



Commission for
Communications Regulation

Response to Consultation

Release of Spectrum in the 2300 – 2400 MHz Band

Proposed Options & Licence Conditions

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1 Foreword

The Commission for Communications Regulation ('ComReg') Spectrum Management Strategy Statement¹ sets out its intention to investigate options for using spectrum in the 2300 – 2400 MHz band ("2300 – 2400 MHz spectrum"). Currently, 2300 – 2400 MHz spectrum is used to only a limited extent and in a small number of geographic areas and ComReg believes, in concert with many respondents to this consultation, that this band can greatly facilitate the deployment of new and innovative technologies and services.

ComReg consulted with interested parties through Consultation Document 09/49, published on 15 June 2009 ("the Consultation"). Of the twenty responses received to this consultation, seventeen expressed support for the release of 2300 – 2400 MHz spectrum.

A number of issues surrounding the release of 2300 – 2400 MHz spectrum have now been resolved while others will require further consideration.

In particular, stakeholders strongly maintain that 2300 – 2400 MHz spectrum should not be released in advance of standardisation of the band by the European Telecommunications Standards Institute ('ETSI')². Standardisation should enable vendors to produce equipment at improved economies of scale, which in turn should reduce deployment costs. ETSI plans to publish the System Reference Document (SRDoc) for this band in early 2010. ComReg is closely monitoring this work and will reflect this new standard in its second consultation as well as addressing issues such as the licence award mechanism, reserve prices, licence fees and spectrum cap.

ComReg is grateful for the many helpful contributions received and will bring forward its final consultation on this valuable radio spectrum band early in the New Year.

**Alex Chisholm,
Commissioner**

¹ ComReg document 08/50 – Spectrum Management Strategy Statement 2008 – 2010 – published 1 July 2008

² ETSI group Broadband Radio Access Networks ('BRAN') are currently working on producing a System Reference Document for broadband wireless systems in the frequency range 2300 MHz to 2400 MHz. This technical document will set out standards and specifications for technologies within the band. More information on ETSI BRAN and the work it carries out can be found on www.etsi.org

2 Executive Summary

In Consultation Document 09/49, ComReg set out its proposals for releasing 2300 - 2400 MHz spectrum, in order to increase the range of technologies and services and level of competition in the wireless broadband market.

The release of 2300 - 2400 MHz spectrum was widely welcomed by respondents although there was some concern that the band is not yet harmonised across Europe, nor is there technical standardisation for use of equipment in the band. ETSI plans to publish the System Reference Document (SRDoc) for this band in early 2010 and ComReg will hold a second consultation closer to the date of publication of that document. ComReg will be better able, at that point, to set down the technical conditions that will pertain to the band and is minded to adopt the technical conditions presented by ETSI BRAN on the 2300 – 2400 MHz when available.

The Consultation provided ComReg with stakeholders' views on the future use of 2300 -2400 MHz spectrum and how best to release it, without prejudice to when it is released. ComReg enquired as to what licence types should exist within the 2300 – 2400 MHz spectrum band, and in what combination such licence types could be facilitated. ComReg established that there was a large appetite for national licences, with some interest shown for Local Area Licences and Closed User Group licences. There was considerably less interest shown in regional licences. Accordingly, ComReg has decided that the most appropriate licence types and combinations for this spectrum band are National, Local and possibly Closed User Group licences. However, ComReg must give further consideration as to how Local Area and Closed User Group licences can be best implemented in the band.

ComReg also asked stakeholders for opinions as to how much spectrum should be allocated to each particular licence type. ComReg resolved that the superior option was to allow 70 MHz of spectrum, in the range 2330 – 2400 MHz, to be allocated to National licences with 30 MHz of spectrum reserved for the proposed Local Area and Closed User Group licences, in the range 2300 – 2330 MHz. Local Area and Closed User Group licences will only be assigned in geographical areas where the legacy services within the band, namely Rurtel and Dáil TV, are not present. The majority of respondents supported ComReg's proposal to protect these legacy services.

ComReg must provide an open and transparent mechanism for releasing spectrum in any spectrum band. Cognisant of this obligation, ComReg will fulfil its proposal from the Consultation, and release spectrum via auction for national licences. ComReg believes that this is not the optimum method for release of spectrum for any Local Area or Closed User Group licences. Rather, ComReg favours a 'beauty contest' for releasing spectrum on a Local Area basis, while it must further consider the matter with regard to any Closed User Group licences. The design of these competitions will also be further considered in light of any proposals presented in a further consultation on the band.

ComReg asked stakeholders for opinions on how best to set licence fees for this spectrum. The majority of respondents, although in favour of an auction for spectrum issued nationally, disagreed with additional licence fees. ComReg now clarifies it is minded to charge a fee via auction, and that this fee would comprise of an upfront fee and a licence fee. This licence fee will be spread throughout the term of the licence.

For this and other spectrum bands, it is incumbent on ComReg to ensure that licences are of sufficient duration. This certainty is valued by licensees as investments can be made with realistic potential for return on such investments over the term of the licence. ComReg proposed licence duration of 10 – 15 years in the Consultation, and has decided that for National licences 15 year duration is the most appropriate. ComReg believes that Local Area and Closed User Group licences would be better suited to shorter duration licences, and will investigate this further.

ComReg proposed a spectrum cap as a means of achieving a reasonable level of competition within the band and a spectrum cap of 30 MHz was proposed in the Consultation. Based on the information currently to hand and the responses received in respect of this consultation, ComReg's view at this time is that a 20 to 30 MHz spectrum cap might be the most suitable to encourage greater social and economic value to Ireland. However ComReg will carry out further analysis in order to determine the optimum size for any spectrum cap and will re-visit this issue in its next consultation.

Utility conditions are attached to licences as a means of ensuring that spectrum is used by the licensee. These conditions also help ensure consumers reap the social and economic benefits afforded by such highly prized spectrum. Most respondents supported ComReg's principle of attaching utility conditions to licences issued in this band and so ComReg will advance this issue further in its next consultation.

In summary, and while ComReg has settled a number of issues during this consultation there are other matters which require further consideration and these will be addressed in a further consultation.

3 List of Respondents

There were 20 respondents to the Consultation and ComReg would like to thank all for their input. All responses received by ComReg (except annexes or information deemed confidential, as per ComReg Document 05/24³) are available at www.comreg.ie in document 09/76s.

