



Commission for
Communications Regulation

Response to Consultation and Decision on Proposed 26 GHz Band Spectrum Award

Non-Confidential

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

Abbey Court, Irish Life Centre, Lower Abbey Street, Dublin 1, Ireland

Telephone +353 1 804 9600 Fax +353 1 804 9680 Email info@comreg.ie Web www.comreg.ie

Additional Information

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1 Introduction

- 1.1 In October 2017, the Commission for Communications Regulation (“ComReg”) published Document 17/85 by which it commenced a public consultation on the proposed granting of new individual rights of use for radio frequencies in a portion of the 26 GHz band.¹ This document sets out the responses and final decisions of ComReg in respect of that public consultation, with particular reference to the two most recently published documents:
- “Response to Consultation and Draft Decision on proposed 26 GHz Spectrum Award 2018” (Document 18/12)”, published on 23 February 2018; and
 - “Draft Information Memorandum on Proposed 26 GHz Band Spectrum Award” (Doc 18/13), published on 2 March 2018.
- 1.2 This paper sets out ComReg’s response to the submissions received to Document 18/12 and Document 18/13, and final decisions as to the fact that it will grant a limited number of new individual rights of use for radio frequencies in the 26 GHz frequency band (the “Award Spectrum”)² and as to the manner in which such rights of use will be granted (i.e. by open, competitive auction).
- 1.3 This paper also sets out ComReg’s response to the submissions received to Document 18/13 and any changes or updates that will form part of the Final Information Memorandum (“IM”).
- 1.4 Separately, ComReg is publishing Document 18/32 which is the final version of the IM and specifies the rules and procedures which will govern the award (the “Award Process”).
- 1.5 ComReg received two responses to Document 18/12 and 18/13, from Three Ireland Hutchinson Limited (Three) and Vodafone Ireland Limited (Vodafone).

¹ The 26 GHz band constitutes 3 300 MHz spanning 24.250– 27.550 GHz. In 2008, ComReg allocated a portion of the 26 GHz band (2 x 504 MHz in the ranges 24.773 – 25.277 GHz paired with 25.781 – 26.285 GHz) for national block use. In its current consultation ComReg proposed making 2 x 532 MHz of the 26 GHz band available for new National Block Licences (i.e. the same portion as auctioned in 2008 but with one extra 2 x 28 MHz block) this time with 19 blocks instead of 18.

² The “Award Spectrum” comprises 19 blocks of 2 x 28 MHz in the range 24.745 – 25.277 GHz paired with 25.753 GHz – 26.285 GHz.

1.6 ComReg, in preparing this response to consultation and all associated documents and in arriving at its final decisions as set out herein, has had regard to:

- its statutory functions, objectives and duties relevant to its management of the radio frequency spectrum (summarised in Annex 3).
- all submissions received by Interested Parties through public consultation and all other relevant information before it;³ and
- the independent expert advice and recommendations of its economic and award design consultant, DotEcon Limited (“DotEcon”)⁴.

1.7 While ComReg has formed its own views in arriving at its final positions and decision as set out in this document, ComReg has also carefully considered the expert advice provided by DotEcon throughout this project. ComReg is publishing, alongside this document, DotEcon’s analysis of responses to Document 18/12 and 18/13, Document 18/33.

1.8 All matters concerning the Award Process which ComReg has now decided to implement and conduct, as contained and considered in previous consultation documents, should be regarded as having been considered in full in the preparation of this response to consultation and associated documents and in arriving at the final decisions set out herein.

1.9 The document is structured as follows:

- **Chapter 2** sets out ComReg’s response to issues raised by respondents to Document 18/12;
- **Chapter 3** sets out ComReg’s response to issues raised by respondents to Document 18/13 (Draft IM);
- **Chapter 4** summarises other updates and changes to the Draft IM;
- **Chapter 5** contains the Decision Instrument;
- **Chapter 6** details the Next Steps in the award process;
- **Annex 1:** Glossary;

³ Including submissions received to Documents 17/85

⁴ Including Documents 17/85a and Document 18/33

- **Annex 2:** Qualification Stage Details; and
- **Annex 3:** Legal Framework and Statutory Objectives.

1.10 All capitalised terms not defined in this document shall have the meaning ascribed to them in the IM.

Chapter 2

2 Response to submissions received to Document 18/12

2.1 Introduction

2.1 This chapter sets out ComReg's final positions on two issues raised by respondents (Three & Vodafone) in their responses to Document 18/12:

- 5G implications (Three & Vodafone); and
- Assignment stage proposals (Three);

2.2 DotEcon (in Document 18/33) have also provided a response to certain issues raised by respondents and ComReg has had regard to DotEcon's views in reaching its final positions.

2.2 5G Implications

Summary of ComReg's views in Document 18/12

2.3 Section 2.2 of Document 18/12 sets out a detailed assessment of the future use of the 26 GHz band under two headings: (a) 5G spectrum; and (b) fixed link spectrum⁵.

2.4 In relation to (a), 5G spectrum, ComReg noted that future 5G services, as envisaged, would not be restricted to utilising radio frequencies in the 26 GHz band, or in the mmWave bands more generally, but rather it is expected that 5G services will encompass a wide range of spectrum bands, including below 6 GHz (sub-6 GHz bands) and mmWave bands above 6 GHz. Amongst other things, ComReg noted the following:

- 5G will likely include existing sub-6 GHz bands such as 800 MHz, 1800 MHz, and 2.1 GHz which may be necessary to deliver coverage;
- the technical conditions to facilitate the use of 5G technology in the 700 MHz, 800 MHz, 900 MHz, 1.8 GHz, 2.1 GHz and 2.6 GHz harmonised bands are being developed;

⁵ This refers to the part of the 26 GHz band that is currently National Block Licences.

- ComReg plans to progress its award proposals for the 700 MHz, 1.4 GHz, 2.3 GHz and 2.6 GHz bands within the timeframe of its current Radio Spectrum Management Strategy 2016 to 2018 (Document 16/50);
- 1 207 MHz⁶ of contiguous spectrum is available in the upper part of the 26 GHz band and another 345 MHz⁷ of contiguous spectrum is available in the lower part of the 26 GHz band and this should more than satisfy any requirement to make 1 GHz of the entire 26 GHz band available for 5G by 2020; and
- estimates of future spectrum requirements range from 100 - 500 MHz per operator to the more speculative 1 GHz per operator.

2.5 In relation to (b), fixed link spectrum, ComReg noted in Document 18/12 and remains of the view that there is an established requirement to use a portion of the 26 GHz band for the provision of fixed links, now and for the foreseeable future. The extent of any future co-existence of fixed links and 5G services within the 26 GHz band, as may occur, is a matter for future consideration based on relevant technical factors at that time. For now, there is a current identifiable, and to large degree quantifiable, demand for a portion of the 26 GHz band for national fixed links. As against that, there may be future demand for 26 GHz spectrum for 5G but it has yet to manifest.

2.6 In particular, ComReg considers that in considering the potential of future advanced 5G networks and services, one must not lose sight of the essential networks and services which we rely on today. It is as important, indeed probably more important, to make proper provision for the networks of today than to provide for the still somewhat hypothetical networks of tomorrow (particularly when it still quite uncertain as to precisely how and when the latter will be established and evolve, and what their eventual spectrum requirements will be). When one recognises the importance of maintaining today's network infrastructure, it becomes immediately apparent that fixed links form a critical part of that infrastructure - fixed links are the backbone of the networks. These fixed links require spectrum and, at this point in time and for the foreseeable future, that spectrum lies in the portion of the 26 GHz band at issue.

⁶ This has been updated to 1097 MHz in line with Section 2.5 of this Document.

⁷ This has been updated to 299 MHz in line with Section 2.5 of this Document.

Views of respondents

- 2.7 Three submits that ComReg's proposal to grant new spectrum rights of use in the portion of the 26 GHz band at issue, for fixed links only and of 10 years duration, would leave only 1,562 MHz of spectrum in the remainder of the 26 GHz available for future uses, such as 5G (broken into separate tranches of 355 MHz and 1,207 MHz). Three submits that mobile network operators are likely to each require up to 800 MHz of contiguous spectrum in the 26 GHz band and, as a consequence, that there would only be enough contiguous spectrum for one operator.
- 2.8 Three submits that ComReg has missed the point that to grant new licences in the 26 GHz band at this time would risk delaying development of 5G services in Ireland. Three submits that ComReg should instead extend all current licences, for 4 - 5 years, and during this period clarity could be obtained as to 5G requirements in the 26 GHz band.
- 2.9 Vodafone maintains its previously stated position that assigning the portion of the 26 GHz band at issue for fixed links, for longer than ten years, risks limiting the future use of that portion of the band for mobile applications.

