



Commission for
Communications Regulation

Response to Consultation

Wideband Digital Mobile Data in the 420 MHz and 900 MHz bands

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1 Foreword

On behalf of the Commission for Communications Regulation I am pleased to present this response to the Consultation Document 04/107 on “Wideband Digital Mobile Data in the 420 MHz and 900 MHz bands”. I would like to thank the 10 respondents for their wide range of views. A summary of the responses is presented in this paper, together with ComReg’s consideration of those responses and how we now intend to proceed with granting right of use for the two bands.

On the basis of the responses ComReg has decided to offer four national licences of 2 x 2 MHz each for the provision of wideband digital mobile data services: two licences in the 420 MHz band and two in the 900 MHz band. These licences will be offered on a first come first served basis but if demand exceeds supply in any band then licences will be auctioned. Successful applicants will only be awarded one of the four licences on offer.

ComReg believes that this initiative will further enhance the provision of new high speed mobile data services which will be a valuable complement to existing broadband and wireless services in Ireland.

**Isolde Goggin,
Chairperson.**

2 List of Respondents

There were 10 responses received in total and ComReg would like to thank all of the respondents for their time and effort and for the valuable information provided. All responses to the consultation except for annexes marked confidential will be made available on the ComReg website www.comreg.ie. The responses included four expressions of interest in providing wideband digital mobile radio licences.

Respondents:

- Airspeed
- EsatBT
- Eircom
- Flarion
- Inquam
- Leap Broadband
- Meteor
- O₂
- Verea Partners
- Vodafone

3 Introduction

There is a growing demand in Ireland for access to broadband services. This has been illustrated by the success of the fixed wireless access local area (FWALA) licensing scheme introduced by ComReg in 2003. In an effort to build on this success ComReg intends to proceed with offering licences for wideband digital mobile data services in the 410 – 414 MHz paired with 420 – 424 MHz band and the 872 – 876 MHz paired with 917 – 921 MHz band. This response to consultation outlines ComReg’s proposals for licensing such services in these bands.

Having given due consideration to all of the responses to this consultation ComReg has decided to offer the spectrum on a first come first served basis in both the 420 MHz and 900 MHz band in lots of 2 x 2 MHz for the provision of wideband digital mobile radio services. If demand exceeds supply in any band then the spectrum will be auctioned. Licensees will be obliged to comply with minimum coverage and rollout criteria. The licences will be for a period of 10 years with the possibility of an extension for a further 5 years following a review in year 8 or 9.

ComReg is taking this decision under its obligations under The General Policy Direction on Competition¹ issued by the Minister for Communications, Marine and Natural Resources in 2004 which directed ComReg to focus on the promotion of competition as a key objective particularly in the fixed and mobile markets.

¹ Directions by the Minister for Communications, Marine and Natural Resources to the Commission for Communications Regulations under Section 13 of the Communications Regulation Act 2002.

4 Consultation Topics

In the concluding chapter of the Consultation Document 04/107 on “Wideband Digital Mobile Data in the 420 MHz & 900MHz Bands” comments were invited from interested parties on the issues raised in the paper. A number of specific questions were posed and the respondents’ views are addressed under these question headings.

4.1 Spectrum Requirements

In the light of demand for wireless data services ComReg considers that the recent emergence of wideband public access mobile radio (PAMR) technologies and the implementation of CEPT ECC Decision (04)06 presents a timely opportunity to proceed with licensing digital mobile data services in these bands. The first question addressed the issue of the appropriate amount of spectrum to be made available for such services.

Q. 1. What is the minimum amount of spectrum that you consider necessary to provide a competitive wideband digital mobile data service in the 420 MHz and 900 MHz bands and why?

4.1.1 Views of Respondents

There were 9 responses to this question. Four of the 9 respondents were of the view that a single radio channel would be sufficient to provide a competitive service, although views differed on the required channel bandwidth. One respondent stated that the minimum spectrum requirement for a single CDMA carrier is 2 x 1.75 MHz including guard band, however, it is doubtful whether an operator could launch a commercially viable network with only 1 carrier. This respondent went on to say that equipment is not commercially available in either band and the volume of equipment for the Irish market would not justify making equipment available. A second respondent considered that the minimum amount of spectrum required would be 2 x 2.25 MHz per licence issued. This would increase spectral efficiency and increase capacity per sector. In addition many of the systems available that would be suitable for these services have bandwidth requirements of 2.25 MHz.