Respondents:

- Bandwidth Communications Limited
- BT Communications Ireland Limited
- Digiweb
- Eircom Ltd.
- Ericsson
- HeaNET, including letters of approval from Institute of Technology Ireland (IOTI) and Irish Universities Association (IUA)
- Hutchison 3G Ireland Limited
- Imagine Communications Group
- Intel Corporation (UK) Ltd
- Irish Amateur Television Club
- Irish Radio Transmitters Society
- Mr. Jim McBride
- Meteor Mobile Telecommunications Ltd.
- NUI Maynooth
- Mr. Peter Grant
- Telefonica O2 Ireland
- UK Microwave Group
- UPC Ireland
- Vodafone
- WiMAX Forum

³ ComReg document 05/24 - Guidelines on the treatment of confidential Information – published 22 March 2005

4 Consultation Issues

4.1 Releasing Spectrum in the 2300 – 2400 MHz Band

A portion of 2300 – 2400 MHz spectrum is currently used in Dublin (8 MHz) and in the west of Ireland (20 MHz)⁴. In Consultation Document 09/49 ('the Consultation'), ComReg set out its proposal to release more 2300 – 2400 MHz spectrum, and sought views on the proposal and the basis for same.

Q. 1. ComReg proposes to release spectrum for licensing additional services in the 2.3 GHz band. Do you support ComReg's proposal to release spectrum in the band? Are there other issues, besides those identified above, which ComReg needs to take into account in releasing spectrum in the band? Please give reasons for your answer.

4.1.1 Views of Respondents

A significant majority of the 18 respondents supported the release of 2300 – 2400 MHz spectrum:

- Fourteen respondents agreed in principle with the release of spectrum in this band. Of these fourteen respondents, five submit that ComReg should wait until the 2300 – 2400 MHz band is harmonised across the EU before releasing the spectrum. Reasons given for waiting for EU-wide harmonisation include the current unavailability of standardised equipment, operators' need for mature and robust technology for commercial deployment, and the potential for increase in economic and social value that would be realised in Ireland should the band be harmonised in Europe.
- Two of the fourteen respondents submit that 2300 – 2400 MHz spectrum should be released as soon as possible, with one of these stating a time frame of no later than end of 2009.

Three of the four respondents who are not in favour of the release make a number of arguments. One of these submits that releasing spectrum in this band should be a last resort and not a first one, and priority should be given to 2.6 GHz and 3.5 GHz spectrum. Another respondent submits the whole band should not be released for consumer based products, whilst the remaining respondent not in favour of releasing the spectrum proposed a band plan involving two changes to the current band plan. All three of these respondents submit that it is important to protect current users in the band.

⁴ Map of Rurtel and Dail usage available at the following address - http://comreg.ie/radio_spectrum/google_map.704.googlemap.html

One respondent neither supported nor disagreed with the proposal to release spectrum within the band. However, it did stress the importance of establishing harmonised technical parameters for this spectrum prior to its release and the necessity for increased access to IMT harmonised spectrum. It notes that given the limited availability of IMT spectrum in Ireland at this time, harmonised 2300 – 2400 MHz spectrum for mobile expansion is likely to be of strategic importance. It also highlighted the importance of waiting until ETSI publish its System Reference Document for this band prior to spectrum release.

Other issues were also raised by respondents. Two respondents raised issues with respect to current users of spectrum within the band, one wanting clarity as to whether Dáil TV will expand its service beyond its current geographic reach in the future whilst another respondent questioned whether Rurtel and Dáil TV would be better accommodated in other bands that are potentially more suited to their needs. One of these respondents also saw the need for interference studies to be carried out to evaluate the potential interference between systems within the band, and also potential interference between systems within the band and systems in adjacent spectrum bands. It noted the need for studies to be carried out, however also proposed recommendations which may mitigate potential interference issues.

A further respondent proposed that ComReg explore the possibility of 2300 – 2400 MHz spectrum being made available on an all-Ireland basis. It referenced that within the UK, the Ministry of Defence (MoD) has discussed releasing some of the spectrum in this band in the future.

4.1.2 ComReg's Position

The submissions received were broadly in agreement with the proposal to release 2300 – 2400 MHz spectrum. Of the concerns raised, most were in relation to the timing of the award; with many of the respondents believing that harmonisation of the band is needed to gain maximum social and economic benefit from the band.

ComReg considers it prudent to implement the release 2300 – 2400 MHz when standardised technical conditions are in place. Standardisation at ETSI level should make deployments in the band more attractive and financially viable, as manufacturers should be able to produce equipment in larger volumes within standardised technical parameters. ComReg will monitor progress on the standardisation issue and will be in a position to consult with stakeholders once more on the release of 2300 – 2400 MHz spectrum once matters become clearer.

With respect to the other issues raised, ComReg intends to allow the legacy services within the band (Rurtel and Dáil TV) to use their current spectrum allocation. Respondents to the Consultation generally supported this proposal. Spectrum within the range 2307 – 2327 MHz paired with 2407 – 2427 MHz is licensed to Eircom under its Universal Service Obligation ('USO'), which requires Eircom to provide any person, on request, with a basic set of high quality and affordable telecommunications services. The spectrum assigned to Eircom is currently

necessary for it to provide such services to persons in remote rural areas. However, ComReg reserves the right to review this spectrum usage in the future. Aervision is licensed to transmit the Dáil TV channel using 8 MHz of spectrum in the 2308 – 2316 MHz part of the band. The usage of this frequency assignment is geographically limited to the Dublin area.

While ComReg notes the basis on which four respondents oppose the release of 2300 – 2400 MHz spectrum, ComReg believes that the social, economic and potentially educational value of the spectrum is significant. ComReg must point out that the amateur service access to the band has not changed, and will continue to be available for amateur use on a secondary (non-interference, non-protected) basis.

One respondent submits that ComReg should consider releasing spectrum in the 2.6 GHz and 3.5 GHz band first. However, the 2.6 GHz band is already licensed in Ireland for MMDS Services while the 3.5 GHz spectrum has been available for licensing since 2003 with 140 current licences. For those reasons, ComReg considers the release of 2300 – 2400 MHz spectrum to be a priority.

In relation to concern about potential interference, ComReg will define adequate Block Edge Masks (BEM), Band Edge Masks and power limits to maximise coexistence between systems within the band and to mitigate interference between systems within the band with systems in adjacent bands.

The possibility of an all-Ireland spectrum release has been investigated by ComReg; however the timeline for the release of 2300 – 2400 MHz spectrum by the UK Ministry of Defence does not accord with ComReg's current timeline. Notwithstanding, this does not limit any Irish licensee from acquiring spectrum from Ofcom in the future and providing an all-Ireland service.

4.2 Regulatory Considerations

ComReg must consider all relevant factors in order to ensure that the release of any spectrum results in the most efficient distribution and use of that spectrum. In the Consultation, ComReg posed questions relating to regulatory considerations, the responses to which are detailed below.

