Commission for
Communications Regulation

Submissions to Consultation

Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands

Submissions received from respondents

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Note: This document was revised to include Tesco Mobile Ireland Ltd non-confidential submission.

1 An Post

An Post response to ComReg document Further Consultation 09/99

Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands

February 2010

~~**IN COMMERCIAL CONFIDENCE**~~

An Post has entered into an MVNO agreement with Vodafone and plans to launch commercial services during 2010. We believe that such an arrangement has the ability to further develop the Irish mobile market and provide us with an additional revenue stream.

An Post is of the view that its entry into the retail mobile market will provide significant benefits for customers, given our operation of the country's largest retail network. This is a core element of our business, and enables us to provide services to all members of society, including DSFA customers and others in the community, and provide for social inclusion.

However, An Post would be concerned if the structure of the proposed allocation process limited any arrangements with Vodafone and the ability to support our retail offering in terms of capacity or coverage. This may damage our brand and investment in this venture.

We understand that the allocation process proposed may limit the development of competition in retail mobile markets, could discourage the MVNO business model, and adversely affect those considering entering the market, including operators such as ourselves (who do not require a spectrum licence).

Adopting such a measure can therefore ultimately only disadvantage consumers.

/ends

POST

2 BT

Liberalising the Future Use of 900MHz & 1800MHz Spectrum Bands

BT Communications Ireland Ltd Response to ComReg Document Number: 09/99

Introduction

BT Communications Ireland Ltd welcomes the opportunity to comment on the ComReg consultation document 09/99, and we present here both some general comments on the proposals, and specific responses to those of the questions raised by ComReg in the consultation document where we have a view.

We appreciate the complexity of the situation in relation to historical mobile spectrum assignments and the dual objectives of allowing more technology neutral use of the 900MHz band, in accordance with the requirements of the revised GSM Directive and including consideration of the competition aspects, and the need to deal with the assignment of further spectrum and re-assignment of spectrum beyond expiry of current licences.

We agree with the approach proposed by ComReg to offer for auction the 900 MHz licences for use following their current expiry dates as this presents a fair and transparent approach to spectrum licensing, which is essential for maintaining a competitive mobile communications market.

In the interests of ensuring that a fair and competitive environment is maintained, we believe that the awarding of licences should not unfairly discriminate against new entrants, particularly by expecting such new entrants to comply with unreasonable rollout/coverage obligations. In order to promote additional competition there are a number of approaches that could be considered including ensuring the possibility to secure spectrum in a range of bands, the possible designation of spectrum for new entrants, and mandated regulated wholesale access requirement for existing network operators to offer wholesale access or national roaming to new entrants.

This latter point can provide a way to extend the network of the licensed MNOs, either to enable them to get started in the case of new entrants, or to provide complementary coverage in rural areas (typically through reciprocal arrangements) in the case of more established operators. In the case of wholesale access for new

entrants, the regulator should mandate wholesale access arrangements, at fair and reasonable commercial terms, in order to ensure that a new entrant is not significantly disadvantaged; this will help to ensure that an open and competitive environment is maintained. A further means of supporting infrastructure competition that will be of increasing relevance in future is the accommodation of femtocells by making suitable spectrum available, including on a shared basis.

Having set out our general views above we recognise that ComReg has already taken certain decisions and is now considering some further details of how they will be implemented. Accordingly we provide below our views below on the specific questions asked.

Response to Consultation Questions

Q.1. A. Do you agree that ComReg should take all reasonable steps in selecting an auction format so as to ensure a competitive outcome?

We agree that the choice of auction format is very important and that an appropriate format should be chosen to ensure a competitive fair and transparent process is achieved. Given the complexities of the existing licences and the different expiry dates we consider the options that have been considered to be comprehensive.

Q.1.B. Do you agree that a sealed bid format is the most appropriate approach in this case?

We tend to agree that a combinatorial auction format would be the best choice in the circumstances, but do not have a firm view as to whether an open or sealed bid format is best in the circumstances.

Q.2. Do you agree that a "rebate" in respect of the remaining term of a licence should be provided for in ComReg's auction design?

No comment.

Q.3. What factors should ComReg consider in calculating any such rebate?

No comment.

Q.4. Do you have any comments on the setting of minimum prices or the benchmarking process employed by DotEcon and proposed to be adopted by ComReg in arriving at a minimum price?

No comment.

Q.5. Do you have any comments on the structure of reserve prices and spectrum usage fees?

We would not normally advocate setting reserve prices close to estimated market value, we note the concerns that ComReg has identified in the specific scenario and would agree that a reserve price higher than that necessary to deter frivolous bidders may be appropriate in the circumstances and for the auction format that ComReg appears to prefer.

Q.6. Do you have any views on ComReg's proposed deferred payment scheme and the indexation that will apply?

No comment.

Q.7. Are there any other approaches ComReg should consider to mitigate any potential for auction disruption arising from the current financial and economic climate?

No comment.

Q.8. i) Do you agree that Meteor's continuing presence (within its current assignment of 892.7 – 899.9 MHz paired with 937.7 - 944.9 MHz) has the potential, depending on the auction outcome, to have a detrimental impact on future liberalised use of Block E or any other block in the 900 MHz band?

No comment.

ii) Do you agree with ComReg's proposal that, if the circumstances justify it, Meteor's assignment should be adjusted post-auction?

No comment.

iii) Are there any other issues which should be considered?

No comment.

Q.9. i) In the event that Meteor's existing frequency assignment must be adjusted post auction, please provide an estimate of the costs which might reasonably be incurred by Meteor in doing so?

No comment.

ii) Please identify any proposal as to whether and, if so how, Meteor should be fairly and reasonably compensated for any such costs, having particular regard to ensuring that costs would be objectively justified, proportionate and independently verifiable.

No comment.

Q.10. Do you agree with ComReg's technology neutrality proposal which does not mandate the deployment of any particular technology?

We agree with and support the technology neutrality principle, and agree that it should be applied here by ComReg, subject to the provisions of Article 1(1) of the EC "Amending Directive" for this band.

Q.11. Do you agree with ComReg's service neutrality proposal which does not mandate the provision of any particular service or services?

We agree with and support the service neutrality principle, and agree that it should be applied here by ComReg, to allow the operators to provide whichever services best fit their business model.

Q.12. Do you agree that it is appropriate that coverage and roll-out licence conditions should be included in future licences for liberalised 900 MHz spectrum?

We note that if the obligations are too great this might depress the spectrum value significantly and also that there will anyway be strong commercial incentives to provide extensive coverage, as is already the case with the present networks. However, we consider that the inability to trade spectrum may be a factor that might give support to the use of roll-out obligations. We are not convinced roll-out obligations are necessary but do not specifically object to those proposed.

Q.13. Do you agree with ComReg's proposal to define a distinct field strength level for each type of technology deployed in the liberalised 900 MHz band?

If coverage is to be determined based on field strength level (which seems to be an acceptable metric) then it would seem to be necessary to set different field strength levels for each technology if a technology neutral use of the band is to be achieved.

Q.14. In relation to each category of future new 900 MHz licensee - (1) Existing 900 MHz mobile network operators, (2) existing non-900 MHz mobile network operators, and (3) new entrants - should there be symmetric or asymmetric coverage and roll-out conditions?

Any coverage and roll-out obligations should be set in a way that is feasible for all parties to achieve and does not discriminate against new entrants or otherwise impede competition. The coverage and roll-out conditions should be set appropriately for all operators, and should take full consideration of the advantage some operators have by virtue of their existing networks. Both the financial cost and the time taken to rollout a network are significant, and this should be recognised by the coverage and roll-out conditions imposed on a new operator, otherwise there will be market distortion which will discourage such new operators from applying for a licence. Consequently we believe that the conditions should not be equal for all operators, i.e. they should be asymmetric

Q.15. Do you agree with ComReg's proposal to allow multiple frequency bands to count towards a 900 MHz band coverage obligation?

Whilst we understand the arguments surrounding using multiple frequency bands to meet obligations, it does seem somewhat strange that the conditions attached to the licence for a given frequency band can be satisfied by the performance offered in other frequency bands.

If conditions are to be applied to a licence in a particular band, then we believe that the coverage obligations should apply in that band. The measurement across multiple frequency bands might be more appropriate if the auction were to consist of blocks of spectrum several bands, and hence there could be a degree of substitution of blocks in different bands.

However in the circumstances, ComReg is offering licences for the 900 MHz band (only), and hence the licence conditions should apply for that band. Depending on the different obligations for the different categories of operator discussed in Q14, it could discriminate against operators who don't have existing networks in other bands.

Furthermore, since ComReg appear to be defining coverage by measuring the field strength (see Q13 above), it seems particular strange if those measurements were being taken in another frequency band, to meet a requirement of the 900 MHz band.

Q.16. Apart from the 1800 MHz and 2100 MHz bands do you believe that there are other frequency bands (e.g. Digital Dividend, 2300 MHz, 2600 MHz, etc.) that can deliver seamless services in conjunction with the 900 MHz band and could be added over the lifetime of the licence to the list of multiple frequency bands?

We believe that the "Digital Dividend" (790 – 862 MHz) band, and the 2500 – 2690 MHz band are other important bands for mobile networks. Recognising that the 2500 – 2690 MHz is not anticipated to be available in Ireland for the foreseeable future, we consider that the 2300 – 2400 MHz band is also a band of interest for mobile networks in some countries, including Ireland.

Q.17. Provided that asymmetric coverage obligations are set in the 900 MHz competition, do you agree with ComReg's proposal that the existing 900 MHz mobile network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date?

No comment.

Q.18. Provided that asymmetric coverage obligations are set in the 900 MHz competition and the aggregation of coverage across multiple frequency bands is allowed, do you agree with ComReg's proposal that the existing mobile (non-900 MHz) network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date?

No comment.

Q.19. Do you agree with ComReg's proposal that a new entrant should meet a minimum coverage level of 30% geographic coverage within 4 years of the licence commencement date, 70% geographic coverage within 7 years of the licence commencement date, and 90% geographic coverage within 10 years of the licence commencement date?

No comment.

Q.20. Do you believe that coverage via national roaming agreements should be allowed to count towards a 900 MHz coverage obligation and if so, to what extent?

Our view on this question may depend on how extensive the 900MHz coverage obligations are. Without any limits in place it would be theoretically possible to meet the licence conditions without actually deploying a single Base Station in the 900 MHz band, which would negate the whole purpose of having a licence in the band.

The purpose of a coverage obligation is presumably in part to ensure that the licence holder uses the licence to roll out their network, and doesn't hoard the spectrum.

The coverage obligation should be set at an appropriate level that would be a reasonable expectation for an operator to provide. For established operators national roaming agreements could be a valid means to enable your customers to obtain service in those rural areas where they don't provide coverage. For new players the availability of access to other networks would be even more important over a greater geographic extent.

Q.21. Do you agree with ComReg's proposal to include a €2 million performance guarantee against the coverage and roll-out obligations in any new 900 MHz licence issued?

No comment.

Q.22. Do you agree with the outcome of the draft RIA that QoS standards should be imposed as a safeguard measure to overcome the potential market failure which may exist in communications markets?

No comment.

Q.23. Do you agree with ComReg's proposal to apply the same QoS obligations to each new licensee in the band?

No comment.

Q.24. Do you agree that QoS standards should be set on the basis of the service offered rather than in relation to spectrum used to provide this service?

No comment.

Q.25. Do you agree with the ComReg' proposed voice calls QoS licence condition and the three proposed QoS metrics for measuring the voice call service?

No comment.

Q.26. Should QoS metrics be set for VoIP voice calls? If so, what QoS standards do you believe are appropriate? How would these standards be measured and monitored?

No comment.

Q.27. Do you believe that it is appropriate to set a mobile broadband QoS obligation in any new 900 MHz licence issued? If yes, do you agree with ComReg's proposal to set this obligation at the network level with minimum speeds of 3 Mb/s downlink and 384 kb/s uplink.

No comment.

Q.28. Do you agree with ComReg's proposed QoS metrics for network performance and the level at which it is proposed to be set?

No comment.

Q.29. Do you agree with ComReg's proposed billing obligation?

No comment.

Q.30. Should QoS measures at a consumer level (e.g. billing) be addressed as a licence condition in the 900 MHz licence or as part of a General Authorisation?

No comment.

Q.31. Do you agree that it is reasonable for ComReg to review and possibly update the QoS standards over the lifetime of the licence, such as every 5 years, or as appropriate due to changes in the market?

No comment.

Q.32. Do you agree with ComReg's proposed reporting on compliance obligation?

No comment.

Q. 33. Do you agree with ComReg's proposal to include a €1 million performance guarantee against the QoS obligations in any new 900 MHz licence issued?

No comment.

Q.34. Do you agree with ComReg's proposed non-ionising radiation licence condition?

In principle we would agree with ComReg specifying the ICNIRP guidelines in the licence conditions, providing that the guidelines are applied in an appropriate manner. We believe that these guidelines specify a maximum aggregate electric field strength which should be experienced in the vicinity of the transmitter site.

Recognising that a base station may be co-located with other transmitting equipment, including backhaul links with directional antennas, there may be locations (e.g. immediately in front of a directional antenna) where the electric field strength could be higher than normal, but where there is no realistic possibility of a member of the public gaining access. Therefore, we believe that the guidelines should be applied specifically for those areas where the public can gain access, rather than for hypothetical cases.

Q.35. Do you agree with ComReg's proposed international roaming capability licence condition?

No comment.

Q.36. Do you agree with ComReg's proposed licence conditions on access to emergency services and calling location information?

No comment.

end

3 Digiweb Ltd

Digiweb Ltd comments on the

Response to Consultation and Further Consultation

Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands

Date: 24nd February 2010

Q.1.A Digiweb agree that all reasonable steps should be taken in selecting and auction format so as to ensure a competitive outcome.

Q.1.B Digiweb agrees with the approach.

Q.2. Digiweb agree that a rebate in respect of the remaining term of a license should be provided for in ComReg's auction design.

Q.3. The value of the potential loss of revenue for the residual term should be a factor considered in calculating a rebate.

Q.4. Digiweb agree that it is necessary to set a minimum price, REDACTED

Q.5. REDACTED

Q.6. In the current financial and economic climate Digiweb agree that a deferral option is prudent and safeguards against potential financial constraints. REDACTED

Q.7. REDACTED

Q.8. REDACTED

Q.9. No comment.

Q.10. Digiweb agree that with the neutrality proposal which does not mandate the deployment of any particular technology.

Q.11. Digiweb agree with the service neutrality proposal.

Q.12. Digiweb agree that it is appropriate that coverage and roll-out license conditions should be included.

Q.13. Digiweb agree with the proposal to define a distinct field strength level for each type of technology deployed in the liberalised 900MHz band.

Q.14. REDACTED

Q.15. Digiweb agree that multiple bands should count towards the 900 MHz coverage where the services provided to the consumer are consistent between bands.

Q.16. Digiweb recommend that any future spectrum bands that might be used to deliver seamless services to consumer should be added to the list of multiple frequency bands, REDACTED

Q.17. Agree

Q.18. Agree

Q.19. Digiweb would not agree with these timelines for new entrant. REDACTED

Q.20. REDACTED

Q.21. Digiweb agree with the need for a performance guarantee. REDACTED

Q.22. Digiweb believe that a minimum QoS should be set to ensure that consumers have a reasonable service.

Q.23. Agree

Q.24. Agree

Q.25. Agree

Q.26. Digiweb believes that the service offered to consumers should be independent of the technology delivered, thereby applying the similar set of QOS metrics to each technology. Albeit that the ETSI set of standards referenced may be aligned to the technology in question.

Q.27. Digiweb believes that it is not necessary to set a mobile broadband QoS obligation as the market will drive the QoS in this case, unlike voice where there are no controls as to where the call might terminate and it is necessary to set QoS.

Q.28. Agree

Q.29. Agree

Q.30. QoS measures at a consumer level should be addressed as a license condition as per the existing 3G and GSM licenses.

Q.31. Digiweb believe that a review of QoS standards of existing services with a view to updating should not form part of a license award. REDACTED

Q.32. Digiweb agree in principle with the proposed reporting on compliance obligations.

Q.33. Digiweb do not agree with this proposal REDACTED

Q.34. Agree

Q.35. Agree, however this should be limited to voice services only.

Q35. Agree

Q.36. Agree

4 Hutchinson 3G Ireland Ltd

Response by Hutchison 3G Ireland Limited
in respect of ComReg Doc. No. 09/99
"Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands"

26 February 2010

Executive Summary

Hutchison 3G Ireland Limited ("3") welcomes and supports ComReg's proposals to: (i) proceed with the establishment of a competitive award process based on the preferred option set out by DotEcon in its report accompanying ComReg's Response to Consultation; and (ii) adopt a benchmarking approach to determining the minimum price.

However, 3 has significant concerns in respect of two aspects of ComReg's proposals: (i) ComReg's proposal to provide Meteor with a rebate for the purposes of providing it with an incentive to bid for liberalised spectrum; and (ii) ComReg's position in respect of the co-existence of 2G and 3G services.

In relation to ComReg's proposal to provide Meteor with a rebate for the purposes of providing it with an incentive to bid for liberalised spectrum, ComReg's proposal confers an unfair commercial advantage on Meteor contrary to Article 107 of the Treaty on the Functioning of the European Union. This provides:

"Save as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market."

Meteor has 2 x 7.2 900 MHz and 2 x 14.4 1800 MHz. In conjunction with its 1800 MHz, it only requires at most 2 x 5 900 MHz for the purposes of providing GSM services and is currently rolling out its 3G network. As a result, if ComReg grants Meteor a rebate, it will be providing it with funds to: (i) acquire liberalised spectrum below its full value (if Meteor uses the liberalised spectrum for 3G purposes); and/or (ii) use liberalised spectrum for GSM purposes, which Meteor would have done anyway. Meteor has sufficient incentive to liberalise early.