A third respondent stated that a 1.25 MHz channel is sufficient for an operator to provide a competitive mobile broadband wide area network. This respondent also stated that guard bands of the order of 150 kHz either side are usually required, depending upon the adjacent services and technologies. A fourth respondent was of the opinion that 2 x 2 MHz would be sufficient.

A fifth respondent was of the opinion that if it is ComReg’s intention to allow competition with 3G services, there is no necessity to stipulate a minimum amount of spectrum. ComReg would also need to give careful consideration to the principle of non-discrimination in the regulatory framework and that this would require some form of obligations covering rollout, coverage, quality of services and licence fees. If it is not ComReg’s intention to permit competition with 3G services then ComReg

will need to consider how to limit the scope of licences awarded. This respondent also expressed the opinion that only 3G licensees are permitted to deploy 3G technologies. A further respondent was of the opinion that in order to provide available services an operator should be allocated two channels of 1.25 MHz combined with guard bands of 0.55 MHz in order to optimise spectrum use. A seventh respondent operator queried the minimum amount of spectrum that the regulator would need to make available in both bands to ensure a non-discriminatory licensing process. As ComReg is proposing to release blocks of 4 MHz of spectrum it was suggested by this respondent that ComReg would discriminate against the operator deploying WCDMA which requires a 5 MHz channel width. This respondent argued that ComReg must make 2 x 5 MHz of spectrum available to avoid discrimination or to ensure that the market is sufficiently ring-fenced that it does not compete with cellular mobile. They also stated that ComReg cannot release spectrum onto the market of its own making. ComReg must define markets and ensure that there is no discrimination except where it is objectively justified and proportionate.

Another respondent proposed that the 420 MHz band should be used for fixed/nomadic broadband data services. This would be used for network infill for congested metropolitan areas and for network extension in rural areas where previously expenditure has been hard to justify due to economies of scale. They believe that there is insufficient spectrum available for a national network.

The final respondent stated that in the 420 MHz band two channels could be made available but in the case of the 900 MHz band it is possible that the adjacent spectrum usage might allow the assignment of 3 channels as long as these were not separated from one another by guard bands (i.e. only one operator could be accommodated). To offer a service an operator should be assigned 2 channels of 1.25 MHz which means a total of 3.05 MHz including guard bands. The assignment of single carrier licenses would limit capacity and introduce a competitive uncertainty that would count against innovation and investment.

4.1.2 Commission's Position

ComReg has given careful consideration to the responses to this question and has decided to offer national licences on a first come first served basis. However if demand exceeds supply in any band then licences will be offered via an auction. The spectrum will be offered in lots of 2 x 2 MHz and each successful applicant will be awarded a maximum of 2 x 2 MHz.

ComReg recognises the concerns raised by some respondents with regard to equipment availability in these bands. However it is ComReg's understanding that there is equipment available in both bands from a number of manufacturers. Most manufacturers supply equipment to markets in Europe, Asia and the Americas, therefore it is relatively easy for them to adjust the equipment to the spectrum available in a particular country. Other European countries such as Croatia and Slovenia have already issued licences in the 420 MHz bands and the UK is planning

to auction off the spectrum in both the 420 MHz and 900 MHz bands later this year or early 2006. This will also help to increase equipment availability in these bands.

ComReg is of the view that carrying out a market analysis (of the type used to establish whether an operator has Significant Market Power) is not a pre-requisite to allocating spectrum. By carrying out this consultation ComReg is operating in an open, transparent and non-discriminatory manner as required by the EU Regulatory Framework.

The 3G licences issued under the WT Act are licences “to keep and have possession of apparatus for wireless telegraphy for the purpose of providing 3G and GSM mobile telephony” in other words it is the *apparatus* which is licensed for use in a particular frequency and does not give any exclusivity on the type of technology used. ComReg is adopting a technologically neutral approach and does not see any conflict with operators in other spectrum bands using 3G type technologies if they so wish.

Due to the existing allocations in the bands adjacent to those discussed in this document ComReg intends to release a maximum of 2 x 4 MHz of spectrum in each band for the provision of wideband digital mobile services.

4.2 Licensing Options

The Consultation Document put forward a proposal for two types of licences to be made available: one or two national licences consisting of up to 2 x 2 MHz in both the 420 MHz and 900 MHz bands on the basis of justified requests; and local area licences in any remaining spectrum each with a radius not exceeding 30 km. The licences would be for a limited term of 5 years with a review prior to the expiration of the licence based on delivery of services and whether the spectrum is required for other services.