4.2.1 Licence Type

ComReg identified four possible approaches to licensing that could be applied in different parts of the 2300 – 2400 MHz spectrum band - National licences, Regional licences, Local Area licences and Closed User Groups⁵. ComReg requested stakeholders' opinions on the most efficient licence type or best mix of licence type.

⁵ In the Consultation, ComReg gave examples of users who could potentially be categorised under the Closed User Group term, examples being schools or universities on a not-for-profit-basis.

Q. 2. Which of the licence types outlined above, in your view are the most appropriate for the 2.3 GHz band; national, regional , local or closed user group? Please cite reasons for your answer.

4.2.1.1 Views of Respondents

Sixteen respondents answered this question. Fourteen respondents gave direct answers as to the most appropriate licence type, or types, whilst two respondents did not express a firm preference.

Twelve respondents were in favour of national licences, four were in favour of regional licences, eight believed that local area licences should be allowed in the band, and seven thought that closed user groups should be licensed.

The proposal for national licences received overwhelming support. Respondents outlined the benefits of national licences including improved economies of scale for manufacturing equipment, greater mobility, better control of in-band interference improving quality of service , increased competition as the new licence holders could compete with Mobile Network Operators (MNO's), while national licences would also reduce the need for guard band/restricted channel between operators thus improving spectral efficiency.

Four respondents submit that regional licences are appropriate. One of these submits that regional licences would be suitable for geographical areas not covered by Rurtel or Dáil TV within the sub band 2300 -2330 MHz. One respondent submits that regional licences are a superior option compared with national licences as they would allow operators to roll-out services in areas of interest to it without the expenditure of a national roll-out.

Eight respondents submit that there is merit in releasing 2300 – 2400 MHz spectrum on a local basis, on the grounds that it cannot be released in its entirety on a national basis due to the existence and operation of Rurtel and Dáil TV in specific geographical areas.

Seven respondents submit that closed user groups should be facilitated in the 2300 – 2330 MHz sub-band. One respondent submits there is a possibility for closed user groups to operate within areas covered by Rurtel, and that this option should be investigated.

Two of the sixteen respondents did not state a preference as to which types of licence they would prefer. One of these respondents submits that the types of licence should be determined on the basis of what the potential applicants believe is most appropriate, and stated that ComReg should take account of responses to this consultation before deciding on a particular licence type. Another respondent submits that designating part of the band for use by closed user groups could create a segment which could be more compatible for the amateur service to also use. It also

stated that licences should not be offered on an exclusive basis as this would restrict amateur usage within the band.

4.2.2 *Combination of Licence Types*

There is also the possibility of combining some or all of the licence types and ComReg requested views as to what combinations should be allowed.

Q. 3. Do you believe there is a possibility for a combination of all or some of the above in the 2.3 GHz band and, if so, in what way? Please set out your suggested approach.

4.2.2.1 Views of Respondents

Of the fifteen respondents to this question nine submit that there could be a combination of licence types, four submit that there could be no such combination, and two did not express a preference.

Nine respondents submit that there is merit in allowing numerous licence types within the band, and their views as to the potential combinations varied. Three of the respondents who favour a combination of licence types preferred the possibility of all four licence types (national, regional, local and closed user). A further three respondents submit that there is a case for national, local area and Closed User Group licences but they do not favour regional licences.

One respondent supports a combination of national and regional licences. This respondent favoured national licences where possible, and where this is not possible (i.e. where Rurtel and Dáil TV are present) it considers that the best option is regional licences as that would give rise to easier co-ordination and improve coverage for customers. Another respondent submits preference for a combination of national and local area licences. This respondent believes that national licences would allow an operator to compete effectively with Mobile Network Operators. A further respondent submits support for a combination of regional and local licences. This respondent believes that this combination would allow an operator to establish services in geographical areas of interest to it, without having to establish a costly national network. This respondent also states that local area licences should be allowed within the band to build on the success of the FWALA scheme.

Four of the fifteen respondents submit that that there should be no combination of licence types, with three of these four expressing their opinion that national licences should take precedence. Another respondent submits its view that while it is possible to combine licence types, it is not practical or efficient in a mobile context.

Two respondents did not provide precise information as to their preference. One stated that a combination of licence types could add inefficiency to the band, due to

the necessity for guard bands, co-ordination between operators and disaggregated use of the spectrum. A further respondent had no strong proposal in this regard, and stated that the choice of licence type can depend on the local factors.

4.2.2.2 ComReg's Position

ComReg believes that there should be some form of combination of licence types within the 2300 – 2330 MHz spectrum band. This would allow an increased amount of operators to have equitable access to the limited spectrum available, which should increase competition in the market.

Of those that were opposed to a combination of licence types, most state that national licences should take precedence. ComReg recognises that there is significant interest expressed towards national licences. ComReg considers that a national licence has several advantages, including improved economies of scale (for both network and user equipment), the ability to roam nationally, improved spectrum efficiency (as there would be no need to co-ordinate with co-channel operators), and an operator having a national presence could increase competition in the mobile broadband market. ComReg is aware that coverage conditions and other conditions of use may be a deterrent to some interested parties, however this must be balanced against the need to impose conditions to ensure spectrum is used efficiently.

However, ComReg believes that allowing more flexibility in the type of licences available will allow more operators equitable access to the band, which will increase services, choice and competition in the market. Therefore ComReg sees the value in having a number of national licences and other licence types within the band.

ComReg notes that there is some divergence among responses as to the superior combination of licence types. Taking into account the need to promote competition in the market, ComReg believes that issuing spectrum on a localised basis would allow numerous entities to acquire that spectrum, in order to provide services in specific geographical areas. Local area licences could allow smaller service providers to establish smaller, less expensive networks, as opposed to the large capital investment required to establish a larger network. The local area licence type is a proven success in the Fixed Wireless Access Local Area ('FWALA')⁶ scheme, which has greatly increased competition in the local broadband market. Also, releasing spectrum on a localised basis allows for the opportunity of a party acquiring numerous local licences which, when aggregated, could cover a larger geographical area. Mindful of this, ComReg will consider how such a local area licences could be implemented within the band.

There were mixed views on the potential for Closed User Groups licences within the band. ComReg sees the value in a licence type which would facilitate organisations which operate on a not for profit basis, particularly schools and universities. An example of this type of usage is a university providing wireless broadband on

⁶ Information regarding the FWALA scheme available from the ComReg website, at the following address - http://www.comreg.ie/radio_spectrum/search.541.874.10010.0.rslicensing.html

campus in the US. Northern Michigan University recently launched its WiMAX network which can only be used to provide services for education and government usage.⁷ ComReg is still considering how such a licensing scheme could best be implemented in Ireland.