In relation to ComReg's position in respect of the co-existence of 2G and 3G services, namely its preference to allow licensees to negotiate and determine the most appropriate coordination with their neighbour/s and for ComReg to only intervene as a last resort so as to ensure compliance with the technical conditions of the EC Decision, given the coordination risks for 3G only operators and the threat to competitive neutrality identified by ComReg's consultants DotEcon, ComReg's failure to: (i) identify who should bear the responsibility of guard blocks as an issue; (ii) discuss the advice of its consultants; and (iii) propose a solution, is in blatant disregard of its statutory obligations and stated goals in respect of the liberalisation of the 900 MHz band. In contrast and apparent contradiction, ComReg proposes to require that any GSM spectrum retained by Meteor following the proposed auction and until licence expiry in 2015 would be subject to the obligation that it could not be used within 200 KHz of the boundary of the block without the neighbouring licensee's consent. In the absence of a proper discussion and appropriate decision in respect of this issue, 3 may be obliged to abstain from participating in ComReg's proposed auction and challenge any decision by ComReg in respect thereof.

3 looks forward to ComReg addressing these concerns, bidding for spectrum in the upcoming auction and providing advanced services at 900 MHz.

Introduction

The purpose of this document is to respond to ComReg Doc. No. 09/99 *"Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands"* ("ComReg's Response to Consultation").

The format of this document is as follows:

1. Part 1 addresses ComReg's general comments;
2. Part 2 addresses ComReg's proposed auction format;
3. Part 3 addresses the coexistence of future and legacy services and re-alignment issues;
4. Part 4 addresses the draft licence schedule contained in ComReg's Response to Consultation; and
5. Annex 1 contains responses to ComReg's consultation questions.

Part 1 – General Comments

Hutchison 3G Ireland Limited ("3") welcomes and supports ComReg's proposals to: (i) proceed with the establishment of a competitive award process based on the preferred option set out by DotEcon in its report accompanying ComReg's Response to Consultation ("DotEcon's Report")("Modified Option 1"); and (ii) adopt a benchmarking approach to determining the minimum price. However, 3 has significant concerns in respect of two aspects of ComReg's proposals: (i) ComReg's proposal to provide Meteor with a rebate for the purposes of providing it with an incentive to bid for liberalised spectrum; and (ii) ComReg's position in respect of the co-existence of 2G and 3G services. These concerns are set out in more detail below.

Part 2 – ComReg's Proposed Auction Format

In relation to ComReg's proposal to provide Meteor with a rebate for the purposes of providing it with an incentive to bid for liberalised spectrum, ComReg's proposal confers an unfair commercial advantage on Meteor contrary to Article 107 of the Treaty on the Functioning of the European Union ("TFEU"). This provides:

"Save as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market."

Meteor has 2 x 7.2 900 MHz and 2 x 14.4 1800 MHz. In conjunction with its 1800 MHz, it only requires at most 2 x 5 900 MHz for the purposes of providing GSM services and is currently rolling out its 3G network. As a result, if ComReg grants Meteor a rebate, it will be providing it with funds to: (i) acquire liberalised spectrum below its full value (if Meteor uses the liberalised spectrum for 3G purposes); and/or (ii) use liberalised spectrum for GSM purposes, which Meteor would have done anyway. Meteor has sufficient incentive to liberalise early.

In relation to ComReg's proposal to relax the auction spectrum cap and accept bids up to 2 x 15 MHz, ComReg needs to explain the following text at page 76 of DotEcon's Report: *"For a bidder who won nothing in the first stage, all its bids would be considered"*. In its Information Memorandum, ComReg should publish full details of the algorithms used by it to calculate winners and winning bids.

Part 3 – Coexistence of Future and Legacy Services and Re-alignment Issues

In relation to ComReg's position in respect of the co-existence of 2G and 3G services, namely its preference to allow licensees to negotiate and determine the most appropriate coordination with their neighbour/s and for ComReg to only intervene as a last resort so as to ensure compliance with the technical conditions of the EC Decision, given the coordination risks for 3G only operators and the threat to competitive neutrality identified by ComReg's consultants DotEcon, ComReg's failure to: (i) identify who should bear the responsibility of guard blocks as an issue; (ii) discuss the advice of its consultants; and (iii) propose a solution, is in blatant disregard of its statutory obligations and stated goals in respect of the liberalisation of the 900 MHz band.

At pages 42, 45, 46 and 49 of DotEcon's Report, DotEcon states:

1. *"In summary, if a 3G operator were required to carve out guard bands between itself and GSM operators from 5MHz blocks, this would substantially limit the possibilities for 3G operators successfully operating 3G services in this band. In particular, a 3G operator winning a single 5MHz lot would have no guarantee that it could use the allocated spectrum for deploying 3G at all.*

   ...

   It is clear that a mixed use operator would have much more possibility to accommodate different types of operators as it neighbours than does a pure UMTS operator. Therefore, a particular concern about this scheme (in which UMTS operators provide the additional guard blocks) is that it would be unfair to pure UMTS operators. In the context of the current Irish market situation, this would be worrying, as this approach would seem to enhance the position of the GSM incumbents at the expense of the 3G-only operator and entrants."

2. *"As discussed in Section 5.4, the separation requirements needed if there were a failure to coordinate with adjacent operators might substantially reduce the amount of spectrum available for 3G use. In some extreme outcomes, 3G operators allocated 2x5MHz could be unable to use their spectrum for 3G altogether if they must place the centre of their channel further than 2.7MHz away from at least one boundary of their frequency assignment. Similarly, 3G-only operators that have been allocated 2x10MHz might be only able to deploy a single 3G channel, unless they could agree to reduce the separation requirement from the edges with adjacent operators, or unless they could effectively deploy 3G channels with 4.6MHz wide carriers in order to bring their centres away from the edges of its frequency assignment.*

   ...

Overall, there is great variance of the amount of usable spectrum available for 3G only when UMTS operators must provide the additional guard block required to separate UMTS from GSM. UMTS-only operators would be very dependent on coordination with neighbours to make full use of their spectrum. For this reason, this guard block scheme might create outcomes that may raise concerns about competition in the provision of mobile services, where GSM operators (whether pure GSM or mixed operators) might have the ability to foreclose a potential UMTS-only operator.

Consider, for example, the case where the three existing operators were assigned 2x10MHz each and an entrant to the 900MHz band were assigned 2x5MHz, which it intended to use for providing 3G services. Of the potential assignment options for these four operators within the band, a number of these would not be consistent with the 2x5MHz operator being able to use its assigned spectrum for providing 3G services due to the existence of GSM services in adjacent frequencies and its consequent requirement to provide the necessary guard bands.

This undesirable outcome could also be manufactured by existing operators where these continue providing GSM services alongside 3G services in this band for a number of years. If existing operators deployed both GSM and 3G services within their spectrum assignment, they might opt to deploy GSM services using frequencies adjacent to the 2x5MHz operator, which might sterilise the spectrum allocated to the 3G entrant for 3G use."

3. *"In summary, with the first guard block scheme, option (i) where responsibility for providing guard blocks falls on GSM operators, the difference between the worst-case scenario for a particular bidder without coordination with neighbours and the scenario where it coordinates fully with neighbours is small. Therefore, the* ***coordination risk*** *is small in this case.*

   In contrast, with the second guard block scheme, option (ii) where responsibility for providing guard blocks falls on UMTS operators, the amount of usable spectrum for UMTS only operators varies dramatically depending on the technology deployed by neighbours. The coordination risk is large in this case. This gives rise to a number of serious concerns:

   - *this scheme might result in outcomes where a substantial amount of spectrum is sterilised;*

   - *the variance in the amount of spectrum that might be usable for 3G use imposes excessive uncertainty on the value of lots for 3G operators, thus increasing the likelihood of an inefficient allocation of spectrum between bidders and unfairness for 3G-only operators;*

   - *it may result in opportunities for anti-competitive behaviour, where GSM operators may be able to foreclose or substantially reduce the spectrum available for 3G use by new entrants.*

We believe that these concerns render the second scheme unviable. Very similar arguments would apply to a situation in which only part of the additional guard block requirement needed to separate GSM and UMTS fell onto UMTS operators."

4. *"While ComReg's policy regarding interference in this band as stated in its follow-up consultation is that 'each operator will be responsible for the management of their interference within their spectrum assignments', and that 'no guard bands will be set aside by ComReg', it is recommended that ComReg clarify its view on this guard band issue prior to any licence competition.*

   There are compelling arguments for adopting a lot design in which the burden of providing 200kHz guard block required to separate UMTS and GSM users would fall onto the GSM user. The proposed solution is to:

   • Allow UMTS use to the edges of a 2x5MHz block;

   • Allow GSM use in the entirety of a licensee's frequency allocation on similar terms to current GSM licences, except for within 200kHz of the boundaries of the allocation;

   • Within 200kHz of the boundary of a frequency allocation, GSM use would be possible only with the agreement of the neighbouring user;

   • Any other technology allowed by the EC Decision would have to allow neighbouring users to deploy UMTS across their entire frequency allocation and GSM to within 200kHz of the boundary of their allocation.

   Although there is some coordination risk for GSM users, in the sense that getting the maximum possible use out of their spectrum may require coordination with neighbouring users, the impact on spectrum valuation is limited. The impact of failing to agree coordination measures with neighbours is typically limited to the loss of one GSM channel (200kHz) or, in the worst case, two channels. Therefore, the impact on licence valuation of GSM users needing to coordinate with neighbours is small.

   With this lot design, there would be little difference between the value of interior frequency allocations (i.e. those with two neighbours) and exterior frequency allocation (i.e. those at the boundaries of the band and so with only one neighbour). This means that we do not need to distinguish interior and exterior lots and can largely treat one 5MHz block as being similar to another."

However and in contrast, at page 175 of ComReg's Response to Consultation, ComReg simply states:

"In general, until the outcome of the auction under Modified Option 1 is known it is not possible to identify the specific nature of coordination issues which are likely to arise between licensees. In this respect, ComReg's general preference is to allow licensees to negotiate and determine the most appropriate coordination with their neighbour/s and, as a last resort, for ComReg to intervene to ensure compliance with the technical conditions of the EC Decision."

ComReg's failure to: (i) identify who should bear the responsibility of guard blocks as an issue; (ii) discuss the advice of its consultants; and (iii) propose a solution, is in blatant disregard of its statutory obligations and stated goals in respect of the liberalisation of the 900 MHz band. *Inter alia*:

1. Sections 12 (1)(a) and (b) of the Communications Regulation Act, 2002, as amended (the "Communications Regulation Act") provide that the objectives of ComReg in exercising its functions are *inter alia* as follows:

   a) In relation to the provision of electronic communication networks, electronic communications services and associate facilities: (i) to promote competition; (ii) to contribute to the development of the internal market; and (iii) to promote the interests of users within the European Community; and

   b) To ensure the efficient management and use of the radio frequency spectrum in accordance with a direction under section 13 of the Communications Regulation Act (Directions by Minister).

2. Section 12 (6) of the Communications Regulation Act provides that ComReg shall take the utmost account of the desirability that the exercise of its functions aimed at achieving the objectives referred to in section 12 (1)(a) of the Communications Regulation Act does not result in discrimination in favour of or against particular types of technology for the transmission of electronic communications services.

3. Regulation 9 (4) of the European Communities (Electronic Communications Networks and Services)(Authorisation) Regulations, 2003, as amended (the "Authorisation Regulations") provides that ComReg must establish open, transparent and non-discriminatory procedures for the grant of licences.

4. Regulation 11 (3) of the Authorisation Regulations provides that where ComReg decides that the number of licences for a particular class or description of apparatus for wireless telegraphy for the provision of an electronic communications network or service ought to be limited, it must grant such licences on the basis of selection criteria which are objective, transparent, non-discriminatory and proportionate and which give due weight to the achievement of the objectives set out in section 12 of the Communications Regulation Act.

5. Article 1 of Directive 2009/114/EC of the European Parliament and of the Council of 16 September 2009[1] (the "GSM Amendment Directive") amending article 1 of Directive 87/372/EEC (the "GSM Directive") provides:

   "Member States shall, when implementing this Directive examine whether the existing assignment of the 900 MHz band to the competing mobile operators in

[1] Amending Council Directive 87/372/EEC on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community.

their territory is likely to distort competition in the mobile markets concerned and, where justified and proportionate, they shall address such distortions in accordance with Article 14 of Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services (Authorisation Directive)."

6. In section 10 (Evaluation of Options in the Context of ComReg's Objectives) of ComReg's Response to Consultation, ComReg identifies *inter alia* the rollout of broadband and regulatory certainty as stated goals in respect of the liberalisation of the 900 MHz band.

In contrast and apparent contradiction, ComReg proposes to require that any GSM spectrum retained by Meteor following the proposed auction and until licence expiry in 2015 would be subject to the obligation that it could not be used within 200 KHz of the boundary of the block without the neighbouring licensee's consent. At pages 177 – 179 of its Response to Consultation, ComReg states:

1. *"In relation to efficient spectrum use, ComReg is concerned that, unless proportionate, preventative measures are taken, the use of Blocks C and/or E and potentially other blocks in the 900 MHz band, could be impaired for the provision of advanced new services during the period 2011 to 2015, thereby denying consumers timely access to advanced services provided through these blocks.*

   Similarly, absent proportionate and preventative measures being taken, ComReg would also note the following primary concerns in relation to the efficiency of the proposed auction and its outcomes:

   • the potential impairment of Block C and/or Block E, in particular, would mean that not all blocks available in the main stage of the proposed auction would be homogenous and, in effect, a heterogeneous lot category would need to be introduced;

   • if a heterogeneous lot category were created for Block C and/or Block E, then this could create a significant advantage for existing GSM licensees as these bidders would have the option to use Block C and/or E for GSM until the expiry of Meteor's GSM licence, whereas a new entrant (which would likely be seeking to deploy UMTS in Block C and/or E) would bear significant coordination risk during this period and potentially be constrained in UMTS use in the absence of coordination;

   • a combination of the above two factors may result in the acquisition of Block C and/or E for GSM use by existing GSM licensees at artificially low prices, thereby distorting the value of Block C and/or and E in the auction, reducing the efficiency of outcomes under the auction and potentially lead to distortion of competition more generally;

   • the potential impairment of Block C and/or Block E for 3G use may artificially increase the value of other blocks in an auction. This may result in bidders paying artificially high prices for access to a reduced number of blocks in the

band (i.e. those that would not be so impaired for UMTS use). This would reduce the efficiency of outcomes under the auction and potentially lead to distortion of competition more generally;

• the increased complexity of the auction process that would be required to mitigate the uncertainty surrounding the use of Block C and/or Block E, absent proportionate and preventative measures, would generally increase the likelihood of an inefficient auction outcome; and

• the above factors could create opportunities for gaming, tacit collusion and other strategic behaviour to exploit the introduction of an "impaired lot" category into the auction design, thereby increasing the risk of the auction resulting in an inefficient outcome and potential distortions to competition more generally."

2. *"One option could be for ComReg to do nothing at this stage and await the outcome of the proposed auction to determine what intervention measures would be required, in the event that any coordination between Meteor (assuming it did not successfully avail of the early liberalisation option) and affected licensees, to ensure compliance with the EC Decision and efficient use of spectrum, was not sufficient. While such an ex-post approach may seem ideal, given the uncertainty of outcomes which could result in non-compliance and inefficient spectrum use, it would not, in ComReg's view, address the primary concerns set out above in relation to the efficiency of the auction and its outcomes. In particular, if no preventative and proportionate measures were taken prior to the auction, then it would be necessary to introduce heterogeneous lots into the auction format. This would increase coordination risks for bidders and increase the higher likelihood of inefficient auction outcomes and distortions to competition across the entire 900 MHz band. In ComReg's view, such an approach would not be in the furtherance of its statutory functions and objectives and is, therefore, not countenanced further.*

Another potential option, albeit in the other extreme, would be to implement ex ante measures prior to the auction to remove the possibility of inefficient spectrum and auction outcomes, irrespective of the possible outcomes of the auction.

...

ComReg's preferred option would be to make clear, prior to the auction, what steps it would take in the event of certain outcomes that would result in inefficient spectrum use related to Meteor's existing GSM assignment. The purpose of providing such clarity would be to:

• provide visibility to all stakeholders of, and consult upon, the identified scenarios so as to set out the justification for and proportionality of ComReg's proposed measures;

• provide certainty to bidders in the auction process about the ability to make efficient use of future 900 MHz licences;

• maintain homogeneity of all blocks in the main auction stage and thereby avoid the potential primary concerns identified above regarding the efficiency of the proposed auction and its outcomes.

Clearly, whether ComReg would take such steps would depend on the outcome of the auction and subsequent events (such as the outcome of inter-operator frequency coordination and cooperation between Meteor and relevant licensees). While ComReg remains hopeful that any interference issues relating to Meteor's existing GSM assignment could be fairly and reasonably managed through inter-operator coordination and cooperation, ComReg must also provide regulatory certainty to all operators in the event that it does not, and also take appropriate steps to ensure that the proposed auction delivers efficient outcomes across the entire 900 MHz band.

Depending on the outcome of these events, the proposed potential measure envisaged by ComReg would be to require that any GSM spectrum retained by Meteor following the proposed auction and until licence expiry in 2015 would be subject to the obligation that it could not be used within 200 kHz of the boundary of the block without the neighbouring licensee's consent."