ComReg's assessment

- 2.10 The issue of future 5G services has not been overlooked by ComReg or by its external experts, DotEcon. Section 4.8 of ComReg Document 18/12 sets out ComReg's then preliminary view that new 10-year Point to Point (P2P) licences in the portion of the 26 GHz band at issue seem appropriate, having regard to all relevant facts including potential future uses of the band, and that not all interested parties currently hold 26 GHz spectrum. Such potential future uses, including in particular 5G, were discussed at length in Section 2.2 of ComReg Document 18/12 (summarised above).
- 2.11 Three's stated concern appears to be grounded in its estimate that each MNO will require 800 MHz of the 26 GHz band to provide 5G services. While it may transpire, in the fullness of time, that MNOs will utilise large quantities of spectrum (including bands other than 26 GHz) to provide 5G services, at this point in time it is simply not possible to state or to estimate, to any real degree of accuracy:
- when MNOs will wish to begin utilising the 26 GHz band for 5G;
 - how much of the band each MNO will require for such purposes;
 - how much spectrum any MNO might acquire in a competitive award process; and

- whether other bands would satisfy spectrum requirements in the future.
- 2.12 As against that, and as noted above, there is an observable and largely quantifiable immediate requirement for 26 GHz spectrum rights of use for the over 3,000 fixed link sites being operated in the State at present.
- 2.13 ComReg noted in Document 17/85, and remains of the view, that there is still considerable uncertainty as to future 5G spectrum requirements that may eventually crystallize. Estimates range from the conservative 100 MHz per operator to the more speculative 1 GHz per operator. Further, the more speculative spectrum estimates are less likely to manifest in Ireland in the shorter term, given its particular demographics (for example, urban and rural population densities). For example, Samsung⁸ has undertaken 5G trials at various locations that represent varying terrain, neighbourhood layouts, and population density. Further, Vodafone and Ericsson have achieved high speeds and low latency using 105 MHz of existing 3.6 GHz spectrum.⁹
- 2.14 Three provided two sources (Intel and Qualcomm) in support of its estimate that each MNO will require 800 MHz of the 26 GHz band for 5G. However, those sources merely indicate that chipsets can support bandwidths of up to 800 MHz and that trials have used bandwidths of between 100 – 800 MHz. Such facts alone do not indicate what quantum of the 26 GHz band may eventually be required to satisfy demand for 5G services in the State, or when such demand may manifest.
- 2.15 Such future 5G spectrum requirements, as eventually manifest, are likely to vary between jurisdictions (and may also vary between regions within jurisdictions) and will likely depend on several factors including population densities, demand for services, and spectrum demand from other electronic communications services. Further, the chipsets to which Three refers to also provide for carrier aggregation (for example, via 8 × 100 MHz carrier aggregation), indicating that the supported bandwidth is not confined to the 26 GHz band.
- 2.16 Further, and as stated above, any potential future demand for 5G in the 26 GHz band comes against the backdrop of current heavy demand for the 2 × 532 MHz portion of the band at issue for fixed links, which are essential to the provision of mobile backhaul particularly in the absence of fibre backhaul. ComReg, subject to any co-existence studies which have yet to be completed, is also cognisant that assigning this portion of the 26 GHz band for 5G services, some or all of

⁸ <https://www.samsung.com/global/business/networks/insights/news/samsung-and-verizon-announce-first-5g-customer-trials-set-to-begin-in-q2-2017/>

⁹ <https://www.ericsson.com/en/news/2018/2/ericsson-and-vodafone-run-first-live-demo-of-pre-standard-5g-in-ireland>

which may be limited to urban areas especially in the initial phases of roll-out, may not represent the most efficient use of that portion of the band. Indeed, the RSPG Second Opinion notes that technical studies in CEPT need to be carried out regarding the co-existence with Fixed Service applications (P2P and Point to Multipoint (PMP)) in the 26 GHz band (and in other relevant mmWave bands).

- 2.17 Three has not provided any details as to how the approximately 3000 fixed link sites in the State would be migrated out of the portion of the 26 GHz band at issue, if it was made available for 5G.
- 2.18 For the reasons set out above, ComReg considers that there is an established case for fixed links in the 26 GHz band, now and for the foreseeable future.
- 2.19 Further, the reasonable assumption that the current demand for, and established use of, the portion of the 26 GHz band for fixed links is likely to continue for some years is underpinned by certain respondents who, in the course of this consultation, have advocated for extensions to their current rights of use for that very purpose, ranging from 5 years (Three) to 7 years (Vodafone).
- 2.20 ComReg also has other regulatory tools that, if necessary, could accommodate future spectrum demand for electronic communications services, including such new services as are likely to emerge. This might include, for example, making some or all of the 26 GHz band or other bands (for example, 32 GHz) available, on a licence exempt basis. Such measures may be appropriate depending on how and when 5G services develop and evolve, and whether they would be necessary to promote the efficient use of spectrum, innovation and competition, and the interests of end-users.
- 2.21 For example, the RSPG Second Opinion on 5G networks notes that “*The RSPG is of the opinion that Member States will need flexibility in the way they authorise access to spectrum, for example: appropriate geographical areas (e.g. national, regional, city or hyper-local, e.g. for use in a factory), individual licencing or under a general authorisation framework*”¹⁰.
- 2.22 ComReg is thus of the view that various tools exist to promote the efficient future use of spectrum. ComReg will form its views as to how and when those tools ought to be utilised, as markets develop and crystallize and when more precise and robust information becomes available.

¹⁰ https://circabc.europa.eu/sd/a/fe1a3338-b751-43e3-9ed8-a5632f051d1f/RSPG18-005final-2nd_opinion_on_5G.pdf

ComReg's final position

2.23 In light of the above, and having considered all relevant material as detailed in this consultation and having clarified its various positions as set out above, ComReg's final position is that it will grant new rights of use for radio frequencies in the 2 × 532 MHz portion of the 26 GHz band at issue, for P2P fixed links only and of 10 years duration, and to take effect upon the expiry of all current licences in the portion of the band (on 5th June 2018, or as close to that date as possible having regard to the need to complete the Spectrum Award in accordance with the IM).

2.3 Assignment stage proposals (Three)

Summary of ComReg's views in Document 17/85 and 18/12

2.24 ComReg, in Document 17/85, noted that an award that adopted a frequency-generic approach could give bidders the problem of having to value frequency-generic Lots but without them knowing what retuning might be required, if specific frequencies were subsequently assigned. ComReg requested additional information from interested parties, in particular incumbent licensees, in order to adopt an appropriate mechanism for assigning frequency positions in the portion of the 26 GHz band at issue.

2.25 The information provided by respondents indicates that incumbents are unlikely to have an incentive to seek to acquire new spectrum rights of use in different sub-bands - i.e. they are unlikely to want blocks that differ significantly from the blocks which they currently hold. This is due to the estimated costs of having to retune to different sub-bands and bidding behaviour in the Spectrum Award should reflect this incentive. ComReg thus expressed its preliminary view that a need for a frequency-specific approach had not been established and that a frequency-generic award was most appropriate.

Views of respondents

2.26 Three submits that ComReg and DotEcon have not given adequate consideration to the requirements of existing licensees, based on information provided in response to Document 17/85. Three submits that its valuation of 26 GHz spectrum [REDACTED]

2.27

ComReg's assessment

2.28 ComReg does not agree that it has not given adequate consideration to the requirements of existing licensees, as submitted by Three. Indeed, it was ComReg which first raised the possibility of such issues arising and this formed the basis for ComReg requesting certain information from interested parties, and in particular incumbent licensees. ComReg sought to assess the extent to which such concerns could arise in practice and whether an alternative approach might be more appropriate. ComReg also considered the advice of DotEcon relevant to this issue.

2.29 DotEcon also considers that adequate consideration has been given to the requirements of incumbents and to valuation factors that are likely to affect incumbent bidders, but not others. DotEcon recognises that there would be costs to any incumbent who, post Auction, had to relocate within the 26 GHz band and that it is relevant to avoid *unnecessary* costs of changing frequencies where possible. DotEcon makes the following points:

- A balance must be struck between avoiding unnecessary migration costs and minimising the risks of fragmented assignments;
- It might be necessary for some migration costs to be incurred in order to assign contiguous frequencies to all other winners;¹²

¹¹ E-Band is defined as the frequency range from 71-76 and 81-86 GHz

¹² Due to the fragmentation of the currently unallocated spectrum, some movement within the band by one or more existing users may be necessary for that spectrum to be aggregated into a usable contiguous block

- Migration costs are one-off costs whilst any costs associated with the inefficiencies arising from failing to obtain a sufficient bandwidth on a contiguous basis would be on-going;
- The proposed award format provides existing users with opportunities to win back frequencies relatively close to their current assignment;
- If an incumbent was required to move to a significant degree it would likely be due to a new user having a greater valuation for the specific frequencies currently used by the incumbent, and hence would represent a more efficient outcome; and
- A frequency-specific approach could facilitate tacit collusion by some of the incumbent bidders, and restrict competition for some parts of the band and provide greater opportunities for strategic bidding aimed at fragmenting the band.

2.30 Finally, DotEcon note that Three's risk of incurring significant migration costs stems from its prior decision to deploy links using two different types of hardware [REDACTED] DotEcon do not consider it the responsibility of the regulator to design an award process around an individual operator's internal decision to deploy a network that leaves it more susceptible to migration costs than it might otherwise have been.

