



Commission for
Communications Regulation

Submissions to Consultation

**FWALA licensing in the 3400 – 3800 MHz band
Release of further spectrum**

Submissions received from respondents

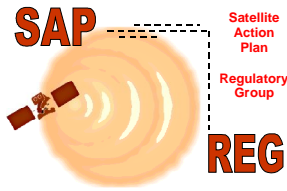
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1. Access Partnership Submission



Reference: Submission re ComReg 08/99

Response To ComReg Consultation On FWALA Licensing in the 3400 – 3800 MHz Band – Release of Further Spectrum

INTRODUCTION

SAP REG, ESOA, and GVF would like to thank ComReg for this opportunity to respond to the consultation on FWALA licensing in the 3400 – 3800 MHz band published on 12 December 2008. We are supportive of ensuring spectrum access for new and innovative technologies and services, but cautions that both the existing Fixed Satellite Service (FSS) use of the band, and future FSS deployments in the band, must be protected.

USE OF THE C BAND FOR FSS

As ComReg is aware, the 3400 - 4200 MHz frequency bands have been used to provide FSS for over forty years. Today there are approximately 160 satellites operating in this band and providing essential and critical services to consumers, with even more satellites under construction with a C band payload. Governments, NGOs, IGOs and the UN, business enterprises as well as private individuals, all depend on, and benefit from, the crucial services that are provided by FSS in the C band. However, with spectrum in the 3400 - 3800 MHz band increasingly being made available for terrestrial technologies such as WiMAX, especially in Europe, we would like to voice our concern that unless the increased authorisation of fixed wireless access in the band is properly managed, FSS operations may be impaired and ultimately rendered impossible.

ComReg should recognise that other spectrum (eg 2.5/2.6 GHz, UHF bands below 1 GHz) will be available for wireless broadband in the near term, and look closely at whether there is the commercial demand for more spectrum at 3400 – 3800 MHz before releasing this spectrum. We would even invite COMREG to proceed carefully and by step, and not open up 3600 - 3800 MHz to FWALA until the 3400 - 3600 MHz band demonstrates commercially successful use in terms of market take-up and solvency of interested operators.

INTERFERENCE ISSUES

Studies leading up to the World Radiocommunication Conference 2007 (WRC-07) provide evidence of the extreme difficulties that would be caused by allowing FSS and BWA services, notably when these include both fixed and mobile wireless access, to share the same frequency band.¹ This evidence led the WRC to reject a

¹ see ITU-R Report M.2109

global allocation for IMT, and to ensure that satellite services in the 3400 – 4200 MHz bands were protected.²

However, the interference currently being suffered by FSS in various countries of the world due to WiMAX deployed in the 3400 – 3800 MHz band, using the Fixed allocation in the ITU Radio Regulations, is of increasing concern both to FSS operators and their end-users. Anecdotal evidence from telecommunications regulators and users has increased to a level where it is clear that it is a threat to the quality of service FSS can provide in the band. We believe that action must be taken by regulators to ensure that where users of Broadband Wireless Access (BWA), whether fixed or mobile,³ and users of FSS share the same frequency band, steps must be taken to mitigate harmful interference.

In order for new BWA entrants to operate in the 3400 - 3800 MHz frequency band they should be required to mitigate any harmful interference they cause to existing services, such as FSS. Co-ordination criteria would need to be strictly observed, ensuring that new BWA deployments protect existing C band use of the spectrum; in the case of BWA to mobile users exclusion zones around Earth Stations can be calculated and BWA operators barred from deploying within them. The ITU has concluded that in order to provide a receiving FSS earth station with protection from interference in both long-term and short-term propagation conditions, a co-frequency IMT base station must maintain a minimum distance separation of at least several tens of kilometres and potentially hundreds of kilometres relative to an FSS receive earth station.

OUT-OF-BAND INTERFERENCE

ComReg must also be cognisant of the fact that WiMAX services deployed in the band 3400 – 3800 MHz may not just cause harmful interference to other services in the same band, but also have an impact and potentially create harmful interference to services operating in the adjacent bands, specifically satellite services above 3800 MHz. The impact of out-of-band interference into a receiving FSS earth station was investigated by the ITU and it was found that the minimum required separation distances are up to tens of kilometres (with no guard band) which decrease as the guard band increases⁴. Moreover, the studies showed that with a sufficient guard-band, the minimum separation could be reduced to below one kilometre. The risk for out-of-band interference can also be mitigated using the same techniques as co-frequency interference.

CONCLUSION

Keeping in mind the multiple benefits that FSS can bring to Ireland, such as for broadcasting and other commercial applications, as well as helping to connect Ireland to the rest of the world, we hope that ComReg will find ways to offer protection for longstanding FSS services in the C-band.

If ComReg would find it useful to examine any further documentation about the issues raised in this consultation response, or to have a discussion with our industry

² More details about the range of critical services which our industry provides, and the problems of satellite and terrestrial compatibility as sustained by ITU studies can be found from: www.fss-toolkit.com

³ BWA is defined by the ITU as including Mobile Wireless Access (MWA), Nomadic Wireless Access (NWA), and Fixed Wireless Access (FWA).

⁴ see ITU-R Report M.2109.

experts, please contact the following persons and we will be happy to provide assistance.

Ms. Aarti Holla-Maini, Secretary General ESOA
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Mr. Kumar Singarajah, Chariman SAP REG
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Mr. Matthew Botwin, Chairman GVF Regulatory Working Group
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2. Airspeed Submission

Ms. Tara Kavanagh
Commission for Communications Regulation
Irish Life Centre
Abbey Street
Dublin 1

22nd January 2009

RE: Consultation of 3600 – 3800MHz Band

Dear Tara,

We welcome the opportunity to express our views and interest regarding the consultation of proposed availability of 3600 – 3800 MHz band.