The interest in regional licences was limited. ComReg recognises that regional licences are an attractive proposal for certain parties. However, releasing spectrum on a regional basis reduces flexibility as there would be limited parties who could afford to meet the conditions which would attach to such a licence. Localised licences, on the other hand, would facilitate parties requiring local licences while also allowing other parties to aggregate local licences in order to cover a broader geographical region.

In light of the above factors, ComReg considers that a combination of national, local and Closed User Group licences within the 2300 -2400 MHz band is appropriate, while regional licences will not be granted.

4.2.3 Spectrum Allocated to each Licence Type

Stakeholders provided their opinions as to what types of licence should be facilitated in the 2300 -2400 MHz. It is also important to determine how much spectrum should be assigned to each licence type, so that all licensees may operate effectively.

Q. 4. If you believe that there should be a combination of licence types in this band, how much spectrum should be allocated to each of the licence types defined in Question 2? For example, if you recommend in response to Question 2 that spectrum should be released on a national and regional basis, how much spectrum should be allocated to each licence type? Please give reasons for your answer.

4.2.3.1 Views of Respondents

Fifteen respondents answered this question and again, a range of views were provided. Some respondents quantified how much spectrum should be allocated to each licence type, whilst others both quantified and set out where specifically within the band these licence types should reside. Thirteen of the fifteen respondents submit specific preferences, while two respondents did not suggest how much spectrum should be applied to each licence type.

⁷ Information relating to Northern Michigan University (NMU) WiMAX network is provided on NMU press release, available at the following web address - <http://newsbureau.nmu.edu/printrelease.cfm?storyID=4377>

Twelve respondents submit that each national licence should be allocated a certain amount of spectrum, with the amount varying amongst respondents. Six of the respondents submit that 70 MHz (of the 100 MHz available) should be released under national licences. Five of these respondents submit that national licences should occupy the 2330 – 2400 MHz sub-band, while the sixth respondent submit that national and regional licences should occupy the 2330 – 2400 MHz sub-band. Another respondent submit that 40 MHz be assigned for national licensing. A further respondent submit that there is a need for 2 x 30 MHz between national and regional licences, or 1 x 70 MHz assigned to one national competitor. One respondent submit that at least 60 MHz should be made available for national licensing. Two respondents stated that all spectrum be assigned for national licences.

Four respondents submit preference for a spectrum allocation for regional licences. Two respondents submit that spectrum should be allocated for a mixture of national and regional licences. One of these respondents submit that spectrum in the range 2330 – 2400 MHz should be split between national and regional licences, whilst another respondent submit the need for 2 x 30 MHz of spectrum allocated to a combination of national and regional licences. One respondent submit that 30 MHz should be assigned for regional licences, in the range 2300 – 2330 MHz. A further respondent submits that 70 MHz, in the range 2330 – 2400 MHz, should be allocated for regional licences. However, as stated above ComReg has decided that it will not issue regional licences.

Eight of the thirteen respondents submit that there is a need to allocate spectrum for local licences. There is some consistency within these replies, as five respondents submit that local licences and Closed User Group licences should be allocated 30 MHz between the two licence types, while four respondents submit a preference for allocating 30 MHz within the range 2300 – 2330 MHz. A further respondent also sees the benefit of having local and Closed User Group licences, preferring that 30 MHz be allocated for local licences and that 30 MHz allocated for Closed User Group licences on a non-interference basis. Another two respondents submit that the 2300 – 2330 MHz sub-band should be allocated for local area licences only, with one of these strongly opposed to the Closed User Group licence as it believes that IMT spectrum should be reserved for commercial applications, and that the proposed user types are well provided for by commercial telecommunications operators.

Of the fifteen respondents, two did not provide direct answers to the question. One respondent believes that two 35 MHz blocks of spectrum should be released within the range 2330 – 2400 MHz, however it also suggested that the amount of spectrum issued under a licence is an independent issue related to the area such a licence would cover. A further respondent reserves its view at this time.

4.2.3.2 ComReg's Position

For the reasons set out earlier, ComReg believes that the most efficient method of releasing spectrum is via national, local and Closed User Group licences. ComReg also recognises that many respondents see the need for national licences to have access to large amounts of spectrum, with the majority seeing the need for 70 MHz of spectrum being allocated for such a licence type.

With regard to local Closed User Group licences, it was generally held that 30 MHz of spectrum between these licence types would be sufficient, with respondents identifying the 2300 – 2330 MHz sub-band as appropriate for these licence types.

Accordingly, ComReg intends to allocate 70 MHz of spectrum for a number of national licences in the range 2330 – 2400 MHz, and 30 MHz of spectrum between local and Closed User Group licences in the range 2300 – 2330 MHz.

4.2.4 Regional Licences

ComReg proposed offering licences on a regional basis in the band 2300 – 2400 MHz in the consultation. For ComReg to consider such a licence type, it was important to determine what geographical area any such regional licence would cover.

Q. 5. If you believe that licences in this band should be offered on a regional basis, on what basis should ComReg determine the regions, e.g. provinces, groups of counties? Please support your response as appropriate.

4.2.4.1 Views of Respondents

Of the twelve responses to this question, the majority consider that 2300 – 2400 MHz spectrum should not be released on a regional basis or else consider that there is limited scope for such licences.

Three responses in favour of regional licences submit proposals as to what geographical area a regional licence could cover. One respondent submits that a regional licence should be offered over as large an area as possible that would be consistent with existing use. Another respondent submits that regions should be selected to give maximum population and area coverage. A further respondent submits that having a maximum of four regions, on a provincial basis, with Connaught and Ulster potentially combined into a single region.

A further respondent states that if a regional licence was chosen, it should be done in a manner which would minimise cross boundary coordination challenges between any regional licensees in Ireland.

Six responses submitted opposition to the proposal for regional licences. One of these respondents submits that trying to second guess which geographical areas are appropriate for regional licences could lead to sub-optimal use of spectrum as an operator's network is designed on the basis of service demand and not geographical area. This respondent believes that those interested in a regional licence can amalgamate numerous local licences in order to cover a particular region.

Two respondents submit that there is limited scope for regional licences and find it difficult to see how such a licence would work due to interference zones. One respondent stated that if a regional licence is offered that it should be based around population centres and not county boundaries. Another respondent submits that regional licences could be done on geographical isolation basis.

4.2.4.2 ComReg's Position

Noting the arbitrary nature of any regional boundary, and given that there is limited demand for regional licences within the 2300 – 2400 MHz band, ComReg will not offer spectrum via regional licences. A combination of multiple local area licences could be used to cover a particular region of interest to an operator.

4.2.5 Local Area Licences

ComReg proposed the idea of offering licences on a local area basis in the consultation. For ComReg to consider such a licence type, it was important to determine what geographical area any such regional licence would cover. In the consultation, ComReg gave an example of a successful local area licence, as utilised in the FWALA scheme.