2.31 ComReg agrees with the views of DotEcon. ComReg was previously aware of, and has already fully considered and addressed, the concerns which Three has repeated in its most recent response. Documents 17/85 and 18/12 detail why ComReg considers a frequency-generic approach to be appropriate and why the assignment issues identified by ComReg (and reiterated by Three) are unlikely to arise in practice. [REDACTED]

[REDACTED] In that regard, ComReg noted, and remains of the view, that *"even in a worst case scenario the maximum required movement would be to shift one block up or down from its current position and Three would have the option to bid for such a nearby frequency position. In addition, such a worst case scenario would only arise if all remaining winning bidders were assigned no more than 3 blocks, which is unlikely. If any bidder was assigned four blocks, as is more likely, then Three would have the option to compete for its existing frequency position."*¹³

¹³ Document 18/12, Pg. 68.

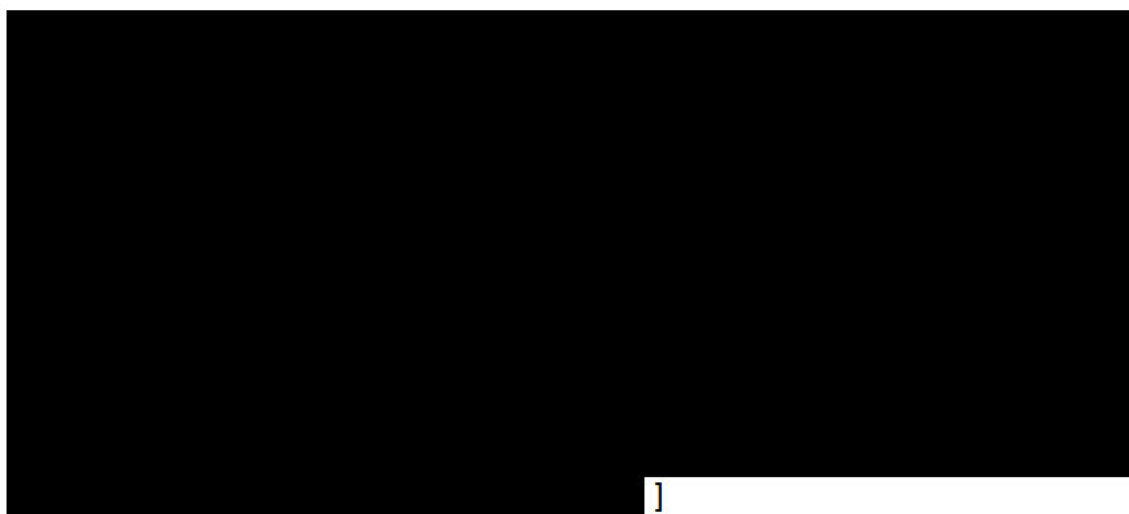
2.32 Therefore, if Three should bid to its valuation during the Assignment Stage then only a higher bid by some other bidder would result in Three acquiring a new spectrum holding outside of its preferred range. Further, ComReg considers such an eventuality to be relatively unlikely for the reasons stated in Paragraph 4.41 – 4.45 of Document 18/12, which in summary are as follows:

- All incumbent licensees should have the same strong incentive to stay as close as possible to their existing location and they should value those existing / nearby blocks accordingly and bid accordingly.
- Any new entrant would have to bid more than an incumbent in order to obtain the incumbent’s existing blocks while blocks that should be equally preferable to a new entrant are likely to be available and at lower cost (as unassigned spectrum would not have any associated retuning costs).

2.33 ComReg also agrees that Three’s stated concerns (i.e. potential migration costs) arise in part because of its decision to deploy links using two different types of hardware [redacted] For example, if Three used Huawei or Ceragon equipment only it would it would [redacted] [redacted]] However, because its links are spread across both types of hardware (60% Huawei and 40% Ceragon) [redacted] [redacted]]

2.34 [redacted]
 [redacted]
 [redacted]
 [redacted]
 [redacted]
 [redacted]
 [redacted]
 [redacted]
 [redacted]

2.35 [redacted]



2.36 ComReg also notes that other gaming opportunities such as tacit collusion and strategic bidding aimed at fragmenting the spectrum, which might be damaging to new entry, are more prevalent in a frequency-specific award. For example, in a frequency-specific award, if Three were to target, and win, channels 12-16 (moving its existing assignment down from channels 11 – 15)¹⁴ it would significantly reduce the potential for a new entrant to be assigned a contiguous block of four Lots. As noted in Document 17/85, the largest bandwidth on a single link that is useable with currently available equipment is four blocks and is likely to be attractive to Bidders, and Three may have anti-competitive incentives to prevent potential new entrants from gaining access to bandwidths of that size. Similarly, other incumbents may restrict the number of frequency ranges they bid for, with the aim of minimising the scope for assigning contiguous frequency blocks of a usable size to entrants and/or preventing other incumbents from expanding their assignments.

2.37 Alternatively, in a frequency-generic award, strategies aimed at fragmenting the spectrum are not feasible, since bidders first compete for a number of generic Lots and all Winning Bidders are subsequently guaranteed a contiguous assignment i.e. there is no scope for targeting particular frequencies in the assessment stage, and the assignment stage is designed to eliminate any outcomes in which a Winning Bidder's frequencies are split.

2.38 [REDACTED]

¹⁴ [REDACTED]

2.39 [Redacted]

[Redacted]

[Redacted]

[Redacted]

2.40 [Redacted]

2.41 [Redacted]

ComReg’s final position

2.42 In light of the above, and having regard to the submissions by all interested parties and the advice of DotEcon, ComReg’s final position is to proceed with a Spectrum Award in the form of a Sealed Bid Combinatorial Auction and which shall take a frequency-generic approach, as described in Document 18/12 and further particularised in the Final IM.

2.4 Transition Proposals

Summary of ComReg's views in Document 18/12

2.43 An Existing Licensee who participates in the Spectrum Award will require a Transition Plan if it should win Lots that differ from its current Lots. In such circumstances, the Existing Licensee will have to migrate within the 26 GHz band which, amongst other things, may require re-tuning of fixed links equipment. The Existing Licensee will have to identify all of its required transition actions and provide a timeline for completing those actions. ComReg proposed that it would, grant individual P2P link licences of up to 12 months duration, for the purposes of facilitating any required transition to another part of the 26 GHz band or out of the band.

2.44 ComReg believes that there are three potential scenarios in which Existing Licensees would be required to re-tune their fixed links equipment in the 26 GHz band:

- **Scenario 1: Re-tuning within the same sub-band of the existing Radio Outdoor Unit (ODU).** This can be done by means of a link software upgrade and would not require the deployment of new equipment.
 - ComReg considers that 6 months would be enough time to facilitate the re-tuning of existing equipment under Scenario 1.
- **Scenario 2: Re-tuning into a different sub-band of the existing radio ODU.** This would require the deployment of new Radio ODU equipment, full link engineering and associated project management work.
 - ComReg considers that 12 months would be enough time to facilitate the deployment of new Radio equipment for operation in a different sub-band to the existing radio ODU.
- **Scenario 3: Re-tuning into a different band.** This would require the migration of the existing links into a new band and will require completely new equipment and all associated project management costs.
 - where an Existing Licensee has not won any new Lots through the Award Process, ComReg consider that 12 months would be enough time to facilitate transition out of the spectrum

2.45 ComReg considered 12 months was appropriate as the sourcing of equipment, link engineering, project management activities and the identification of suitable alternative spectrum may take longer than the transition of P2P links within the existing 26 GHz spectrum.

Views of respondents

2.46 Three submits that if it won no new spectrum rights of use in the 26 GHz band, or if it won blocks in a different part of the band than its current blocks, then it would have to replace over [3< ██████████] Three further submits that this would involve design/planning, replacement, ordering and lead-time for delivery of the new hardware, and implementing a four-person crew to replace each of the links.

2.47 Three estimates that, in such circumstances, it would require 4 months to acquire the new equipment and another 16 month period to install. Three thus submits that it would require a minimum of 20 months for Transition Activities and that any shorter period would lead to disruption of its services.

ComReg's Assessment

2.48 ComReg notes the views of Three in relation to the time required to complete Transition Activities. In that regard, setting a reasonable and objectively justified time period for the completion of any Transition Activities requires certain information that is currently unavailable to ComReg. Therefore, ComReg will not place a 12 month limit on transition activities but rather make a decision on an appropriate time period for the completion of Transition Activities¹⁵ should be done in the context of a Transition Project Plan for the 26 GHz Band, as required.

2.5 Band Plan

Summary of ComReg's views in Document 18/12

2.49 In ComReg Document 17/85 and 18/12, ComReg presented the below figures:

¹⁵ Transition Activities as may be required by relevant parties, including, site analysis, hardware delivery, installation and verification.