At Airspeed Telecom we have significantly grown our national network footprint over the past six years and believe we can deliver the same high quality of broadband and voice service to residential and SME customers, which we are currently providing to Business, Corporate and Government sectors today.

With regard to our plans for residential services, we have been involved with a large multichannel provider of DTH (direct to home) satellite television since July 2007 in technology and service trials of broadband and voice. Currently we are providing services to Apartment complexes within the Dublin Metropolitan area. These trials have been centred on Multi-tenant solutions, using our existing network infrastructure to support high capacity broadband and toll quality voice. However, with the future release of 3600-3800MHz spectrum and the availability of 802.16e technology, we believe these services can be extended to individual homes and SME offices.

Airspeed Telecom's focus is to choose the appropriate spectrum, available and proven technology and to work with partners such as DTH satellite service providers to enable delivery of WiMAX services to the masses.

We hope you find our response helpful and look forward to the future competitive evaluation process.

Sincerely,

Peter Hendrick

Q. 1.

Which of the three options outlined above would, in your view, be the optimum for the assignment of the additional FWALA spectrum, noting the requirement on ComReg to grant rights of use for spectrum in an open, transparent and non-discriminatory manner? Please give reasons for your answer.

It is the opinion of Airspeed Telecom, that the allocation of spectrum should be based on the availability of technology suitable to deliver a real alternative to DSL and/or mobile broadband. Given that the majority of vendors are focusing on TDD 802.16e equipment for this band, it would be prudent of ComReg to take this reality into account.

Airspeed Telecom view Option 2 has the best suited solution for this spectrum and believe that should an operator be successful in acquiring two channels, these channels should be consecutive i.e. Channel F and G OR Channel I and K.

Q. 2.

Is there another option that in your view would provide a better outcome?
If so please provide full details
No we do not have a better option.

Q. 3.

Do you agree with ComReg's proposal to increase the minimum data transmission rate that will apply to all new FWALA licences? Please give reasons for your answer.

Airspeed Telecom agree with ComReg's revised service offerings, however believe that as a provider of competitive services to DSL and Mobile Broadband, we would aim to deliver an even higher grade of service.

Q. 4.

Do you agree with ComReg's proposals concerning the release of Channel E?
Please set out your reasoning for your answer.

Airspeed Telecom agree with ComReg's proposal re Channel E and would suggest that some mechanism is required and implemented whereby the operator who acquires this Channel be facilitated in dealing with any interference which may be caused to them due to eircom's FWPMA Network.

3. Digiweb Submission



Response to Consultation Paper: FWALA Licensing in the 3400-3800MHz band

NOTE :- ANNEX A is not for publication

Overview

Digiweb Ltd welcomes the release of additional spectrum in the 3400-3800MHz band and the opportunity to respond to the Consultation Paper.

Digiweb is one of Ireland's leading telecommunications and internet services providers, an indigenous business investing in independent infrastructure to deliver wide-reaching and innovative services to its customers nationwide. Digiweb has a broad service capability from its own infrastructure including Fixed and Mobile Wireless Broadband, Fibre, Satellite, Data Centre and Web Hosting, and offers various fixed line services through wholesale relationships.

Q. 1. Which of the three options outlined above would, in your view, be the optimum for the assignment of the additional FWALA spectrum, noting the requirement on ComReg to grant rights of use for spectrum in an open, transparent and non-discriminatory manner? Please give reasons for your answer?

Digiweb is of the opinion that Option 1 is the optimum of the three options presented for the assignment of the additional FWALA spectrum. Of the three options this one grants rights of use for spectrum in an open, transparent and non-discriminatory manner.

This option is the most flexible, cost effective, and technology neutral, offering maximum options for both TDD and FDD operators in any particular area. It is unlikely that the concern around the possible restricted use of 10Meg in the lower sub-band Channel G will present itself, as in reality this is overcome through inter operator communication.

It is likely that Option 2 will result in an inefficient use of spectrum and also introduce un-necessary additional license fee on the operators that would possibly have a significant impact on the product competitiveness.

Option 3 offers a single option for operators deploying FDD technology and is not fair usage of the spectrum in our opinion.

Q. 2. Is there another option that in your view would provide a better outcome? If so please provide full details?

Digiweb agree with Option 1.

Q. 3. Do you agree with ComReg's proposal to increase the minimum data transmission rate that will apply to all new FWALA licences? Please give reasons for your answer.

Digiweb does not agree with this proposal in the case of residential rural deployments. This option will have a negative impact on the cost of service to consumers in non-urban areas and will further restrict the ability of FWALA operators to compete commercially with non-FWALA operators.

Digiweb agrees with the increase of the minimum data transmissions for business service offerings on the network to subscriber downlink. However in our experience the uplink demand is typically one third of the downlink and we would recommend 1Meg subscriber to network.

Q. 4. Do you agree with ComReg's proposals concerning the release of Channel E? Please set out your reasoning for your answer.

Digiweb agrees with the proposal to release the available bandwidth in Channel E, noting that there are considerable restrictions around its coverage areas that impact it's value in several areas.

Digiweb Limited, College Business & Technology Park, Dublin 15, IRELAND

4. eircom Submission

eircom Ltd.

Response to ComReg Doc. 08/99

***Consultation on
FWALA licensing in the 3400 – 3800 MHz band***

22 Jan 2009

DOCUMENT CONTROL

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EXECUTIVE SUMMARY

eircom's position is that, due to the very small service areas involved, without the use of any interference boundaries, that it is not feasible to release channel E as proposed, as it will have a negative impact upon customers in terms of quality of service.

Any spectrum released should build on the experience and practices developed by the Commission and Industry since 2003. When multiple operators are sharing the same frequencies (irrespective of whether they hold national or FWALA licences), the same good practices in terms of interference mitigation, spectral efficiency and quality of service should be applied, especially for licensed spectrum.