In the absence of a proper discussion and appropriate decision in respect of this issue, 3 may be obliged to abstain from participating in ComReg's proposed auction and challenge any decision by ComReg in respect thereof.[2]

Part 4 – Draft Licence Schedule

In relation to Part 2 (General), we propose the following amended paragraph:

"This licence allows the licensee to deploy terrestrial systems capable of providing electronic communications services using the GSM and UMTS systems, as well as other terrestrial systems in accordance with Commission Decision of 16 October 2009 on the harmonisation of the 900 MHz and 1800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communication services in the Community: (i) in the Licensed 900 MHz Block in accordance with the Wireless Telegraphy Acts, 1926 – 1988, as amended; and (ii) conforming to the standards referred to in parts 3 – 8 of this schedule."

In relation to condition 3.2 of Part 4 (Probability of Dropping), we propose the following revised definition of "dropped call rate":

""Dropped call rate" means the percentage of total established calls during any measurement period which are prematurely released or lost by the network within three minutes."

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[2] For the avoidance of doubt, 3 could not *"effectively deploy 3G channels with 4.6 MHz wide carriers in order to bring their centres away from the edges of its frequency assignment"* (Page 45 of DotEcon's Report). The current state of UMTS compression technologies is highly uncertain.

In relation to Part 5 (Roll-out and Coverage Requirements), we propose the following amended paragraph:

"Where the Licensee has deployed a licensed terrestrial system(s) in "other designated frequency bands" which provide seamless service with systems in the Licensed 900 MHz Block, it is the combined coverage of the licensed terrestrial system(s) in the Licensed 900 MHz block and the other designated frequency band(s) that counts towards the minimum coverage and roll-out obligation as set out in this licence. "Other designated frequency bands" means: (i) the 1800 MHz band: 1710-1785 MHz and 1805-1880 MHz; (ii) the 2100 MHz band: 1900-1980 MHz and 2110-2170 MHz; and (ii) such other frequency bands as are designated by ComReg from time to time."

ComReg should clarify when it expects the licence commencement date to occur ie 2010 or 2011.

Conclusion

3 welcomes and supports ComReg's proposals to: (i) proceed with the establishment of a competitive award process based on the preferred option set out by DotEcon in its report accompanying ComReg's Response to Consultation; and (ii) adopt a benchmarking approach to determining the minimum price. However, 3 has significant concerns in respect of two aspects of ComReg's proposals: (i) ComReg's proposal to provide Meteor with a rebate for the purposes of providing it with an incentive to bid for liberalised spectrum; and (ii) ComReg's position in respect of the co-existence of 2G and 3G services.

In relation to ComReg's proposal to provide Meteor with a rebate for the purposes of providing it with an incentive to bid for liberalised spectrum, ComReg's proposal confers an unfair commercial advantage on Meteor contrary to Article 107 of the Treaty on the Functioning of the European Union.

In relation to ComReg's position in respect of the co-existence of 2G and 3G services, namely its preference to allow licensees to negotiate and determine the most appropriate coordination with their neighbour/s and for ComReg to only intervene as a last resort so as to ensure compliance with the technical conditions of the EC Decision, given the coordination risks for 3G only operators and the threat to competitive neutrality identified by ComReg's consultants DotEcon, ComReg's failure to: (i) identify who should bear the responsibility of guard blocks as an issue; (ii) discuss the advice of its consultants; and (iii) propose a solution, is in blatant disregard of its statutory obligations and stated goals in respect of the liberalisation of the 900 MHz band. In contrast and apparent contradiction, ComReg proposes to require that any GSM spectrum retained by Meteor following the proposed auction and until licence expiry in 2015 would be subject to the obligation that it could not be used within 200 KHz of the boundary of the block without the neighbouring licensee's consent. In the absence of a proper discussion and appropriate decision in respect of this issue, 3 may be obliged to abstain from participating in ComReg's proposed auction and challenge any decision by ComReg in respect thereof.

3 looks forward to ComReg addressing these concerns, bidding for spectrum in the upcoming auction and providing advanced services at 900 MHz.

ANNEX 1

Q.1. A. Do you agree that ComReg should take all reasonable steps in selecting an auction format so as to ensure a competitive outcome?

Yes, ComReg should take all reasonable steps in selecting an auction format so as to ensure a competitive outcome.

In relation to ComReg's proposal to relax the auction spectrum cap and accept bids up to 2 x 15 MHz, ComReg needs to explain the following text at page 76 of DotEcon's Report: *"For a bidder who won nothing in the first stage, all its bids would be considered"*. In its Information Memorandum, ComReg should publish full details of the algorithms used by it to calculate winners and winning bids.

In relation to ComReg's position in respect of the co-existence of 2G and 3G services, namely its preference to allow licensees to negotiate and determine the most appropriate coordination with their neighbour/s and for ComReg to only intervene as a last resort so as to ensure compliance with the technical conditions of the EC Decision, given the coordination risks for 3G only operators and the threat to competitive neutrality identified by ComReg's consultants DotEcon, ComReg's failure to: (i) identify who should bear the responsibility of guard blocks as an issue; (ii) discuss the advice of its consultants; and (iii) propose a solution, is in blatant disregard of its statutory obligations and stated goals in respect of the liberalisation of the 900 MHz band. In contrast and apparent contradiction, ComReg proposes to require that any GSM spectrum retained by Meteor following the proposed auction and until licence expiry in 2015 would be subject to the obligation that it could not be used within 200 KHz of the boundary of the block without the neighbouring licensee's consent. In the absence of a proper discussion and appropriate decision in respect of this issue, 3 may be obliged to abstain from participating in ComReg's proposed auction and challenge any decision by ComReg in respect thereof.[3] This concern is expanded upon above in the main body of our response.

Please see our comments above in relation to the draft licence schedule contained in ComReg's Response to Consultation.

Q.1.B. Do you agree that a sealed bid format is the most appropriate approach in this case?

Yes, a sealed bid format is the most appropriate approach in this case.

Q.2. Do you agree that a "rebate" in respect of the remaining term of a licence should be provided for in ComReg's auction design?

No, 3 does not agree that a "rebate" in respect of the remaining term of a licence should be provided for in ComReg's auction design. It confers an unfair commercial

[3] For the avoidance of doubt, 3 could not *"effectively deploy 3G channels with 4.6 MHz wide carriers in order to bring their centres away from the edges of its frequency assignment"* (Page 45 of DotEcon's Report). The current state of UMTS compression technologies is highly uncertain.

advantage on Meteor contrary to Article 107 of the Treaty on the Functioning of the European Union ("TFEU"). This provides:

"Save as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market."

Meteor has 2 x 7.2 900 MHz and 2 x 14.4 1800 MHz. In conjunction with its 1800 MHz, it only requires at most 2 x 5 900 MHz for the purposes of providing GSM services and is currently rolling out its 3G network. As a result, if ComReg grants Meteor a rebate, it will be providing it with funds to: (i) acquire liberalised spectrum below its full value (if Meteor uses the liberalised spectrum for 3G purposes); and/or (ii) use liberalised spectrum for GSM purposes, which Meteor would have done anyway. Meteor has sufficient incentive to liberalise early.

Q.3. What factors should ComReg consider in calculating any such rebate?

Please see our answer to question 2.

Q.4. Do you have any comments on the setting of minimum prices or the benchmarking process employed by DotEcon and proposed to be adopted by ComReg in arriving at a minimum price?

No.

Q.5. Do you have any comments on the structure of reserve prices and spectrum usage fees?

No.

Q.6. Do you have any views on ComReg's proposed deferred payment scheme and the indexation that will apply?

No.

Q.7. Are there any other approaches ComReg should consider to mitigate any potential for auction disruption arising from the current financial and economic climate?

No.

Q.8.

i) Do you agree that Meteor's continuing presence (within its current assignment of 892.7 – 899.9 MHz paired with 937.7 - 944.9 MHz) has the potential, depending on the auction outcome, to have a detrimental impact on future liberalised use of Block E or any other block in the 900 MHz band?

Yes, for the reasons set out in ComReg's Consultation Document, Meteor's continuing presence has the potential, depending on the auction outcome, to have a detrimental impact on future liberalised use of Block E or any other block in the 900 MHz band.

ii) Do you agree with ComReg's proposal that, if the circumstances justify it, Meteor's assignment should be adjusted post-auction?

Yes, 3 agrees with ComReg's proposal that, if the circumstances justify it, Meteor's assignment should be adjusted post-auction.

iii) Are there any other issues which should be considered?

No.

Q.9.

i) In the event that Meteor's existing frequency assignment must be adjusted post auction, please provide an estimate of the costs which might reasonably be incurred by Meteor in doing so?

Please see our answer to question 9 (ii).

ii) Please identify any proposal as to whether and, if so how, Meteor should be fairly and reasonably compensated for any such costs, having particular regard to ensuring that costs would be objectively justified, proportionate and independently verifiable.

Meteor should be fairly and reasonably compensated for the costs which might reasonably be incurred by it in adjusting Meteor's existing frequency assignment post auction. Any such costs should be subject to prior approval by an independent expert appointed by ComReg. It is not appropriate for 3 to provide ComReg with an estimate of the costs which might reasonably be incurred by Meteor in adjusting its existing frequency assignment post auction. To do so would be speculative.

Q.10. Do you agree with ComReg's technology neutrality proposal which does not mandate the deployment of any particular technology?

Yes, 3 agrees with ComReg's technology neutrality proposal which does not mandate the deployment of any particular technology.

Q.11. Do you agree with ComReg's service neutrality proposal which does not mandate the provision of any particular service or services?

Yes, 3 agrees with ComReg's service neutrality proposal which does not mandate the provision of any particular service or services.

Q.12. Do you agree that it is appropriate that coverage and roll-out licence conditions should be included in future licences for liberalised 900 MHz spectrum?

Yes, it is appropriate that coverage and roll-out licence conditions should be included in future licences for liberalised 900 MHz spectrum.

Q.13. Do you agree with ComReg's proposal to define a distinct field strength level for each type of technology deployed in the liberalised 900 MHz band?

Yes, 3 agrees with ComReg's proposal to define a distinct field strength level for each type of technology deployed in the liberalised 900 MHz band.

Q.14. In relation to each category of future new 900 MHz licensee - (1) existing 900 MHz mobile network operators, (2) existing non- 900 MHz mobile network operators, and (3) new entrants - should there be symmetric or asymmetric coverage and roll-out conditions?

There should be asymmetric coverage and roll-out conditions.

Q.15. Do you agree with ComReg's proposal to allow multiple frequency bands to count towards a 900 MHz band coverage obligation?

Yes, 3 agrees with ComReg's proposal to allow multiple frequency bands to count towards a 900 MHz band coverage obligation.

Q.16. Apart from the 1800 MHz and 2100 MHz bands do you believe that there are other frequency bands (e.g. Digital Dividend, 2300 MHz, 2600 MHz, etc.) that can deliver seamless services in conjunction with the 900 MHz band and could be added over the lifetime of the licence to the list of multiple frequency bands?

Yes, 3 believes that there are other frequency bands that can deliver seamless services in conjunction with the 900 MHz band and could be added over the lifetime of the licence to the list of multiple frequency bands. In particular, the Digital Dividend and 2600 MHz are suitable for seamless 3G and LTE purposes.

Q.17. Provided that asymmetric coverage obligations are set in the 900 MHz competition, do you agree with ComReg's proposal that the existing 900 MHz mobile network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date?

Yes, 3 agrees with ComReg's proposal that the existing 900 MHz mobile network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date.

Q.18. Provided that asymmetric coverage obligations are set in the 900 MHz competition and the aggregation of coverage across multiple frequency bands is allowed, do you agree with ComReg's proposal that the existing mobile (non-900 MHz) network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date?

No, 3 does not agree with ComReg's proposal that the existing mobile (non-900 MHz) network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date. Given the more extensive networks of the existing 900 MHz mobile network operators, a period of 5 years from the licence commencement date would be more appropriate.

Q.19. Do you agree with ComReg's proposal that a new entrant should meet a minimum coverage level of 30% geographic coverage within 4 years of the licence commencement date, 70% geographic coverage within 7 years of the licence commencement date, and 90% geographic coverage within 10 years of the licence commencement date?

3 does not agree with ComReg's proposal that a new entrant should meet a minimum coverage level of 30% geographic coverage within 4 years of the licence commencement date, 70% geographic coverage within 7 years of the licence commencement date, and 90% geographic coverage within 10 years of the licence commencement date. These obligations are disproportionate and discriminatory. As a new market entrant, we were only given 5 years to achieve 85% demographic coverage in our 3G licence. We believe that a period of 3 years from the licence commencement date would be more appropriate in terms of achieving 30 % geographic coverage, a period of 5 years from the licence commencement date would be more appropriate in terms of achieving 70 % geographic coverage and a period of 7 years from the licence commencement date would be more appropriate in terms of achieving 90 % geographic coverage. This would also address the apparent problem posed by ComReg's proposal that a licensee for the period from 2011 – 2015 would not have any minimum coverage obligation.

Q.20. Do you believe that coverage via national roaming agreements should be allowed to count towards a 900 MHz coverage obligation and if so, to what extent?

No, 3 does not believe that coverage via national roaming agreements should be allowed to count towards a 900 MHz coverage obligation. Given the scarcity of liberalised 900 MHz spectrum, this would not be an efficient use of spectrum in accordance with ComReg's statutory objectives.

Q.21. Do you agree with ComReg's proposal to include a €2 million performance guarantee against the coverage and roll-out obligations in any new 900 MHz licence issued?

No, 3 does not agree with ComReg's proposal to include a €2 million performance guarantee against the coverage and roll-out obligations in any new 900 MHz licence issued. 3 does not believe that a €2 million performance guarantee is necessary to ensure compliance with ComReg's proposed coverage and roll-out obligations in any new 900 MHz licence issued.

Q.22. Do you agree with the outcome of the draft RIA that QoS standards should be imposed as a safeguard measure to overcome the potential market failure which may exist in communications markets?

Yes, 3 agrees with the outcome of the draft RIA that QoS standards should be imposed as a safeguard measure to overcome the potential market failure which may exist in communications markets.

Q.23. Do you agree with ComReg's proposal to apply the same QoS obligations to each new licensee in the band?

Yes, 3 agrees with ComReg's proposal to apply the same QoS obligations to each new licensee in the band.

Q.24. Do you agree that QoS standards should be set on the basis of the service offered rather than in relation to spectrum used to provide this service?

Yes, 3 agrees that QoS standards should be set on the basis of the service offered rather than in relation to spectrum used to provide this service.

Q.25. Do you agree with the ComReg' proposed voice calls QoS licence condition and the three proposed QoS metrics for measuring the voice call service?

Yes, 3 agrees with ComReg's proposed voice calls QoS licence condition and the three proposed QoS metrics for measuring the voice call service.

Q.26. Should QoS metrics be set for VoIP voice calls? If so, what QoS standards do you believe are appropriate? How would these standards be measured and monitored?

As the quality of VoIP voice calls is an issue that affects both the fixed and wireless industries, ComReg should monitor the quality of VoIP calls and deal with any QoS issues by way of amendment to the General Authorisation.

Q.27. Do you believe that it is appropriate to set a mobile broadband QoS obligation in any new 900 MHz licence issued? If yes, do you agree with ComReg's proposal to set this obligation at the network level with minimum speeds of 3 Mb/s downlink and 384 kb/s uplink.

3 does not believe that it is appropriate to set a mobile broadband QoS obligation in any new 900 MHz licence issued. As stated by ComReg:

"Unlike the QoS standards that may attach to voice calls, as discussed above, the same risk of market failure does not appear to exist in the case of broadband services. This is because the consumer has a contract with a particular service provider who is fully responsible for the delivery of that service and the quality of that service. Hence there are no issues per se with establishing the entity responsible for the poor service, as can be the case with voice calls between different networks. Hence one could argue that it may not be appropriate to set minimum QoS standards for broadband services for end-users."

Q.28. Do you agree with ComReg's proposed QoS metrics for network performance and the level at which it is proposed to be set?

Yes, 3 agrees with ComReg's proposed QoS metrics for network performance and the level at which it is proposed.

Q.29. Do you agree with ComReg's proposed billing obligation?

Subject to the following comment, 3 agrees with ComReg's proposed billing obligation. In the absence of a demonstrable need, ComReg should abstain from price regulation.[4] Freedom of contract is a well established principle and one that should not be impinged upon lightly.

Q.30. Should QoS measures at a consumer level (e.g. billing) be addressed as a licence condition in the 900 MHz licence or as part of a General Authorisation?

Subject to our answer to question 29, QoS measures at a consumer level (eg billing) should be addressed as part of a General Authorisation.

Q.31. Do you agree that it is reasonable for ComReg to review and possibly update the QoS standards over the lifetime of the licence, such as every 5 years, or as appropriate due to changes in the market?

No, 3 does not agree that it is reasonable for ComReg to review and possibly update the QoS standards over the lifetime of the licence, such as every 5 years, or as appropriate due to changes in the market. For the purposes of making an investment in spectrum, a prospective licensee needs certainty in respect of its future licence obligations.

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[4] In its proposed billing obligation, ComReg states: *"Calls must be charged on a per second basis. Data services must be charged on a per usage basis".*

Q.32. Do you agree with ComReg's proposed reporting on compliance obligation?

Yes, 3 agrees with ComReg's proposed reporting on compliance obligation.

Q. 33. Do you agree with ComReg's proposal to include a €1 million performance guarantee against the QoS obligations in any new 900 MHz licence issued?

No, 3 does not agree with ComReg's proposal to include a €1 million performance guarantee against the QoS obligations in any new 900 MHz licence issued. 3 does not believe that a €1 million performance guarantee is necessary to ensure compliance with ComReg's proposed QoS obligations in any new 900 MHz licence issued.

Q.34. Do you agree with ComReg's proposed non-ionising radiation licence condition?

3 agrees with ComReg's proposed non-ionising radiation licence condition.

Q.35. Do you agree with ComReg's proposed international roaming capability licence condition?

Yes, 3 agrees with ComReg's proposed international roaming capability licence condition.

