz lots won) could lessen competition during the course of the award by reducing incentives for Eir and Vodafone to compete for additional lots, noting that any reduction in competition between Eir and Vodafone could increase the price asymmetry between those bidders and Three.

2.4 Request for views on proposed RIA Options

2.89 ComReg welcomes the views of interested parties on whether one or more of the proposed regulatory options should be included in an Auction Format RIA, should ComReg consider it appropriate to include such a RIA in its Response to Consultation and final substantive Decision.

2.90 Interested parties should also provide views and supporting evidence on the following:

- The likely impact of each regulatory options on stakeholders, competition and consumers, including by reference to specific aspects of the Regulatory Framework (see Annex 2) which interested parties may consider particularly relevant in present circumstances;
- ComReg's obligation to grant a limited number of individual rights of use of radio frequencies on the basis of selection criteria which are objective, transparent, non-discriminatory and proportionate and which give due weight to the achievement of the objectives set out in section 12 of the Act of 2002 and Regulations 16 and 17 of the Framework Regulations⁶²;
- ComReg's ability to impose fees for rights of use for radio frequencies which reflect the need to ensure the optimal use of the radio frequency spectrum and its obligation to ensure that any such fees are objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose and take into account the objectives of the Regulator as set out in section 12 of the Act of 2002 and Regulation 16 of the Framework Regulations; and
- any other regulatory Options that should be considered in the proposed Auction RIA, including by reference to the above factors.

⁶² Regulation 11(2) of the Authorisation Regulations.

2.5 Three returning a 2 × 5 sub-1 GHz block to ComReg in advance of the Proposed Award

- 2.91 Separate to the discussion on potential RIA options above, this section outlines how it is open to Three to return a 2 × 5 MHz sub-1 GHz block to ComReg and why this might alleviate the concerns raised by it in relation to asymmetric pricing.
- 2.92 The range of bids that Three could make under the proposed spectrum competition caps would be different to those for the other MNOs, particularly in relation to the 700 MHz Duplex, because Three currently holds more sub-1 GHz spectrum than the other two MNOs (i.e. an additional 900 MHz lot)⁶³.
- 2.93 However, if Three was to return one of its 2 × 5 MHz sub-1 GHz blocks (in the 800 MHz or 900 MHz bands), it would equalise current sub-1 GHz MNO spectrum holdings and thus all three MNOs would be permitted to bid for the same number of 700 MHz Duplex lots (or other sub-1 GHz lots if returned and included) in the Proposed Award.
- 2.94 This is analogous to Three's own recent suggestion that Eir should be given the opportunity to "*surrender its 2.1GHz spectrum back to ComReg to be re-awarded as liberalised spectrum*". By adopting such an approach, Three could:
- ensure that all MNOs would have the opportunity to place bids for the same number of 700 MHz lots;
 - address its concerns that asymmetric spectrum competition caps could lead to exposing operators to paying highly asymmetric prices for the same 700 MHz rights of use; and
 - facilitate its ability to bid for an additional 700 MHz lot to the extent that it considered a 700 MHz lot more important than a 800 MHz or 900 MHz block⁶⁴.
- 2.95 For the purpose of clarification, if Three returned a sub-1 GHz lot, ComReg observes that
- in accordance with Regulation 8(10) and 8(11) of the Liberalised Licence Regulations, Three would no longer be liable for SUF payments for this Block and there would be no return of any portion of any Upfront Fee / SAF paid in respect of any Lot returned to ComReg; and

⁶³ In that regard, ComReg notes NERA's observation that "*in the absence of a 5th bidder, it [Three] was de facto guaranteed to win one 900 MHz lot at reserve price [in ComReg's 2012 MBSA].*"

See, Nera Economic Consulting, 'Price Distortions in the Combinatorial Clock Auction – a Bidder perspective', published April 2015

https://www.ofcom.org.uk/_data/assets/pdf_file/0020/82226/telefonica_-_annex_3.pdf

⁶⁴ For example, in response to Document 19/124, Three claims that the impact of the competition caps is most severe for spectrum in the 700MHz band, which is a pilot band for 5G services.

- the returned 2 × 5 MHz sub – 1 GHz block could be included in the Proposed Award.

2.96 ComReg intends to issue its response to consultation and substantive decision on the Proposed Award during Q4 2020. If Three was to avail of this possibility, ComReg observes that Three should indicate this possibility in its response to this Information Notice, and it would then need to provide ComReg with a binding commitment by 31 August 2020 to return a 2 × 5 MHz sub-1 GHz block in order to provide sufficient time for due consultation on the inclusion of an additional 2 × 5 MHz of sub-1 GHz spectrum in the Proposed Award.

2.97 Finally, ComReg notes that while the return of a 2 × 5 MHz sub-1 GHz block would largely remove the pricing asymmetry concerns claimed by Three, the return of a 2 × 5 MHz sub-1 GHz block remains solely a matter for it and would not be considered a valid regulatory option for the proposed Auction Format RIA.

Chapter 3

3 Submitting Comments and Next Steps

3.1 Submitting Comments

- 3.1 A four week period is being provided to interested parties for the submission of comments on this Information Notice, with a deadline of **12:00 hours on Tuesday 4 August 2020**. This is the normal duration provided for the submission of consultation responses⁶⁵. Responses must be submitted in written form and sent to the below email address for the attention of Mr. Joseph Coughlan and clearly marked – **Submissions to ComReg Document 20/56**:

Email: marketframeworkconsult@comreg.ie

- 3.2 ComReg requests that electronic submissions be submitted in an unprotected format so that they can be redacted (if required) and included in a ComReg submissions document for electronic publication.
- 3.3 In order to promote openness and transparency, ComReg will publish all respondents' submissions to this consultation, as well as all substantive correspondence on matters relating to this document and consultation process. However, ComReg appreciates that respondents may wish to provide confidential information if their comments are to be meaningful, so publication of such documents will be subject to the provisions of ComReg's guidelines on the treatment of confidential information (Document 05/24⁶⁶).
- 3.4 Respondents should submit views in accordance with the instructions set out below. When submitting a response to this consultation that it considers contains confidential information, a respondent must choose one of the following options:
- A. Submit both a non-confidential version and a confidential version of the response. The confidential version must have all confidential information clearly marked and highlighted in accordance with the instruction set out below. The separate non-confidential version must have actually redacted all items that were marked and highlighted in the confidential version.
- OR
- B. submit only a confidential version and ComReg will perform the required redaction to create a non-confidential version for publication. With this

⁶⁵ ComReg Document 11/34 - *Information Notice on ComReg Consultation Procedures* – published 6 May 2011.

