



Consultation on proposed 3.6 GHz band award

Information Notice

Reference: ComReg 15/76

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1 Introduction and Background

1. Today, ComReg issues its consultation on its proposed award of the 3.6 GHz band (Consultation 15/70) and welcomes responses from interested parties on same. This Information Notice provides an overview of some of the key aspects of the proposed award process. Readers should refer to the full consultation document for detail.
2. The 3.6 GHz band (3 400 MHz – 3 800 MHz) is an internationally harmonised band facilitating the provision of wireless broadband (WBB) services on a fixed, nomadic and mobile basis. Given the large quantum of spectrum available, some 350 MHz in Ireland's case, along with the general trend toward the deployment of long-term evolution (LTE) equipment in this band, there are a range of potential uses for this band.¹
3. In Ireland, this band is currently licensed for fixed wireless services on a local area basis under ComReg's Fixed Wireless Access Local Area (FWALA) licensing scheme. Fourteen operators hold FWALA licenses in this band and these operators provide fixed broadband services to a considerable but falling number of consumers (currently 27,302 customers²).
4. In 2010, ComReg announced that the FWALA licensing scheme for the 3.6 GHz band would conclude on 31 July 2017, meaning that all existing FWALA licences in the band will expire by that date.³ This reflected ComReg's view that the FWALA scheme needed to be replaced with one which facilitates the provision of fixed, nomadic and mobile wireless access services, in accordance with a European Commission decision of 2008 which Ireland is obliged to implement.⁴
5. In September 2014, ComReg issued a consultation outlining its preliminary proposals for a multi-band award process which included the 3.6 GHz band (Consultation 14/101).⁵ In assessing the responses to that consultation⁶, ComReg observed that there appeared to be broad support for the release of

¹ For example: fixed wireless access, small cells, backhaul links in wireless broadband access networks or combinations thereof.

² This figure is based on information received from operators in response to Quarterly Key Data Report Information Request

³ ComReg Document 10/29 – *Fixed Wireless Access Local Area Licensing: End date of the FWALA licensing scheme in the 3.6 GHz band* – dated 8 April 2010.

⁴ European Commission Decision of 21 May 2008 on the harmonisation of the 3 400-3 800 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community (2008/411/EC). This decision was amended in 2014 by European Commission decision 2014/276/EU. These decisions are collectively referred to in this information notice as the "3.6 GHz EC Decision".

⁵ ComReg Document 14/101 - *Spectrum award - 2.6 GHz band with possible inclusion of 700 MHz, 1.4, 2.3 and 3.6 GHz bands*.

⁶ Non-confidential versions of which are published in ComReg Document 15/15.

this band in a separate award process.

6. On 16 February 2015, and in light of these responses, ComReg published an information notice indicating that it intended to consider the possible release of rights of use in the 3.6 GHz band in a separate competitive award process and to issue a consultation on same (Information Notice 15/14).
7. This approach was also noted by ComReg in Document 15/57⁷ as clarity on ComReg's plans and timelines for the award of the 3.6 GHz band was also a common issue raised in the responses received to ComReg's call for inputs with regard to the Government's National Broadband Plan (NBP) (Consultation 14/126). In relation to the views of certain respondents concerning the relationship between ComReg's spectrum award proposals and the NBP, ComReg would take this opportunity to:
 - reiterate that ComReg has no decision-making role in regard to the design of the NBP or the award of any contracts under the NBP; and
 - confirm that, to the extent that interested parties have views on how ComReg's spectrum award proposals may, in their view, better align with the NBP (including when more detailed information becomes available about the NBP), then ComReg remains open to consideration of such views in the context of ComReg's own statutory remit.⁷

⁷ National Broadband Plan: Response to Call for Input.

2 Main features of proposed 3.6 GHz band award

Main features of proposed award process

8. ComReg would highlight the following features of its proposed award, including considerations informing same.⁸
9. First, ComReg proposes to assign all available⁸ spectrum in the 3.6 GHz band in a separate award process by way of an auction mechanism. This proposal follows careful consideration of various options, including in terms of their potential impacts on industry stakeholders, competition and consumers.
10. Second, ComReg proposes to release 350MHz of harmonised spectrum in the 3.6 GHz band on a service- and technology-neutral basis using the Time Division Duplex (TDD) configuration. This proposal reflects the harmonised band plan identified in the 3.6 GHz EC Decision and ComReg also observes that respondents to Consultation 14/101 generally supported the implementation of TDD. In addition, this approach would allow Ireland to benefit from the global equipment ecosystem for this band, such as in terms of reduced costs of network equipment and user devices, thereby enabling operators to provide faster and more affordable services to consumers.
11. Third, ComReg proposes to award regional licences in the 3.6 GHz band. This approach reflects the likely needs of existing and potential future users of the band, and offers flexibility and scalability for operators to obtain rights in certain parts of the State which can also be readily aggregated to achieve a national footprint. ComReg's proposal, which is a variation of a proposal submitted by the Joint FWA Operators in response to Consultation 14/101, consists of nine regions - the city and suburban boundaries of each of Dublin, Cork, Limerick, Galway and Waterford, and four regions covering the remaining parts of the country (North East, North West, South East and South West).
12. Fourth, ComReg proposes issuing licences in respect of rights of use of 3.6 GHz spectrum with a term of 15 years. This duration would be over twice as long as the maximum duration of existing FWALA licences, and would provide certainty to operators in terms of an appropriate period for investment amortisation.

⁸ Noting that 50 MHz is not available due to the need for a guard band to protect services operating below 3.4 GHz and use by State services.