Q. 6. If you believe Local Area licences to be the superior choice, what geographic area should these licences incorporate and on what basis? (For example, FWALA licences incorporate service area 20km from defined centre point of licence). What conditions should ComReg implement to mitigate potential interference between users using the same spectrum in adjacent geographical areas?

4.2.5.1 Views of Respondents

Of the twelve responses to this question seven respondents were in favour of local licences and offered proposals.

Five submit that the existing FWALA scheme should be the basis for local area licensing within the 2300 – 2400 MHz band. Two of these respondents believe that some technical analysis would need to be carried out.

A further two respondents submit support for a local area licence type but offered alternative means as to how such a licence type could exist. Both respondents consider that there is a need to take antenna directionality into account in any local area licence. One of these respondents also sees the requirement for synchronisation of TDD systems to mitigate interference. Both respondents also submit that there

should be greater flexibility with respect to power levels, and one respondent believes that the current service area defined in FWALA (20km) is too high and 5km radius would prove more useful.

Four respondents stated opposition to local area licences within the 2300 – 2400 MHz band.

A further respondent suggested that it would be necessary to have protection zones between different local licences which could reduce efficiency within the band.

4.2.5.2 ComReg's View

ComReg believes that some 2300 – 2400 MHz spectrum could be released on a local area basis. ComReg is mindful that whilst most of the respondents were in favour of basing local area licensing on the successful FWALA scheme, there were some reservations regarding the differing technical considerations associated with this band. ComReg is mindful of the FWALA technical issues, but is also conscious of the success of the scheme following the disappointment of national licences in the 3.5 GHz FWALA band.

Accordingly, ComReg favours local area licensing and Closed User Group licensing, but will need to give further consideration to the practicalities associated with licensing local area and closed user groups in the same band.

4.2.6 *Protecting Legacy Users of Spectrum in the Band*

ComReg has issued licences for use of a portion of 2300 – 2400 MHz spectrum band, for Rurtel and Dáil TV. ComReg proposed to protect these licensees, and where possible, to re-license the spectrum in geographical areas which are not covered by these services.

Q. 7. In order to protect current users of the 2.3 GHz band, ComReg proposes that any potential licences offered in the range 2300 – 2330 MHz would be released on the basis of local area or closed user group licences only. Do you agree with this proposal? If not, please give reasons for your answer.

4.2.6.1 Views of Respondents

There were seventeen responses to this question, with the majority of respondents stating that the current licensees within the band need to be protected.

Fifteen respondents submit that Rurtel and Dáil TV need to be protected from any new users of spectrum within the 2300 -2400 MHz band, with the vast majority

believing that, on this basis, spectrum in the range 2300 – 2330 MHz is suitable for closed user group and local area licences only. One respondent submits that there is a requirement for at least a 5 MHz guardband between any TDD systems in the band and Rurtel. Another respondent submits that spectrum should be issued nationwide except in areas where spectrum is currently being used. A further respondent submits support for the proposal of Closed User Group licences for the 2300 – 2330 MHz sub-band, citing that it would provide a good basis for innovation and new applications.

Four of the fifteen respondents in favour of protecting current users submit alternate views on exactly how to afford protection. Two respondents submit that it is possible to offer licences on a non-interference basis using the same spectrum as current users in the band and in the same geographical areas. One of these respondents submit that given that Dáil TV is available over the internet, that this service should be moved to alternative spectrum. A further two respondents submit that the sub-band 2300 – 2330 MHz should be reserved for the current users and no new commercial services released in the sub-band. One of these respondents submits that SAP/SAB and Amateur services should be given primary status with the sub-band 2300 – 2330 MHz. The other respondent submits that ComReg protect 2395 – 2400 MHz, or failing to protect this spectrum ComReg should offer experimenters' access to 3400 – 3410 MHz in line with ECA table allocations footnote EU17⁸.

Another two respondents submit that perhaps these services would be better suited to a different spectrum band, believing that new technology could make better economic use of the band.

One respondent did not explicitly answer particular questions in response to the consultation, however that respondent did provide opinions which relate to this particular question. This respondent submits that Comreg should review Rurtel and Dáil TV services to determine whether these services merit spectrum within the sub-band, or whether stakeholders would be better served if the sub-band was assigned to other technologies now or sometime in the future.

4.2.6.2 ComReg's Position

ComReg is minded to protect current users of spectrum within the 2300 – 2330 MHz sub-band.

ComReg notes that a number of responses advocated moving Rurtel and Dáil TV services out of this band on the basis that consumers would be better serviced by other technologies. However, the argument proffered did not address some fundamental issues:

⁸ ECC Report 25 – Available from ERO website – www.ero.dk. CEPT administrations are requested wherever possible to maintain the 3400 – 3410 MHz sub band in such a way as to facilitate the reception of amateur emissions with minimal power flux densities

1. The cost of moving the services could be substantial and it is not clear who would fund the move or compensate existing customers for any loss of service to during the move.
2. To what spectrum will these services move, and in time, will better uses be found for that spectrum requiring a further move?
3. How does ComReg predict the utility of a proposed future service versus an existing service with customers, who, in the case of Rurtel, rely solely on that service for basic telephony services?
4. Will new users of the 2.3 GHz band be prepared to move out of the band before their licence expires if a similar case is made in the future that a new technology can provide better use of the band?
5. What rights do current licensees have, if the regulator can determine if a future, unproven service offering has a theoretical better use of the band and requires incumbents to move?

ComReg considers that local area and Closed User Group licences are appropriate licence types to issue in geographical areas where current users are not operating.

One respondent submits that there is a requirement for a 5 MHz guardband between any TDD systems in the band and Rurtel. ComReg appreciates this concern, but is confident that the physical geographic separation between areas covered by new licensees in the band and Rurtel systems will prove sufficient to mitigate interference between different technologies.

Another respondent requested that ComReg protect 2395 – 2400 MHz or alternatively allow experimenters access to spectrum in the 3.5 GHz band. ComReg respects the spectrum usage of experimenters and amateurs, however amateur usage is allowed on a non-interference, non-protected basis. With this in mind, ComReg cannot consider offering the protection requested for 2395 – 2400 MHz spectrum. In relation to the amateur usage of spectrum in the 3.5 GHz band, ComReg may review this as a part of any such consultation which may take place in the future in relation to spectrum in that band.

4.3 Award Process and Licensing considerations

ComReg releases all spectrum in an open, transparent and non-discriminatory manner, having regard to its statutory objectives of ensuring that spectrum is used in an efficient manner, promoting competition in the electronic communications market, and ensuring that consumers have reasonable access to wireless technology irrespective of location within Ireland.