Q. 2. Do you agree with the proposal to offer one or two national licences of 2 x 2 MHz in both bands and local area licences for 2 x 2 MHz in the remainder of the available spectrum? If not please provide supporting arguments.

4.2.1 Views of Respondents

There were 9 responses to Question 2. Three respondents agreed with the proposal. A fourth respondent was of the opinion that the allocation of 2 x 2 MHz of spectrum for a national licence would be insufficient in all areas except for remote rural ones and that the small size of the allocation means that mass-market services would be impossible to deliver solely on this platform. They believed that 2 x 4 MHz would be the minimum required for a national licence which would preclude local area licences. The fifth respondent stated that allocating three channels of 1.30 MHz

would enable compatibility with deployments elsewhere in Europe and would also enable the use of technologies such as CDMA 2000 and FLASH-OFDM. The sixth respondent disagreed with the proposal to issue national licences with only 2 x 2 MHz of spectrum. It would constrain the service offering that could be made available to customers. They continued saying the licences must be national licences to enable the deployment of mobile broadband which would be of most benefit to the customer. Any spare spectrum after the awarding of national licence can be awarded on a local area basis as long as there is no interference between the national and local area licensees.

The seventh respondent believed that the proposal is unlawful as it would prevent operators using WCDMA technology to deploy it in this spectrum and it is therefore discriminatory. They considered that local licences would not be efficient use of the spectrum and that given the value of the bands in question, national licences would be better. The provision of licences for local services would only serve to fragment the spectrum and limit future applications that may be suitable in these bands. If only one national licence or perhaps none were made available this would indicate that there is a low level of demand for wideband PMR/PAMR services. This respondent concluded by saying that an operator would attach no value to areas that are uneconomic and licences would therefore require strict coverage requirements.

The eighth respondent, stated that regional licences could be one parameter through which ComReg may choose to limit the scope of any licences awarded, and in this way it may achieve its objective in terms of competition with 3G services. The ninth respondent was of the opinion that it would be spectrally inefficient to split the spectrum in the manner proposed and would preclude the operators from building and launching a viable network. This respondent thought that a minimum of 2 x 4 MHz of contiguous spectrum was required for the provision of a competitive nationwide service. Splitting the 2 x 4 MHz of spectrum into 2 would mean that an additional central guard band would be required between the two systems. In the 900 MHz band the presence of the lower guard band at 915 – 917 MHz could eliminate the need for a lower guard band and allow 3 CDMA 1xEV-DO carriers thus increasing capacity. It would also be possible to accommodate 3 x 1.25 MHz channels in the 420 MHz band. This respondent felt that a 5 year licence was too short and that a 10 – 12 year licence would be more reasonable. ComReg should at the very least provide certainty from the outset that a licensee will be able to renew its licence at the end of the initial term upon meeting reasonable and objective milestones. If only one national licence of 2 x 4 MHz were taken up then careful consideration must be given to the remaining spectrum for local area licences.

Q.3 Are there any other licensing approaches that you think should be considered, and please explain why?

There were 7 responses to Question 3. The first respondent considered a licensing scheme similar to that used for FWALA to be most appropriate. A second

respondent stated that ComReg should award national licences in preference to local area ones. A third suggested that a single national licence should be offered and the remaining spectrum be used for local area licences. A fourth respondent expressed particular concern that the approach taken by ComReg should not unwittingly create an uneven playing field and that regard to the competitive conditions under which existing licensees are required to operate competing services is therefore essential.

A fifth respondent agreed with the approach of seeking expressions of interest and stated that ComReg should not proceed to license these services without strong evidence of demand for services that would justify the use of this spectrum. This respondent felt that ComReg should consider any proposals for services with respect to the markets in which these services may be offered with a view to ensuring that licensing is carried out in a non-discriminatory manner. The sixth respondent did not believe that 2 x 2 MHz of spectrum would be enough to build a national network and that the spectrum is better suited as in-fill for existing broadband networks and for providing coverage in remote areas. This respondent believed that the spectrum should be used for local area only and that a 30 km limit should not be imposed. A 5-year licence period would be the absolute minimum requirement to justify a network rollout. The final respondent felt that a 5-year licence term was insufficient to justify the cost of network rollout and that 15 years for a national licence would be more appropriate. This respondent considered that the definitions of TETRA, PMR and PAMR had been rendered meaningless or uncertain by technology developments and would therefore need to be clarified by ComReg. With regard to the interconnect issue it appeared that as these services are data services then VoIP intercommunication among members of the user groups would not be prohibited. This respondent went on to say that the definition of a user group is somewhat ambiguous and has not been widely tested and therefore believes that services retailed to households and individuals would fall within the ECC Report 25 definition.