RESPONSE TO CONSULTATION QUESTIONS

Q. 1. Which of the three options outlined above would, in your view, be the optimum for the assignment of the additional FWALA spectrum, noting the requirement on ComReg to grant rights of use for spectrum in an open, transparent and non-discriminatory manner? Please give reasons for your answer.

No comment

Q. 2. Is there another option that in your view would provide a better outcome? If so please provide full details

No comment

Q. 3. Do you agree with ComReg's proposal to increase the minimum data transmission rate that will apply to all new FWALA licences? Please give reasons for your answer

No comment

Q. 4. Do you agree with ComReg's proposals concerning the release of Channel E? Please set out your reasoning for your answer

eircom's position is that, due to the very small service areas involved, without the use of any interference boundaries, that it is not feasible to release channel E as proposed, as it will have a negative impact upon customers in terms of quality of service. It will have a detrimental impact upon both service assurance and delivery. It would be onerous on Operators and the Commission to ensure that the Channel E boundaries were correctly operated and policed.

The proposal not only reduces the service areas to very small radius (as low as 1.9 km radius) and reduces the interference buffer from 10 km (effectively 20 km for two adjacent FWALA areas) to 0 km, but it also increase the field strength limit from 33 **dB μ V/m** to 48 for the larger area (Dublin) and to 60 **dB μ V/m** in the smaller areas.

There are eircom voice and broadband customers that will most likely be adversely affected by interference, due to the release of channel E as proposed. Any spectrum released should build on the experience and practices developed by the Commission and Industry since 2003. When multiple operators are sharing the same frequencies (irrespective of whether they hold national or FWALA licences), the same good practices in terms of interference mitigation, spectral efficiency and quality of service should be applied, especially for licensed spectrum. This is especially the case when a new FWALA area is being overlaid beside existing deployed networks.

The Commission consulted on flexibility for FWALA in 2006 (ComReg 06/59). Industries views and ComReg's resultant position on the various options were then presented in ComReg document 07/29. Two of the key views expressed by the Commission are quoted in items a and b below. We support the Commissions views as expressed in that document, and those views clearly make it non feasible to release Channel E as per the current proposal. There have been no fundamental changes in technology and resulting wireless propagation characteristics since that consultation. The main conclusions from that consultation and their applicability to this consultation, shown below, still hold.

- a. By not having an interference boundary, as proposed by the Commission for Channel E, there is an unrealistic assumption that wireless signals will not propagate across the notional service boundary and interfere with CPE working in eircom's service area which goes right up to the channel E boundary. This principle has already been rejected by the Commission in 07/29. by not allowing CPE to operate outside the service area (see section 5.1, 07/29), ie "it could have a negative impact upon customers in terms of quality of service and effectively introduce two tiers of FWALA customers. The Commission is mindful of the needs of customers who wish to avail of the services of a licensed operator in terms of service guarantee and quality and their expectations regarding the services to be provided. Therefore on balance, the Commission has decided not to adopt Option 1 as a solution to the 'dead zone' problem"
- b. In ComReg document, 07/29, the Commission increased the service area for 3.5 GHz to 20 km, but kept the interference contour radius at 30 km. This 10 km buffer zone would be added to the 10 km buffer zone from any adjacent FWALA area, ensuring an overall buffer of 20 km. This was based on detailed technical analysis of frequency propagation and attenuation characteristics by the Commission. Please see Appendix A of ComReg document 07/29
- c. The Commission's considered position in ComReg document 07/29 on the use of "reduced size" for FWALA was that "the Commission shares the concerns expressed by respondents that Options 4, 5 and 6 could lead to increased risk of interference and difficulties in ensuring licence compliance. Therefore the Commission will not be adopting these options as a solution to eliminating 'dead zones'." The current proposal for channel E only increases the risks already considered.

In addition, the proposal to release channel E is more onerous than the options that were rejected in ComReg 07/29, as there is a significant increase in the field strength limits from 33 **dBµV/m** to 48 (for Dublin) and 60 **dBµV/m** (for the smaller areas). It is counterintuitive to use a higher threshold for the smaller areas, as this further increases the possibility of interference). The Commission's detailed analysis of frequency propagation and attenuation characteristics (See appendix A of 07/29) showed the requirement for an interference boundary radius of 30 km, when using field strength limits of 33 **dBµV/m**. The current proposal is seeking to increase the limits, while reducing the effective distance to 1.9 km.

✂[confidential]

5. Imagine Submission

FWALA Licensing in the 3400-3800 MHz Band

Imagine Communications Group Response to the Consultation

1. Introduction

Imagine welcomes the opportunity to respond to this consultation. The release of additional spectrum in the 3400-3600 MHz band is to be welcomed and will help to further strengthen the provision of wireless broadband services in Ireland.

2. Response to Consultation

Q. 1. Which of the three options outlined above would, in your view, be the optimum for the assignment of the additional FWALA spectrum, noting the requirement on ComReg to grant rights of use for spectrum in an open, transparent and non-discriminatory manner? Please give reasons for your answer.

Option 1:

Imagine is not in favour of option 1.

In the event of an operator stating that they are going to use FDD spectrum it is not clear if that operator can subsequently change to TDD following licence award.

If they cannot change then this potentially limits the ability of the operator to configure its network in an optimal manner. As technology in this space is continually evolving an operator may wish to swap between FDD and TDD as technology evolves.

If the operator is allowed to change duplex mode subsequent to licence award, then it is clearly advantageous to apply for FDD licences as this maximises available spectrum. In the event that both licences are FDD, the use of spectrum is inefficient as there is an isolated block of 10MHz between 3700MHz and 3710MHz. In our view the costs associated with rolling our equipment in such a small and isolated spectrum block will render this spectrum effectively useless and therefore this option potentially provides for an inefficient use of spectrum.