ComReg must balance these various objectives in order to determine a method of releasing spectrum which ensures the most efficient outcome. ComReg must ensure that licence fees are set at fair values so as to ensure that opportunity cost is paid for usage of the radio spectrum, and ComReg must also ensure that the total duration of a licence is sufficient for the licensee to see a fair return on investment. ComReg must also make certain that anti-competitive practices (e.g. spectrum hoarding) are avoided, that licensed spectrum is actually used to an adequate standard (via roll-out

obligations) and that services, where possible, are also offered in less commercially attractive areas.

4.3.1 Award Process

In its Spectrum Management Strategy Statement⁹, ComReg reiterated its commitment to using market mechanisms where appropriate to award licences. However, in certain situations, for example when issuing a particular licence type, it may be more appropriate to use another method of releasing spectrum, for example a beauty competition.

Q. 8. Do you agree with ComReg’s proposal that if this spectrum is offered on a national and/or regional basis, it should be by means of an auction or auctions? Do you agree with ComReg’s proposal to release any spectrum for local area licensing under a beauty competition? Please supply reasons to support your response.

4.3.1.1 Views of Respondents

Fourteen responses were received in relation to this question. There is general consensus amongst these responses that national licences should be issued by means of an auction, whereas local area licences should be offered by different means, most notably a beauty competition.

Eight respondents submit that an auction should be used as a means of releasing spectrum. One of these respondents submit that there are a number of unknowns in relation to international standards within the band, and requested clarity on ComReg’s Position on 1800 MHz and 2600 MHz spectrum, which it stated must be addressed prior to the commencement of an auction process.

One respondent submits opposition to the idea of auctioning spectrum within the band. It believes that the award process should be designed to ensure that the spectrum is awarded to parties that would bring enhanced competition and value to the market.

Two respondents submit that there is scope for a hybrid auction and beauty competition as a means of releasing spectrum. One of these sees a beauty contest being appropriate for national licences, and an auction or beauty contest being appropriate for regional licences, depending on the geographical location.

⁹ ComReg document 08/50 – Spectrum Management Strategy Statement 2008 – 2010 – published 1 July 2008

Another two respondents had no opinion on how national licences should be released, however both believe that beauty contests should be used to release spectrum for local area and closed user groups, and that criteria such as social, educational and value to community should be applied in deciding whether to grant non-commercial users access to spectrum (through Closed User Group licences).

A further respondent submits that there should be a consistent approach to the award process for all licence types in the band, whilst also being consistent with approaches used in other bands.

4.3.1.2 ComReg's Position

In line with ComReg's commitment to using market mechanisms to award spectrum where appropriate, ComReg intends to release National licences via an appropriate auction mechanism. The design of this auction has not yet been decided on and ComReg will present its proposals in its next consultation.

ComReg does not consider it appropriate to auction spectrum for local area and Closed User Group licences. ComReg has positive experience of releasing spectrum via beauty contests, as in the 3.5 GHz FWALA band. Also, Closed User Group licences are intended for use by educational and non-commercial entities. Therefore, ComReg believes that an appropriate means of releasing spectrum on a local area basis is via 'beauty contests', while it will consider the release mechanism for Closed User Group licences.

One respondent considers that clarity is required with respect to spectrum in the 1800 MHz and 2600 MHz bands. All spectrum in the 2600 MHz band is currently licensed and is consequently its release at this time does not arise.

With respect to spectrum within the 1800 MHz band, ComReg has set out its current position in its most recent consultation on spectrum liberalisation¹⁰. Spectrum within this band is not imminently required, and that ComReg intends to release spectrum in the 1800 MHz band closer to 2013. However, Comreg may review its position in this regard should circumstances materially change in the interim.

4.3.2 Licence Fees

Determining a fair value for licence fees is integral to ensuring that the balance between opportunity cost for spectrum and offering users equitable and feasible access to the spectrum is achieved.

¹⁰ ComReg document 09/14 – Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands & Spectrum Release Options – Published 10 March 2009

Q. 9. Do you agree with ComReg’s proposal to use benchmarking to assist in setting a fair licence fee for the spectrum? Alternatively, do you believe there is an alternative, superior method of setting the fees? Please supply reasons to support your response.

4.3.2.1 Views of Respondents

There were thirteen responses to this question, with some divergence of opinions.

Six respondents submit that ComReg should, in principle, use benchmarking to determine licence fees. Three of these respondents submit that benchmarking should be only one of several inputs used to determine fees and two respondents suggest taking into consideration costs associated with rolling out and managing a network, and another requesting that stakeholders have input to the benchmarking process.

Five respondents disagreed with the proposal of licence fees altogether, with these respondents submitting that licence fees should not be charged in addition to auction fees.

One respondent sees the need for a robust economic analysis to determine the opportunity cost of spectrum in the band.

Another respondent sees difficulties with using benchmarking, as it would be difficult to find a direct comparator with Ireland. It also states that it is necessary to minimise licence fees so as not to detract from investment in the network.

4.3.2.2 ComReg’s Position

ComReg supports charging ongoing, annual licence fees in order to reduce the upfront costs incurred by a licensee. By charging an annual licence fee, ComReg is in effect staggering the payment of the total fee associated with the spectrum (auction fee in addition to annual licence fee) over the full licence period. Staggering payment assists successful bidders in providing additional funds to roll out a network in a timely manner. An annual licence fee also encourages licensees to return unused or unwanted spectrum, thus avoiding the unnecessary cost of having to pay for such spectrum.

ComReg will determine the value of the 2300 – 2330 MHz spectrum and will set licence fees which reflect that value, composed of an upfront reserve price and yearly licence fees.

ComReg will set out details of the reserve price and the licence fees in its next consultation.

4.3.3 Licence Duration

The duration of a licence is a key component of its attractiveness, to any prospective licensee, who requires some assurance that the duration of the licence will be adequate for it to see a reasonable return on investment.

Q. 10. Do you agree with ComReg’s proposal to make licence duration of spectrum in the 2.3 GHz band between 10 - 15 years long? Please supply reasons to support your response.

4.3.3.1 Views of Respondents

There is seventeen responses to this question. Once again, there is some divergence amongst respondents; however there was general consensus that licence duration of around 15 years is the most appropriate.

Five respondents submit that the licences should be for fifteen years. One of these respondents submit that there should be the option for extension of a licence beyond the 15 year term. Another respondent submit that there should be clarity upfront as to what will happen with the licence at expiration.

Four other respondents submit support for the proposal of a licence duration of 10 – 15 years, though they did not state a specific preference. Two of these respondents submit that regional, local and Closed User Group licences should be given licences with shorter duration.