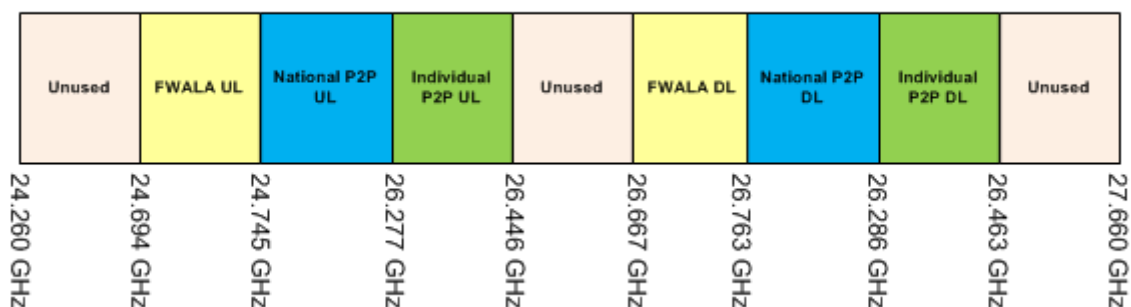


Figure 1. 26 GHz Band plan as presented in ComReg Document 17/85, Figure 2

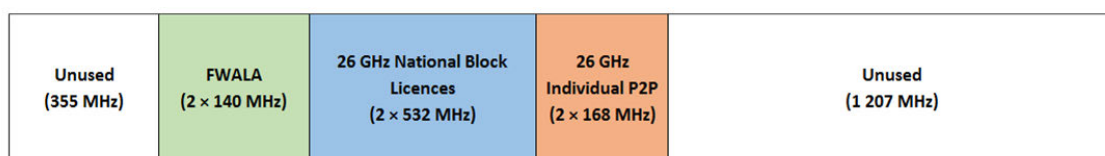


Figure 2. 26 GHz Band plan as presented in ComReg Document 18/12, Figure 2

Views of respondents

- 2.50 Three submit that there are errors in Figure 1 above. As a result, it made it difficult to reconcile Figure 1 with Figure 2.
- 2.51 Three requested that ComReg issue a corrected, updated version of the band plan.

ComReg's Assessment

- 2.52 ComReg acknowledges Threes submission regarding band plans and provides an updated band plan in Figure 3.

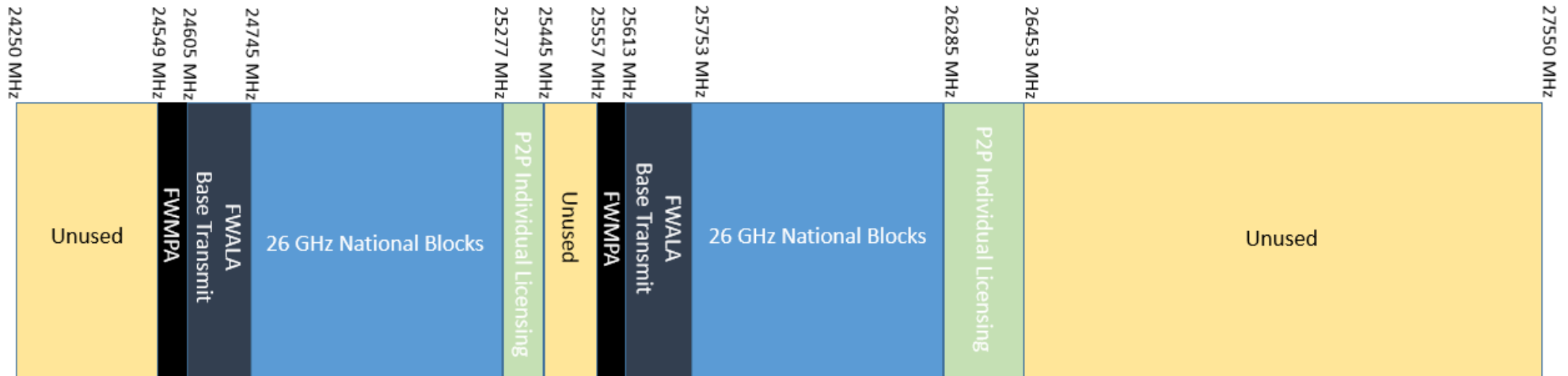


Figure 3. 26 GHz Band plan

Chapter 3

3 Response to submissions received to Document 18/13

3.1 Introduction

3.1 This chapter sets out ComReg's response to the issues raised by respondents to Document 18/13 concerning the following topics:

- Pricing rule;
- Applicant/Winner entitlement;
- Licence entitlement; and
- Application procedure.

3.2 Pricing Rule

Summary of ComReg's view in Document 18/13

3.2 Section 3.6.2 noted that Base Prices are determined jointly for all Winning Bidders in a single calculation.

Views of respondents

3.3 [REDACTED]

ComReg's assessment and final position

3.4 DotEcon note that the pricing rule proposed in the Draft IM requires that every possible group of winners must pay at least its joint opportunity cost. This ensures that all subsets of winners will jointly pay a price that is sufficient to outbid the offers made in competing bids.

3.5 [REDACTED]

- [REDACTED]
- [REDACTED]

3.6 ComReg agrees with the views of DotEcon. [REDACTED] However, ComReg's recent practice has been to use a second price rule to provide that each winning bidder and each group of winning bidders to pay at least their (individual or collective) opportunity cost (including individual winners and the set of all winners). In a multi-item award, such as the 26 GHz award, both approaches provide good incentives for straightforward bidding behaviour and prevents distortions to the bidding process, however, [REDACTED]

3.7 [REDACTED] In that regard, ComReg notes its Final RIA and the view that "*Prices based on opportunity cost also have the advantage of ensuring that there are 'happy losers', - i.e. that there are no other bidders or groups of bidders who would have been willing to buy the spectrum assigned to a winning bidder at a higher price than the winner was required to pay.*"¹⁶

3.8 In this way, the pricing rule in the draft IM provides that the final prices paid are at a level at which winners are willing to be assigned the spectrum while losers are not willing to be assigned the same spectrum at this price level. This is particularly important for ComReg in the discharge of its functions as such a rule is less likely to delay the ultimate delivery of services due to challenge from dissatisfied losers. The use of this price rule ensures that there are no dissatisfied losers in terms of the price paid.

3.9 Therefore, ComReg is of the view that no changes are required to Section 3.6.2.

¹⁶ Document 18/13, Pg. 40.

3.3 Application Procedure

Summary of ComReg's view in Document 18/13

3.10 Section 3.4.6 of Document 18/13 described the application procedure for participating in the Award Process. An Applicant must submit four completed and identical Application Forms in paper format, including four identical copies of an Ownership Structure Document and electronic copies of same in an editable format on CD-ROM.

Views of respondents

3.11 Three submits that ComReg should accept copies of application documents on a USB memory stick in addition to CD-ROM. Three submit that CDs and CD drives are no longer in common use.

ComReg's assessment and final position

3.12 In ComReg's experience, external USBs are susceptible to encryption failures and so are not satisfactory. This could delay the Award Process if the data contained within was not readable. Therefore, in the interests of preserving the integrity of the 26 GHz Award Process the use of CD-ROM remains appropriate.

3.13 Notwithstanding, ComReg may provide that future awards are able to facilitate the submission of information using electronic formats other than CD-ROM.

3.14 Therefore, ComReg is of the view that no changes are required to Section 3.4.6.

3.4 Licence Entitlement

Summary of ComReg's view in Document 18/13

3.15 Section 1.2 of Document 18/13 provided details on the 26 GHz Band and the five wireless electronic communications services available for current rights of use.

Views of respondents

3.16 Three submits that the draft IM lists current primary and secondary uses, however it does not clarify the difference in entitlements. Three requests that ComReg clarifies whether a winning bidder who obtains a licence pursuant to this award is entitled to protection from interference from secondary users.

3.17 Three also request that ComReg clarifies whether an Interim Licensee is co-primary with a new licensee, or how matters may be resolved if there is a conflict between a new licensee and an existing interim licensee.

ComReg's assessment and final position

3.18 In response to paragraph 3.16 above, ComReg refers to paragraph 2.13 in section 2.2.2 of ComReg Document 18/13. In this paragraph a service was incorrectly referred to as a secondary service and caused some misunderstanding. In addition a permitted licence-exempt service was omitted. Paragraph 2.13 of 18/13 will be corrected as follows:

“Licences will be “non-exclusive” meaning that ComReg will permit persons other than the Licensees to keep, possess, install, maintain, work and use Apparatus in the portion of the 26 GHz Band assigned to the Licensees, although only on a “non-interference and non-protected basis”. Currently permitted, licence-exempt uses, which operate on this non-interference and non-protected basis” include:

- *Automotive Short Range Radar (21.65 – 26.65 GHz);*
- *Level Probing Radar (24.05 GHz – 26.5 GHz); and*
- *Tank Level Probing Radar (24.05 GHz – 27 GHz)”.*

3.19 There are currently no secondary users in the band and ComReg does not intend, at this time, to licence any secondary users during the 10 year lifetime of this new licence regime.

3.20 Changes to the currently permitted licence-exempt services as well as the inclusion of further licence-exempt services the band may need to be facilitated during the lifetime of this licence regime as required under EU legislation.

3.21 Once any transition work is completed the only primary uses in this portion of the band will be those licenced for Fixed National P2P links and their relationship to other services in the band are detailed in footnote 6 of the same section:

“on a non-interference and non-protected basis’ means (a) use of any licence-exempt Apparatus is dependent on no Harmful Interference being caused to any lawful radio communications, and (b) no claim may be made for protection of the licence-exempt Apparatus against any Harmful Interference originating from other radio communications.”