Option 2:

Imagine is not in favour of option 2.

This is the least efficient option in terms of spectrum allocation, as channel H is left isolated and effectively unusable for network deployment.

Option 3:

Option 3 is Imagine's preferred option.

The reasons for this are:

- This channel allocation is clear. There is no ambiguity between channels that can be used for TDD only or TDD/FDD.
- There is no issue of spectrum inefficiency. All spectrum can be used for either FDD or TDD based services in an efficient manner.

Q. 2. Is there another option that in your view would provide a better outcome? If so please provide full details

Imagine's preferred option is option 3 above.

Q. 3. Do you agree with ComReg's proposal to increase the minimum data transmission rate that will apply to all new FWALA licences? Please give reasons for your answer

Imagine does not agree with this proposal to increase the basic service rates for broadband service offerings.

The benchmark service for broadband in Ireland to-day is eircom's 1Mbps DSL service which is sold as both a wholesale and retail product by eircom. This service is used by more than 80% of all DSL broadband users. Therefore the characteristics of this service should be used as the benchmark for FWALA broadband i.e. 1Mbps downstream, 128kbps upstream, 24:1 contention, and 10GByte/month data allowance. It is our view that the basic FWALA service offering should be based on the most widely deployed broadband service in the market (i.e. 1Mbps DSL) should not be increased as suggested in the consultation. Instead, service providers should be free to increase their service offerings from this level to meet market requirements.

The benchmark service for business customers should remain 2Mbps downstream, 2Mbps upstream, 10:1 contention, and unlimited download allowance as per previous FWALA awards. It is unclear why a 3Mbps downstream/2Mbps upstream product is suggested as this would appear to be an irregular product offering that is not commonly provided over fixed or wireless technologies. In our view the business offering should remain a symmetrical service offering at 2Mbps with the operators free to offer enhanced services about this level. An asymmetrical service offering should not be used as the benchmark business service.

Q. 4. Do you agree with ComReg's proposals concerning the release of Channel E? Please set out your reasoning for your answer.

Imagine is in agreement with these contour levels at the border of each of the respective service levels.

From our engineering calculations these contour levels are consistent with the existing FWALA threshold contour of 33dBuV/m, 30km from the centre of the licence area (ComReg 03/97).

In addition, practical deployment measures can be used to effectively mitigate against interference between adjacent operators in the event of interference issues.

6. Irish Wimax Forum Submission



19th January 2009

For more information, contact:
Chair, Regulatory Working Group
rwg-chair@wimaxforum.org

To: Ms. Tara Kavanagh
Commission for Communications Regulation
Irish Life Centre
Abbey Street
Freepost
Dublin 1
Ireland

E-mail: marketframeworkconsult@comreg.ie

Re: FWALA licensing in the 3400 – 3800 MHz band

WiMAX Forum[®] Response

The WiMAX Forum[®] welcomes the opportunity to provide its views and comments concerning the issues raised in the public consultation document on the topic above.

The WiMAX Forum¹ is an industry-led, not-for-profit organisation formed to certify and promote the compatibility and interoperability of broadband wireless products based upon the harmonized IEEE 802.16/ETSI HiperMAN specifications. A WiMAX Forum goal is to accelerate the introduction of these systems into the marketplace. WiMAX Forum Certified[™] products are interoperable and support Metropolitan Broadband Fixed, Nomadic and Mobile Applications. Along these lines, the WiMAX Forum works closely with service providers and regulators to ensure that WiMAX Forum Certified systems meet customer and government requirements. For more information about the WiMAX Forum and its activities, please visit www.WiMAXForum.org.

The WiMAX Forum responses to this consultation can be seen in Annex 1.

Yours Sincerely

Tim Hewitt
WiMAX Forum
Director of Spectrum Policy and Regulation
Chair - Regulatory Working Group

¹ "WiMAX," "Mobile WiMAX," "Fixed WiMAX," "WiMAX Forum," the WiMAX Forum logo, "WiMAX Forum Certified," and the WiMAX Forum Certified logo are trademarks of the WiMAX Forum.

Annex 1

WiMAX Forum responses to the individual questions are given below:

Q. 1. Which of the three options outlined above would, in your view, be the optimum for the assignment of the additional FWALA spectrum, noting the requirement on ComReg to grant rights of use for spectrum in an open, transparent and non-discriminatory manner? Please give reasons for your answer.

WiMAX Forum Response:

The WiMAX Forum has defined equipment certification profiles that are consistent with any of the options 1 to 3 presented in the consultation document. The WiMAX Forum also supports licensing procedures carried out in a technology neutral manner. On examination of the Options 1 to 3 presented by ComReg, the WiMAX Forum observes that any of the options presented may result in a less than optimum utilization of the available spectrum depending on the specific demand.

Therefore the WiMAX Forum believes that Option 1 provides a suitable basis for the award process and that options 2 and 3 provide no material advantage. Additionally, the WiMAX Forum advocates that the spectrum could be utilized more efficiently in the case where all licence winners have opted for TDD operation, if they can swap blocks to create contiguous assignments.

Q. 2. Is there another option that in your view would provide a better outcome? If so please provide full details.

WiMAX Forum Response:

No.

Q. 3. Do you agree with ComReg's proposal to increase the minimum data transmission rate that will apply to all new FWALA licences? Please give reasons for your answer.

WiMAX Forum Response:

Although the WiMAX Forum considers this a difficult issue for regulation, it has no specific objection to the proposal.

Q. 4. Do you agree with ComReg's proposals concerning the release of Channel E? Please set out your reasoning for your answer.