⁶⁶ ComReg Document 05/24 – *Guidelines on the treatment of confidential information* – published 23 March 2005.

option, respondents must ensure that confidential information has been marked and highlighted in accordance with the instructions set out below.

- 3.5 For ComReg to perform the redactions under Option B above, respondents must mark and highlight all confidential information in their submission as follows:
- (a) Confidential information contained within a paragraph must be highlighted with a chosen particular colour;
 - (b) Square brackets must be included around the confidential text – one at the start and one at the end of the relevant highlighted confidential information; and
 - (c) A scissors symbol (Symbol code: Wingdings 2:38) must be included after the first square bracket. For example, “Redtelecom has a market share of [✂ 25%].”
- 3.6 Where confidential information has not been marked in accordance with the instructions above, then ComReg will not create the non-confidential redacted version and the respondent will be required to provide the redacted non-confidential versions in accordance with Option A above.

3.2 Next Steps

- 3.7 ComReg notes that, should Three wish to return spectrum rights of use for 2 × 5 MHz in either of the 800 MHz or 900 MHz bands and it provides a binding commitment to ComReg in this regard by 31 August 2020, ComReg would carry out the necessary consultation process to include the 2 × 5 MHz block in the Proposed Award.
- 3.8 Should Three not wish to return the 2 × 5 MHz block of spectrum, ComReg currently intends to publish its Response to Consultation and final substantive Decision in respect of the Proposed Award in Q4 2020 and a final Information Memorandum in Q1 2021.
- 3.9 ComReg will have due regard to all comments received before publishing its final substantive Decision in respect of the Proposed Award and final Information Memorandum.

Annex: 1 Glossary

Definitions

- A 1.1 The definitions in this glossary shall apply to this document as a whole.
- A 1.2 Terms defined in this consultation paper shall, unless the context otherwise requires or admits, have the meaning set out below.
- A 1.3 Where a term in this glossary is defined by reference to a definition in a section or paragraph elsewhere in this document and an explanation of that term is provided in this glossary, the latter explanation is for convenience only and regard should be had to the appropriate part of the document for the definitive meaning of that term in its appropriate context.
- A 1.4 Any reference to any provision of any legislation shall include modification re-enactment or extension thereof.

1800 MHz Band	Means spectrum in the range 1710 – 1785 MHz paired with 1805 – 1880 MHz
2012 MBSA	2012 MBSA or the MBSA Process refers to the Multi-Band Spectrum Award process the final results of which were announced in ComReg Document 12/131 on 5 December 2012
3.6 GHz Band	The frequency range 3400 – 3800 MHz
3.6 GHz Award	Refers to the award process the final results of which were announced in ComReg Document 17/46 on 1 June 2017
3.6 GHz Band Region	Each of the nine distinct non-overlapping regional areas of the State as defined in Section 2.2 of Document 16/71
2.6 GHz EC Decision	Refers to EC Decision 2008/477/EC. See section A1.3 below for further details
700 MHz Band	The frequency range 694 – 790 MHz
700 MHz Duplex	The frequency range 703 – 733 MHz paired with 758 – 788 MHz

800 MHz Band	The frequency range 790 – 862 MHz
900 MHz Band	The frequency range 880 – 915 MHz paired with 925 – 960 MHz
2.1 GHz Band	The frequency ranges 1920 – 1980 MHz paired with 2110 – 2170 MHz
2.3 GHz Band	The frequency range 2300 – 2400 MHz
2.6 GHz Band	The frequency range 2500 – 2690 MHz
2.6 GHz FDD Band	Means spectrum in the range 2500 – 2570 MHz paired with 2620 – 2690 MHz
2.6 GHz TDD Band	Means spectrum in the 2575 – 2615 MHz range available for award
Assignment Process RIA	See Annex 6 of Document 19/124 and Chapter 4 of Document 19/59R for the draft “Assignment Process” RIA
Auction RIA	Has the same meaning as Auction Format RIA
Auction Format RIA	A regulatory impact assessment on the proposed auction format to be used to assign new spectrum rights of use in the Proposed Bands
Award Process	Has the same meaning as Proposed Award
CCA	Combinatorial Clock Auction
CMRA	Combinatorial Multi-Round Ascending auction
Complementarity	The term can be taken as referring to spectrum bands where the value attributed by an interested party to spectrum in one band is enhanced by having or winning rights of use of spectrum in another band in relation to the Proposed Award

Coverage band	A spectrum band whose propagation characteristics when used with low gain antennas, render it suitable to serve wide geographical areas, such as the deployment of macro cells for wide area services.
Draft IM	The Draft Information Memorandum – ComReg Document 20/32
Exposure Pricing	In Document 20/32 ComReg proposes to provide additional information to bidders during the Main Stage of the Proposed Award regarding what a bidder would pay at most for a particular package if the clock rounds stopped with no excess demand and it won that package
General Authorisation ⁶⁷	An authorisation for an undertaking to provide an electronic communications network or service under and in accordance with Regulation 4 of the Authorisation Regulations
Liberalised Licence Regulations	WIRELESS TELEGRAPHY (LIBERALISED USE AND PREPARATORY LICENCES IN THE 800 MHz, 900 MHz AND 1800 MHz BANDS) REGULATIONS 2012, S.I. 251 of 2012
Main Stage	As detailed in Document 20/32, the Main Stage of the Proposed Award determines the number of lots to be awarded to each bidder in each lot category, and the base prices that winning bidders will have to pay for their lots
MBSA2 (‘Multi Band Spectrum Award’)	Means the project to award spectrum rights of use in the Proposed Bands
Minister	The Minister for Communications, Climate Change and the Environment
NRA	National Regulatory Authority