Q.36. Do you agree with ComReg's proposed licence conditions on access to emergency services and calling location information?

Subject to the following comment, 3 agrees with ComReg's proposed licence conditions on access to emergency services and calling location information. In relation to access to emergency services, ComReg should replicate the current Access to Emergency Service provisions in the existing GSM and 3G licences in any new 900 MHz licence issued. Otherwise, any operator that does not have an existing GSM or 3G licence will not have any Access to Emergency Service obligation.

5 Meteor Mobile Communications Ltd

Response to Consultation No: 09/99

Liberalising the Future Use of the 900MHz and 1800 MHz Spectrum Bands: Response to Consultation 09/14 and Further Consultation

Executive Summary

Meteor Mobile Communications Ltd. (Meteor) welcomes the opportunity to respond to ComReg's document 09/99 on Liberalising the Future Use of the 900 MHz and 1800 MHz Bands: Response to Consultation and Further Consultation.

Over the past year and a half, ComReg has conducted three consultations, commissioned two major technical reports, proposed six different auction formats, and engaged in extensive bilateral discussions with interested parties on a complex set of issues relevant to the future assignment and liberalisation of the 900 MHz and 1800 MHz bands. It is noted that the regulator has decided not to progress on the basis of either of the most recent options outlined in Consultation Document 09/14 and has, again, proposed a modified set of options for spectrum release, liberalisation and future licensing, which is the subject of the present consultation.

In rejecting alternative mechanisms for spectrum liberalisation and future assignment, Consultation Document 09/99 provides ComReg's analysis of stakeholder's proposals, followed by discussion of ComReg's perceived advantages and disadvantages of each alternative proposal put forward. Yet again, however, the current Consultation fails to adequately assess and address the concerns raised by Meteor and dismisses without adequate consideration the legitimate arguments outlined in Meteor's previous submissions as the basis for an alternative assignment process that is more efficient, proportionate and non-discriminatory.

For the reasons previously set forth in Meteor's responses to consulation documents 08/57 and 09/14 (which responses are incorporated by reference herein), Meteor maintains that ComReg's proposal to auction future rights to the 900 MHz band at the present time is fundamentally flawed considering the totality of the circumstances. In both previous consultation responses, Meteor provided detailed reasoning as to why it is wholly inappropriate to auction future rights to the 900 MHz band at the current time and using the method proposed. *For the purposes of this response, Meteor does not intend to re-state previous arguments. Where necessary, however, this response will discuss additional related concerns and considerations that Meteor believes ComReg should take into account in the final analysis*.

Meteor believes that because of the multiple layers of complexity and uncertainty that are inherent in (and in many ways unique to) the disposition of the 900 MHz band in Ireland, ***no auction process*** conducted under the present circumstances can be considered proportionate, non-discriminatory or efficient when compared to a solution involving a combination of administrative grant in the near term and an auction to be held in due course in the context of a more settled spectrum plan (and economic conditions). It would appear clear that there is only one party not currently licensed to use the 900 MHz band in Ireland (*i.e.* 3 Ireland) that will have the requisite commercial interest in, and has publicly expressed its desire to obtain, a 900 MHz licence. When all of the facts and circumstances are considered, it would therefore be unreasonably burdensome and disruptive to providers and consumers alike to attempt to resolve these complex issues by means of an extremely complicated auction process with many "moving parts". Meteor is confident that a simple, transparent and objective mechanism can be devised to test for excess demand. In the event that excess demand for the 900 MHz band is currently limited to 3 Ireland, the optimal way forward

would be for ComReg to put the appropriate mechanisms and safeguards in place to secure a negotiated interim settlement amongst interested stakeholders, with the prospect of holding a future auction involving all of the spectrum available and of commercial interest to actual and potential wireless broadband providers, including spectrum with comparable qualities to the 900 MHz band that is expected to be freed up as part of the Digital Dividend .

ComReg's Current proposed options

ComReg's current proposed options would see release of the 900 MHz spectrum in blocks of 2x5 MHz in a sealed bid second price auction, with a two stage process for the assignment of specific frequencies. In addition, all spectrum would be divided into lots available over two distinct time periods, 2011-2015 and 2015-2030, with winners determined through a second price sealed bid combinatorial auction. Although Meteor would not be forced to bid for access to spectrum in the first time period, 2011-2015, Meteor may choose to participate in an auction for liberalised spectrum.

Meteor fails to see how the above mechanism for spectrum release, based on a disruptive, complex and highly inefficient auction format, provides the industry as a whole with the certainty and stability so required for long-term investment and forward planning. As such, the proposed options are non only inconsistent with, but in fact will undermine, the Government's Policy Directions on Broadband (No. 3) and Industrial Sustainability (No. 4). It is accepted that there is a pressing requirement to address future access rights, not least due to the expiry of the 900 MHz licences currently assigned to 02 and Vodafone in 2011. However, as ComReg has conceded (and as relevant case law at the European level confirms), there in no relevant legal or regulatory requirement to hold an auction to address spectrum access issues, and there are more proportionate and efficient alternative mechanisms, in particular the proposal for administrative assignment coupled with an auction previously outlined and proposed by Meteor. ComReg has taken the view that "with such an administrative approach comes the risk that, however well-intentioned, the measures adopted might not deliver the efficient outcomes sought or even that the measures themselves lead to contentious outcomes." (Doc. 09/99 at p. 74). However, as demonstrated in the following section setting forth Meteor's position, ComReg's proposed auction solutions in fact hold far greater risks in both of these respects.

Meteor's alternative proposal

As Meteor has previously pointed out, the ideal solution would be the immediate administrative grant of 2X10 MHz of the 900MHz range to each of the existing 900 MHz licensees and 2X5 MHz to 3 Ireland, with an agreement to be mediated by ComReg amongst all of the licensees on the date by which the three holders of 2x10MHz would each relinquish 2x5 MHz (linked to a reasonable transition from 2G to 3G). At that time there would be 2x15 MHz within the 900 MHz band and quite likely additional spectrum available in the 800 MHz band, which could be auctioned off together. ComReg has nonetheless rejected this option without adequate consideration of the relative costs and benefits, which raises significant legal as well as public policy concerns.

Justification for an alternative mechanism

Although Consultation Document 09/99 proposes a new alternative methodology for an auction, the main tenets of Meteor's opposition to previous auction proposals hold true for the current option: conducting an auction for future rights to 900 MHz spectrum in 2010 would seriously damage the mobile market, undermine Meteor's ability to compete, invest in and develop its network, and undermine the Government's broadband and sustainability policies.

Over the past several years a number of consultations by the regulator and government have explored different but inter-related themes. As well as the 900 and 1800 MHz proposals, these include consultations on the following key areas:

- Digital Dividend in Ireland: a New Approach to Spectrum use in the UHF Band, 09/15, 2009;
- Next Generation Broadband in Ireland, 09/56, 2009;
- Release of Spectrum in the 2300-2400 MHz Band, 09/76, 2009;
- Report of the Working Group on Spectrum Policy, Department of Communications, Energy and Natural Resources, 2008

Whilst the aforementioned spectrum management issues have been individually assessed by ComReg and the Department of Communications, Energy and Natural Resources, the issues under question are so intertwined so as to render a determination now on future access rights to 900MHz spectrum on its own, highly prejudicial to the mobile industry as a whole.

The market and the future competitiveness of the industry requires a fair and well-balanced approach to spectrum management in respect of spectrum suitable for wireless broadband uses, including but not limited to the 900 MHz and 1800 MHz bands. Efficient, effective and fair management practice in these circumstances necessitates a reform approach that is on a holistic basis, *i.e*. where mobile operators can make reasoned market decisions cognisant of – or at least able to assess the likely risks associated with – the key relevant determinants. ComReg's fragmented approach with respect to each area cited will undermine the delivery of future wireless services that is required in order to achieve the objectives of the regulatory framework and the Government's policies. Moreover, the proposed auction format risks producing a result that will have long-term adverse consequences not only for the industry but also for mobile customers and the Irish economy.

In the Response to Consultation, Meteor sets out why an alternative assignment process should be found to award future rights to spectrum in the 900MHz band. In so doing, detailed consideration is given to the impact that ComReg's current proposals would have not only on the mobile industry, but on the long-term development of the communications sector as a whole. On this basis, Meteor then puts forward its proposal for an alternative mediated industry settlement, with consideration given as to how and in what format a negotiated settlement could be held.

In addition to providing a basis on which to determine future rights Meteor again highlights its position of legitimate expectation of renewal, and argues that the Regulatory Impact Assessment so relied upon by ComReg as a means to evaluate the appropriateness of its intervention as seriously flawed and wholly inadequate.

INTRODUCTION AND STATEMENT OF METEOR'S POSITION

1. ComReg Should Seek a Workable Interim Solution in Order to Promote the Delivery of Mobile Broadband Services to Irish Consumers

As noted above, this is the third time that ComReg has consulted on proposals to assign future access rights to the 900 MHz and 1800 MHz bands during the course of the last 18 months. Indeed, the current consultation proposal is the sixth option mechanism for future release and assignment proposed since July 2008. From the outset of these consultations, ComReg appears to have taken as given that the way forward necessarily requires the compulsory release and auction (at least with respect to the 900 MHz band). Over the course of these consultations, however, it has become increasingly apparent that in the near term, this option is unlikely to yield a reasonable, proportionate and non-discriminatory solution that will resolve the difficult and diverse issues and competing interests that must be dealt with in order to reach a satisfactory commercial, regulatory, and legal conclusion. Moreover, as discussed below, the risk of litigation that is inherent in the complex auction solution that ComReg prefers is equally as high, if not greater than, the risks associated with a negotiated interim solution involving the direct assignment of the available 900 MHz spectrum.

Promotion of long-term investment

In choosing to auction the 900 MHz frequencies that are currently licensed to three operators active in the market and reliant on that spectrum, ComReg has given no credit to an obvious and material factor that distinguishes them from all other potential claimants – the substantial risks these operators have taken and the investments they have made in network infrastructure, service provision and customer support centred around the use of spectrum in the 900 MHz band, and their ability to build on these platforms to contribute to the future development of wireless broadband in Ireland Even assuming for the sake of argument that the existing 900 MHz licensees have no legitimate expectation of reissuance of their licences[1] (an argument with which Meteor strongly disagrees, as highlighted in detail in section Five below), it would be discriminatory and disproportionate for ComReg not to give due consideration to the existing mobile operators' investment in the sector, their service track record and their experience in the marketplace.

ComReg's failure to take this material factor into account as a starting point in its assessment of the options distinguishes it from virtually every other national regulatory authority in Europe. ComReg is required, as a matter of law and sound public policy, to consider the differing circumstances of any potential licensees when deciding on the conditions and procedures for awarding, renewing or re-issuing spectrum licenses. ComReg has selectively focussed on certain differentiating factors (primarily those relating to 3 Ireland) but has not considered the full range of issues that distinguish each of the existing 900 MHz licensees from 3 Ireland and from other potential applicants for use of the spectrum. These differences are discussed in detail below. Moreover, although ComReg has proposed to remunerate Meteor for giving up its 900 MHz licence early (although it remains to be

[1] Meteor Response (30 September 2008) to ComReg Doc. No. 08/57 "Consultation on Liberalising the use of the 900 MHZ and 1800 Mhz Bands – Liberalisation of the GSM Spectrum Bands and Options for Release of Spectrum in these bands (17 July 2008)

seen if the compensation will be adequate, as discussed in response to Questions 2 and 3), no consideration has been given to the inherently unfair position that this proposed auction solution places Meteor, *i.e.,* if it chooses to retain its existing license, it may only do so if it elects not to utilise the spectrum for 3G, whereas at least two and potentially three of its competitors will necessarily be allowed to use their 900 MHz frequency assignments on a fully liberalised basis. As a commercial reality, therefore, the "choice" the ComReg proposes to give Meteor is no choice at all.

As the European Court of Justice has recently reaffirmed, it is settled case law that "discrimination can arise . . . through the application of different rules to comparable situations *or the application of the same rules to different situations*."[2] Dismissing a claim of illegal state aid lodged by Bouygues SA, the Court upheld the decision of the French Government to make substantial reductions in the fees that two previously licensed UMTS operators had committed to pay. The judgment turned on the fact that although the two operators had received their licences many months before Bouygues, they had not been able to commence operations for reasons not of their doing, and were therefore effectively in the same position as Bouygues. As a consequence, the Court found that the Government's course of action was required by the principle of non-discrimination established by the applicable regulatory framework for the sector, and therefore did not constitute illegal state aid.

In the present circumstances, it would be discriminatory and disproportionate for ComReg to ignore the different situation of the three existing 900 MHz licensees operators vis-a-vis 3 Ireland (leaving aside, for a moment, the unique circumstance in which Meteor finds itself), and the different situation of the four existing mobile network operators vis-a-vis all other claimants. These differing situations reflect, among other things, the ongoing involvement of the existing 900 MHz licensees in the provision of mobile voice and broadband services and their importance to the continued intensity of competition in the Irish mobile sector. The suggestion by some commentators to suggest that any form of direct administrative assignment to existing licensees would constitute a form of "selective advantage" is therefore without any basis in fact (assuming, of course, that all of the assignees will be required to pay fees that reflect the fair market value of the spectrum they are assigned).

Meteor is aware that one participant in these consultations has suggested that a solution which involves reissuing the present 900 MHz licences and/or making additional direct assignments of spectrum in the 900 MHz band to the existing licensees could constitute state aid, even if all licensees pay equivalent fees for their use of the spectrum. Such a claim reveals a fundamental misundersatanding of the state aid rules. State aid can only exist if it can be shown that the state has selectively granted preferential treatment to one entity either by providing it with public monies or by foregoing its right to such monies in a manner which results in a distortion of competition. An essential defence to any such claim is for the state to demonstrate that its actions were no different to that of a private investor seeking to maximise its revenues. In the context of this an allegation of illegal state aid cannot possibly be sustained in light of the facts. A decision not to hold an auction is entirely consistent with the private investor principle. A private investor would not be acting reasonably if it were to put current and anticipated revenues at risk by conducting an auction at a time of changed market and economic circumstances, and with an outcome that could lead to

[2] Bouygues SA v. Commission, Case C-431/07, at para. 114 (2 April 2009) (emphasis added).

protracted litigation. Furthermore the proposed course of action does not involve any preferential treatment of one party over another.

As the Euruopean Court of First Instance stated in the *Bouygues* case, "if national authorities decide as a general principle that licences will be awarded free of charge, or awarded by means of public auctions or awarded at a standard price, there is no aid element, provided that these terms are applied to all the operators concerned without distinction." [3] Nor can it be argued that an interim assignment of spectrum to the three existing operators which provides them with the bandwidth needed to make a seamless and non-disruptive transition from 2G to 3G, by contrast with a smaller but sufficient assignment to a fourth competitor that has no need to make such a transition, provides a selective advantage to the existing 900 MHz licensees.

In fact, ComReg's duty to prevent discrimination and the distortion of competition (in this case, by risking the potential loss or weakening of a competitor in a market comprising a limited number of players) *requires* it to consider the serious adverse impact of the potential loss of access to the 900 MHz spectrum on existing licensees and their customers. An objective qualification and pre-condition for the grant of 10 MHz of bandwidth within the 900 MHz range on an interim basis could and should be made by ComReg on the basis of these critical technical and commercial distinctions and requirements. Such objectively justified pre-conditions could not conceivably constitute the conferring of a selective advantage or state aid, unless ComReg decided not to impose equivalent fees for use of the spectrum on all of the 900 MHz licensees.

For these reasons, in virtually every other country in Europe, the existing 900 MHz licensees have had their licences extended or renewed, subject to the payment of licence fees reflecting the value of the liberalised spectrum. For similar and equally compelling reasons, in order to facilitate the transition from 2G to 3G, the existing licensees in most countries have been assigned sufficient additional spectrum (or allowed to retain the necessary bandwidth) in the 900 MHz range. It is clear that ComReg is not precluded by the non-discrimination provisions of the EU directives or Irish law from assigning additional 900 MHz channels to the existing licensees if, as is the case, this is necessary to resolve capacity constraints and thereby ensure continued effective competition in the market.[4] No one has seriously questioned the contention of the existing 900 MHz licensees that they require a minimum of 2X10 MHz of spectrum within the 900 MHz band for a transitional period during which they will be required to operate 2G and 3G networks side by side, before retiring their 2G systems. (To the extent that there are technical details to be worked out in this regard, Meteor proposes that ComReg resolves the issues through a technical mediation process funded by industry, as discussed below.)

Diminishing competition

An auction process that could result in Meteor's loss of its existing 900 MHz assignment and the ability to secure, at least temporarily, additional spectrum in the band to facilitate a seamless transition between 2G and 3G would also violate ComReg's core statutory objectives. A weakened

[3] Bouygues SA v. Commission, Case T-475/07, at para.110 (4 July 2007)

[4] Connect Austria Gesellshaft v. Telekom-Control-Kommission, Case C-462/99, at paras. 111-16 (22 May 2003) (upholding the Austrian regulator's assignment of additional frequencies in the 1800 MHz range to dominant, state-owned operator).

Meteor would have the effect of diminishing the intensity of competition, which a "replacement licensee" would be unable to restore for several years, if ever. Meteor's investment could be stranded or might have to be sold to a successor at fire sale prices. The former situation would plainly be at odds with the statutory objective of "efficient investment," whereas the latter predicament would raise fundamental issues of fairness and natural justice.