[WiMAX Forum Response:](#)

Yes

7. Last Mile Submission

Last Mile Broadband Response to ComReg's Consultation Paper 08/99

FWALA licensing in the 3400 – 3800 MHz band

Q. 1. Which of the three options outlined above would, in your view, be the optimum for the assignment of the additional FWALA spectrum, noting the requirement on ComReg to grant rights of use for spectrum in an open, transparent and non-discriminatory manner? Please give reasons for your answer.

It is our opinion that option 1 provides the best flexibility for operators to compete on an equitable basis for the available spectrum regardless of the technology used .

Under option 1 there are 2 opportunities for operators using FDD equipment to obtain a license, and there are 5 opportunities for operators using TDD equipment to obtain a license.

3 operators using TDD equipment and 1 operator using FDD equipment can obtain FWALA licences in any given area. It is also possible that up to 5 operators using TDD equipment could compete in a given area.

Under option 2 the possibility exists that 2 operators using TDD equipment may be allocated licenses in such a way that no license would be available for an operator to deploy FDD equipment (if F&G or I&K are allocated).

We suggest that in the event that an operator proposing to use TDD equipment makes an application for more than 25MHz of spectrum they should be allocated the F and F' blocks or the G and G' blocks thereby providing the opportunity for another operator to choose to deploy either FDD or TDD equipment.

We submit that option 3 is the least flexible of the available options. Under this option a maximum of 3 operators can obtain spectrum whereas up to 5 operators can obtain spectrum under options 1 and 2.

Q. 2. Is there another option that in your view would provide a better outcome? If so please provide full details.

Most operators holding phase one 3.5Gz FWALA Channels A,B,C licences have tended to provide service only in urban/densely populated areas leaving some channel D operators to provide service to mostly rural areas. FWALA operators who have concentrated on providing service to rural areas have been unable to obtain licences due to exclusion zones around the main urban areas. This has resulted in large areas around the main urban centres (Dublin, Cork, Limerick, Galway) being almost completely unserved by FWALA service providers.

We contend that main urban areas already have access to a wide range of broadband services including FWALA services and there is sufficient competition to ensure prices are competitive and consumers have choice – the same cannot be said for rural areas where no FWALA services exist.

We submit that the process should take into consideration the provision of services in new service areas especially rural areas adjacent to major urban areas.

Suggested Solution:

We propose that priority should be given to applications for licences to cover areas that are currently outside existing FWALA service areas adjoining major urban areas.

We suggest that applying such a weighting to applications for new spectrum will ensure the efficient use of spectrum where it is needed most.

Q. 3. Do you agree with ComReg's proposal to increase the minimum data transmission rate that will apply to all new FWALA licences? Please give reasons for your answer.

We do not agree that the 2Mb package suggested is representative of the majority of residential market demand. We suggest that a 1Mb /512Kb package should be used for comparative evaluation.

We submit that providing a 3Mb/2Mb wireless package at a 10:1 contention ratio would not be economically viable given the current cost of 3.4-3.8 Base Station Sector and CPE equipment. Using Wimax TDD equipment in a 3.5MHz channel at QAM 16 Upstream/Downstream modulation it will only be possible to provide service to a maximum of 40 Business customers per Base Station Sector without overbooking.

The majority of current business market demand is for 2Mb service with 10:1 contention ratio. The most widely available ADSL broadband currently cannot support upstream traffic rates of 2Mb and therefore it is not realistic to make this a requirement for FWALA licencees.

We suggest a 2Mb/1Mb Business Package should be used for comparative evaluation.

8. Nova Networks Submission



novanetworks

Ms. Tara Kavanagh
Commission for Communications Regulation
Irish Life Centre
Abbey Street
Freepost
Dublin 1
Ireland

03/01/2009

Dear Tara,

Please find below my submissions regarding consultation 08/99. All of the below can be published in the public domain as required.

Q1

Option 2 is in my view the best option as it allows for more operators to offer services to consumers, thereby bringing the widest variety of services to consumers and being the most non-discriminatory method of offering the spectrum. I do not have any technical preference or pre-disposition to TDD or FDD, but believe that as spectrum gets more scarce, I believe that TDD will allow for greater utilisation of the available spectrum, particularly as upstream data usage is low when averaged across all users. Therefore, by offering the spectrum for licence on a per-MHz basis as in option 2, operators have to decide for themselves whether the extra spectrum for FDD operation is worthwhile. In summary, option 2 will increase the number of operators providing services and will promote more efficient spectrum usage and a greater number of licence awards from the same amount of spectrum.

Q2

No comments

Q3

I agree with the residential minima but suggest the upstream capacity of the business offering be revised as follows:

1) Minimum data rate, subscriber to network: 1Mbps

This is a more reasonable figure for either FDD or TDD systems. In the case of both FDD and TDD systems, with the advent of the 802.16e-2005 standard, advanced radio design including SOFDMA, beamforming and MIMO, comes the possibility to use the spectrum for nomadic (self-install) or mobile (pc card, etc) applications. These stretch the upstream link budget to the maximum as the output power of the CPE is typically lower than that of

Unit 9, Rockgrove Industrial Estate, Little Island, Co. Cork

Phone: 021 497 8192 Email: info@novanetworks.ie Web: www.novanetworks.ie

Reg: 384966 Dwyer's Road, Middleton, Co. Cork. VAT: IE6404966A Directors: David McDonald, Barry McDonald, Patricia McDonald

the BTS, therefore the possibility of offering higher upstream rates is less for these CPE. Also with TDD, a static assignment of download/upload ratio is typically required, therefore a 3:2 ratio would seriously impact the number of CPE allowed in a sector, thereby reducing the subscriber number enabled by the allocated spectrum. I believe that for the purpose of a minimum service requirement, 1Mbps would be sufficient.