⁶⁷ <https://www.comreg.ie/industry/licensing/general-authorisation/>

Options	The different regulatory options as outlined by ComReg in Section 3 of this document
Proposed Bands	ComReg proposes to include the 700 MHz Duplex, the 2.1 GHz Band, the 2.3 GHz Band and the 2.6 GHz Band in the Proposed Award
Proposed Award	The proposed award of spectrum rights of use in the 700 MHz Duplex, 2.1 GHz, 2.3 GHz and 2.6 GHz Bands
Proposed Bands	The 700 MHz Duplex, 2.1 GHz, 2.3 GHz 2.6 GHz FDD and 2.6 GHz TDD bands
Reserve Price	The Reserve Price indicates the minimum SAF for each lot included in a licence and does not include the first or any subsequent payment of SUF
RIA	Regulatory Impact Assessment, an analysis of the likely effect of, and necessity of, a proposed new regulation or regulatory change. Such assessments are carried out in accordance with ComReg Document 07/56a – Guidelines on ComReg’s approach to Regulatory Impact Assessment – August 2007
SBCA	Sealed Bid Combinatorial Auction
SCA	Simple Clock Auction
SMRA	Simultaneous multiple round auction
Substitutability	The term can be taken as referring to spectrum bands which can serve the same purpose for interested parties and so those parties are relatively indifferent to switching between those bands in relation to the Proposed Award
Spectrum Access Fee (“SAF”)	The sum of the base price and any additional price to be paid by a winning bidder for the spectrum assigned to it within an award process

Spectrum Usage Fee ("SUF")	Annual Fees which a winning bidder must pay in respect of spectrum rights of use assigned in an award process
Sub – 1 GHz Spectrum	Refers to spectrum holdings below 1 GHz
Temporary ECS Licence	Means a licence of the type set out in Schedule 1 to the S.I. No. 122 of 2020
Time Slice	<p>Spectrum rights of use in the 2.3 GHz Band and 2.6 GHz Band are being made available in two "time slices", viz:</p> <ol style="list-style-type: none"> 1. Time Slice 1: From [1 December 2020] (or such other date as may be specified by ComReg in, or in accordance with, the Information Memorandum) to [11 March 2027] (or such other date as may be specified by ComReg in, or in accordance with, the Information Memorandum); and 2. Time Slice 2: From [12 March 2027] (or such other date as may be specified by ComReg in, or in accordance with, the Information Memorandum) to [30 November 2040] (or such other date as may be specified by ComReg in, or in accordance with, the Information Memorandum); are made available in two distinct time periods. <p>Spectrum in the 2.1 GHz Band are being made available in two Time Slices, viz:</p> <ul style="list-style-type: none"> • 2.1 GHz Band Time Slice 1: From [16 October 2022] (or such other date as may be specified by ComReg in, or in accordance with, the Information Memorandum) to [11 March 2027] (or such other date as may be specified by ComReg in, or in accordance with, the Information Memorandum); and <p>2.1 GHz Band Time Slice 2: From [12 March 2027] (or such other date as may be specified by ComReg in, or in accordance with, the Information Memorandum) to [30 November 2040] (or such other date as may be specified by ComReg in, or in accordance with, the Information Memorandum).</p>

Total Spectrum Holdings	Refers to spectrum holdings in aggregate across the 700 MHz Duplex, 800 MHz, 900 MHz, 1800 MHz, 2.1 GHz, 2.3 GHz, 2.6 GHz and 3.6 GHz Bands
RIA	Regulatory Impact Assessment
Reserve Price	The Reserve Price indicates the minimum SAF for each lot included in a licence and does not include the first or any subsequent payment of SUF. The proposed Reserve Prices for the Proposed Award are set out in ComReg Document 20/32

European and Governmental Bodies, Regulatory and Standardisation Organisations

3GPP	The 3 rd Generation Partnership Project
ComReg	Commission for Communications Regulation
CEPT	Conférence européenne des Administration des postes et des télécommunications. In English, European Conference of Postal and Telecommunications Administrations
DCCAIE	Department of Communications, Climate Action and Environment
EC	European Commission
ECC	Electronic Communications Committee (of CEPT)
ECO	European Communications Office
EU	European Union
ITU	International Telecommunication Union
RSPG	Radio Spectrum Policy Group

Primary and Secondary Legislation

S.I.	Statutory Instrument
2002 Act	The Communications Regulation Act 2002 (No. 20 of 2002), as amended
Authorisation Regulations	European Communities (Electronic Communication Networks and Services) (Authorisation) Regulations 2011 (S.I. No 335 of 2011)
Framework Regulations	European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No 333 of 2011)
Specific Regulations	Specific Regulations has the same meaning as set out in Regulation 2 of the Framework Regulations

Glossary of Technical Terms

3G	Third Generation Mobile System (e.g. UMTS)
CPI	Consumer Price Index
ECN	Electronic Communications Network (as defined under the Framework Regulations)
ECS	Electronic Communications Service (as defined under the Framework Regulations)
FDD	Frequency Division Duplex
FWA	Fixed Wireless Access
FWALA	Fixed Wireless Access Local Area

GHz	Gigahertz (1 000 000 000 Hertz)
GSM	Global System for Mobile Communications
GSMA	GSM Association – an organisation which represents mobile operators
Hertz	Unit of Frequency
kHz	Kilohertz (1 000 Hertz)
LTE	Long Term Evolution of 3G
MFCN	Mobile/fixed communications networks
MHz	Megahertz (1 000 000 Hertz)
MNO	Mobile Network Operator
MVNO	Mobile Virtual Network Operator (a mobile operator with no spectrum assignment and with or without network infrastructure)
TDD	Time Division Duplex

Annex: 2 Legal Framework and Statutory Objectives

- A 2.1 The Communications Regulation Act 2002 (as amended by the Communications Regulation (Amendment) Act 2007) (the “2002 Act”), the EU Common Regulatory Framework (including the Framework and Authorisation Directives⁶⁸ as transposed into Irish law by the corresponding Framework and Authorisation Regulations⁶⁹), and the Wireless Telegraphy Acts 1926 to 2009⁷⁰ set out, amongst other things, powers, functions, duties and objectives of ComReg that are relevant to the management of the radio frequency spectrum in Ireland and to this consultation document.
- A 2.2 Apart from licensing and making regulations in relation to licences, ComReg’s functions include the management of Ireland’s radio frequency spectrum in accordance with ministerial Policy Directions under section 13 of the 2002 Act, having regard to its objectives under section 12 of the 2002 Act, Regulation 16 of the Framework Regulations and the provisions of Article 8a of the Framework Directive. ComReg is to carry out its functions effectively, and in a manner serving to ensure that the allocation and assignment of radio frequencies is based on objective, transparent, non-discriminatory and proportionate criteria.
- A 2.3 This annex is intended as a general guide as to ComReg’s role in this area, and not as a definitive or exhaustive legal exposition of that role. Further, this annex restricts itself to consideration of those powers, functions, duties and objectives of ComReg that appear most relevant to the matters at hand and generally excludes those not considered relevant (for example, in relation to postal services, premium rate services or market analysis). For the avoidance of doubt, however, the inclusion of particular material in this annex does not necessarily mean that ComReg considers same to be of specific relevance to the matters at hand.