Impact on consumers

This risk of loss inherent in ComReg's preferred option also runs counter to ComReg's obligation to ensure that consumers derive maximum benefit from the provision of electronic communications services. ComReg has elected to discount the scope, duration and severity of customer dislocation that would result if an existing licensee were to lose its right to use the 900 MHz spectrum at auction. ComReg has done so not on the basis of any serious study of the subject but, rather, based on the assumption that it is an unlikely eventuality that an existing operator would fail to bid a winning price. However, as discussed below, the risk is real and significant. If a mass customer migration is the outcome of the auction process, there will be serious dislocation effects on customers, not to mention a likely loss of business and staff for the losing bidder as customers and employees flee to safer ground during what will inevitably be a lengthy transition.[5] Such a result would have serious repercussions for the industry as well as for ComReg and the Government.

Fatal flaw is inherent in any auction process under the circumstances

The risk at auction that an existing licensee runs of losing its right to use the 900 MHz frequencies to which they currently have access, and of obtaining sufficient additional spectrum to allow for a seamless transition from 2G to 3G, derives from a number of factors. As Meteor discusses in response to Question 1 (A and B), the proposed auction design holds the potential for gaming of the process by a new entrant to the 900 MHz band which could result in a severe distortion of the mobile market and a sub-optimal outcome of the auction process.

Even if the risk of gaming the system can be eliminated, there is also a very real risk of mis-valuation due to the inordinately high degree of valuation uncertainty that pervades this process. This uncertainty results from a variety of factors, some of which are exogenous, as ComReg itself has recognised. These include, for example, the unpredictability of demand for high-speed broadband and a range of pricing and cost issues that cannot be forecast with reasonable accuracy at this time.

Of equal if not greater importance, however, is the uncertainty resulting from delays by ComReg and the Irish Government in deciding on a proper spectrum plan for the allocation and assignment of the Digital Dividend. Stakeholders have no visibility into how, under what conditions and for how many players additional suitable spectrum will be made available for mobile broadband over the next three to five years. This includes disposition of the 1800 MHz band as well as the 800 MHz range and the 2.6 GHz band. The only available guidance is a set of "indicative dates" for various bands set out in Doc. 09/99 (page 45). These issues are within the control of ComReg and the Irish

[5] Meteor is unaware of any precedents in the mobile sector. However, experience based on similar customer migrations in the Internet backbone space, imposed as a condition of a merger clearance, confirms that the transition is fraught with difficulty, particularly where the transfer is between actual or potential competitors. See MCI WorldCom/Sprint(Case COMP/M.1741) Commission Decision 28 June 2000.

Government, and the failure to resolve them contributes substantially to the potential for an extremely wide range of possible valuations.

By contrast, in the United Kingdom, where a piecemeal approach to spectrum licensing led to litigation and major delays[6], the British Government ultimately decided to proceed on a holistic basis, following industry negotiations led by a Government-appointed "Independent Spectrum Broker." This comprehensive solution in the UK will involve a combination of direct administrative assignment, partial release, and a coordinated auction process involving all available spectrum suitable for wireless broadband.[7] A similarly comprehensive approach is being pursued by the German Government.

ComReg would be well advised to reconsider its preliminary position and pursue, instead, an interim solution that would promote the development of mobile broadband in Ireland in the near term, while putting any longer-term solutions off until it has developed a clear and viable spectrum plan. Meteor believes that its original proposal (with slight modifications), as outlined in section 3 below, is the optimal solution under the circumstances.

2. ComReg's Proposed Solution Is Likely to Result in Litigation and Delays that Will Prevent Consumers from Enjoying the Benefits of Enhanced Wireless Broadband Services.

During the course of these extensive consultations, several important facts and issues have emerged which Meteor believes require fresh consideration at this stage of the process. As a starting point, ComReg's stated objectives in each the consultations thus far have focussed on its baseline statutory obligations (efficient spectrum management, promoting competition, encouraging efficient investment, etc.).[8] Indeed, while ComReg has been careful to list all of these statutory objectives, it is clear that ComReg has placed the objective of "efficient spectrum management" above all others. Although efficient use of spectrum is *an* important objective, "efficiency" should not be an end in itself. It must be defined in its proper context, in this case the Government's broadband policy. The efficiency objective must also be balanced against the equally important statutory objectives of maximising the benefit for users and facilitating the development of competition, as required by Regulation 11 of the Authorisation Regulations 2003.

In this regard, it is surprising that the first reference to the Government's key policy objective of creating a 'Smart Economy' and a 'Knowledge Society', relying on mobile broadband as one of the main platforms,[9] does not feature as part of ComReg's analysis until page 137 of Doc. 09/99, and

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6 Litigation was initiated by two of the existing 900 MHz licensees in the UK on the basis that it would be unfair for Ofcom to hold an auction for the 2.6 GHz band before eliminating uncertainty over future disposition of the 900 MHz and 1800 MHz bands. T-Mobile (UK) Ltd.&Telefonica 02 UK vOfcom (2008) EWCA Civ 1373.

7 The UK Government concluded "that the alignment of the auction release of the 800MHz spectrum with the paired spectrum at 2.6GHz, along with the liberalisation of use of the 2G spectrum at 900MHz and 1800MHz, offers a unique opportunity for the prospect of competitive and early deployment of next generation mobile." Digital Britain Final Report, at para. 105 (June 2009).

8 ComReg Doc. 08/57 at Section 3.2 and ComReg Doc. 09/99 at Section 9.1.1

9 See DCENR, Next Generation Broadband – Gateway to a Knowledge Ireland (2009).

then only as part of a regulatory impact assessment rather than as the overarching policy objective. This stands in stark contrast to the approach being followed by regulators in many other countries that are facing the same spectrum authorisation challenges. In most cases, facilitating the rapid deployment of higher-speed broadband services to consumers is the guiding policy and baseline economic priority driving spectrum management decisions relating to the 900 and 1800 MHz bands.[10]

Because Ireland's circumstances are particularly well suited to the deployment of wireless broadband, ComReg's objective in this consultation should be to find a spectrum solution that will advance the goal of delivering competitive, high-quality mobile broadband services to Irish consumers *as quickly and efficiently as possible.* However, the complexity demanded by an auction solution, which is inevitably composed of many moving parts and potential points of failure is likely to have the exact opposite effect. Indeed, judging from the unusually detailed (though not necessarily defensible) cost-benefit analyses that ComReg has provided of the various stakeholder proposals and its response to Vodafone's proposed Regulatory Impact Assessment, it is apparent that ComReg takes very seriously the threat of potential litigation from all sides.[11] One of the main shortcomings of ComReg's assessment of the options, including its own proposals, is the failure to consider the impact of protracted litigation on wireless broadband development in the Republic.

Based on experience elsewhere in Europe and the plethora of legal issues that these consultations have uncovered in the present circumstances, Meteor believes that one or more legal challenges to the outcome of any conceivable auction process conducted in the near term are inevitable. As ComReg is aware, there are substantial competing interests amongst the four existing providers of mobile broadband services. Due to historical factors, these stakeholders are positioned very differently as current licensees and as candidates for continued (and expanded) access to frequencies in the 900 MHz and 1800 MHz bands.

Vodafone/O2

Vodafone and O2 were the first to receive licences in the 900 MHz band, in 1993 and 1996 respectively. They were well entrenched in the marketplace by the time Meteor was granted a 900 MHz licence, in 2000 and began operations five years after Vodafone and O2, in 2001.

Meteor

Meteor's entry into the market was sink or swim, with no "catch-up" support in the form of mandated national roaming rights and, for the first two years, without the benefit of mobile number portability. As a result, Meteor is today well behind Vodafone and O2 in the investment cycle and has yet to see positive returns on its investment. The potential for reimbursement for the remaining years of its current licence does not place Meteor in a position that is equally favourable to that of Vodafone and O2. The alternative of retaining its existing licence is unappealing because Meteor will not be allowed to use the 900 MHz spectrum for 3G even on an interim basis.

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[10] For example, in the United Kingdom, the Government has made liberalisation and indefinite extension of the existing 900 MHz licences a cornerstone of its comprehensive strategy for promoting next generation wireless broadband services as part of its "Digital Britain" agenda. See UK Dept. for Business, Innovation & Skills Consultation on a Direction to Ofcom to Implement Wireless Radio Spectrum Modernisation Programme, a p. 3 (Oct, 2009).

[11] See Doc. 09/99 at pages 92-116 and Annex H.

3 Ireland

3 Ireland entered the mobile market with spectrum in the 2100 MHz band in 2004. Its entry, however, was under more advantageous conditions than those that confronted Meteor. For example, ComReg granted 3 Ireland rights to national roaming thereby exposing it to full national coverage for voice services at the time of commercial launch. Moreover, at the time it commenced commercial operations, 3 Ireland was able to take advantage of a fully functioning and efficient mobile number portability transfer system.

Yet another relative advantage that 3 Ireland enjoys comes as a result of its having been selected by the Irish Government for delivery of the National Broadband Scheme. This provides 3 Ireland with a government subsidy of €79.8 million for providing broadband coverage for 90% of the country by September 2010.[12] That subsidy was calculated on the basis of a 3G network utilising the 2100 MHz spectrum currently licensed to 3 Ireland (the cost of which would likely be lower if predicated on use of the 900 MHz spectrum). Yet ComReg is proposing to impose the same USO-type geographic coverage obligations on Meteor and other licensees *without* any subsidy. Another significant advantage enjoyed by 3 Ireland is that it will not have to bear the cost of transitioning from 2G to 3G and enjoys far greater service flexibility thanks to its national roaming agreements. At the same time, assuming spectrum availability, 3 Ireland will have fewer transitional issues in moving to LTE.

These distinct sets of circumstances place the most likely contenders for the 900 MHz spectrum in very different positions vis-a-vis one another and potential new entrants. ComReg must take these different situations into account in attempting to craft a fair, proportionate and non-discriminatory procedure and outcome. In Meteor's view, the optimal way to deal with these issues and minimise the risk of lengthy delays due to litigation is for ComReg to mediate a solution involving direct administrative assignment of frequencies in the 900 MHz band for an interim period, and future auction of the released 900 MHz spectrum along with other spectrum suitable for wireless broadband at the appropriate time. This solution is similar to the proposal put forward by Meteor in past consultations, with the modifications discussed in the following section.

3. Proposal for a Mediated Industry Settlement

In its previous submissions, Meteor has explained why the optimal and most efficient solution from its perspective would be for ComReg to make a direct assignment of 2x11.6 MHz to each existing 900 MHz licence holder (ideally incorporating their existing assignments). However, Meteor offered a compromise solution that it believes to be objective, non-discriminatory, transparent and proportionate. It also has the important benefit of minimising the valuation uncertainty by deferring an auction for a reasonable portion of the 900 MHz band until the transition from 2G to 3G is completed, which hopefully will coincide with the development of a concrete plan by ComReg and the Government in relation to the disposition of the Digital Dividend spectrum for wireless broadband use, including the 800 MHz band as well as the 1800 MHz, 2300 MHz and the 2.6 GHz bands.

[12] See Doc. 09/99 at p. 205.

Meteor's compromise solution, as originally proposed, was as follows:

- An assignment of 2x10 MHz would be made to the existing licence holders by expanding each operator's usage rights to cover contiguous 2x10 MHz block which includes as far as possible their current spectrum assignments. This could mean the following direct assignment of blocks: Meteor -930-940/885-895MHz, Vodafone - 940-950/895-905 MHz; O2 - 950-960/905-915 MHz.
- The remaining 2x5 MHz of currently unassigned spectrum could be assigned to a new entrant to the band at the earliest opportunity either through auction, a comparative selection process, or administrative assignment.

As demand for GSM services declines, the need to maintain spectrum for both GSM and 3G services will diminish. Once that point is reached, operators could agree to a realignment of all spectrum allocations, each with a 2x5MHz assignment allocation, which then would enable ComReg to re-assign spectrum usage rights to the vacated spectrum by means of either auction or a comparative assessment.

This option would balance ComReg's preference for supporting new entry in the 900 MHz band with the need to assure existing operators of the availability of 2x10 MHz of the 900 MHz band to reduce costs and minimise customer disruption during the transition from 2G to 3G.

ComReg's principal concerns with respect to Meteor's proposal are that:

(1) It would involve administrative (re)assignment to existing licensees, which ComReg does not consider "appropriate" where demand is likely to exceed supply for existing spectrum because it would not be "in the interests of efficient management and use of spectrum"[13] ;

(2) Licence usage fees set by administrative determination could be incorrect[14]; and

(3) No firm deadline has been proposed for release of part of the administratively assigned spectrum for subsequent auction or reassignment, and each operator is likely to reach a release point at different times[15]

These concerns, however, can be addressed and resolved, and they pale in comparison to the concerns that are raised by ComReg's proposed solution.

[13] Doc. 09/99 at pp. 124, 128.

[14] *Id*. at p. 125.

[15] *Id.* at p. 129.

With respect to the propriety of direct assignment in the case of the 900 MHz and 1800 MHz bands, it is first essential to point out that, at least during the period prior to ComReg's articulation of a comprehensive spectrum management plan for all of the soon-to-be available spectrum suitable for wireless broadband, it is ComReg's own actions that are responsible for serious in-efficiencies in spectrum management. Spectrum in the 800 MHz, 1800 MHz, 2300 MHz, and the 2.6 GHz bands freed up over the next several years may in fact generate more supply than demand. By proposing to hold an auction for the 900 MHz band now, prior to announcing the plan for this substitutable spectrum (and, indeed, leaving disposition of the 1800 MHz band up in the air), ComReg would in fact appear to be creating a temporary artificial scarcity that could cause a bidding "bubble" destined to generate licence fees far in excess of the spectrum's real market value. Such an outcome would contravene the Authorisation Regulations (in particular, Regulations 20(1) & (2), 23(1)).

In fact, as Doc. 09/99 and the summary of ComReg's bilateral discussions with interested parties confirm, the only excess demand for frequencies in the 900 MHz band that currently exists relates to 3 IRELAND's asserted requirement for immediate access to 2x10 MHz of spectrum, rather than the 2x5 MHz block that would otherwise be available to it under Meteor's proposal. Although 3 IRELAND may indeed require access to 2x10 MHz at some point in time, Meteor submits that a balancing of the immediate and near-term needs of each of the four stakeholders can and should be undertaken based on a technical assessment undertaken by ComReg or a designated mediator.

ComReg has asserted that a "needs assessment" would be difficult and necessarily un-transparent as a result of the fact that proprietary information would need to be evaluated.[16] Meteor submits, however, that a technical mediation process can be created which would protect confidential information and ensure full compatibility with the competition rules, in order to evaluate the following key issues:

(1) Do Meteor and the other current 900 MHz licensees require 10 MHz on a temporary basis in order to transition from 2G to 3G?

(2) What are the minimum and maximum reasonable timeframes for all three of the existing 900 MHz licensees to complete the transition?

(3) What incentives could be established to ensure the earliest possible release of 2x5MHz of the administratively assigned 2x10 MHz in the 900 MHz band? (for example a sunset clause could be established).

[16] *Id.* at p. 127.

(4) When will each operator have a capacity requirement for more than 2x5 MHz of the 900 MHz band?

Meteor believes that a technical mediation process funded by the four stakeholders and presided over by ComReg or a designated expert acceptable to all of the participants could result in a negotiated solution that would have two major advantages over the proposed auction solution:

(1) It would eliminate protracted litigation delays and therefore achieve the Government's objective of delivering mobile broadband coverage far more efficiently and expeditiously that ComReg's complex and controversial auction solution; and

(2) It would provide an interim solution that would provide ComReg and the Government with additional time to formulate a spectrum plan for allocation and assignment of the 1800 MHz, 800 MHz, 2300 MHz and 2.6 GHz bands, along with the released 900 MHz frequencies, which can then be directly assigned or auctioned off in an efficient and coordinated fashion (and, as an additional benefit from the Government's perspective, at a time when the Irish economy will hopefully be more robust.

The other concern expressed by ComReg is that setting a licence usage fee without benefit of an auction can be difficult. In fact, ComReg has already signalled quite clearly what it views the minimum price to be, and although Meteor believes that valuation to be inflated, it is clear that there is a range within which a fair market value can be determined without recourse to an auction procedure that may in fact yield inflated and uneconomic values. Valuation of the 5 MHz that each of the existing 900 MHz licensees would retain under Meteor's proposal could be linked to the auction prices for the released 900 MHz frequencies and the 800 MHz band. As the European Court of First Instance pointed out in the *Bouygues* case (citing to the prior judgment of the European Court of Justice in the *Connect Austria* case) , "the setting of fee amounts involves complex economic assessments and . . . national authorities could therefore not be required to comply with rigid criteria in that regard," provided that the valuations take into account "the size of the different frequency clusters allocated, the time when each of the operators concerned entered the market and the importance of being able to present a full range of mobile communications systems.[17]" Thus, contrary to ComReg's preliminary views to the contrary, Meteor's proposed interim solution would result in a more objective, proportionate and efficient process for the setting of spectrum usage fees that would ensure the optimal use of the 900 MHz band in the near and longer terms, consistent with the Government's policy objectives.

[17] Case T-475/04, at para 109

4. Legitimate Expectation

In its Submissions to Consultation 09/14, Meteor, in common with other GSM licensees, maintained its position that it has a legitimate expectation to the renewal of its existing GSM 900 MHz licence, subject to it demonstrating a need for same until 2027, the end date of its 3G licence, having regard to a statement made by ComReg's predecessor, the Office of the Director of Telecommunications Regulation in 2001 in Information Memorandum 01/96 in the following terms:

"Continued availability of existing spectrum arrangements in the 900 MHz and 1800 MHz bands to mobile communications licensees will be reviewed three years prior to licence expiry. Retention of such spectrum will be on a demonstrable need basis until the end date of the 3G licences." (emphasis added).