Q.4 Are there any particular technologies that you consider would be suitable for delivery of wideband digital mobile data services in these bands? If so, please explain why.

There were 9 responses to Question 4. Six of the respondents considered CDMA type technologies as the most appropriate. A seventh respondent considered FLASH-OFDM technology suitable for delivery of these services. Two respondents were of the opinion that a technology neutral approach would be best with one of them commenting that, given the uncertainty over demand for licences suitable for the delivery of these services in these bands, it would be best to let the market decide on the best technologies.

4.2.2 Commission's Position

In view of the fact that regional licences of 2 x 2 MHz of spectrum could result in the necessity to provide guard bands and geographic exclusion zones with several neighbouring licensees, and the fact that regional licences would inhibit mobility, ComReg has decided to make four national licences of 2 x 2 MHz available, two in the 900 MHz band and two in the 420 MHz band. Based on input from respondents ComReg has decided that licences will be issued initially for a 10-year period with the possibility of a 5 year extension subject to a review after year 8 or 9.

ComReg is adopting a technologically neutral approach to this licensing regime and therefore will not be imposing any conditions on the type of technology that can be used to provide wideband digital mobile data services in these bands, other than are required to avoid harmful interference to other radio services. Guard bands will be required between licensees in the same band and between services in adjacent bands and must be accommodated within the licensed spectrum.

4.3 Licensing process

Licences under this scheme shall be issued under the Wireless Telegraphy Act 1926² and any appropriate Regulations. Furthermore licensees shall be obliged to make a notification to the Commission under the terms of Regulation 4 of the Authorisation Regulations.

Q.5 What is your preference for the licensing process that should be adopted by ComReg in licensing the 420 MHz and 900 MHz and why e.g., auction/beauty contest/ first-come-first-served?

4.3.1 Views of Respondents

There were 8 responses to this question, four of whom were in favour of a first-come first-served approach, with one stating that all licences should be for local area only. If demand outstripped supply a second of the four respondents expressed a preference for a beauty contest. A further two respondents were of the opinion that a beauty contest would be the best approach. These respondents considered that an auction and first come first served would lead to spectrum being acquired for anti-competitive reasons. A seventh respondent felt that no allocation should be made on a first-come first-served basis and that an auction would be most appropriate. The final respondent considered an auction best if demand were greater than supply, otherwise a beauty contest would be best as it would enable ComReg to reject purely speculative applications that do not have a technical or financial merit.

² Wireless Telegraphy Act S.I 25 of 1926

4.3.2 Commission's Position

Having considered the responses and the merits of the various options, ComReg has decided to proceed on a first come first served basis in both bands. If, as expected demand for these licences exceeds supply it is ComReg's view that on balance an auction is the most open and transparent process and will enable market forces to dictate the value of the spectrum. Licensees will be obliged to meet a minimum set of coverage and rollout criteria. To prevent spectrum hoarding or to retrieve spectrum in the case of licensee business failure, coverage and rollout requirements will be imposed on licensees. ComReg proposes a requirement of 33% demographic coverage at the end of year 2 following licence award 53% demographic coverage at the end of year 4 and 80% demographic coverage at the end year 6.

It is important that prospective licensees in the 900 MHz band are aware of the possibility of interference with the GSM allocation below 915 MHz. They will be obliged to ensure that their system does not cause any interference to the existing GSM licensees and that they will have to cover the cost of any mitigation techniques required to prevent interference to the GSM operator. Licensees will be permitted interconnection to the PSTN/PLMN in accordance with the Access Regulations³ and CEPT ERC/DEC (98)10.

4.4 Spectrum fees

The Consultation Document proposed that national licence holders using 2 x 2 MHz of spectrum would incur annual charges of €1,000 per base station and local area licences would be subject to an annual charge of €2,000 per base station. In addition a non-refundable licence application fee will be charged on a cost recovery basis. There will also be an administrative fee to cover the cost of processing the licence.