⁶⁸ Directive No. 2002/21/EC of the European Parliament and of the Council of 7 March 2002 (as amended by Regulation (EC) No. 717/2007 of 27 June 2007, Regulation (EC) No. 544/2009 of 18 June 2009 and Directive 2009/140/EC of the European Parliament and Council of 25 November 2009) (the “Framework Directive”) and Directive No. 2002/20/EC of the European Parliament and of the Council of 7 March 2002 (as amended by Directive 2009/140/EC) (the “Authorisation Directive”).

⁶⁹ The European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011) and the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011 (S.I. No. 335 of 2011) respectively.

⁷⁰ The Wireless Telegraphy Acts 1926 to 1988 and Sections 181 (1) to (7) and (9) and Section 182 of the Broadcasting Act 2009.

A 2.4 All references in this annex to enactments are to the enactment as amended at the date hereof, unless the context otherwise requires.

New European Electronic Communications Code

A 2.5 On 20 December 2018, Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (“EECC”) entered into force.

A 2.6 The EECC replaces the EU Common Regulatory Framework adopted in 2002 (and amended in 2009) under which ComReg has regulated electronic communications since 2003.

A 2.7 With some limited exceptions (see Article 124 of the EECC), Member States have until 21 December 2020 to transpose the EECC into national law.⁷¹ Until then, the existing EU Common Regulatory Framework will continue to apply. However, in developing its proposals for the Proposed Award, ComReg is mindful of the EECC.

A 2.8 ComReg understands that the DCCAE will be responsible for the transposition of the EECC and will assist as appropriate.

A2.1 Primary Objectives and Regulatory Principles under the 2002 Act and Common Regulatory Framework

A 2.9 ComReg’s primary objectives in carrying out its statutory functions in the context of electronic communications are to:

- promote competition⁷²;
- contribute to the development of the internal market⁷³;
- promote the interests of users within the Community⁷⁴;

⁷¹ With the exception of Articles 53(2), (3) and (4), and Article 54 (see Article 124).

⁷² Section 12 (1)(a)(i) of the 2002 Act.

⁷³ Section 12 (1)(a)(ii) of the 2002 Act.

⁷⁴ Section 12(1)(a)(iii) of the 2002 Act.

- ensure the efficient management and use of the radio frequency spectrum in Ireland in accordance with a direction under section 13 of the 2002 Act⁷⁵; and
- unless otherwise provided for in Regulation 17 of the Framework Regulations, take the utmost account of the desirability of technological neutrality in complying with the requirements of the Specific Regulations⁷⁶ in particular those designed to ensure effective competition⁷⁷.

A2.1.1 Promotion of Competition

A 2.10 Section 12(2)(a) of the 2002 Act requires ComReg to take all reasonable measures which are aimed at the promotion of competition, including:

- ensuring that users, including disabled users, derive maximum benefit in terms of choice, price and quality;
- ensuring that there is no distortion or restriction of competition in the electronic communications sector; and
- encouraging efficient use and ensuring the effective management of radio frequencies and numbering resources.

A 2.11 In so far as the promotion of competition is concerned, Regulation 16(1)(b) of the Framework Regulations also requires ComReg to:

- ensure that elderly users and users with special social needs derive maximum benefit in terms of choice, price and quality, and
- ensure that, in the transmission of content, there is no distortion or restriction of competition in the electronic communications sector.

A 2.12 Regulation 9(11) of the Authorisation Regulations also provides that

⁷⁵ Section 12(1)(b) of the 2002 Act. Whilst this objective would appear to be a separate and distinct objective in the 2002 Act, it is noted that, for the purposes of ComReg's activities in relation to electronic communications networks and services ("ECN" and "ECS"), Article 8 of the Framework Directive identifies "*encouraging efficient use and ensuring the effective management of radio frequencies (and numbering resources)*" as a sub-objective of the broader objective of the promotion of competition.

⁷⁶ The 'Specific Regulations' comprise collectively the Framework Regulations, the Authorisation Regulations, the European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011), the European Communities (Electronic Communications Networks and Services) (Universal Service and Users' Rights) Regulations 2011 (S.I. 337 of 2011) and the European Communities (Electronic Communications Networks and Services) (Privacy and Electronic Communications) Regulations 2011 (S.I. No. 336 of 2011).

⁷⁷ Regulation 16(1)(a) of the Framework Regulations.

ComReg must ensure that radio frequencies are efficiently and effectively used having regard to section 12(2)(a) of the 2002 Act and Regulations 16(1) and 17(1) of the Framework Regulations. Regulation 9(11) further provides that ComReg must ensure that competition is not distorted by any transfer or accumulation of rights of use for radio frequencies and, for this purpose, ComReg may take appropriate measures such as mandating the sale or the lease of rights of use for radio frequencies.

A2.1.2 Contributing to the Development of the Internal Market

A 2.13 Section 12(2)(b) of the 2002 Act requires ComReg to take all reasonable measures which are aimed at contributing to the development of the internal market, including:

- removing remaining obstacles to the provision of ECN, ECS and associated facilities at Community level;
- encouraging the establishment and development of trans-European networks and the interoperability of transnational services and end-to-end connectivity; and
- co-operating with electronic communications national regulatory authorities in other Member States of the Community and with the Commission of the Community in a transparent manner to ensure the development of consistent regulatory practice and the consistent application of Community law in this field.

A 2.14 In so far as contributing to the development of the internal market is concerned, Regulation 16(1)(c) of the Framework Regulations also requires ComReg to co-operate with the Body of European Regulators for Electronic Communications (“BEREC”) in a transparent manner to ensure the development of consistent regulatory practice and the consistent application of EU law in the field of electronic communications.