3.22 In response to paragraph 3.17, ComReg can confirm that any co-channel interim licenses will be treated as co-primary with any new licensee and will need to be taken into account in the required Transition Plan Proposal. Without knowing the exact circumstances of each conflict, ComReg is reluctant to place arbitrary rules in place.

3.23 This update is reflected in Section 2.2.2

3.5 Applicant/Winner Entitlement

Summary of ComReg's view in Document 18/13

- 3.24 Section 3.4 of Document 18/13 describes the Application Stage of the Award Process. Applicants may submit Applications to ComReg to participate in the Award Process. An Application must include all of the Bids which the Applicant wishes to submit for packages of frequency-generic Lots.
- 3.25 Section 3.8 of Document 18/13 describes the Notification and Grant Stage of the Award Process whereby ComReg will notify the Winning Bidders of their entitlement to apply for and be granted a Licence in accordance with the outcome of the Award Process, subject to certain conditions including the payment of fees.

Views of respondents

- 3.26 Three notes that the draft IM describes the proposed process for the award, however, Three submit that it does not describe what an applicant is entitled to if it submits winning bids and pays its upfront fee and complies with all of the application requirements. Three submit that a successful Applicant or Winning Bidder may be entitled to apply for a licence, and nothing more. Three also submit that ComReg seeks to avoid any and all commitments to applicants in the draft terms and conditions

ComReg's assessment and final position

Applicants

- 3.27 An Applicant has no entitlement to apply for a Licence as stated by Three. Further, ComReg does not seek to avoid any and all commitments to Applicants in the draft IM (as submitted by Three).
- 3.28 Any interested party that submits an Application becomes an Applicant. Applicants that submit valid Applications can participate in the Award Process as a Bidder. This is clearly set out in the relevant sections of the draft IM :
- Paragraph 3.20: "*An interested party who submits an Application to ComReg is thereafter referred to as an Applicant.*"
 - Paragraph 3.21: "*An Applicant who submits a valid and complete Application shall be eligible to participate in the Award Process.*"
 - Paragraph 3.111: "*Applicants that submitted valid Applications shall be deemed to be Bidders*".

3.29 Only Winning Bidders are entitled to apply for a Licence.

Winning Bidders

3.30 Three submit that ComReg needs to assure Bidders that “*if they submit what is determined to be a winning bid according to the rules set out in the IM that they will become a Winning Bidder*”. The Glossary in the draft IM clearly defines a Winning Bidder. “*A Bidder that wins at least one Lot in the Award Process.*” It is not clear what additional clarity Three requires.

3.31 Three submit that a Winning Bidder is only entitled to apply for a licence and nothing more, and the IM needs to further set-out all of the steps necessary for a Winning Bidder to obtain a licence, and assure applicants that if they comply with those steps then they will be issued with a licence, within a defined time period.

3.32 ComReg notes that the draft IM provides clear details as to a Winning Bidders entitlements having become a Winning Bidder and paid its upfront fees. For example:

- Paragraph 3.8: - *ComReg will notify the Winning Bidders of their entitlement to apply for **and be granted** a Licence in accordance with the outcome of the Award Process, subject to certain conditions including the payment of fees. Further details on the Notification and Grant Stage are in Section 3.8. [Emphasis added]*
- Paragraph 3.176 – “*the notification to each Winning Bidder, relating to the Lots which that Winning Bidder won in the Award Process and the Licence **which may be granted** to that Winning Bidder if certain prerequisites are met*” [Emphasis added]
- Paragraph 3.177 – “*ComReg **will grant a Licence** to any Winning Bidder who has submitted its Upfront Fee and first SUF by the Payment Deadline and complied with the above prerequisites*”. [Emphasis added]

3.33 Paragraph 3.176 clearly explains that a notification will be sent to all Winning Bidders and the Licence may be granted to that Winning Bidder subject to certain prerequisites. Such prerequisites include the applicable SUF and information that the Winning Bidder must provide to ComReg in order to populate Parts 2 and 3 of the Licence.

3.34 ComReg would encourage Three to carefully read the IM in preparation for its potential participation in the 26 GHz Award Process.

3.35 Therefore, ComReg is of the view that no changes are required to Section 3.4 or Section 3.8.

Chapter 4

4 Other updates to the IM

4.1 Introduction

4.1 Based on the Final Decision as set out in Chapter 5 below (D04/18) and other updated information, including the views of Interested Parties, this Chapter sets out updates and changes¹⁷ to the text of Document 18/13 not already discussed in Chapter 2 and Chapter 3 of this document. These updates and changes relate to the Qualification Stage¹⁸.

4.2 Section 1.2

ComReg's position in Document 18/13

4.2 Section 1.2 of Document 18/13 provided context and historical background to the 26 GHz band.

ComReg's position in the IM

4.3 ComReg is of the view that the historical information contained in Section 1.2 may only serve to confuse the reader as it refers to uses of the whole 26 GHz band instead of the portion of the 26 GHz band that is covered by the **P2P Regulations**.

4.4 In addition, as pointed out in section 3.4 of this document, some of the information is incorrect.

4.5 For these two reasons the whole of Section 1.2 of Document 18/13 has been deleted.

4.3 Qualification Stage

ComReg's position in Document 18/13

4.6 Section 3.5.1 of Document 18/13 notes that once the Application Date of 16:00 on Monday 21 May 2018 has passed, ComReg will evaluate all Applications

¹⁷ As compared to the text of the Draft IM (Document 18/13).

¹⁸ For the avoidance of doubt, this Chapter does not discuss changes made to the text of Document 18/13 to correct typographical errors or to improve the clarity of same generally.

received within the specified period of time and will determine which Applications are valid.

- 4.7 Table 3 of Document 18/13 notes that each Applicant is to be informed whether it has become a Bidder on Tuesday 5 June 2018. The Assessment Stage would begin on Thursday 7 June 2018.

ComReg's position in the IM

- 4.8 ComReg is of the view that the Award Process should not be delayed where all Applicants have submitted valid Applications and been approved as a Bidder. Where all Applicants have been approved as a Bidder, ComReg retains its discretion to commence the Assessment Stage having regard to the particular circumstances as may arise. Therefore, Bidders will be informed no later than Thursday 7 June on whether it has submitted a valid Application and become a Bidder.
- 4.9 This change is reflected in Section 3 and Table 3 of the Final IM.
- 4.10 ComReg also encourages potential Applicants to carefully read Annex 2 which provides Applicants further details on how to submit complete and clear applications in full accordance with the IM.

4.4 Deposits and Confidential Information

ComReg's position in Document 18/13

- 4.11 Section 3.4.3 of Document 18/13 notes and Section 3.7.4 of Document 18/13 provides details on the process for submitting Deposits with an Application or as may be required in the Assignment Stage.

ComReg's position in the IM

- 4.12 In order to ensure the rules on confidentiality and Bidder behaviour are not breached, intentionally or otherwise, the IM has been updated to allow Bidders or Applicants to contact ComReg in relation to confirming receipt of deposits or to notify ComReg of a breach of the Award rules.
- 4.13 Paragraph 3.52 and 3.160 of the Final IM (Document 18/31) has been updated to provide that where an Applicant/Bidder wishes to confirm receipt of a Deposit, it should contact **Mr. Patrick Bolton** by letter using the address provided in paragraph 3.23 or contact ComReg by telephone using the telephone number provided in paragraph 3.103 of the Final IM.
- 4.14 Paragraph 3.92 been updated to provide that where an Applicant wishes to notify ComReg about a potential breach of the Award Rules or other offending

behaviour it should contact ComReg by telephone using the telephone number provided in paragraph 3.103 and contact Mr. Patrick Bolton by letter using the address provided in paragraph 3.23.

4.15 All Applicants should inform all relevant staff of the requirements of the IM in terms of contacting ComReg.

Chapter 5

5 Decision Instrument

Decision

1 Definitions and Interpretations

In this Decision Instrument, save where the context otherwise admits or requires:

“26 GHz Band” means the portion of the radio frequency spectrum consisting of 3 300 MHz in the range 24.250 – 27.550 GHz;

“26 GHz Band National Block Licence” or “Licence” means a licence granted by ComReg pursuant to section 5 of the Wireless Telegraphy Act 1926 and the 26 GHz Band Licence Regulations 2018, of the type set out in Schedule 1 to the 26 GHz Band Licence Regulations 2018;

“26 GHz Band Licence Regulations 2018” means the Wireless Telegraphy (National Point-to-Point Block Licences) Regulations 2018 (S.I. XX/2018) made by ComReg pursuant to section 6 of the Wireless Telegraphy Act 1926 subject to the consent of the Minister under section 37 of the Communications Regulation Act 2002, as amended, and as set out in the Information Memorandum;

“Authorisation Regulations” means the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations, 2011 (S.I. No. 335 of 2011);

“Authorised undertaking” means an undertaking as defined in the Framework Regulations that is authorised to provide an electronic communications network and/or electronic communications service in accordance with regulation 4 of the Authorisation Regulations.”