In its earlier submissions, Meteor set out the three criteria which must be established for the doctrine of legitimate expectations to apply, in light of the decision of the Supreme Court (Finlay J.) in *Glencar Exploration v. Mayo County Council* [2002] 1 IR 84. First, the public authority must make a statement or adopt a position amounting to a promise or representation as to its future conduct. Secondly, the representation must be addressed or conveyed to an identifiable person or group of persons. Thirdly, the statement must create an expectation, which is reasonably entertained, that the public authority will abide by the representation to the extent that it would be unjust to permit it to resile from it. Meteor further referred to the fact that it is well established that the doctrine can apply not only to procedural matters but can have a substantive effect.

These principles have recently been reaffirmed by the Supreme Court in *McGrath v. Minister for Defence* [2009] IESC 62, a decision which illustrates the breadth of the legitimate expectations doctrine[18].

Meteor further explained in its submissions how each of the three criteria was clearly met in the instant case on the basis that, first, the statement must properly be viewed as an express statement of how the ODTR and subsequently ComReg would subsequently act in relation to the renewal of 900 MHz and 1800 MHZ licences. The statement was specific in nature. Secondly, as a document intended to provide information to interested parties in the 3G process, its contents were always intended to be conveyed to existing licensees. Thirdly, the statement created an expectation reasonably entertained by Meteor that the ODTR and subsequently ComReg would abide by the representation, to the extent that it would now be unjust to permit ComReg to resile from it. Furthermore, Meteor had no reason to believe that ComReg would resile from this representation.

In Document 09/99, ComReg has failed to engage with the points raised by Meteor and other GSM licensees and, instead, simply states that the GSM licensees do not enjoy an enforceable legal right to licence renewal or extension. While ComReg states that it had regard to a wide range of factors, only three of these are referred to in Document 09/99.

[18] In *McGrath*, a change in army policy which led to the reclassification of the plaintiff's disability and his subsequent discharge was held to infringe his legitimate expectation to be allowed to continue in service, thereby depriving him of an opportunity to apply for early retirement

The first of these is the fact that the obligations, powers and discretions enjoyed by ComReg are imposed by statute. While this may be so, ComReg has not pointed to any statutory obligation, power or discretion which is inconsistent with the terms of the ODTR statement.

The second factor referred to by ComReg is the fact that the ODTR statement was attended by disclaimers and caveats. As previously stated, Meteor considers that this does not detract from the status of the relevant part of the statement as a promise or representation as to how the ODTR and subsequently ComReg would act.

The third point raised by ComReg is the fact that the statement was not reflected or incorporated by the ODTR into its subsequent 3G tender documents or relevant licences or GSM Regulations. This, however, does not deprive the original statement of its force.

To date Meteor has operated on the basis that it would have access to 900MHz spectrum beyond the initial expiry date of its existing licence in 2015. This assumption is based upon a reasonable expectation of ComReg's regulatory policy and specifically the conditions governing future assignments of spectrum in the 900MHz band. Where Meteor has proceeded on the basis of that belief and has conducted its dealings based on that assumption, Meteor considers that it would be unjust and unfair to allow ComReg to go back on that position.

In the absence of any explicit statement on the how ComReg would address the expiration of the current 2G licences, Meteor's expectation is predicated on (i) the unambiguous statement made in December 2001 by the ODTR referred to above; and (ii) accepted and established European licensing practice.

While Meteor recognises that the extension of its 900MHz licence was not explicitly provided for in the 3G tender, Meteor would strongly argue that the assumption that its 2G licence would be extended is both reasonable and well founded. As already considered, ComReg did not provide any indication prior to the publication of the first consultation [Comreg Document 08/57] which was contrary to the assurances provided in 01/96. In addition, as stated in its and the other respondents' responses to ComReg Documents 08/57 and 09/14, the common practice among European regulators and espoused at EU level; is to renew existing 2G licences upon expiry of their initial term. The European policy group established under the European New Regulatory Framework, the "Communications Committee" established a clear presumption that when approaching expiry, 2G rights of use should be renewed[19].

ComReg states that it is not bound by the contents of these documents. However, the point that Meteor is making in relation to those documents is that the recommendations contained therein, and its more recent publications[20], represent a reasonable approach and one which Meteor expected ComReg to adopt.

Furthermore, a review of the approach adopted by regulators in other Member States clearly shows that for the most part regulators extended the 900 MHz licences for the existing licence holders, a

[19] COCOM04-37 "Renewal of 2G Rights of Use".

[20] COM/2005/0400 final. Communication from the Commission to the Council, the European Parliament and the European Economic and Social Committee and the Committee of the Regions - A market-based approach to spectrum management in the European Union.

fact which is corroborated by ComReg's own analysis contained in Annex E of Document 09/99 "Liberalisation in Other Member States". No other regulatory regime placed an existing operator at risk of losing the total of its 900MHz assignment, which is a potential consequence for Meteor under the Modified Option 1 approach.

ComReg states that differences in national circumstances can justify different approaches to the renewal of licences, which may be the case. However, there are no obvious characteristics particular to Ireland that would necessitate a deviation from the European norm. For the reasons set out above, Meteor had an expectation that its licence would be renewed and the fact that other regulators took this approach shows that it was the reasonable to expect that ComReg would do the same. ComReg has not illustrated what national circumstances justify the adoption of the Modified Option 1 which is wholly inconsistent with the European norm and its earlier position as set out in the ODTR statement.

In 2007, 3 Ireland in consultation with the government on the Government's Proposed Spectrum Policy Framework, relied on the principle of "renewal expectancy" in respect of the issue of licence renewal to promote investors' confidence and provide incentive for long-term investment[21]. Meteor recommends that this is a reasonable approach and that ComReg should consider this principle in the context of the current consultation.

Access to spectrum at 900 MHz is fundamental to the overall operation of Meteor's business. The 900 MHz band offers considerable advantages over higher frequencies in terms of building penetration and coverage: in particular the number of base stations required to build out a network is a lot smaller. In 2000, when applying for its 2G licence Meteor would never have contemplated that following the expiry of its licence in 2015 that it would have to relinquish the spectrum allocated to it.

The reality is that the value placed and the price paid for the 2G licence by Meteor in 2000 and the decision to acquire a 3G licence was premised on the assumption that the duration of Meteor's licence would extend at least until the end of the 3G licence.

The potential consequences to Meteor which could result in the event that it is unsuccessful in its bid for spectrum at 900 MHz would be detrimental.

Meteor strongly advocates that ComReg is consistent in its regulatory policy and approach to spectrum management and retains the assurances communicated by its predecessor concerning the retention of spectrum until at least the end date of its 3G licence. To do otherwise would undermine investment incentive and have significant adverse effect on regulatory certainty in the Irish market. The driving factors for carrying out this consultation are the Liberalisation Decision and Directive 2006/114/EC, neither of which prohibit the extension of existing licences for a reasonable period. Meteor is strongly of the view that an extension of the current 900 HMz licence would: meet a clearly "demonstrable need" of licence holders, be closely aligned with ComReg's statutory

[21] Hutchison Telecom Hong Kong Submission at p.7, citing World Bank (2005) "Mobile Licence Renewal: What are the Issues? What is at Stake?"(http://wwwwds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2005/09/23/000016406_20050923113019/Rendered/PDF/wps3729.pdf)

objectives and support the continued provision of mobile services at a price and quality that would be in the best interest of consumers.

5. Regulatory Impact Assessment (RIA)

ComReg states that it has no strict obligation to carry out a RIA. However, any regulatory intervention must be proportionate and justified, therefore ComReg must assess the impact of any intervention on stakeholders to evaluate its appropriateness. The Ministerial Direction issued to ComReg in 2003[22] specifically stated that: *"Where the Commission has discretion as to whether to impose regulatory obligations, it shall, before deciding to impose such regulatory obligations for the purpose of the management of the radio frequency spectrum, examine whether the objectives of such regulatory obligations would be better achieved by forbearance from imposition of such obligations and reliance instead on market forces."*. Furthermore, ComReg shall "….*shall conduct a Regulatory Impact Assessment in accordance with European and International best practice and otherwise*……." In respect of the Policy Direction on Management of the Radio Frequency Spectrum, ComReg "…*shall ensure that, in its management of the radio frequency spectrum, it takes account of the interests of <u>all</u> users of the radio frequency spectrum*." ComReg has clearly not complied with these Directions in respect of the current consultation.

In light of the significant financial implications of ComReg's proposal, the RIA which ComReg has conducted is wholly inadequate. There is no estimate of potential economic loss; quantification of the improvement in consumer welfare as a result of a competitive auction; or justification of proposed licence fees. Also, ComReg overstates effectiveness of mitigating factors in its rebuttal of issues raised.

[22] Directions by the Minister for Communications Marine and Natural Resources to the Commission for Communications Regulation under s. 13 of the Communications Regulation Act 2002 dated 21 February 2003.

All answers provided below are without prejudice to Meteor's fundamental position that any conceivable solution requiring compulsory release by existing licensees and auction for the assignment of spectrum in the 900 MHz range at the present time would be unreasonable, disproportionate, inefficient and discriminatory, and would undermine the Government's broadband and sustainability policies.

1.(A) Do you agree that ComReg should take all reasonable steps in selecting any auction format so as to ensure a competitive outcome?

Meteor believes that the award process for the 900 MHz band should promote a competitive environment in mobile markets. As highlighted earlier in this response, Meteor fundamentally disagrees that an efficient and proportionate auction format can be established in the context of 900 MHz spectrum. An administrative assignment process as outlined in detail above would best achieve this competitive outcome, at least on an interim basis until ComReg and the Irish Government decide on a coordinated plan for the management of spectrum that is suitable and available for wireless broadband use.

However, if ComReg can establish a legitimate basis for an auction, the auction mechanism chosen must have the best opportunity to realise a fair and balanced outcome, taking into consideration all of the relevant circumstances. This objective should not be subject to consultation but rather is a statutory objective[23]. In particular, the auction design should not introduce distortions to competition in mobile markets.

Meteor would argue that the combinatorial sealed bid design proposed by ComReg encourages non-truthful bidding and will introduce distortions to competition in mobile markets by creating a sub-optimal distribution of spectrum between mobile operators. The proposed design format is, therefore, unacceptable to Meteor.

1. (B) Do you agree that a sealed bid format is the most appropriate approach in this case?

It is Meteor's firm view that an auction to assign the entire 900MHz band is not justifiable. However even if an auction at this time could be legitimately justified, which we do not believe it can, there are substantial flaws in respect of two aspects of the proposed design that render it unacceptable.

[23] In accordance with, inter alia, Section 12(1) (a) & (b) and s 12 (2) of the Communications Regulation Act, 2002.

Concern centres on two aspects of the proposals:

i. The Combinatorial sealed bid design creates incentives for bidders to bid strategically

- ComReg identifies that in the absence of new entrants to the mobile market, the main focus of competition in the auction is likely to arise between 3 Ireland's desire for 2 lots versus the incumbent operators reluctance to accept a single lot.[24] In other words, in the absence of new entrants to the mobile market, the three bidders with the highest marginal valuation for a 2nd lot should win 2 lots each.
- Anticipating the absence of new market entrants, the combinatorial sealed bid auction design creates incentives for operators to bid non-truthfully ✂.....
- ✂.....
- Meteor has provided an example in a confidential Annex to this response ✂.....

ii. ComReg's proposal to allow bids for three lots has potential to create an unnecessary imbalance in spectrum holdings by the major mobile operators

- Meteor agrees with the spectrum cap of 2 lots to prevent blocking of access to spectrum for existing mobile operators and continuity of service provision.
- However, as outlined by ComReg in document 09/99, the award of spectrum at 790-862 MHz (Digital Dividend) is likely to take place at around 2015. There is a high degree of substitutability in service capability between the 800 MHz and the 900 MHz bands. Therefore, bidders must make choices regarding their preference for spectrum in the two bands in the absence of complete information regarding the quantity, structure and timing of spectrum at 800 MHz. Leaving any unsold lots for a later auction including the 800 MHz spectrum provides the maximum flexibility of choice for bidders at that time.
- Having established a spectrum cap of 2 x 10 MHz for this award it would be premature to introduce an imbalance in spectrum holdings prior to the award of digital dividend spectrum.

These two aspects are concerning in their own right and when viewed in combination raise serious questions regarding the auctions ability to achieve an efficient outcome. The combined effect of the two deficiencies could lead to an outcome where an existing operator is left with access to no 900MHz spectrum whilst another operator has access to 2x15MHz in the band. Such highly imbalanced spectrum holdings will be pejorative to the future of mobile competition.

The strategic bidding issue arises in the combinatorial sealed bid auction because the design does not allow bidders to express a preference between the multiple bids submitted (such preferences arise because there are differences in pay-off at the lot clearing prices which are not known at the time of bid submission).

[24] See Section 12.2.2 of the Consultation Document

Meteor believes that this strategic behaviour can be avoided by either:

- The use of a combinatorial clock auction format which inherently encourages bidders to bid rationally according to truthful preferences, or
- A modification to the optimal bid selection algorithm in the combinatorial sealed bid auction format. The introduction of a proxy bidding algorithm could be used to simulate the rational bidding behaviour encouraged by a clock auction.

The benefits of a Combinatorial Clock auction

Meteor would maintain that the benefits of the combinatorial clock auction in the 900MHz band context are that:

- Prices at the end of the clock stage are likely to be close to the final clearing price (under the proposed price determination rules). This means that bidders are able to express their preference for specific packages at this price. This removes the incentives for strategic behaviour identified in Q.1(A).
- The format has desirable properties that encourage efficiency, by encouraging bidders to submit bids that maximise pay-offs. Spectrum is won by those that value the spectrum most.
- It is able to operate with the same safeguards already planned by ComReg to encourage market entry and discourage collusion. For example, with a minimal information policy bidders would not know how many others were participating in the auction or when the clock stage was likely to end.

In addition to the advantages highlighted above, Meteor would stress that a number of integral elements of the combinatorial sealed bid design, as advocated by ComReg, can also be accommodated using the combinatorial clock auction:

- Lot packaging can be accommodated within a clock auction by having two lot categories.
- The currently proposed information policy could be implemented in the clock auction by releasing a minimal amount of information at each round which is limited to the new clock prices only. However, note that Meteor believes that there is high common value uncertainty and that a more relaxed information policy should be adopted that enables better price discovery.
- Early liberalisation of Meteor's currently held spectrum can be facilitated by contingent bidding at a supplementary bids stage following the clock stage.
- The same price determination algorithm may be used as currently proposed for the combinatorial sealed bid auction.
- Qualification and assignment stages would be the same as for the combinatorial sealed bid auction.

With regard to ComReg's concerns regarding the clock auction format, Meteor would highlight the following:

- The clock auction is not complex in the context of the 900 MHz band (as compared to designs for the 2.6 GHz band in other countries).
- The speed of a clock auction can be increased with choice of larger clock increments.
- The clock auction process is inexpensive relative to the size of reserve prices proposed by ComReg. Note that many aspects such as pre-auction documentation, pre-qualification, handling of deposits/payments and the assignment stage are common to both auction designs.
- The clock auction is proven in a number of spectrum auctions and software is readily available.
- The 26 GHz band is not suitable for provision of mobile services and not all industry participants (including Meteor) participated in the 26 GHz auction. Therefore, the assertion, by ComReg, that due to the 26 GHz auction there is industry experience of the auction format is not valid.

Modified combinatorial sealed bid auction

An alternative to the combinatorial clock auction format is to retain the combinatorial sealed bid auction format with a modification to the way in which winning bids are determined. This should also resolve the strategic bidding issue identified.

The winner determination algorithm should simulate by proxy the rational bidding process in a clock auction as follows[25]:

- The algorithm would first establish the marginal valuations for one or two lots implicit within the multiple bids submitted by bidders. Where bidders only submit a bid for 2 lots then the marginal value of the 2nd lot is simply half the total value of the bid.
- Successful bids would be chosen by simulating continuously increasing clock prices for the two lot categories (starting in proportion to the reserve prices), and reducing the bid quantities by each bidder as the marginal valuation for a second lot is exceeded.
- The bids still present at the end of this proxy bidding process would be provisional winning bids and these bidders would be provisional winners. Provisionally unsold spectrum may result from this process.
- The provisional winning bids and all bids from the non-provisional winning bidders would then be used to determine winners of provisionally unsold spectrum and the prices to be paid using Comreg's stated second price determination algorithm.

[25] The idea of using a proxy bidding process is not new. For example, proxy bidding is available for voluntary use on Ebay. Others have proposed a mandatory proxy bidding process. See Ausubel L.M & Milgrom M (2002) "ascending Auctions with Package Bidding", Frontiers of Theoretical Economics 1 (1) Article 1

The proxy winner determination process preserves the advantages of a combinatorial sealed bid process with some of the efficiency advantages of a combinatorial clock auction. Transparency must be maintained by publishing the algorithm in advance of the auction.

Summary of issues relating to an auction format

In summary, Meteor believes that the combinatorial sealed bid auction as proposed creates incentives for strategic and non-truthful bidding, leading to sub-optimal spectrum distribution and risks distorting competition in mobile markets.

The two alternatives that Meteor considers (as above) would be adequate to resolve this strategic bidding issue namely the combinatorial clock auction or a variant of the combinatorial sealed bid auction that uses a proxy bidding process for winner determination based on rational pay-off maximisation.

In addition to these major issues, there are a number of additional points that are common to both auction designs that should be incorporated into the chosen format:

Information Policy

The purpose of revealing the identity of bidders at the end of the main stage is to allow bidders to consider potential neighbour relationships in the assignment stage. The information provided to bidders should include the identity of individual members comprising bidding entities to permit effective consideration of potential bidders.

Deposits

It is noted that ComReg has noted included any proposals to pay interest on deposits held during the auction. Interest on deposits should be deducted from any administrative fees charged.

2. Do you agree that a "rebate" in respect of the remaining term of a licence should be provided for in ComReg's auction design?