A2.1.3 Promotion of Interests of Users

A 2.15 Section 12(2)(c) of the 2002 Act requires ComReg, when exercising its functions in relation to the provision of electronic communications networks and services, to take all reasonable measures which are aimed at the promotion of the interests of users within the Community, including:

- ensuring that all users have access to a universal service;
- ensuring a high level of protection for consumers in their dealings with suppliers, in particular by ensuring the availability of simple and

inexpensive dispute resolution procedures carried out by a body that is independent of the parties involved;

- contributing to ensuring a high level of protection of personal data and privacy;
- promoting the provision of clear information, in particular requiring transparency of tariffs and conditions for using publicly available ECS;
- encouraging access to the internet at reasonable cost to users;
- addressing the needs of specific social groups, in particular disabled users; and
- ensuring that the integrity and security of public communications networks are maintained.

A 2.16 In so far as promotion of the interests of users within the EU is concerned, Regulation 16(1)(d) of the Framework Regulations also requires ComReg to:

- address the needs of specific social groups, in particular, elderly users and users with special social needs, and
- promote the ability of end-users to access and distribute information or use applications and services of their choice.

A2.1.4 Regulatory Principles

A 2.17 In pursuit of its objectives under Regulation 16(1) of the Framework Regulations and section 12 of the 2002 Act, ComReg must apply objective, transparent, non-discriminatory and proportionate regulatory principles by, amongst other things:

- promoting regulatory predictability by ensuring a consistent regulatory approach over appropriate review periods;
- ensuring that, in similar circumstances, there is no discrimination in the treatment of undertakings providing ECN and ECS;
- safeguarding competition to the benefit of consumers and promoting, where appropriate, infrastructure-based competition;
- promoting efficient investment and innovation in new and enhanced infrastructures, including by ensuring that any access obligation takes appropriate account of the risk incurred by the investing undertakings and by permitting various cooperative arrangements between investors

and parties seeking access to diversify the risk of investment, while ensuring that competition in the market and the principle of non-discrimination are preserved;

- taking due account of the variety of conditions relating to competition and consumers that exist in the various geographic areas within the State; and
- imposing ex-ante regulatory obligations only where there is no effective and sustainable competition and relaxing or lifting such obligations as soon as that condition is fulfilled.

A2.1.5 BEREC

A 2.18 Under Regulation 16(1)(3) of the Framework Regulations, ComReg must:

- having regard to its objectives under section 12 of the 2002 Act and its functions under the Specific Regulations, actively support the goals of BEREC of promoting greater regulatory co-ordination and coherence; and
- take the utmost account of opinions and common positions adopted by BEREC when adopting decisions for the national market.

A2.1.6 Other Obligations under the 2002 Act

A 2.19 In carrying out its functions, ComReg is required, amongst other things, to:

- seek to ensure that any measures taken by it are proportionate having regard to the objectives set out in section 12 of the 2002 Act;⁷⁸
- have regard to international developments with regard to the radio frequency spectrum⁷⁹; and
- take the utmost account of the desirability that the exercise of its functions aimed at achieving its radio frequency management objectives does not result in discrimination in favour of or against particular types of technology for the provision of ECS.⁸⁰

⁷⁸ Section 12(3) of the 2002 Act.

⁷⁹ Section 12(5) of the 2002 Act.

⁸⁰ Section 12(6) of the 2002 Act.

A2.1.7 Policy Directions⁸¹

A 2.20 Section 12(4) of the 2002 Act provides that, in carrying out its functions, ComReg must have appropriate regard to policy statements, published by or on behalf of the Government or a Minister of the Government and notified to the Commission, in relation to the economic and social development of the State. Section 13(1) of the 2002 Act requires ComReg to comply with any policy direction given to ComReg by the Minister for Communications, Energy and Natural Resources (“the Minister”) as he or she considers appropriate, in the interests of the proper and effective regulation of the electronic communications market, the management of the radio frequency spectrum in the State and the formulation of policy applicable to such proper and effective regulation and management, to be followed by ComReg in the exercise of its functions. Section 10(1)(b) of the 2002 Act also requires ComReg, in managing the radio frequency spectrum, to do so in accordance with a direction of the Minister under section 13 of the 2002 Act, while Section 12(1)(b) requires ComReg to ensure the efficient management and use of the radio frequency spectrum in accordance with a direction under Section 13.

A 2.21 The Policy Directions which are most relevant in this regard include the following:

Policy Direction No.3 on Broadband Electronic Communication Networks

A 2.22 ComReg shall in the exercise of its functions, take into account the national objective regarding broadband rollout, viz, the Government wishes to ensure the widespread availability of open-access, affordable, always-on broadband infrastructure and services for businesses and citizens on a balanced regional basis within three years, on the basis of utilisation of a range of existing and emerging technologies and broadband speeds appropriate to specific categories of service and customers.

Policy Direction No.4 on Industry Sustainability

A 2.23 ComReg shall ensure that in making regulatory decisions in relation to the electronic communications market, it takes account of the state of the industry and in particular the industry’s position in the business cycle and the impact of such decisions on the sustainability of the business of undertakings affected.

⁸¹ ComReg also notes, and takes due account of, the Spectrum Policy Statement issued by the Department of Communications Energy and Natural Resources in September 2010.

Policy Direction No.5 on Regulation only where necessary

A 2.24 Where ComReg has discretion as to whether to impose regulatory obligations, it shall, before deciding to impose such regulatory obligations on undertakings, examine whether the objectives of such regulatory obligations would be better achieved by forbearance from imposition of such obligations and reliance instead on market forces.

Policy Direction No.6 on Regulatory Impact Assessment

A 2.25 ComReg, before deciding to impose regulatory obligations on undertakings in the market for electronic communications or for the purposes of the management and use of the radio frequency spectrum or for the purposes of the regulation of the postal sector, shall conduct a Regulatory Impact Assessment in accordance with European and International best practice and otherwise in accordance with measures that may be adopted under the Government's Better Regulation programme.

Policy Direction No.7 on Consistency with other Member States

A 2.26 ComReg shall ensure that, where market circumstances are equivalent, the regulatory obligations imposed on undertakings in the electronic communications market in Ireland should be equivalent to those imposed on undertakings in equivalent positions in other Member States of the European Community.