2) Data transfer limit: 131GB/month

Mass-market point-to-multipoint wireless broadband products at DSL-like price points are not suited to unlimited data transfer. If there is a contention ratio of 10:1 for business users, then it is imperative that this is applied to data transfer or it will not technically apply at all, denying usage for most other users if only one or two users run the connection at full speed all of the time.

Therefore I believe that the following formula should be applied for business customers:

$$\frac{\text{(Full-rate Download + Full-rate Upload) for a full month}}{\text{Contention ratio}} = \text{Data per month}$$

So for 3M down and 1M up at 10:1 contention:

Download speed = 3Mbps
Upload speed = 1Mbps
Total transfer rate = 4Mbps = 0.5MB/s
* 60 = 30MB/minute
* 60 = 1800MB/hour
* 24 = 43200MB/day = 42.1875GB/day
* 31 = 1308GB/month

Applying a 10:1 contention ratio to this (which will be essential in maintaining fair capacity to all users) gives:

131GB/month

Failure to implement this suggestion will result in operators having to introduce shady "Fair Usage Policy" small print in order to meet basic technical fairness requirements. This is not desirable for the consumer!

Q4

I agree broadly but feel that the service area for Cork city is inadequate. Please see attached map, Map A for reference.

In residential terms, it only covers most the northside and a very small piece of the southside, cutting out the main residential suburbs, including:

Southside:

Beaumont
Ballintemple
Ballinure
Bishopstown
Blackrock
Curraheen
Donnybrook
Doughcloyne
Frankfield
Grange
Leghenamore
Mahon
The Marina
Model Farm Road
Mount Oval
Rochestown
Togher (most of)
Wilton

Northside:

Lota
Silversprings

These suburbs have a significant population which I would estimate to be in the six-figure range and therefore should not be discounted from Channel E coverage.

In business terms, practically ALL of the commercial parks, industrial estates and suburban shopping centres of the city are omitted by the proposed Channel E area, including:

University Technology Park, Curraheen
Wilton Shopping Centre
Cork University Hospital and associated clinics
Doughloyne Industrial Estate
University Hall Industrial Estate
Leghenamore Industrial Estate
Southside Industrial Estate
Forgehill Industrial Estate
Ballycureen Industrial Estate
Mahon Point Shopping Centre
Bishopstown Shopping Centre
Douglas Court Shopping Centre
Douglas Village Shopping Centre
Douglas Mills Business Park
Black Ash Industrial Area

Unit 9, Rockgrove Industrial Estate, Little Island, Co. Cork

Phone: 021 497 8192 Email: info@novanetworks.ie Web: www.novanetworks.ie

Reg: 384966 Dwyer's Road, Midleton, Co. Cork. VAT: IE6404966A Directors: David McDonald, Barry McDonald, Patricia McDonald

Tramore Road Industrial Area
Youngline Industrial Estate
Rossa Avenue Industrial Area
Westside Business Centre
Cork Business Park
IDA Park, Model Farm Road
Melbourne Business Park

This is not an exhaustive list. Please note that these areas are not outside the main city area and that the official City Council boundary is meaningless in reality.

Therefore, I propose the following Channel E boundary:

Service Area Radius: 5.5Km
Centre of Area: E167896, N071322

I suggest that other cities may be looked at in a similar light, having more regard for on the ground development than County Borough maps. You might consult with local operators in these areas who, like us, have detailed local knowledge through years of experience.

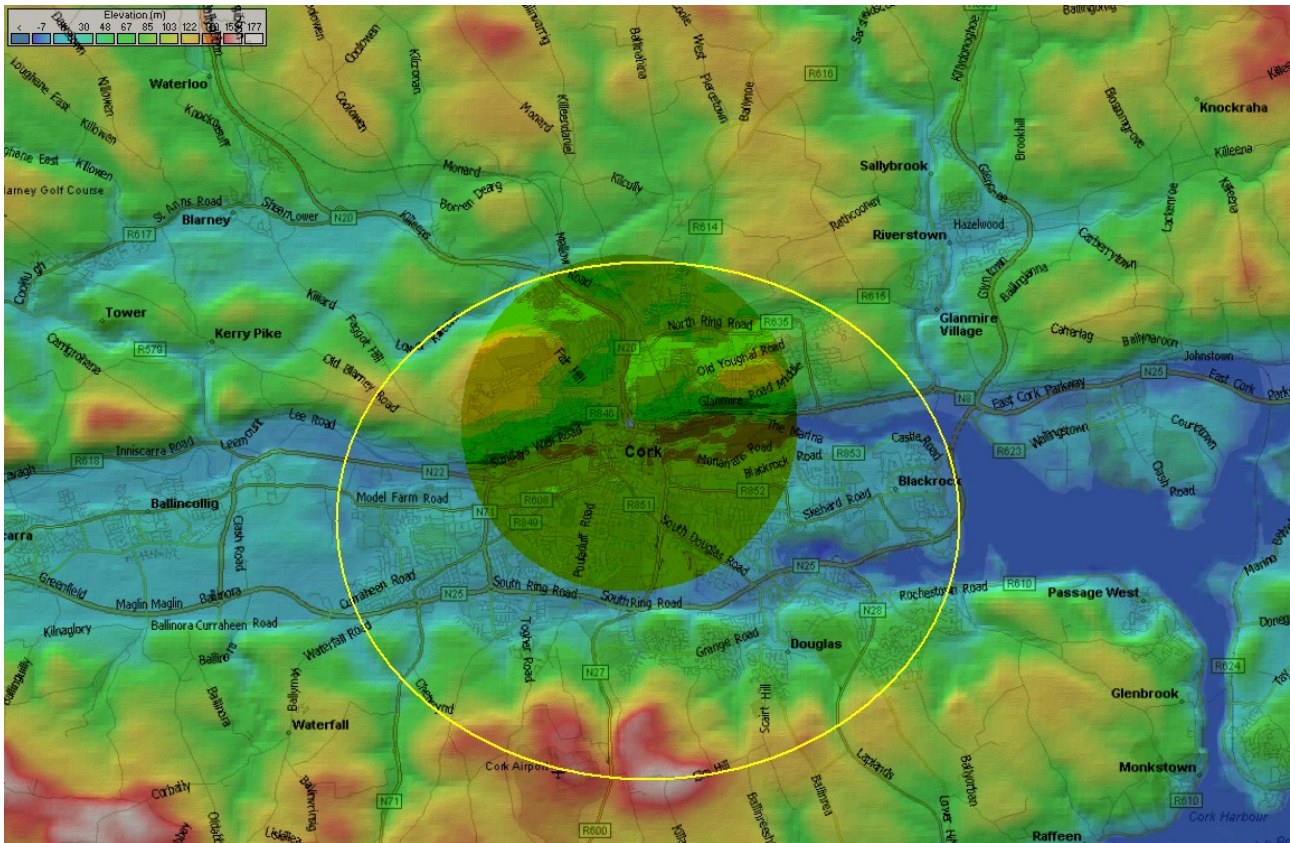
If you would like to discuss any of my points, please email me at dave.mcdonald@novanetworks.ie.