Q.6 Do you have a view on the proposed fee levels for wideband digital mobile data services in the 420 MHz and 900 MHz bands?

4.4.1 Views of Respondents

There were 8 responses to this question. One respondent considered the proposed fees as reasonable. Two of the respondents were of the opinion that zero upfront acquisition cost would be appropriate as done in other European countries. Both of these respondents also said that for annual payments that a share of revenues model would be best for the establishment of innovative new services to the benefit of the consumer. A further two respondents were of the opinion that the spectrum fees should be consistent with those paid by 3G licensees on a pro-rata basis reflecting the fact that these services would be 3G and they would be competing in the same

³ European Communities (Electronic Communications Networks and Services) (Access) Regulations 2003 (S.I 305 of 2003).

market as them. A sixth respondent considered that a fee of €300 per base station would be more appropriate. Another respondent felt that as the spectrum was most suitable for the provision of nomadic wireless services at best and that the services would be similar to FWA in the higher bands that a similar pricing model to FWA should be applied. The final respondent was of the opinion that due to the marginal nature of the business case and the lack of equipment availability, a more reasonable licence fee would be a one-off fee of €100 per base station.

4.4.2 Commission's Position

ComReg is of the view that the proposed licences do not come under the same market as the existing GSM and 3G mobile licences. These wideband digital mobile data services are not obligated to provide roaming of any sort, ubiquitous coverage or service availability as is the case with GSM and 3G. ComReg recognises the concerns of some of the respondents regarding the proposed level of licence fees. However given the propagation characteristics of this spectrum which makes it ideally suited for PAMR applications and of the need to ensure the efficient and effective use of the radio spectrum, ComReg has decided that licences will be offered on a first come first served basis but if demand exceeds supply in any band then an auction in lots of 2 x 2 MHz is the appropriate method. There will be a reserve price placed on the auction which will reflect the annual spectrum access fee that will be accrued over the period of the licence. If licences are offered on a first come first served basis then the reserve price will be paid.

An administrative fee will apply to cover the cost of conducting the licensing process. In order to encourage take-up, payments from successful licensees will be subject to discounts in the early years of operation. The full details of the fee structure will be made known in an information memorandum which will be published prior to the licensing process (expected in June 2005 pending approval of the Regulations).

5 Next Steps

ComReg is in the process of drafting the Regulations under which the licences will be issued. These regulations will require approval from the Minister of Communications Marine and Natural Resources before ComReg can proceed with the licensing procedure. An Information Memorandum will be published at the end of June detailing the licensing procedure. It is expected that the licensing will be complete and licences issued by the end of August 2005.

Appendix A – Legislation

Relevant European Legislation:

- Directive 2002/20/EC of the European Parliament and of the Council on the authorisation of electronic communications networks and services, (“the Authorisation Directive”), OJ 2002 L 108/21;
- Directive 2002/19/EC of the European Parliament and of the Council on access to, and interconnection of, electronic communications networks and services, (“the Access Directive”), OJ 2002 L 108/7;
- Directive 2002/21/EC Of The European Parliament And Of The Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (“Framework Directive”) OJ 2002 L 108/33
- Directive 2002/22/EC of the European Parliament and of the Council on universal service and users’ rights relating to electronic communications networks and services, (“the Universal Service Directive”), OJ 2002 L 108/51;
- Directive 2002/58/EC of the European Parliament and of the Council concerning the processing of personal data and the protection of privacy in the electronic communications sector, (“the Privacy and Electronic Communications Directive”), OJ 2002 L 201/37.

National Primary Legislation:

- Communications Regulations Act, 2002 (No. 20 of 2002);
- Wireless Telegraphy Act, 1926 (No. 45 of 1926);

- The Freedom of Information Act, 1997 (as amended)

National Transposing Legislation:

- European Communities (Electronic Communications Networks and Services)(Access) Regulations 2003 (S. I. No. 305 of 2003);
- European Communities (Electronic Communications Networks and Services)(Authorisation) Regulations 2003 (S. I. No 306 of 2003);
- European Communities (Electronic Communications Networks and Services)(Framework) Regulations 2003, (S. I. No. 307 of 2003);
- European Communities (Electronic Communications Networks and Services) (Universal Service And Users' Rights) Regulations 2003 (S. I. No. 308 of 2003);
- European Communities (Electronic Communications Networks and Services)(Data Protection and Privacy) Regulations 2003, (S.I. 535 of 2003).