“Award Spectrum” means the portion of the 26 GHz Band consisting of 2 × 532 MHz in the radio frequency ranges 24.745 – 25.277 GHz paired with 25.753 – 26.285 GHz which shall be divided into 19 equal sized Lots of 2 x 28 MHz each for the purposes of conducting the sealed bid combinatorial auction described herein;

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

“ComReg” means the Commission for Communications Regulation, established under section 6 of the Communications Regulation Act 2002, as amended;

“Framework Regulations” means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011, (S.I. No. 333 of 2011);

“Information Memorandum” means Document 18/32, published by ComReg on [XX] 2018;

“Licensee” means an undertaking to whom a 26 GHz Band National Block Licence has been granted;

“Minister” means the Minister for Communications, Climate Action and Environment;

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

2 Decision-Making Considerations

In arriving at its decisions as set out in this Decision Instrument, ComReg has had regard to:

- (i). the contents of, and the materials and reasoning referred to in, as well as the materials provided by respondents in connection with, the below-listed ComReg documents:
 - a) Consultation on the proposed 26 GHz Spectrum Award 2018 – ComReg Doc 17/85;
 - b) DotEcon 26 GHz Award Auction Design Report – ComReg Doc 17/85a;
 - c) Response to Consultation and Draft Decision on the proposed 26 GHz Spectrum Award 2018 – ComReg Doc 18/12;
 - d) DotEcon Assessment of Responses to Consultation 17/85 – ComReg Doc 18/12a;
 - e) Non-Confidential Submissions to Consultation 17/85 – ComReg Doc 18/12b;
- (ii). the consultants’ reports commissioned by ComReg and the advice obtained by ComReg in relation to the subject matter of the documents and materials listed at (i) above; and
- (iii). the powers, functions, objectives and duties of ComReg, including, without limitation, those under and by virtue of:

- a) the Communications Regulation Act 2002, as amended, and, in particular, sections 10, 12 and 13 thereof;
- b) the Framework Regulations, and, in particular, Regulations 13, 16 and 17 thereof;
- c) the Authorisation Regulations, and, in particular, Regulations 9, 10, 11, 12, 15, 16, 17, 18(1) and 19 thereof;
- d) the Wireless Telegraphy Act 1926 and, in particular, sections 5 and 6 thereof; and
- e) applicable Policy Directions made by the Minister under section 13 of the Communications Regulation Act 2002, as amended.

In arriving at its decisions as set out in this Decision Instrument, ComReg has:

- (i). given all interested parties the opportunity to express their views and to make submissions in accordance with Regulation 11 of the Authorisation Regulations and Regulation 12 of the Framework Regulations; and
- (ii). evaluated the matters to be decided, in accordance with ComReg's RIA Guidelines (ComReg Document 07/56a) and the RIA Guidelines issued by the Department of An Taoiseach in June, 2009, as set out in the various chapters of Document 18/12 and their supporting annexes.

3 Decisions

ComReg has made the following decisions -

1. ComReg will proceed with the release of the Award Spectrum using the auction format and in accordance with the procedures and rules as detailed in the Information Memorandum and will grant new 26 GHz Band National Block Licences which shall come into operation on 6th June 2018 (when all current rights of use for radio frequencies in the Award Spectrum shall expire) or as close to that date as possible.
2. For the purpose of granting new 26 GHz Band National Block Licences, and subject to obtaining the required consent of the Minister in accordance with section 37 of the Communications Regulation Act 2002, as amended, ComReg will make regulations under section 5 of the Wireless Telegraphy Act 1926, to be titled the 26 GHz Band Licence Regulations 2018 and which shall prescribe, amongst other things -
 - (a) the form of such Licences;
 - (b) the period during which such Licences shall continue in force;

- (c) the manner in which, the terms on which, and the period or periods for which such Licences may be renewed;
 - (d) the circumstances in which or the terms under which such Licences are granted;
 - (e) the circumstances and manner in which such Licences may be suspended or revoked;
 - (f) the terms and conditions to be observed by the holders of such Licences and subject to which such licences are deemed to be granted;
 - (g) the fees to be paid on the application, grant or renewal of such Licences or classes of such licences, subject to such exceptions as the appropriate authority may prescribe, and the time and manner at and in which such fees are to be paid; and
 - (h) matters which such Licences do not entitle or authorise the holder to do.
3. ComReg will attach certain conditions to the rights of use for radio frequencies that form the Award Spectrum, as generally described in Chapter 5 of Document 18/12 and as shall be particularised in each 26 GHz Band National Block Licence.
 4. All 26 GHz Band National Block Licences will be of ten years duration such that all such Licences shall commence concurrently on 6th June 2018, or on such later date as ComReg may specify, and all such Licences shall expire concurrently on 5th June 2028 or on the tenth anniversary of such later commencement date as may apply and all rights of use for radio frequencies assigned under such Licences shall commence and expire on the same dates as such Licences.
 5. 26 GHz Band National Block Licences will permit Licensees to keep, possess, install, maintain, work and use apparatus for wireless telegraphy for the purpose of operating Point-to-Point radio communications links only, on a national basis, and, for the avoidance of doubt, Licences will not permit Licensees to keep, possess, install, maintain, work or use apparatus for wireless telegraphy for any purpose other than operating Point-to-Point radio communications links;
 6. 26 GHz Band National Block Licences will permit Licensees to keep, possess, install, maintain, work and use apparatus for wireless telegraphy (as defined in

the Wireless Telegraphy Act 1926) consisting of Point-to-Point radio communications links equipment that utilises “Frequency Division Duplexing” technology only, and, in particular and for avoidance of doubt, Licences will not permit Licensees to keep, possess, install, maintain, work or use any form of apparatus for wireless telegraphy that utilises “Time Division Duplexing” technology.

7. All authorised undertakings who may be granted 26 GHz Band National Block Licences shall be selected by their participation in an open and competitive selection procedure, specifically a “sealed bid combinatorial auction” using a second price rule, the format, processes, and rules of which auction are particularised in the Information Memorandum.
8. The granting of a 26 GHz Band National Block Licence, to any undertaking who successfully participates in the sealed bid combinatorial auction and wins some quantum of the Award Spectrum, shall be conditional upon all such undertakings paying the applicable fees for such Licences (as determined by the auction conducted in accordance with the IM) and complying with the terms and conditions subject to which such Licences shall be deemed to be granted.

4 Statutory Powers Not Affected

Nothing in this Decision Instrument shall operate to limit ComReg in the exercise of its discretions or powers, or in the performance of its functions or duties, or in the attainment of any of its objectives under any laws applicable to ComReg from time to time.



COMMISSIONER

THE COMMISSION FOR COMMUNICATIONS REGULATION

THE 25 DAY OF APRIL 2018

Chapter 6

6 Next Steps

6.1 Next Steps

- 6.1 Table 3 of Chapter 3 of the IM sets out the timetable for the next steps of the Award Process.
- 6.2 ComReg will also facilitate the submission of questions regarding the Award Process and Award Rules and will respond publicly to these questions on an anonymous basis. The deadline for the submission of questions regarding the Award Process is **16:00 Tuesday 8 May 2018**. The process for submission of questions is set out in Section 3.4 of the IM.
- 6.3 ComReg will process questions received within the stipulated period (as set out in Table 3 of the IM). Questions and corresponding answers will be published concurrently on ComReg's website. ComReg will not reply directly to these questions.
- 6.4 In the interests of expediency, ComReg requires that any questions containing confidential material¹⁹ be accompanied by a redacted, non-confidential version of the question. Should a question that is considered confidential by its submitter not be accompanied by a redacted, non-confidential version, ComReg will not accept the question as being validly submitted, nor will ComReg publish the question on its website or address the matters raised therein.
- 6.5 In the event that ComReg receives correspondence on matters relating to this document, the IM and the Award Process generally, ComReg hereby gives notice that it will publish all material correspondence received in this regard subject to the provisions of ComReg's guidelines on the treatment of Confidential Information.

¹⁹ Note, unless a question or part thereof is explicitly denoted confidential, ComReg will assume that the querist considers the question to be non-confidential. In this regard, ComReg would then have the authority to publish the question in whole or in part as it deems appropriate, in line with ComReg's guidelines on the treatment of Confidential Information (Document 05/24).

Annex 1: Glossary

A1.1 Definitions

- A 1.1 Where a term in this glossary is defined by reference to a definition in a section, paragraph, or document and an explanation of that term is provided in this glossary, the latter explanation is for convenience only and reference should be made to the appropriate part of the document for the definitive meaning of that term in its appropriate context.
- A 1.2 Any reference to any provision of any legislation shall include any modification re-enactment or Extension thereof.
- A 1.3 Any reference to an Interested Party shall include that Interested Party's successors and assigns.
- A 1.4 Terms defined in this document shall, unless the context otherwise requires or admits, have the meaning set out below:

26 GHz Band	The radio frequency spectrum in the range 24.250 GHz – 27.550 GHz.
26 GHz Band Licence	A Licence issued under Schedule 1 of the Regulations which entitles the holder to use certain specific Lots in the 26 GHz band, subject to the terms and conditions set out therein.
Applicant	An entity that submits an Application to ComReg to be assigned at least one of the Lots being made available in the Award Process.
Application	The Application to participate in the Award Process made by an Applicant. A valid Application is a binding commitment to pay up to the highest value Bid Amount submitted for any Bid specified on the Applicant's Lot Application Form.
Application Date	The date by which Interested Parties must submit an Application to participate in the Award Process together with the required monetary Deposit.