A further two respondents consider that licence duration should be 20 years. Another two respondents consider that licences should be of indefinite duration.

Two respondents submit that ComReg should not issue licences with this duration ahead of harmonisation of the band in Europe, as it could inhibit Ireland adopting such harmonisation.

One respondent was in favour of an initial 10 year licence, with an additional 5 years granted to the licence holder should it comply with its licence conditions.

Another respondent does not agree with finite licence duration between 10 and 15 years, instead preferring a rolling licence.

4.3.3.2 ComReg’s Position

ComReg intends to issue licences of 15 years duration. ComReg believes this is a reasonable timeframe for an operator to establish a network and make a fair return on investment.

As noted by two respondents, it would be prudent to issue particular licence types with shorter term licences. Mindful of this, ComReg will consider issuing local area and Closed User Group licences of shorter duration.

Two respondents expressed preference for indefinite term licences. ComReg does not see this as efficient approach. Indefinite licences are generally considered in jurisdictions where spectrum trading is permitted, as access to the band can then be facilitated by buying spectrum from licensees. However, spectrum trading is not available in Ireland, and so indefinite licences would most likely have a negative effect as the entire band would be assigned to several operators indefinitely.

In relation to a query raised by one respondent, and for the avoidance of doubt, please note that the expiration date for any licence is a ‘drop dead’ date. Licences will confer no rights to the spectrum beyond their date of final expiration and licensees should have absolutely no expectation of their licences being renewed beyond their final expiration dates. Licensees’ should ensure that their customers are aware of this position.

4.3.4 Spectrum Cap

Spectrum is a limited resource. When ComReg releases spectrum within any spectrum band, it must ensure that there is equitable access to the band. A spectrum cap is used to ensure that one entity does not have a monopolising effect on a particular band and that several entities have access in order to facilitate competition. ComReg is also mindful that modern technology is increasingly bandwidth hungry, and operators require access to a reasonable amount of spectrum in order to deliver high capacity technologies to end users. It is important that ComReg selects an appropriate spectrum cap in order to strike the balance between these objectives.

<p>Q. 11. Do you agree with ComReg’s proposal to limit the amount of spectrum available to any given operator to 30 MHz for a given area? Please supply reasons to support your response.</p>
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4.3.4.1 Views of Respondents

Thirteen responses were received to this question. In principle, many supported the idea of a spectrum cap, however there was mixed opinions as to what size such a cap should be.

Nine respondents submit support of spectrum caps. Five of these respondents submit that 30 MHz is a sufficient spectrum cap. Two other respondents submit that 20 MHz may be more suitable and would be in line with ComReg’s approach for releasing spectrum within the 900 MHz band. Another two respondents submit support for 35 MHz spectrum caps.

Four respondents submit opposition to the spectrum cap. One of these respondents submits that it is too early to determine a spectrum cap with relation to spectrum demands of emerging technologies.

One respondent does not have a firm position on this issue at the moment but does express its concerns that should spectrum be released in TDD format then there may be the requirement for restricted blocks within the band.

Two respondents advocate the need for a spectrum cap which would limit the total spectrum holding one body could have between multiple bands.

4.3.4.2 ComReg's View

A key objective of ComReg is to ensure that there is a platform for competition within the electronic communications market. By allowing numerous bodies have access to spectrum within a given band, ComReg facilitates such a platform for competition, which should be positive for services and pricing offered by operators to end users. In line with the majority of respondents, ComReg believes there is a need for a spectrum cap.

Some respondents consider it too early to determine the size of the spectrum cap, having regard to the spectrum demands of emerging technologies. However, ComReg must base its decision on information available at this time. ComReg cannot predict what spectrum demands future technologies may require, nor can it unnecessarily delay the release of spectrum until the spectrum requirements of future technologies is realised. Therefore, ComReg will impose a spectrum cap when assigning the 2300 – 2400 MHz spectrum in order to promote competition.

There are some differing views by respondents as to the size of a spectrum cap. ComReg's view at this time is that a 20 to 30 MHz spectrum cap might be the most suitable to encourage greater social and economic value to Ireland. However ComReg will carry out further analysis in order to determine the optimum size for any spectrum cap and will re-visit this issue in its next consultation.

4.3.5 Utility Conditions

Utility conditions, or conditions of use, are central to any spectrum licence, as they allow ComReg to ensure that spectrum is used in a safe, efficient and timely manner and is not hoarded.

Q. 12. Do you agree with ComReg’s proposal to attach utility conditions to any potential licences in this band? If not, why? Please provide reasons for your answers.

4.3.5.1 Views of Respondents

There were twelve respondents to this question; with most believing that there is a need to attach conditions of use to any potential licences offered within the band.

Nine respondents submit support with the principle of attaching some sort of conditions of use to such licences.

A further two respondents submit that the spectrum should be made tradable, and that this would provide for the means to ensure that spectrum is not hoarded.

Another respondent did not state whether it agrees with licence conditions but did state that any such conditions must take into account the standardisation, harmonisation and maturity of technology relating to the 2300 -2400 MHz spectrum band.

4.3.5.2 ComReg’s Position

Conditions of use of licences are an important tool which allows ComReg to ensure that spectrum is being used properly, and in cases where it is not, to recover that spectrum so that it may be re-released to another operator. Mindful of this, ComReg will attach appropriate conditions of use to any licences offered within the 2300 – 2400 MHz band.

There was support shown for spectrum in this band to be tradable in order to ensure spectrum is not hoarded. Spectrum trading is not currently available in Ireland. However, ComReg does intend to ensure that spectrum is not hoarded by creating strong incentives for licensees to return spectrum that is not being used.

The specific conditions of use that will be attached to 2300 -2400 MHz licences are not yet decided. The final conditions will take into account responses to this consultation and all future consultations.

4.4 Technical considerations

ComReg will adopt a technology and service neutral approach when licensing 2300 - 2400 MHz spectrum and will apply the WAPECS¹¹ principle of minimum technical constraints to the spectrum released in this band.

4.4.1 Channel Bandwidth

ECC PT1, a CEPT project team responsible for IMT spectrum related issues, stated that it does not intend to develop frequency (channelling) arrangements for this band. In the absence of such, it is incumbent on the local telecommunications regulator to determine suitable channel bandwidth.

Q. 13. In your view what would be the most appropriate channel spacing for the 2.3 GHz band? Please give detailed reasons for you answer.

4.4.1.1 Views of Respondents

Fifteen responses were received in relation to this particular question.

Five respondents submit that the channel bandwidth for this particular band should be 5 MHz.

Another two respondents submit that 20 MHz channels would be more suitable, with one of these stating that a licensee could break up the 20 MHz into sub-channels.