Meteor agrees that a rebate should be provided for an operator choosing to release GSM spectrum before the license expiry date. Meteor agrees with DotEcon's assessment in its report that absent early liberalisation for Meteor, "O2 and Vodafone could have access to 3G spectrum at 900 MHz from 2011, whereas Meteor might not have access to 3G spectrum at 900 MHz until 2015… This risks distorting competition in advanced wireless data services…" The rebate proposal will help avoid these competitive distortions and create incentives to bring liberalisation to the band earlier, conferring any associated benefits to consumers and operators and supporting the goals of the EC Decision and the EC Amending Directive.

3. What factors should ComReg consider in calculating any such rebate?

Meteor agrees with the ComReg and DotEcon proposals for an objectively justifiable and simple rebate calculation based on the original purchase price of the license, its remaining term and an amortisation schedule.

Specifically, ComReg argues that the rebate must determined in a manner that is objectively justifiable and suggests that it be linked to the original purchase price and the remaining unexpired term assuming some amortisation schedule. Meteor wholly supports the proposal to offer a rebate to compensate for the early return of any 900MHz spectrum. Meteor sets out below its proposed mechanism for determining the appropriate rebate amount. Meteor believes that this proposal: (i) is objective; (ii) is justified (iii) creates the right incentives for early liberalisation; and (iv) prevents a distortion of competitive conditions between operators.

In 2000 Meteor acquired a 15-year GSM licence. On the assumption that liberalisation will take place in May 2011 the unexpired term of that licence is approximately 4 years. To determine the rebate amount, one must first determine the proportion of the total licence price that can be attributable to the C and D block spectrum being liberalised. Of course, Meteor expects to be reimbursed for only that period of time that the GSM licence is not available to Meteor. This creates the base amount for the reimbursement.

Once this pro-rated purchase price is determined, Meteor recommends that a standard compound interest calculation be applied to determine the value in 2011 of the payment made to ComReg in 2000, assuming a given cost of capital. This means of calculation is consistent with the approach taken by DotEcon to derive the SUFs for the upcoming 900MHz auction.

To summarise, Meteor's proposed determination of the rebate is based on the following inputs, the application of which is explained in detail below:

1. The purchase price
2. The portion of the purchase price that is attributable to Meteor's two 900 MHz licenses

3. The cost of capital

4. The unexpired period of Meteor's GSM licences.

Below we will discuss these inputs and illustrate how each impacts the appropriate rebate amount.

The Purchase Price

1. On 19th June 2000 Meteor was awarded a Telecommunications Act licence upon payment of €14,601,987 (IR£11.5m) which related to the provision of services at both 900 MHz and 1,800 MHz. On 13th July 2000 Meteor was issued the Wireless Telegraphy Act (WTA) licence for 2x4.8MHz of 900MHz spectrum and 2x14.4MHz of 1800MHz spectrum. On 31st January 2001, Meteor's WTA licence was amended with the addition of 2x2.4MHz of 900MHz (see ODTR01/04). Meteor paid for a total of 2 x 7.2MHz of 900MHz a spectrum access fee of €1,587,173(IR£1.25m).

   Given the separate payment dates, we will perform two sets of calculations, one for the first grant (19th June 2000) and one for the second grant (31st January 2001).

   The Portion of the Purchase Price that is attributable to the 900 MHz licence

2. ✂……

4. Do you have any comments on the setting of minimum prices or the benchmarking process employed by DotEcon and proposed to be adopted by ComReg in arriving at a minimum price?

Comreg has set the minimum price to be paid for liberalised 900 MHz licences, where this price will equal the sum of the reserve price and the net present value of annual Spectrum Usage Fees (SUFS), based on auction benchmarks. ComReg has indicated that it wishes the level of the minimum price to be set taking account of the following factors:

- The minimum price should not give rise to or increase incentives for collusive behaviour
- The minimum price should deliver a fair return to the state for the use of this finite natural resource and the price of spectrum should reflect its economic value to the user
- The minimum price should not be so high as to choke off demand
- The minimum price should not be set so low that there is participation by frivolous bidders
- The minimum price should not reflect any social option value
- The administrative costs of running the award process should be recovered from the minimum price set.

In its determination of the minimum price for the reward ComReg places particular emphasis on the likelihood that there will be relatively few participants in the auction and the issue of collusion. It considers that it is necessary to set a minimum price at the high end of estimates of the marginal bidder's spectrum valuation (i.e. the lowest winning bidder's valuation) at €30m.

It is Meteor's view that this value is excessively and unjustifiably high for the following reasons:

- DotEcon's value implies a value of $US1 per MHz per head of population which is high relative to international auction results. (See Figures 1 and 2 below).
- The dataset used by DotEcon includes auction results from the year 2000 on. The values are based on market expectations at the time which do not reflect the current depressed state of the Irish economy which has lead to declining operator revenues.
- DotEcon's econometric analysis which gives benchmarks in the range from €16.7m to €26.1m, is likely to give a more reliable estimate of market value than simple averages because some of the drivers of inter-country differences are taken into account.

Consideration of international practice suggests that the minimum price should be set at a 50% discount to the chosen auction benchmark, because of uncertainty concerning market values and to encourage participation in the auction so spectrum is not left fallow. Using the range of €16.7m to €26.1m and applying the 50% discount, suggests that the minimum price should be set in the range €8.4m to €13m. The depressed state of the Irish economy suggests values towards the bottom end of this range would be more appropriate.

Following DotEcon's recommendation that the reserve price should be set at about 50% of the minimum price (with the remaining 50% being the NPV of the SUF) this implies that the reserve price should be set in the range €4.2m to €6.5m. We suggest a value of €5m.

A more detailed reasoning is set out below.

ComReg's proposed minimum price for the award, set at €30m is high by international standards and by ComReg's own admission is "at the higher end of the benchmark range proposed by DotEcon".

In Figure 1 we have plotted it against auction benchmarks for 700/800/900 MHz spectrum and in Figure 2 we have plotted auction values for 2.1 GHz spectrum represented as a simple value/MHz/pop in $US. The recommended value of €30m for a 2x5 MHz licence gives a value per MHz per pop in $US of $1.0).[26] Inspection of the graphs shows how high this value is relative to other precedents.

Amongst recent auctions, the US 700 MHz and the Canadian AWS auctions gave a somewhat higher values though in both cases the auctions were held before the current economic crisis which will have depressed values. In addition we note that the Canadian mobile market is highly profitable

[26] Assuming a current exchange rate of $1.4 to the Euro and Irish population of 4.203m (as assumed by Dotecon). Although we note that the official population estimate as of April 2009 was 4,459,300.
http://www.cso.ie/releasespublications/documents/population/current/popmig.pdf]

with operators earning on average an EBITDA of over 50%[27]. This is the highest such ratio for a developed country in the Merrill Lynch survey of the mobile sectors of 44 countries.

Figure 1:

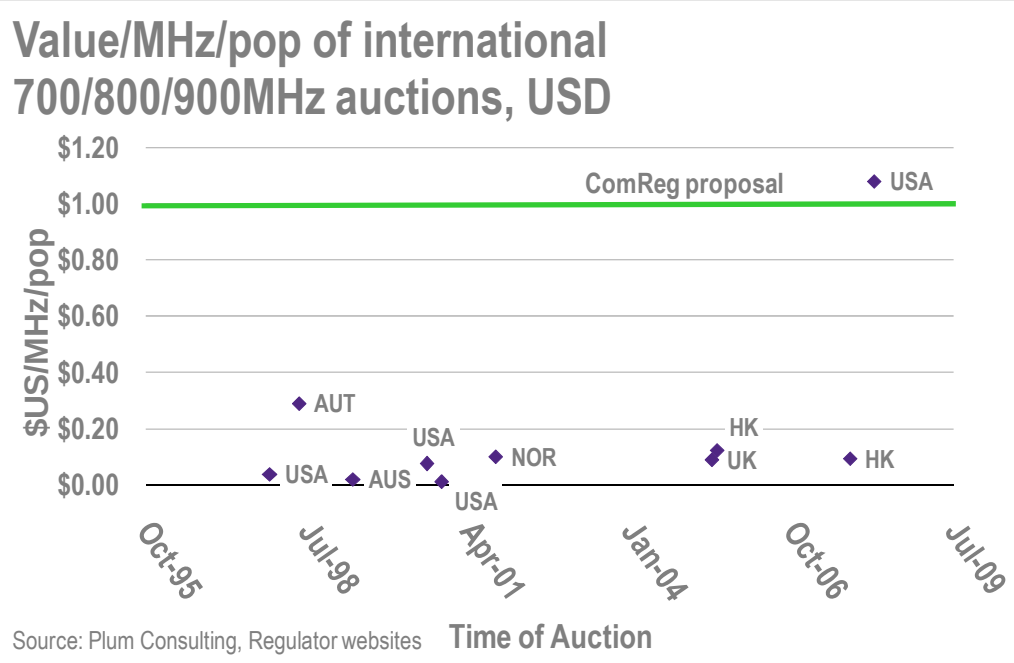
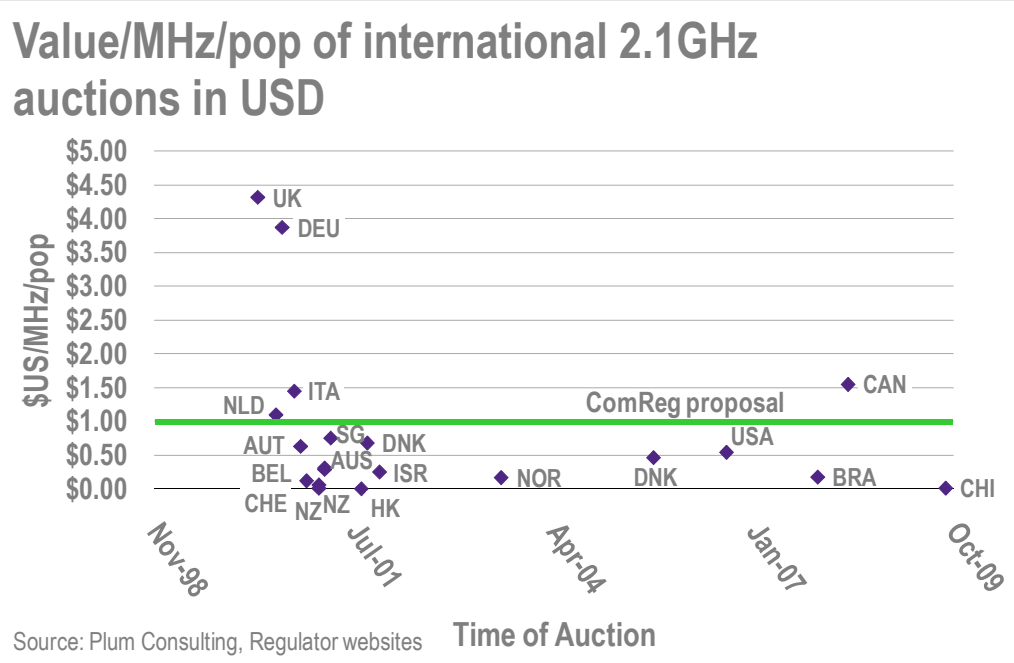


Figure 2:



Reliable benchmarking requires good "like for like" comparisons.

[27] Merrill Lynch report Canadian operators having an average ratio of EBITDA to service revenue of 51.9% for the calendar year 2008. This is the highest such ratio for a developed country in the Merrill Lynch survey of the mobile sectors of 44 countries. Global Wireless Matrix 2Q09, Merrill Lynch, September 2009.

DotEcon has derived estimates of the value of liberalised 900 MHz spectrum using the results of auctions in other countries for mobile licences as benchmarks. It chose to adopt the benchmarking approach rather than modelling the value of the business opportunity offered by a spectrum licence to the marginal bidder, on the grounds that this provides a more reliable approach because the "*sources of value [for liberalised 900 MHz spectrum] are highly dependent on how demand for data services is expected to grow, the importance of the competitive marketplace places on certain aspects of service quality and, indeed, how incumbent operators currently configure their networks*". [para 464]

The problems that can arise in using market benchmarks, whether historic or from other countries, as an indicator of value are demonstrated by the disputes that arose in the UK over the value of spectrum to be used by Ofcom to set regulated mobile termination rates. Ofcom's decision to base values (in 2007) on the results of the auction of 2.1 GHz spectrum (held in 2000) was disputed by BT and Hutchison and referred to the Competition Commission. The Competition Commission concluded that[28] while using values that promoted efficiency was a valid approach:

- Auction fees from 2000 were a problematic guide to the forward-looking value of spectrum because of differences in market expectations between 2000 and 2007 (para 2.5.43).
- Econometric analysis which assessed the determinants of spectrum auction prices from Europe and elsewhere was not sufficiently robust to provide a foundation for reaching conclusions concerning spectrum value.

This experience indicates the need for caution in drawing inferences from auction benchmarks from a range of countries for auctions held at different times. It also illustrates the uncertainty inherent in analysis techniques and the need to adopt conservative valuations from the range of calculated values.

In its work for Comreg, Dotecon established a range for the minimum prices for the licence auction by examining benchmarks from auctions of mobile licences in numerous other countries. Its first approach to estimating minimum prices was to estimate *average* prices in comparable auctions. Using a database of auction results from 2000 five averages were computed for:

- All mobile licences sold in an auction
- All mobile licences awarded in European countries
- All mobile licences awarded in countries with GDP similar to Ireland
- All GSM900 and GSM1800 licences in the dataset
- All 3G licences in the dataset.

It should be questioned why Dotecon uses all of these different averages in drawing conclusions. If some comparators or sets of comparators are more relevant than others (because conditions are more like those being considered in the 900 MHz band in Ireland) then surely they should be used to

[28] http://www.catribunal.org.uk/files/CC_determination_1083_H3G_1085_BT_220109.pdf

inform Dotecon's conclusions and not others. Meteor would maintain that there is no attempt here to get good "like for like" comparators.

Benchmarks from pre-recession auctions are likely to overstate spectrum value today.

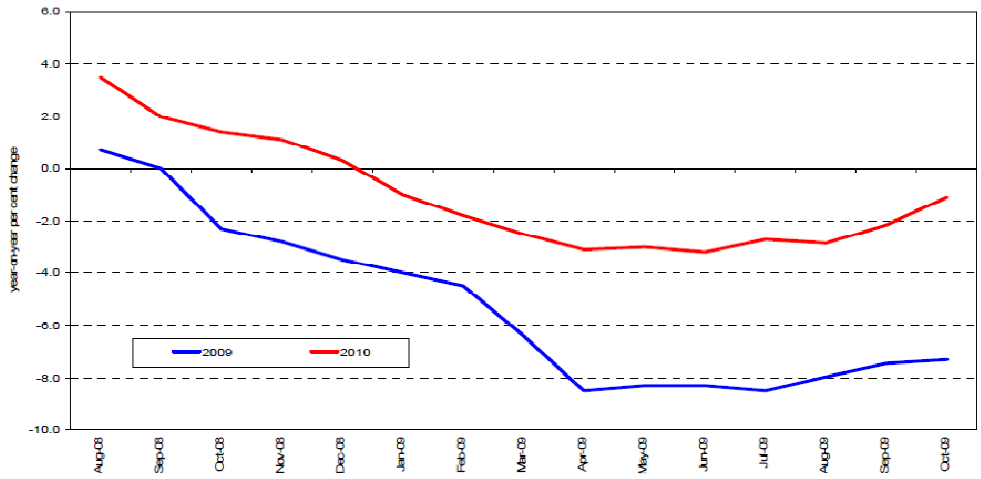
Spectrum values are determined by the *expectations* of bidders concerning future revenue and costs over the duration of the licence. Expectations today are likely to be very different from those of operators before mid-2008 when the current recession started.

Expectations about the future demand for mobile data services, the future spectrum supply and the potential to earn revenues from mobile telephony are now very different from those held even several years ago. In the ten year period until 2008 most of the developed world, including Ireland, experienced strong and consistent economic growth. However, since mid-2008 all economies have been in recession. In Ireland the economic situation is particularly severe. For example an IMF report in 2009 stated that[29]

"*The Irish economy is in the midst of an unprecedented economic correction. The stress exceeds that being faced currently by any other advanced economy and matches episodes of the most severe economic distress in post-World War II history.*"

The loss of confidence in the economy can be seen in the following graph (Figure 3) which compares consensus forecasts for 2009 and 2010. At the start of 2008 forecasters expected low but positive growth in 2009 and much stronger positive growth in 2010. Expectations fell rapidly for both 2009 and 2010, with the outturn for 2009 showing real GDP falling by 7.5%. The Department of Finance in Ireland[30] reports that the outlook for 2010 is continued negative growth (-1.5%) and only by 2011 will there be positive growth for the year as a whole.