Application Form	<p>The Application Form, as set out in Annex 3 of the IM, to be delivered as part of an Application consisting of:</p> <ul style="list-style-type: none"> • Part 1: Administrative Information • Part 2: Applicant Declaration • Part 3: Lot Application Form • any supporting documentation required to be delivered including Ownership Structure.
Application Stage	The stage of the Award Process described in section 3.4 of the IM, which runs from the day on which the IM is published up to and including the Application Date.
Assessment Stage	The stage of the Award Process used to determine the number of frequency-generic Lots to be assigned to Bidders, and the Base Prices that Winning Bidders will be required to pay.
Assignment Option	The set of unique feasible frequency assignments that could be assigned to a Winning Bidder in one or more Feasible Frequency Plans.
Assignment Round	A round where a Winning Bidder may bid for alternative frequency assignments corresponding to the Lots won in the Assessment Stage.
Assignment Stage	The stage of the Award Process where Winning Bidders are assigned specific Lots in accordance with the number of frequency-generic Lots they have won based on the Bids submitted in the Application Stage.
Auction	The mechanism within the Award Process used to determine Winning Bidders and Winning Prices based on the demand expressed by Applicants for Lots
Award Process	The overall process through which it is intended that rights of use of the Award Spectrum will be granted in the event that at least one Applicant submits a valid Application, which by definition must include a Valid Bid.

Award Rules	Rules and procedures relating to the Award Process, as presented in this Information Memorandum and its Annexes.
Award Spectrum	The 26 GHz spectrum in respect of which rights of use are being made available in the Award Process as set out in the IM.
Base Price	The price to be paid by a Winning Bidder for the number of Lots allocated to it in the Assessment Stage of the Auction (determined using a second price rule).
Bid	A binding offer to buy a number of frequency-generic Lots at a price not exceeding a specific monetary amount (the Bid Amount).
Bid Amount	The monetary amount associated with an offer made by a Bidder for a specified number of frequency-generic Lots. The Bid Amount must be at least the sum of the Reserve Prices of all the specified frequency-generic Lots under consideration, and must be in whole Euros.
Bidder	An Applicant that submitted a valid Application in the Application Stage that was approved by ComReg in the Qualification Stage, qualifying them to be allocated Lots in the Assessment Stage.
Confidential Information	Details of what may constitute Confidential Information for the purposes of this Award Process are provided in subsection 3.4.5 of the IM.
Deposit	A monetary amount submitted by an Applicant as part of its Application to be allocated Lots in the Award Process. For an Application to be valid, the amount of an Applicant's Deposit must be equal to the highest Bid Amount specified by the Applicant in its Lot Application Form.
Existing Licence	A Licence currently held under the Wireless Telegraphy (National Point-to-Point and Point-to-Multipoint Block Licences) Regulations S.I. 762 of 2007

Feasible Frequency Plan	An assignment of frequencies to Winning Bidders in which each receives the number of blocks determined in the Assessment Stage as a contiguous (duplex) frequency range and none of these ranges coincide.
General Authorisation	An authorisation for an undertaking to provide an electronic communications network or service under and in accordance with Regulation 4 of the Authorisation Regulations.
IM	The Information Memorandum including all of the Annexes and Schedules thereto.
Interested Party	Includes, to the extent that the context requires or admits, any of the following: <ul style="list-style-type: none"> (i) a respondent to Consultation Document 17/70; (ii) a prospective Bidder; (iii) an Applicant; (iv) a Bidder; or an agent of any of the foregoing.
Licence	A 26 GHz Band Licence and "Licensee" shall be construed accordingly.
Lot	A 2 x 28 MHz block of the Award Spectrum. Each Lot has two specific frequency ranges associated with it, one of which is used for uplink and one of which is used for downlink. Further details regarding the specific frequencies for the 19 Lots in the Award Spectrum are provided in Table 2 of the IM.
Non-Interference and Non-Protected Basis	The use of Apparatus is subject to no Harmful Interference being caused to any Radiocommunication Service, and that no claim may be made for the protection of Apparatus used on this basis against Harmful Interference originating from Radiocommunication Services.
Notification and Grant Stage	The stage of the Award Process during which Deposits (minus any applicable Upfront Fees or portion of deposits forfeited for breaches of the Award Rules) are returned to Bidders and 26 GHz Band Licences are granted to Winning Bidders.

Payment Deadline	The last day upon which Winning Bidders can increase their Deposits to the level of their Upfront Fee in order to receive a Licence for the Lots assigned to them within the Award Process.
Qualification Stage	A stage of the Award Process during which ComReg assesses the Applications submitted before the Application Date, evaluates which Applications are valid, and determines which Applicants qualify to become Bidders in the Award Process.
Radiocommunication Service	A service as defined in the Radio Regulations of the International Telecommunication Union involving the transmission, emission or reception of radio waves for specific telecommunication purposes.
Reserve Price	The minimum Bid Amount required in a Bid for an individual Lot for such a Lot to be assigned to a Bidder.
Spectrum Usage Fee (SUFs)	Annual Fees which a successful Bidder must pay in respect of spectrum rights of use assigned in the Award Process.
Transition Activities	Adjustments as may be required by Existing Licensees to their existing networks and may involve relocating or retuning of existing spectrum assignments.
Transition	Relocating or retuning of existing spectrum assignments.
Transition Plan	A plan which outlines interim milestones for retuning and relocation activities for Existing Licensees.
Transition Plan Proposals	Formulated by Winning Bidders and Existing Licensees who have agreed to abide by the Transition Rules.
Transitional Rules	Rules regarding Transition, as set out in Section 3.9 of the IM
Unsuccessful Bidder	An Interested Party that submits an Application to ComReg to be allocated Lots in the Award Process, is declared a Bidder

	in the Qualification Stage, but is not allocated any Lots in the Assessment Stage of the Award Process.
Upfront Price/Upfront Fee	The Winning Price to be paid by a Winning Bidder for the spectrum to be assigned to it as a result of the Award Process. The Upfront Fee to be paid by each Winning Bidder prior to a receipt of 26 GHz National Block Licence will be the sum of its Base Price plus its Additional Price.
Valid Bid	A Bid submitted in an Application that is in accordance with the Award Rules, and which specifies a Bid Amount that is greater than or equal to the sum of the Reserve Prices of all Lots in the Bid.
Winning Bid	A Bid in respect of which a Winning Bidder is assigned at least one Lot.
Winning Bidder	A Bidder that wins at least one Lot in the Award Process.

A1.2 European and Governmental Bodies, Regulatory and Standardisation Organisations

ComReg	Commission for Communications Regulation
EC	European Commission
EU	European Union

A1.3 Primary and Secondary Legislation

SI	Statutory Instrument
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2002 Act	The Communications Regulation Act 2002 (No. 20 of 2002), as amended ²⁰
Act of 1926	The Wireless Telegraphy Act 1926 (No. 45 of 1926) as amended
Authorisation Regulations	European Communities (Electronic Communication Networks and Services) (Authorisation) Regulations 2011 (S.I. No 335 of 2011)
Framework Directive	Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services, as amended
Framework Regulations	European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No 333 of 2011)
The Minister	Minister for Communications, Climate Action and Environment
Specific Regulations	Specific Regulations has the same meaning as set out in Regulation 2 of Framework Regulations 2011 (S.I. No. 333 of 2011)

A1.4 Glossary of Technical Terms

FDD	Frequency Division Duplex
TDD	Time Division Duplex
GHz	Gigahertz (1,000,000,000 Hertz)
Harmful Interference	Bears the meaning ascribed to it in the Framework Regulations being: interference which endangers the functioning of a radio navigation service or other safety services or which otherwise seriously degrades, obstructs or repeatedly interrupts a Radio communications service operating in accordance with a requirement under the International Telecommunication Union Radio Regulations, a Regulation of the European Union or legislation giving effect to an act, or a provision of an act, adopted

²⁰ Amendments include but are not limited to those effected by the Communications Regulation (Amendment) Act 2007 and the Communications Regulation (Premium Rate Services and Electronic Communications Infrastructure) Act 2010.

	by an institution of the European Union relating to the provision of an electronic communications service, electronic communications network or an associated facility or the radio frequency spectrum or regulations made under the Act of 1926.
Hertz	Unit of Frequency
MHz	Megahertz (1,000,000 Hertz)
SAF	Spectrum Access Fee
SUF	Spectrum Usage Fee

Annex 2: Qualification Stage Details

A 2.1 Potential Applicants to the 26 GHz Band spectrum Award are encouraged to submit complete and clear applications to the award and in full accordance with the IM. In the interests of allowing for a prompt qualification stage and to save on the requirement for Applicants to submit additional information, ComReg sets out below certain further details on the specific that are required in certain parts of the IM. These details are informed from ComReg's experience of assessing Applications in recent Award Processes. Interested parties should refer to the list below to satisfy itself prior to submitting its application that the Application is indeed as required by the IM.