Policy Direction No.11 on the Management of the Radio Frequency Spectrum

A 2.27 ComReg shall ensure that, in its management of the radio frequency spectrum, it takes account of the interests of all users of the radio frequency spectrum.

General Policy Direction No.1 on Competition (2004)

A 2.28 ComReg shall focus on the promotion of competition as a key objective. Where necessary, ComReg shall implement remedies which counteract or remove barriers to market entry and shall support entry by new players to the market and entry into new sectors by existing players. ComReg shall have a particular focus on:

- market share of new entrants;
- ensuring that the applicable margin attributable to a product at the wholesale level is sufficient to promote and sustain competition;

- price level to the end user;
- competition in the fixed and mobile markets; and
- the potential of alternative technology delivery platforms to support competition

A2.2 Other Relevant Obligations under the Framework and Authorisation Regulations

A2.2.1 Framework Regulations

Regulation 17

A 2.29 Regulation 17 of the Framework Regulations governs the management of radio frequencies for ECS. Regulation 17(1) requires that ComReg, subject to any directions issued by the Minister pursuant to Section 13 of the 2002 Act and having regard to its objectives under Section 12 of the 2002 Act and Regulation 16 of the Framework Regulations and the provisions of Article 8a of the Framework Directive, ensure:

- the effective management of radio frequencies for ECS;
- that spectrum allocation used for ECS and issuing of general authorisations or individual rights of use for such radio frequencies are based on objective, transparent, non-discriminatory and proportionate criteria; and
- ensure that harmonisation of the use of radio frequency spectrum across the EU is promoted, consistent with the need to ensure its effective and efficient use and in pursuit of benefits for the consumer such as economies of scale and interoperability of services, having regard to all decisions and measures adopted by the European Commission in accordance with 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 EU.

A 2.30 Regulation 17(2) provides that, unless otherwise provided in Regulation 17(3), ComReg must ensure that all types of technology used for ECS may be used in the radio frequency bands that are declared available for ECS in the Radio Frequency Plan published under Section 35 of the 2002 Act in accordance with EU law.

A 2.31 Regulation 17(3) provides that, notwithstanding Regulation 17(2), ComReg may, through licence conditions or otherwise, provide for proportionate and

non-discriminatory restrictions to the types of radio network or wireless access technology used for ECS where this is necessary to:

- avoid harmful interference;
- protect public health against electromagnetic fields;
- ensure technical quality of service;
- ensure maximisation of radio frequency sharing;
- safeguard the efficient use of spectrum; or
- ensure the fulfilment of a general interest objective as defined by or on behalf of the Government or a Minister of the Government in accordance with Regulation 17(6).

A 2.32 Regulation 17(4) requires that, unless otherwise provided in Regulation 17(5), ComReg must ensure that all types of ECS may be provided in the radio frequency bands, declared available for ECS in the Radio Frequency Plan published under Section 35 of the Act of 2002 in accordance with EU law.

A 2.33 Regulation 17(5) provides that, notwithstanding Regulation 17(4), ComReg may provide for proportionate and non-discriminatory restrictions to the types of ECS to be provided, including where necessary, to fulfil a requirement under the International Telecommunication Union Radio Regulations (“ITU-RR”).

A 2.34 Regulation 17(6) requires that measures that require an ECS to be provided in a specific band available for ECS must be justified in order to ensure the fulfilment of a general interest objective as defined by or on behalf of the Government or a Minister of the Government in conformity with EU law such as, but not limited to:

- safety of life;
- the promotion of social, regional or territorial cohesion;
- the avoidance of inefficient use of radio frequencies; or
- the promotion of cultural and linguistic diversity and media pluralism, for example, by the provision of radio and television broadcasting services.

A 2.35 Regulation 17(7) provides that ComReg may only prohibit the provision of any other ECS in a specific radio spectrum frequency band where such a prohibition is justified by the need to protect safety of life services. ComReg

may, on an exceptional basis, extend such a measure in order to fulfil other general interest objectives as defined by or on behalf of the Government or a Minister of the Government.

- A 2.36 Regulation 17(8) provides that ComReg must, in accordance with Regulation 18, regularly review the necessity of the restrictions referred to in Regulations 17(3) and 17(5) and must make the results of such reviews publicly available.
- A 2.37 Regulation 17(9) provides that Regulations 17(2) to (7) only apply to spectrum allocated to be used for ECS, general authorisations issued and individual rights of use for radio frequencies granted after 1 July 2011. Spectrum allocations, general authorisations and individual rights of use which already existed on 1 July 2011 are subject to Regulation 18 of the Framework Regulations.
- A 2.38 Regulation 17(10) provides that ComReg may, having regard to its objectives under Section 12 of the 2002 Act and Regulation 16 and its functions under the Specific Regulations, lay down rules in order to prevent spectrum hoarding, in particular by setting out strict deadlines for the effective exploitation of the rights of use by the holder of rights and by withdrawing the rights of use in cases of non-compliance with the deadlines. Any rules laid down under this Regulation must be applied in a proportionate, non-discriminatory and transparent manner.
- A 2.39 Regulation 17(11) requires ComReg to, in the fulfilment of its obligations under that Regulation, respect relevant international agreements, including the ITU-RR and any public policy considerations brought to its attention by the Minister.

Regulation 23 on security and integrity and Regulation 24 on implementation and enforcement of Regulation 23

- A 2.40 Regulation 23 provides:

23. (1) Undertakings providing public communications networks or publicly available electronic communications services shall take appropriate technical and organisational measures to appropriately manage the risks posed to security of networks and services. In particular, measures shall be taken to prevent and minimise the impact of security incidents on users and interconnected networks.

(2) The technical and organisational measures referred to in paragraph (1) shall, having regard to the state of the art, ensure a level of security appropriate to the risk presented.

(3) Undertakings providing public communications networks shall take all appropriate steps to guarantee the integrity of their networks, thereby ensuring the continuity of supply of services provided over those networks.

(4) (a) An undertaking providing public communications networks or publicly available electronic communications services shall notify the Regulator in the event of a breach of security or loss of integrity that has a significant impact on the operation of networks or services.

(b) Where the Regulator receives a notification under subparagraph (a), it shall inform the Minister of the said notification and, with the agreement of the Minister, it shall also, where appropriate, inform the national regulatory authorities in other Member States and ENISA.