Best regards,

Dave Mc Donald

Maps to follow:

Map A – Proposed Channel E Coverage Area:



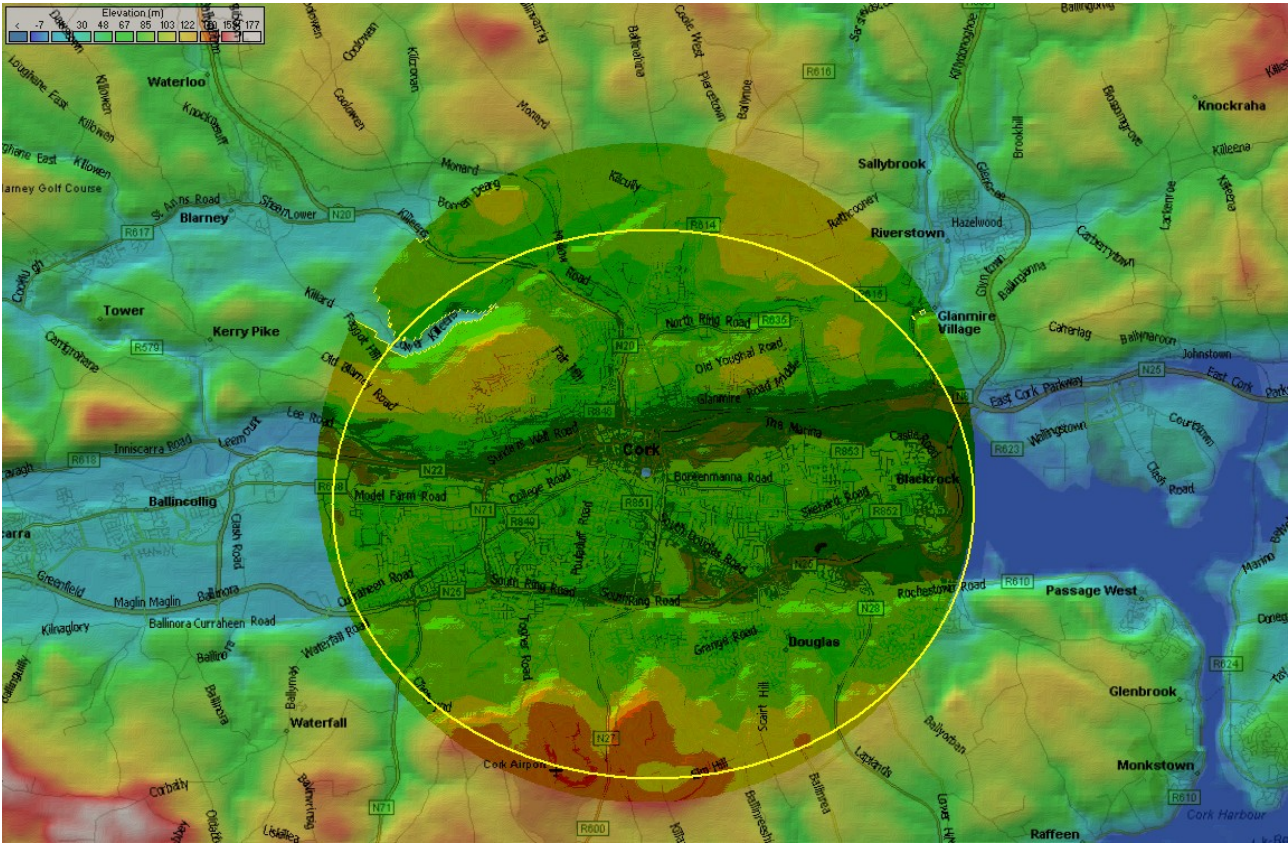
Note the yellow oval covers the populated area contiguous with the city centre. The shaded area is the current proposed Channel E area, covering only the northside and a small part of the southside.

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Map B – Suggested Revised Channel E Coverage Area:



Note the new shaded area which is our suggested revised coverage area for Channel E. The populated area contiguous with the city centre is oval, but in using the suggested circle, it is all adequately covered. Note we have not included any satellite towns, e.g. Little Island, Ballincollig, Ringaskiddy, Carrigaline, etc. This area is regarded as city.

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9. permaNET Submission

permaNET Response to ComReg's Consultation Paper 08/99

FWALA licensing in the 3400 – 3800 MHz band

Q. 1. Which of the three options outlined above would, in your view, be the optimum for the assignment of the additional FWALA spectrum, noting the requirement on ComReg to grant rights of use for spectrum in an open, transparent and non-discriminatory manner? Please give reasons for your answer.