Award format, spectrum lots and competition caps

13. The award format proposed by ComReg is a combinatorial clock auction (CCA), which would use an opportunity-cost pricing mechanism.⁹ In that regard, ComReg observes that:
- a CCA is an appropriate format by which to address the potential award risks identified by ComReg and its consultants DotEcon. For instance, by enabling package bidding, a CCA would ensure that bidders can express their valuations for different packages of lots (see below) without the risk of only being awarded a subset of the lots they bid upon; and
 - the design of the award process should, to the extent possible, seek to minimise the complexity for bidders. In this regard, ComReg will assist all bidders in developing a detailed understanding of the auction rules through, for example, the running of workshops and providing the tools necessary for bidders to simulate auction conditions.
14. In addition, ComReg proposes that spectrum rights in the 3.6 GHz band be offered, in the main, in lots of 5 MHz. This approach, together with the regional licensing proposal, should afford bidders a high degree of flexibility to bid for spectrum rights tailored to their specific needs, such that different types of bidders (for instance, pursuing different business models, including the use of different technologies) can compete in the award process on a level playing field.
15. To safeguard competition, ComReg proposes that a competition cap be imposed on the amount of spectrum rights that bidders can be assigned in the award process. ComReg considers that a competition cap within the range of 150-250 MHz would strike the appropriate balance between allowing bidders the opportunity to obtain a sufficiently large amount of spectrum with which to meet existing and likely future requirements and excluding outcomes where downstream competition would likely be harmed.¹⁰

⁹ An opportunity cost pricing mechanism means that winning bidders pay not what they bid but the lowest price at which the winning bidder could still have won those lots given what other bidders bid. This approach provides good incentives for bidders to bid close to their true value. This, in combination with package bidding, simplifies the process as bidders can focus on expressing their valuations rather than on the implications of other strategic actions.

¹⁰ In proposing to impose a cap on the amount of spectrum in the 3.6 GHz band that each winning bidder may be assigned, ComReg is aware that the 3.6 GHz band could, in time, become substitutable for certain "mobile bands", including the 2.3 GHz and 2.6 GHz bands. Having regard to such a possibility, ComReg would note that new spectrum rights in the 3.6 GHz band, obtained under the proposed award process, could be taken into account if, in due course, ComReg is considering whether to impose caps on the amount of spectrum in other relevant bands that may be assigned to winning bidders (including, for example, in any future award of new spectrum rights of use in the 2.3 and 2.6 GHz bands). ComReg welcomes views from interested parties on this issue.

Proposed fees

16. To ensure the efficient use of spectrum rights awarded, ComReg proposes to apply a minimum price based on a conservative lower bound estimate of the market value of liberalised 3.6 GHz spectrum.
17. ComReg is currently of the view that the minimum price in the conservative range of €0.015 to €0.025 (per MHz per capita) as recommended by DotEcon is appropriate. Further ComReg's proposal is that the higher end of the range would apply to urban areas and the lower end apply to the four non-urban regions. ComReg, however, remains open to receive any further information that may inform how it arrives at its final minimum price.
18. ComReg additionally proposes that the minimum price would comprise the following two parts (apportioned on a 50/50 basis):
 - an upfront Spectrum Access Fee, which would be paid at the end of the award process; and
 - annual Spectrum Usage Fees ('SUFs') which would be paid over the duration of a licence. In ComReg's view and experience, SUFs incentivise bidders to re-assess their need for spectrum on account of the annual fees payable to retain them and also allow bidders to spread a portion of the cost of the licence over its duration.

Proposed licence conditions

19. ComReg's licence condition proposals consist of a number of measures, including:
 - the setting of a base station roll-out obligation within a 3-5 year period per region, which will promote the efficient use of spectrum within a reasonable timeframe to the benefit of end users;
 - the setting of quality of service conditions relating to network availability and voice call standards, as appropriate, with which to protect end users; and
 - the setting of technical conditions which aim to maximise the quantum of useable spectrum available while also allowing market flexibility and ensuring co-existence with both adjacent and co-channel licensees.

Proposed transitional arrangements

20. Finally, to ensure the orderly and timely transition by existing licensees in the 3.6 GHz band (“Existing Licensees”) to the assignment outcomes that would be determined by the proposed award, ComReg is consulting upon the following proposals:

- The formulation of a Transition Plan by ComReg which would identify the transition activities¹¹, and completion dates for same, required by Existing Licensees’.
- The issue of a “Transition Protected Licence” to an Existing Licensee to facilitate the completion of the Transition Plan, in the event that transition activities are required to be conducted after the expiry of existing licences on 31 July 2017; and
- The issue of a “Transition Unprotected Licence” to an Existing Licensee for a maximum period of 2 to 5 years to facilitate the provision of existing consumer services on a transitional basis.

¹¹ Transition activities refer to the activities required by the Existing Licensees to make adjustments to their existing networks in order to comply with the outcome of the proposed award process.

3 Next steps

21. Following receipt and consideration of submissions in response to Consultation 15/70, and other relevant material, ComReg intends to publish a response to consultation together with a draft decision and draft information memorandum.
22. While ComReg cannot provide certainty on the overall timelines at this juncture, as this will depend on the nature of responses received among other things, ComReg would reiterate that it remains conscious of the expiry of existing 3.6 GHz licences in July 2017 and is working towards providing clarity on the future of the 3.6 GHz band as far as possible significantly in advance of this date.
23. Subject to the above, ComReg would endeavour to issue its response to this consultation by the end of 2015.