Supplying appropriate evidence

A 2.2 The Applicant is required to submit "appropriate evidence" (in accordance with paragraph 3.32 of the IM) that the persons signing the Application Forms and the persons bidding on behalf of the Applicant are duly authorised by the Applicant to do so.

Both Authorised Agents sign the Applicant declaration

A 2.3 Only one Authorised Agent appears to have signed the Applicant Declaration. The Applicant is required to submit an Applicant Declaration signed by both Authorised Agents.

Appropriate Certification regarding the documents provided including the ownership structure and broad resolutions

A 2.4 Applicants should check that its certification regarding its ownership structure complies with the requirements of paragraph 3.36 of the IM. In particular, the Applicant must certify that its ownership structure document is "*detailed, complete and clear*". In that regard, Applicants its certification should not omit any of the words "*detailed, complete and clear.*"

A 2.5 Applicants should check that its ownership structure certification is compliant with the ownership rules set out in subsection 3.4.4 of the IM. This should not be provided using qualified terms such as

- "*to the best of the Applicant's knowledge*" and
- "*having made reasonable enquiries*"

- A 2.6 The Applicant is requested to provide an extract from its board resolutions which the company secretary (or other authorised signatory) has certified is a true extract from the resolutions passed at the properly convened and validly held relevant board meeting which was held on the specified date.
- A 2.7 The Applicant is required to have its company secretary or other authorised signatory certify the copy of the Applicant's Certificate of Incorporation and Memorandum and Articles of Association. Certification provided only by any legal personnel only would not be sufficient.
- A 2.8 In respect of the Ownership Structure Document, the Applicant is required to:
- certify (as opposed to merely state) that to the best of its knowledge the document is a detailed, complete and clear overview of its ownership structure;
 - certify (as opposed to merely state) that the Applicant's ownership structure complies with the ownership rules in Section 3.4.4 of the Information Memorandum; and
 - list the Applicant's Insiders.
- A 2.9 As required under paragraph 3.36 of the IM, the Applicant is required to:
- certify (by company secretary or other authorised signatory) to the best of its knowledge that the Ownership Structure Document provided is a detailed, complete and clear overview of its ownership structure; and
 - certify (by company secretary or other authorised signatory) that its ownership structure complies with the ownership rules set out in Section 3.4.4 of the Information Memorandum.

Provide full and detailed information about all Shareholders / connected persons / Insiders etc.

- A 2.10 The Applicant is required to provide sufficient information on the ownership structure of those entities so that ComReg can determine to its reasonable satisfaction that two or more Bidders are not connected or associated.
- A 2.11 The ownership structure chart should be complete and show the ultimate beneficial ownership. Applicants are required to submit an ownership

structure chart showing ultimate beneficial ownership, along with the certification of accuracy required under paragraph 3.36 of the Information Memorandum.

Confirmation with regard to the existence of Insiders

- A 2.12 The Applicant is required to confirm that there are no Insiders (for example, outside advisors) involved in its Bid.
- A 2.13 Witnessing of the specimen signature of the sole Authorised Signature is required. The name and position of the witness rather than that of the Authorised Agent is required.
- A 2.14 The Applicant is required to submit a copy of the Applicant's Certificate of Registration and Memorandum and Articles of Association certified by the company secretary or other authorised signatory.

Annex 3: Legal Framework and Statutory Objectives

- A 3.1 The Communications Regulation Acts 2002-2011²¹ (the “2002 Act”), the Common Regulatory Framework (including the Framework and Authorisation Directives²² as transposed into Irish law by the corresponding Framework and Authorisation Regulations²³), and the Wireless Telegraphy Acts 1926 to 2009²⁴ 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 preliminary consultation.
- A 3.2 Apart from licencing 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 3.3 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

²¹ The Communications Regulation Act 2002 as amended, the Communications Regulation (Amendment) Act 2007, the Communications Regulation (Premium Rate Services and Electronic Communications Infrastructure) Act 2010 and the Communications Regulation (Postal Services) Act 2011.

²² 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”)

²³ 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.

²⁴ The Wireless Telegraphy Acts 1926 to 1988 and Sections 181 (1) to (7) and (9) and Section 182 of the Broadcasting Act 2009.

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.

A 3.4 All references in this annex to enactments are to the enactment as amended at the date hereof, unless the context otherwise requires.

Primary Objectives and Regulatory Principles under the 2002 Act and Common Regulatory Framework

A 3.5 ComReg's primary objective in carrying out its statutory functions in the context of electronic communications are to:

- Promote competition²⁵;
- contribute to the development of the internal market²⁶;
- promote the interests of users within the Community²⁷;
- ensure the efficient management and use of the radio frequency spectrum in Ireland in accordance with a direction under Section 13 of the 2002 Act;²⁸ 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

²⁵ Section 12 (1)(a)(i) of the 2002 Act.

²⁶ Section 12 (1)(a)(ii) of the 2002 Act.

²⁷ Section 12(1)(a)(iii) of the 2002 Act.

²⁸ 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.

Specific regulations²⁹ in particular those designed to ensure effective competition³⁰

Promotion of Competition

A 3.6 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 3.7 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 3.8 Regulation 9(11) of the Authorisation Regulations also provides that 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.

Contributing to the Development of the Internal Market

²⁹ 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).

³⁰ Regulation 16(1)(a) of the Framework Regulations.

A 3.9 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 electronic communications networks, electronic communications services 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 3.10 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.

Promotion of Interests of Users

A 3.11 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 electronic communications services
- 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 3.12 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.

Regulatory Principles

A 3.13 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 electronic communications networks and services;
- 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.

BEREC

A 3.14 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.

Other obligations under the 2002 Act

A 3.15 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 Act³¹;
- have regard to international developments with regard to electronic communications networks and electronic communications services, associated facilities, postal services, the radio frequency spectrum and numbering³²; and
- take the utmost account of the desirability that the exercise of its functions aimed at achieving its radio frequency management

³¹ Section 12(3) of the 2002 Act.

³² Section 12(5) of the 2002 Act.

objectives does not result in discrimination in favour of or against particular types of technology for the provision of ECS.³³

Policy Directions

A 3.16 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.

Policy Direction No.4 on Industry Sustainability

A 3.17 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.

Policy Direction No.5 on Regulation where necessary

A 3.18 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 3.19 ComReg, before deciding to impose regulatory obligations on undertakings in the market for electronic communications or for the purposes of the

³³ Section 12(6) of the 2002 Act.

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 3.20 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 Management of the Radio Frequency Spectrum

A 3.21 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

A 3.22 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;
- the potential of alternative technology delivery platforms to support competition.

Other relevant obligations under the Framework and Authorisation Regulations

Framework Regulations

A 3.23 Regulation 17 of the Framework Regulations governs the management of radio frequencies for electronic communications services. 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 electronic communications services;
- that spectrum allocation used for electronic communications services 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 3.24 Regulation 17(2) provides that, unless otherwise provided in Regulation 17(3), ComReg must ensure that all types of technology used for electronic communications services may be used in the radio frequency bands that are declared available for electronic communications services in the Radio Frequency Plan published under Section 35 of the 2002 Act in accordance with EU law.

A 3.25 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 electronic communications services 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 3.26 Regulation 17(4) requires that, unless otherwise provided in Regulation 17(5), ComReg must ensure that all types of electronic communications services may be provided in the radio frequency bands, declared available for electronic communications services in the Radio Frequency Plan published under Section 35 of the Act of 2002 in accordance with EU law.

A 3.27 Regulation 17(5) provides that, notwithstanding Regulation 17(4), ComReg may provide for proportionate and non-discriminatory restrictions to the types of electronic communications services to be provided, including where necessary, to fulfil a requirement under the International Telecommunication Union Radio Regulations (“ITU-RR”).

A 3.28 Regulation 17(6) requires that measures that require an electronic communications service to be provided in a specific band available for electronic communications services 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 3.29 Regulation 17(7) provides that ComReg may only prohibit the provision of any other electronic communications service 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 3.30 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 3.31 Regulation 17(9) provides that Regulations 17(2) to (7) only apply to spectrum allocated to be used for electronic communications services, general authorisations issued and individual rights of use for radio frequencies granted after the 1 July 2011. Spectrum allocations, general authorisations and individual rights of use which already existed on the 1 July 2011 Framework Regulations are subject to Regulation 18.
- A 3.32 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 3.33 Regulation 17(11) requires ComReg to, in the fulfilment of its obligations under that Regulation, respect relevant international agreements, including the ITU Radio Regulations and any public policy considerations brought to its attention by the Minister.

Authorisation Regulations

Decision to limit rights of use for radio frequencies

- A 3.34 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 3.35 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 3.36 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 3.37 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 3.38 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 3.39 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 3.40 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 3.41 Regulation 10(02) 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 3.42 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 3.43 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 3.44 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 3.45 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 3.46 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.

Amendments of rights and obligations

A 3.47 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).

Other Relevant Provisions

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

A 3.48 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 3.49 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 3.50 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 3.51 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 3.52 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.

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

A 3.53 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.”