(c) Where it is considered that it is in the public interest to do so the Regulator, with the agreement of the Minister, may inform the public in relation to the breach notified under subparagraph (a) or require the undertaking to inform the public accordingly.

(5) The Regulator shall annually submit a summary report to the Minister, the European Commission and EINSa on the notifications received and the actions taken in accordance with paragraph (4).

(6) An undertaking that fails to comply with the requirements of paragraph (4)(a) or (c) commits an offence.

A 2.41 Regulation 24 provides:

24. (1) For the purpose of ensuring compliance with Regulation 23 (1), (2) and (3), the Regulator may issue directions to an undertaking providing public communications networks or publicly available electronic communications services, including directions in relation to time limits for implementation.

(2) The Regulator may require an undertaking providing public communications networks or publicly available electronic communications services to—

(a) provide information needed to assess the security or integrity of their services and networks, including documented security policies, and

(b) submit to a security audit to be carried out by a qualified independent body nominated by the Regulator and make the results of the audit available to the Regulator and the Minister. The cost of the audit is to be borne by the undertaking.

(3) An undertaking in receipt of a direction under paragraph (1) shall comply with the direction.

(4) An undertaking that fails to comply with a direction under paragraph (1) or a requirement under paragraph (2) commits an offence.

A2.2.2 Authorisation Regulations

Decision to limit rights of use for radio frequencies

A 2.42 Regulation 9(2) of the Authorisation Regulations provides that ComReg may grant individual rights of use for radio frequencies by way of a licence where it considers that one or more of the following criteria are applicable:

- it is necessary to avoid harmful interference;
- it is necessary to ensure technical quality of service;
- it is necessary to safeguard the efficient use of spectrum; or
- it is necessary to fulfil other objectives of general interest as defined by or on behalf of the Government or a Minister of the Government in conformity with EU law.

A 2.43 Regulation 9(10) of the Authorisation Regulations provides that ComReg must not limit the number of rights of use for radio frequencies to be granted except where this is necessary to ensure the efficient use of radio frequencies in accordance with Regulation 11.

A 2.44 Regulation 9(7) also provides that:

- where individual rights of use for radio frequencies are granted for a period of 10 years or more and such rights may not be transferred or leased between undertakings in accordance with Regulation 19 of the Framework Regulations, ComReg must ensure that criteria set out in Regulation 9(2) apply for the duration of the rights of use, in particular upon a justified request from the holder of the right.
- where ComReg determines that the criteria referred to in Regulation 9(2) are no longer applicable to a right of use for radio frequencies, ComReg must, after a reasonable period and having notified the holder of the individual rights of use, change the individual rights of use into a general authorisation or must ensure that the individual rights of use are made transferable or leasable between undertakings in accordance with Regulation 19 of the Framework Regulations.

Publication of procedures

A 2.45 Regulation 9(4)(a) of the Authorisation Regulations requires that ComReg, having regard to the provisions of Regulation 17 of the Framework Regulations, establish open, objective, transparent, non-discriminatory and proportionate procedures for the granting of rights of use for radio frequencies and cause any such procedures to be made publicly available.

Duration of rights of use for radio frequencies

A 2.46 Regulation 9(6) of the Authorisation Regulations provides that rights of use for radio frequencies must be in force for such period as ComReg considers appropriate having regard to the network or service concerned in view of the objective pursued taking due account of the need to allow for an appropriate period for investment amortisation.

Conditions attached to rights of use for radio frequencies

A 2.47 Regulation 9(5) of the Authorisation Regulations provides that, when granting rights of use for radio frequencies, ComReg must, having regard to the provisions of Regulations 17 and 19 of the Framework Regulations, specify whether such rights may be transferred by the holder of the rights and under what conditions such a transfer may take place.

A 2.48 Regulation 10(1) of the Authorisation Regulations provides that, notwithstanding Section 5 of the Wireless Telegraphy Act, 1926, but subject to any regulations under Section 6 of that Act, ComReg may only attach those conditions listed in Part B of the Schedule to the Authorisation Regulations. Part B lists the following conditions which may be attached to rights of use:

- Obligation to provide a service or to use a type of technology for which the rights of use for the frequency has been granted including, where appropriate, coverage and quality requirements.
- Effective and efficient use of frequencies in conformity with the Framework Directive and Framework Regulations.
- Technical and operational conditions necessary for the avoidance of harmful interference and for the limitation of exposure of the general public to electromagnetic fields, where such conditions are different from those included in the general authorisation.
- Maximum duration in conformity with Regulation 9, subject to any changes in the national frequency plan.

- Transfer of rights at the initiative of the rights holder and conditions of such transfer in conformity with the Framework Directive.
- Usage fees in accordance with Regulation 19.
- Any commitments which the undertaking obtaining the usage right has made in the course of a competitive or comparative selection procedure.
- Obligations under relevant international agreements relating to the use of frequencies.
- Obligations specific to an experimental use of radio frequencies.

A 2.49 Regulation 10(2) also requires that any attachment of conditions under Regulation 10(1) to rights of use for radio frequencies must be non-discriminatory, proportionate and transparent and in accordance with Regulation 17 of the Framework Regulations.

Procedures for limiting the number of rights of use to be granted for radio frequencies

A 2.50 Regulation 11(1) of the Authorisation Regulations provides that, where ComReg considers that the number of rights of use to be granted for radio frequencies should be limited it must, without prejudice to Sections 13 and 37 of the 2002 Act:

- give due weight to the need to maximise benefits for users and to facilitate the development of competition, and
- give all interested parties, including users and consumers, the opportunity to express their views in accordance with Regulation 12 of the Framework Regulations.

A 2.51 Regulation 11(2) of the Authorisation Regulations requires that, when granting the limited number of rights of use for radio frequencies it has decided upon, ComReg does so “...on the basis of selection criteria which are objective, transparent, non-discriminatory and proportionate and which give due weight to the achievement of the objectives set out in Section 12 of the 2002 Act and Regulations 16 and 17 of the Framework Regulations.”

A 2.52 Regulation 11(4) provides that where it decides to use competitive or comparative selection procedures, ComReg must, inter alia, ensure that such procedures are fair, reasonable, open and transparent to all interested parties.