Two respondents submit that channel bandwidth should be larger than others suggested, with one of these believing that blocks of spectrum of 30 and 32 MHz should be issued, and another respondent stating that allocation of a minimum of 60 MHz should be allowed.

Three respondents submit that international standards should decide this. Two of these submit that this issue will be covered in the ETSI SRDoc, due to be published in early 2010, and that ComReg should reserve its opinion on this matter, and implement channel bandwidth decided by ETSI in its report. However, both did concede that the trend for such spectrum was for channel bandwidths of 5MHz. Another of these respondents submits that any channel bandwidth should be defined by ComReg, however that respondent believes that ComReg should adopt ITU standards if and when they are available.

A further respondent considers that a 10 MHz channel bandwidth is the superior option.

One respondent did not provide a value for appropriate channel spacing, however it did state that channel bandwidth should be decided to ensure that potential technologies which could be deployed in this band would not be discriminated against.

One respondent submits that channel spacing should account for probable need for guardbands to protect existing services in adjacent blocks.

4.4.2 Power Limit

Q. 14. Do you support ComReg’s proposed power limit? If not, please set out the reasons for your answer.

4.4.2.1 Views of Respondents

There were thirteen responses to this question, with a wide divergence of opinions.

Four respondents submit support with proposed power limits.

Another four respondents submit opposition with the values provided by ComReg and all offered alternative power limits. Two of these respondents urged ComReg to mandate limits relating to the 2.6 GHz band outlined in EC Decision 2008/477/EC.

A further four respondents urge ComReg to adopt standards when they exist, and believe that power limits should be taken from ETSI BRAN SRDoc for this band, which is due for publication in early 2010.

One respondent does not have firm views on this matter at this time, however it does state that it may be appropriate to adopt the EC decision 2008/477/EC as recommended by other respondents.

4.4.3 Block Edge Mask

ComReg posed the following question in relation to the Block Edge Mask.

Q. 15. Do you agree with ComReg’s proposal to adapt the Block Edge Mask that applies to the 2500 – 2690 MHz band to the 2.3 GHz band, once a channel bandwidth has been agreed? Please provide reasons to support your response.

4.4.3.1 Views of Respondents

Fourteen responses were received to this question, with most agreeing with the proposed Block Edge Mask.

Nine respondents submit support with the proposed Block Edge Mask. Two respondents submit that considering the spectrum may be released on TDD basis, that some adaption of the proposed Block Edge Mask may be necessary to overcome interference issues.

Another three respondents submit opposition with the proposed Block Edge Mask. Two of these respondents submit that ETSI BRAN SRDoc will cover this topic, and that ComReg should incorporate any such Block Edge Mask recommended in this document.

A further two respondents submit that the Block Edge Masks are too large in some situations, and that narrower Block Edge Masks should be used for smaller assignments of spectrum.

4.4.4 *Unwanted Emissions*

ComReg asked the following question in relation to unwanted emissions.

Q. 16. Do you agree with ComReg’s proposal to impose the unwanted emission limits detailed above? Please provide reasons to support your response.

4.4.4.1 Views of Respondents

Twelve responses were received in relation to this question, with most respondents agreeing with ComReg’s proposed unwanted emission limits.

Nine respondents submit support with the proposal. One of these respondents submits that aligning the unwanted emission limit with the WAPECS decision may be more appropriate.

Two respondents submit that ComReg should wait for ETSI to publish its SRDoc for this band, and for ComReg to base unwanted emission limits on the contents of the ETSI document.

Another respondent does not have a firm view at this time, however does recognise that basing unwanted emission limits on ITU recommendations is a good starting point.

4.4.5 *ComReg’s Position*

ComReg notes respondents’ concerns that ComReg should not issue spectrum with proprietary terms and should instead wait for the band to be standardised throughout Europe.

ComReg appreciates these concerns and notes the need to implement harmonised ETSI BRAN standards, and ComReg shall therefore reserve its opinion on the technical considerations. ComReg intends to use the information provided in ETSI SRDoc to determine the technical conditions which will apply to this band. This will ensure that European standardisation is applied in Ireland and will allow licensees to avail of any economy of scale advantages brought on by this action.

One respondent believes there is a requirement for guardbands to protect existing services. ComReg recognises the need to minimise possible interference between services, however it is confident that physical separation between systems will achieve this. Also, ComReg does not need to offer protection to secondary services within the band, as secondary services are offered on a non-protected, non-interference basis.

4.5 Other issues

4.5.1 Responses

Two respondents to the consultation did not provide explicit or implicit answers to any of the questions within the consultation.

One of these respondents submits that it would be happy for amateur applications to have access to the 2300 -2400 MHz band on a secondary basis, thereby maintaining the status quo.

The other respondent suggested a plan for the 2300 -2400 MHz band based on current International Amateur Radio Union (IARU) allocations. This respondent is satisfied with the current amateur allocation within the band, and believes there is a requirement for a guardband in the range 2392 – 2400 MHz for live satellite downlink.

4.5.1.1 ComReg's View

ComReg intends to maintain the international and European allocations in this band. For the avoidance of doubt, continued use of amateur services and SAP/SAB will be on a secondary basis as defined in the ITU Regulations.

On the second issue, ComReg does not agree with protecting an amateur service, namely satellite, as this service operates on a secondary basis i.e. on a non-interference, non- protected basis.

4.5.2 2.6 GHz Band

One respondent discusses the 2.6 GHz band outside of its response to particular questions. This respondent states that it does not understand why spectrum in the 2.6 GHz band will not be available in the short to medium future, and it also states that it would welcome the inclusion of 2.6 GHz spectrum under the FWALA scheme, in the city areas where MMDS is prohibited.

4.5.2.1 ComReg's Position

As previously outlined, the 2.6 GHz band is currently licensed and so its consideration or release at this time is not appropriate.

5 Next Steps

In this consultation response, ComReg has made clear its position on certain issues and its views on others. There are however certain areas where ComReg has not finalised its positions or its views. ComReg intends to engage with external experts to assist in generating proposals regarding auction design, licence fees, licence conditions etc.

ComReg also intends to issue a further consultation in relation to the 2300 - 2400 MHz spectrum band. This consultation will be released at a time close to the publication of the ETSI BRAN SRDoc so that ComReg can gauge interested parties' opinions on the issues within the ETSI document.

In anticipation of any further correspondence on matters relating to this consultation, ComReg hereby gives notice that it will publish all correspondence received in relation to the licensing, use and management of the 2.3 GHz band, subject to the provisions of ComReg's guidelines on the treatment of confidential information¹².

¹² ComReg document 05/24 - Guidelines on the treatment of confidential Information – published 22 March 2005