We are of the view that of the options presented option 1 provides the best opportunity for all operators to compete equitably for the available spectrum irrespective of the technology they use thereby providing the most efficient use of spectrum and maximising competition for the delivery of services to consumers.

Under option 1 there are 2 opportunities for operators using FDD equipment to obtain a license, and there are 5 opportunities for operators using TDD equipment to obtain a license.

It is possible under this option to enable 3 operators using TDD equipment and 1 operator using FDD equipment to compete in a given area. It is also possible that up to 5 operators using TDD equipment could compete in a given area.

Under option 2 the possibility exists that 2 operators using TDD equipment may be allocated licenses in such a way that no license would be available for an operator to deploy FDD equipment (if F&G or I&K are allocated), this would result in a situation where 50% of the available spectrum may be unused. Indeed this situation pertains today in some areas where operators hold licenses of 2 blocks of 25MHz but choose to operate only 1 block thereby effectively blocking market entry to other operators and leaving a significant proportion of licensed spectrum unused.

Indeed we would suggest that in the event that a TDD operator applies for more than 25MHz of spectrum that they should be allocated the F and F' blocks or the G and G' blocks thereby providing the opportunity for another operator to choose to deploy either FDD or TDD equipment.

We do not concur with Comreg's suggestion that additional guard bands may have to be applied in the event that TDD operators do not get contiguous spectrum allocation. This situation exists today whereby TDD equipment is deployed in the A&B and C&D bands by different operators. In the current FWALA scheme the situation pertains whereby an operator may operate TDD equipment transmitting from a base station in an adjacent frequency to the receive band of an operator using FDD equipment. In such situations the only way to avoid interference issues is through frequency coordination and cooperation between operators.

We submit that option 3 is the least flexible of the available options and unnecessarily restricts operator's ability to select the most suitable technology for deployment and restricts competition. Under this scheme a maximum of 3 operators can obtain spectrum whereas up to 5 operators can obtain spectrum under options 1 and 2. We also submit that allocating 2 blocks of 25MHz (F and F') to an operator who plans to deploy TDD equipment in only part of that spectrum will result in very inefficient use of the spectrum.

**Q. 2. Is there another option that in your view would provide a better outcome?
If so please provide full details.**

We submit that the process should take into consideration the provision of services in new service areas especially rural areas adjacent to major urban areas.

Under phase one of the FWALA scheme licences in bands A,B,C,D were awarded in the first instance for main urban areas. Because of the nature of the “local area” scheme and the restrictions of service areas and exclusion zones between adjoining licences, areas of the country that have no access to other broadband technologies because of their rural nature remain unserved by FWALA services also. Operators who would like to provide broadband services in these rural areas are unable to obtain licences due to exclusion zones around urban areas.

We contend that main urban areas already have access to a wide range of broadband technologies and there is sufficient competition to ensure prices are kept low and consumers have choice – the same cannot be said for rural areas where no FWALA services exist.

Suggested Solution:

We suggest that priority be given to applications for licences to cover areas that are currently outside existing FWALA service areas adjoining major urban areas. Ultimately the licence holder of the new spectrum may apply for licences which would allow the operator to extend services into the urban areas but this overlapping licence should only be granted if and when Comreg is satisfied that the terms of the first licences awarded have been met.

We suggest that applying such a weighting to applications for new spectrum will ensure the efficient use of this scarce spectrum where it is needed most.

Q. 3. Do you agree with ComReg’s proposal to increase the minimum data transmission rate that will apply to all new FWALA licences? Please give reasons for your answer.

While consumer bandwidth demands are increasing we do not agree that the 2Mb package suggested is representative of the majority of residential market demand. We suggest that a 1Mb package rather than a 2Mb package should be used for comparative evaluation.

We submit that the business package suggested is not representative of what is generally supplied by operators or required in general by the business market. In fact given the limited spectrum available in some of the license scenarios (10-15MHz) it is unlikely that this package would not be economically viable. The majority of current business market demand is for 2Mb service with 10:1 max. contention.

10. Smart Submission



John Quinn
Director of Regulatory affairs
Smart Telecom Holdings Ltd
3300 Lake Drive
Citywest Business Campus
Dublin 24

Ms Tara Kavanagh,
Commission for Communications Regulation,
Abbey Court,
Irish Life Centre,
Lower Abbey Street,
Dublin 1

5th January 2009

Additional Spectrum in the 3400-3800Mhz Band - Consultation

Dear Tara,

Smart Telecom welcomes ComReg's Consultation on the release of additional spectrum in the 3400-3800Mhz band.

Spectrum is a limited and vital natural resource and making the best use of spectrum is good for the consumer, economy and the advancing of telecommunications services. We are encouraged to see that ComReg seek to make optimal use of such a vital asset.

Smart Telecom do not have a particular view on which of the three options outlined would be best suited for Ireland as opinions are likely to vary depending on the operator in question and on existing technology deployments. As Smart Telecom is currently not a major provider of services in the FWA bands, we do not currently have preference in terms of technology selection.

While we do not hold a strict view on technology selection in terms of TDD or FDD or how the spectrum is divided, we do however caution in two areas:-

- 1) Whichever scheme is selected can not be overly complex or rigid as this will lead to severe difficulties if and when spectrum trading does start in the FWA bands. It may also artificially limit the usefulness of the existing assignments based on point "2" below.
- 2) Any scheme proposed must work in harmony with the existing FWA guidelines and regulations. There can not be a dual approach.



We look forward to ComReg's guidance and decision.

Regards

John Quinn
Regulatory Director
Smart Telecom

11. UPC Submission

WITHDRAWN