Fees for spectrum rights of use

- A 2.53 Regulation 19 of the Authorisation Regulations permits ComReg to impose fees for rights of use which reflect the need to ensure the optimal use of the radio frequency spectrum.
- A 2.54 ComReg is required to ensure that any such fees are objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose and take into account the objectives of ComReg as set out in Section 12 of the 2002 Act and Regulation 16 of the Framework Regulations.

Amendment of rights and obligations

- A 2.55 Regulation 15 of the Authorisation Regulations permits ComReg to amend rights and conditions concerning rights of use, provided that any such amendments may only be made in objectively justified cases and in a proportionate manner, following the process set down in Regulation 15(4).

A2.3 Other Relevant Provisions

Wireless Telegraphy Act, 1926 (the “1926 Act”)

- A 2.56 Under Section 5(1) of the 1926 Act, ComReg may, subject to that Act, and on payment of the prescribed fees (if any), grant to any person a licence to keep and have possession of apparatus for wireless telegraphy in any specified place in the State.
- A 2.57 Section 5(2) provides that, such a licence shall be in such form, continue in force for such period and be subject to such conditions and restrictions (including conditions as to suspension and revocation) as may be prescribed in regard to it by regulations made by ComReg under Section 6.
- A 2.58 Section 5(3) also provides that, where it appears appropriate to ComReg, it may, in the interests of the efficient and orderly use of wireless telegraphy, limit the number of licences for any particular class or classes of apparatus for wireless telegraphy granted under Section 5.
- A 2.59 Section 6 provides that ComReg may make regulations prescribing in relation to all licences granted by it under Section 5, or any particular class or classes of such licences, all or any of the following matters:
- the form of such licences;
 - the period during which such licences continue in force;

- the manner in which, the terms on which, and the period or periods for which such licences may be renewed;
- the circumstances in which or the terms under which such licences are granted;
- the circumstances and manner in which such licences may be suspended or revoked by ComReg;
- the terms and conditions to be observed by the holders of such licences and subject to which such licences are deemed to be granted;
- the fees to be paid on the application, grant or renewal of such licences or classes of such licences, subject to such exceptions as ComReg may prescribe, and the time and manner at and in which such fees are to be paid; and
- matters which such licences do not entitle or authorise the holder to do.

A 2.60 Section 6(2) provides that Regulations made by ComReg under Regulation 6 may authorise and provide for the granting of a licence under Section 5 subject to special terms, conditions, and restrictions to persons who satisfy it that they require the licences solely for the purpose of conducting experiments in wireless telegraphy.

A 2.61 Regulation 10(1) of the Authorisation Regulations provides that, notwithstanding section 5 of the Act of 1926 but subject to any regulations made under section 6 of that Act, where ComReg attaches conditions to rights of use for radio frequencies, it may only attach such conditions as are listed in Part B of the Schedule to the Authorisation Regulations.

Broadcasting Act 2009 (the “2009 Act”)

A 2.62 Section 132 of the 2009 Act relates to the duties of ComReg in respect of the licensing of spectrum for use in establishing digital terrestrial television multiplexes and places an obligation on ComReg to issue:

- two DTT multiplex licences to RTÉ by request (see Sections 132(1) and (2) of the 2009 Act); and
- a minimum of four DTT multiplex licences to the BAI by request (see Sections 132(3) and (4) of the 2009 Act) for the provision of commercial TV content.

Article 4 of Directive 2002/77/EC (Competition Directive)

A 2.63 Article 4 of the Competition Directive provides that:

“Without prejudice to specific criteria and procedures adopted by Member States to grant rights of use of radio frequencies to providers of radio or television broadcast content services with a view to pursuing general interest objectives in conformity with Community law:

- *Member States shall not grant exclusive or special rights of use of radio frequencies for the provision of electronic communications services.*
- *The assignment of radio frequencies for electronic communication services shall be based on objective, transparent, non-discriminatory and proportionate criteria.”*

Radio Spectrum Policy Programme

A 2.64 On 15 February 2012, the European Parliament adopted the five-year Radio Spectrum Policy Programme (“RSPP”) which establishes a multi-annual radio spectrum policy programme for the strategic planning and harmonisation of the use of spectrum. The objective is to ensure the functioning of the internal market in the Union policy areas involving the use of spectrum, such as electronic communications, research, technological development and space, transport, energy and audiovisual policies.

A 2.65 Among other things, Article 5 of the RSPP, entitled “Competition”, provides:

“1. Member States shall promote effective competition and shall avoid distortions of competition in the internal market for electronic communications services in accordance with Directives 2002/20/EC and 2002/21/EC.

They shall also take into account competition issues when granting rights of use of spectrum to users of private electronic communication networks.

2. For the purposes of the first subparagraph of paragraph 1 and without prejudice to the application of competition rules and to the measures adopted by Member States in order to achieve general interest objectives in accordance with Article 9(4) of Directive 2002/21/EC, Member States may adopt, inter alia, measures:

(a) limiting the amount of spectrum for which rights of use are granted to any undertaking, or attaching conditions to such rights of use, such as the provision of wholesale access, national or regional roaming, in

certain bands or in certain groups of bands with similar characteristics, for instance the bands below 1 GHz allocated to electronic communication services. Such additional conditions may be imposed only by the competent national authority;

(b) reserving, if appropriate in regard to the situation in the national market, a certain part of a frequency band or group of bands for assignment to new entrants;

(c) refusing to grant new rights of use of spectrum or to allow new spectrum uses in certain bands, or attaching conditions to the grant of new rights of use of spectrum or to the authorisation of new spectrum uses, in order to avoid the distortion of competition by any assignment, transfer or accumulation of rights of use;

(d) prohibiting or imposing conditions on transfers of rights of use of spectrum, not subject to national or Union merger control, where such transfers are likely to result in significant harm to competition;

(e) amending the existing rights in accordance with Directive 2002/20/EC where this is necessary to remedy ex post the distortion of competition by any transfer or accumulation of rights of use of radio frequencies.

3. Where Member States wish to adopt any measures referred to in paragraph 2 of this Article, they shall act in conformity with the procedures for the imposition or variation of such conditions on the rights of use of spectrum laid down in Directive 2002/20/EC.

4. Member States shall ensure that the authorisation and selection procedures for electronic communications services promote effective competition for the benefit of citizens, consumers and businesses in the Union.”