Figure 3: Consensus GDP forecasts for 2009 and 2010 from August 2008 on[31]



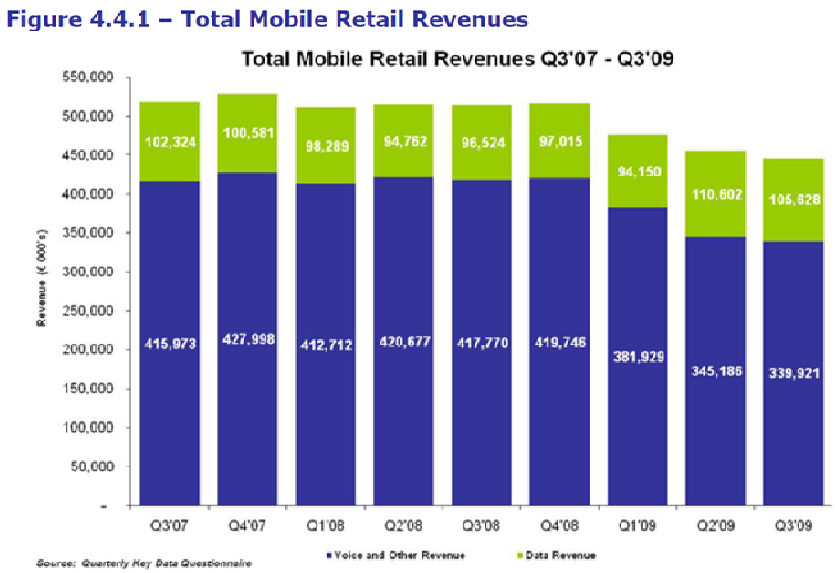
[29] http://www.telegraph.co.uk/finance/economics/5638961/Irish-economy-is-worst-hit-by-downturn-IMF-claims.html

[30] Pre-Budget Outlook, November 2009, http://www.finance.gov.ie/documents/publications/prebudget09/PBOfinal.pdf

[31] Reported in Pre-Budget Outlook, November 2009, http://www.finance.gov.ie/documents/publications/prebudget09/PBOfinal.pdf

The effects of the recession are reflected in sharp declines in personal consumption, including spending on mobile services. Mobile operator revenues fell by 6.4% (in nominal terms) between the fourth quarter of 2008 and the third quarter of 2009 (see Figure 4).

Figure 4[32]:



This data suggests that even in relatively recent auctions bidders will have been more optimistic than is now the case suggesting the auction results may overstate current spectrum valuations. This must be taken into account when interpreting DotEcon's analysis.

Econometric analysis should give better "like for like" comparisons than simple averages

DotEcon seeks to control for the factors that may differ by country by undertaking regression analysis on three datasets:

- All mobile licences
- Auctions in Europe
- All GSM auctions

This should give estimates that better reflect the situation in Ireland than simple international averages and as such should provide the starting point for consideration of values. The range of values from the econometric analysis is €16.7m to €26.1m is therefore more appropriate than the range of values (€22m to €34m) obtained from simple averages.

[32] Quarterly Key Data Report, Data as of Q3 2009. Document No: 09/101, Comreg, 21st December 2009

Irish 3G licence benchmarks could overstate the minimum price for 900 MHz licences.

A further benchmark examined by DotEcon is the average licence fee paid by incumbent 3G operators in Ireland. They state this has a value of €22.3m for a 2x5 MHz licence. Operators were willing to pay this amount for:

- The opportunity of providing 3G services and in the case of Hutchison to facilitate market entry. It is now the case that all four incumbents in Ireland have 3G spectrum already therefore the 900 MHz could be considered of incremental value, albeit with some propagation advantages.
- An opportunity in much more favourable economic times. As discussed above the severe economic downturn will have reduced operators' ability to pay for spectrum.

DotEcon notes that the amounts paid by the Irish 3G operators were lower than the international auction average it computes of €33.6m. However, this average is a very misleading indicator of value as it includes the very high values paid in some European countries in 2000. As discussed above Comreg's proposed value of €30m is on the high side of international benchmarks.

The minimum price (i.e. reserve price plus SUF) should be set at a 50% discount to the auction benchmark.

DotEcon observes (para 492) that international regulatory practice shows that:

- The ratio of reserve prices to minimum price achieved in spectrum auctions in their data set has an average value of just over 50%
- Practice varies across countries and therefore one should not treat average behaviour as reflecting typical behaviour – although DotEcon does not comment on what might constitute typical behaviour.

However, regulators do not typically set the reserve price at 100% of the expected minimum price otherwise the average reported by DotEcon would be closer to this level. There are good reasons why regulators do not set reserve prices (plus SUFs) at the estimated minimum price. There will be errors in judging outturn prices and so setting a relatively high reserve price runs the risk of deterring bidders and so undermining the auction[33] –spectrum is left idle because bidders who would have been assigned it at a lower reserve do not enter the auction.

Hence international good practice suggests that it would be prudent for ComReg to set the sum of the reserve and SUFs well below the estimated minimum price. The level of the fraction chosen should depend on the specific circumstances of the auction. Lower fractions should be chosen where there is considerable uncertainty over market values (as is the case here –see below) and the regulator wishes to encourage participation in the auction.

The 50% value observed by DotEcon provides a good rule of thumb and we recommend that ComReg reconsiders its approach here.

[33] Dotecon also recognise the uncertainty in estimating minimum prices but do not follow this to the logical conclusion that this means reserve prices should be set well below any estimates. [para 464]

The minimum price benchmark should be in the range €8.4 to €13m.

We strongly recommend that Comreg adopts a the benchmarks implied by DotEcon's econometric analysis for the value of a 2x5 MHz licence and apply a 50% discount to give a minimum price of €8.4-13m. This would seem to give the best chance of a competitive auction and to reduce the risk of spectrum being left idle which would clearly be an inefficient outcome.

5. Do you have any comments on the structure on the reserve prices and spectrum usage fees?

In the context of an auction process Meteor acknowledges that there can be merit in establishing reserve prices and SUF price levels respectively at 50% present value of the minimum price. A balance needs to be struck between discouraging frivolous or non constructive speculative participation in an auction and facilitating near term investment in infrastructure development. This is discussed in more detail in the response to Question 6.

6. Do you have any views on Comreg's proposed deferred payment scheme and the indexation that will apply?

Global financial markets continue to be in a state of turmoil. While there are some early signs of recovery it is by no means clear how and when stability will return. In the near term network operators' access to capital markets will be constrained relative to the position only a few years ago. At the same time traditional network operator trading revenues have declined and the decline has not been off-set by the growth of new mobile data services (as can be seen in Figure 4, above). In this constrained environment every Euro that is taken by the State in the near term is a Euro that will not be invested in the evolution of mobile networks and the provision of higher speed mobile data services with a broader reach for the citizens of Ireland.

Meteor believes that a balance must be struck in the near term between the payment of spectrum fees and the necessary investment that must be made by network operators to facilitate the Government's objective of a smart economy. This can be achieved through a deferred payment scheme or a smoothing of licence fee payments over the duration of the licences.

Meteor appreciates that one of the justifications for higher upfront payments may be to deter frivolous or speculative participation in the proposed auction process. However, against the unprecedented back-drop of uncertainty in global financial markets, ComReg should adopt an alternative way to 'test' the bona fides of potential new entrants and this could be achieved by undertaking a pre-qualification phase for new entrants wishing to enter the award process. Such an approach would mitigate the need to impose high upfront licence fee charges, thereby encouraging capital investment in the rollout of advanced mobile data services in line with the Government's objectives.

This is best achieved by phasing the payment of any excess over the reserve prices over the duration of the licences. The proposed deferred payment scheme is a modest step in this direction. If a pre-qualification phase is adopted to verify the bona fides of potential new entrants at the start of the process then all of the excess could be phased over the duration of the licence rather than 50% of the excess over a three year period.

Meteor notes ComReg's indexation proposal to use a coupon rate of 12% in any deferred / phased payment scheme, however, considers a rate of 12% to be outrageous coupled with the fact that it offers no flexibility to investors. To the extent that indexation may apply, it should be based on Irish Government bond yields representing the opportunity cost to Department of Finance of deferred payment.

7. Are there any other approaches ComReg should consider to mitigate any potential for auction disruption arising from the current financial and economic climate?

As outlined in detail in the Introduction section to this response, Meteor would argue that a mediated administratively assigned process should be the most appropriate method on which to assign future access rights to 900 MHz spectrum in the current environment. Detailed reasoning for this approach is set out in the Introduction and Statement of Meteor's Position (p. 5-19).

8. (i) Do you agree that Meteor's continuing presence (within its current assignment of 892.7 – 899.9 MHz paired with 937.7 -944.9 MHz) has the potential, depending on the auction outcome, to have a detrimental impact on future liberalised use of Block E or any other block in the 900 MHz band?

Meteor does not accept that its continued presence within the above frequency bands will have a detrimental impact on the future liberalised use of Block E or any other block in the 900 MHz band. However, this can only be achieved if ComReg permits a down tune by one channel, i.e. extending Meteors license to 892.5MHZ/937.5MHz.

For the sake of clarity ComReg should specify the ARFCN's and UARFCN's proposed to be licensed across each block, clearly showing any raster impacts for GSM services bordering with other technologies.

(ii)Do you agree with ComReg's proposal that, if the circumstances justify it, Meteor's assignment should be adjusted post-auction? Are there any other issues which should be considered?

Meteor considers any adjustment to its frequency assignment would be a variation to its current licence. Without prejudice to that position, we offer the following comments.

Any frequency adjustment post auction will involve considerable downtime during the retune, frequency planning, drive testing and associated costs. All of which will need to be taken into consideration by ComReg if such a situation arises. Whilst Meteor could accept a certain degree of re-tuning, Meteor would not accept any reduction in the total number of frequency channels allocated. Neither could Meteor accept moving existing services entirely out of its currently assigned blocks.

Q.9 (i) In the event that Meteor's existing frequency assignment must be adjusted post auction, please provide an estimate of the costs which might reasonably be incurred by Meteor in doing so? (ii) Please identify any proposal as to whether and, if so how, Meteor should be fairly and reasonably compensated for any such costs, having particular regard to ensuring that costs would be objectively justified, proportionate and independently verifiable.

There are considerable costs that require evaluation in adjusting any frequency assignment, these include: downtime during retune; frequency planning; and, drive testing. An estimate of all costs is included in a confidential Annex to this document. All costs provided are, however, estimates and more detailed analysis will need to be carried out if such a scenario arises. In addition, it should be noted that Meteor cannot quantify any customer impacts, (i.e. loss of subscribers if there is temporary degradation during retune and optimisation drive testing).

In the event that such a situation arises, all such costs should be reimbursed to Meteor from the proceeds of the auction.

It should also be noted that there is an opportunity cost in respect of the resources that would be required to adjust Meteor's frequency assignment to accommodate other users of the band. Other commercial initiatives being undertaken by Meteor may suffer as a consequence. Given that there may be some debate as to the relevant costs, and taking into account opportunity cost considerations, there may well be merit in the re-tuning exercise being outsourced to a qualified third party in the interest of transparency and fairness.

Questions 10-36

The following questions posed by ComReg all relate to future licence conditions in liberalised environment and many of the issues highlighted by Meteor in response to questions posed apply irrespective of whether spectrum is awarded by auction or administrative assignment. In addition to the specific issues raised by ComReg, Meteor would contend that further clarity is required by industry in general on renewal of liberalised licences. Finite licence duration is not consistent with liberalised use and provides little certainty for industry on return on investment.

It is also noted that ComReg has failed to address the issues of spectrum sharing and trading, again failing to embrace the opportunity to be progressive and at the forefront of EU spectrum licensing development.

Q. 10 Do you agree with ComReg's technology neutrality proposal which does not mandate the deployment of any particular technology?

As stated in response to each of ComReg's previous consultations on the future use of the 900 and 1800 MHz bands, Meteor agrees that mobile spectrum licences should maintain the principle of technology neutrality, subject to appropriate measures to mitigate the risk of harmful interference while promoting the efficiency of international harmonisation. Meteor would stress that such technologies are approved by CEPT and added to the Annex of the Commission Decision of 16 October 2009 on the harmonisation of the 900 MHz and 1800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community (2009/766/EC).

Q. 11 Do you agree with ComReg's service neutrality proposal which does not mandate the provision of any particular service or services?

As stated in previous responses, Meteor agrees with ComReg's service neutrality proposal which does not mandate the provision of any particular service or services. Concern remains, however, over the proposal to apply quality of service thresholds to particular services, i.e. voice and broadband. Meteor would maintain that additional mandated conditions of service may have an adverse impact, ultimately limiting the scope of services provided to the market. If, however, quality of service standards can ultimately be deemed necessary, it is arguable that they should apply across the range of services that could be offered using radio spectrum. We expand on this point further in response to subsequent questions.

Q. 12 Do you agree that it is appropriate that coverage and roll-out licence conditions should be included in future licences for liberalised 900 MHz spectrum?

As stated in previous responses Meteor does not in principle object to the continued application of coverage obligations, however, care must be taken to ensure that appropriate targets are established. Meteor agrees with ComReg's view[34] that "If the coverage level is set at an inappropriate level, the competition for a new 900MHz licence may be reduced as some potential licensees may not be able to meet this requirement".

It is also noted that in reaching its conclusion regarding coverage obligations ComReg considers that competitive forces may be insufficient to deliver and maintain a level of coverage that is in some way deemed acceptable. It is not clear what criteria have been used to determine "an acceptable level of coverage", nor what assessment of competitive forces has been undertaken. As is noted by ComReg there will be geographic areas within Ireland where it is uneconomical for operators to provide coverage in a competitive market. It is highly questionable, therefore, that societal objectives regarding universal availability of communications services should be approached in the manner proposed by ComReg in the absence of any reasoned analysis.

Q. 13 Do you agree with ComReg's proposal to define a distinct field strength level for each type of technology deployed in the liberalised 900 MHz band?

In order to invoke a truly technology neutral licensing regime, all aspects of the licence should, as far as possible, be independent of the technology being used by the licensee. The only exception to this would occur when there is a need to avoid harmful interference. Coverage should, therefore, be defined on the basis of the availability of services offered by an undertaking, provided that the minimum internationally recognised service quality measures apply. For example, in the case of voice services, the speech transmission quality should comply with the technical specifications of ETSI. This would also simplify the assessment of coverage obligations while ensuring that targets remain customer centric regardless of the service on offer or the underlying technology that is being used.

With regard to data speeds, Meteor appreciates that advancements in 3G data speeds has overtaken the licence conditions that were set three or more years ago and that targets in excess of 144Kb/s need to be established. It is, therefore, clear that market forces are functioning effectively and no evidence has been presented by ComReg to the contrary.

Q. 14 In relation to each category of future new 900 MHz licensee - (1) existing 900 MHz mobile network operators, (2) existing non- 900 MHz mobile network operators, and (3) new entrants -should there be symmetric or asymmetric coverage and roll-out conditions?

Meteor believes that if coverage obligations can be objectively justified symmetrical licence conditions should be applied. As outlined in the DotEcon report to ComReg, and supported by Meteor, symmetrical licence conditions avoid long term competitive distortions, simplify the licence award process and reduce the risk of introducing bias in the auction design. The fact that, to date, most international spectrum wards have applied symmetrical coverage and roll-out conditions, bears witness to this approach as common and accepted practice.

In rejecting asymmetry as a regulatory tool, it is important to emphasise the adverse impact that applying differing licence conditions to operators providing competing services could have on the overall development of the mobile market and why such an approach has not been adopted in other jurisdictions to date.

ComReg states in the consultation document that the application of asymmetric conditions would encourage the widest availability of services. Although the widest availability of services must and should be encouraged, Meteor fails to understand or to be convinced that the use of asymmetry of licence conditions is the appropriate regulatory tool to achieve this aim. Wholly to the contrary Meteor would argue that the application of asymmetry would, in fact, distort the market and ultimately may have adverse impact on the provisions and availability of services. Indeed, in order to maintain the current competitive dynamic thereby meeting ComReg's social objectives, symmetrical rollout and coverage conditions would encourage new entrants to match the high levels of coverage we see today, within a reasonable timeframe.

In the report produced by DotEcon it is interesting to note that the only concern raised as to why asymmetry may be the preferred route was that, once new licences are awarded, existing voice coverage and associated emergency call coverage offered by current GSM licensees may be compromised. Meteor would maintain, however, that the very fact that existing GSM operators have all well exceeded coverage obligations contained in individual licences more than counters this view. Moreover, in the case of 3G technologies, efficiencies extend beyond increased capacity and service to enhanced service propagation, thus resulting in coverage improvements for a given number of sites. This is before taking account of the incentives to rollout further marginal sites which become viable as a result of the same efficiency gains.

In summary, symmetrical rollout and coverage conditions would ensure that distortions are avoided both in the auction design in the short term and to the competitive mobile market in the longer term. Indeed, Meteor would argue that symmetry is required to ensure operators can ultimately move to a generic licensing regime and hopefully spectrum trading. The risks associated with asymmetrical conditions are numerous, very real and must be avoided.

Q. 15 Do you agree with ComReg's proposal to allow multiple frequency bands to count towards a 900 MHz band coverage obligation?

Meteor agrees in principle with the proposal to allow multiple frequency bands to count towards a 900 MHz band coverage obligation.

As is highlighted elsewhere in this response and in previous representations, a more strategic and joined up approach must be adopted in respect of spectrum regulation in Ireland. The WAPECS framework recognises that operators may utilise multiple frequencies and technologies in their network to support the provision of electronic communications services to end-users. Furthermore EC spectrum reform initiatives recognise that market players are better placed to determine the optimal use of the spectrum resources at their disposal.

Meteor welcomes the pro-liberalisation nature of this proposal. However when this positive step is viewed within the overall package of proposals in respect of licence obligations we are concerned that in reality ComReg remains wedded to a command and control philosophy in its approach to mobile spectrum regulation.

Q. 16 Apart from the 1800 MHz and 2100 MHz bands do you believe that there are other frequency bands (e.g. Digital Dividend, 2300 MHz, 2600 MHz, etc.) that can deliver seamless services in conjunction with the 900 MHz band and could be added over the lifetime of the licence to the list of multiple frequency bands?

Meteor believes that other frequency bands such as Digital Dividend, 2300 MHz and 2600 MHz could deliver seamless services in conjunction with the 900 MHz band.

The potential presented by the liberalisation of these bands formed the basis for Meteor's response to the previous two consultations for a co-ordinated approach to the liberalisation of the 900MHz band. In progressing on the basis of an auction of the 900 MHz band in isolation from both the 1800 MHZ band and alternative spectrum options, Meteor would argue that the regulator undermines the very delivery of future wireless services that is so required. Indeed, Meteor would maintain that the proposed auction format will produce a result that will have long-term adverse consequences not only for the industry but also for mobile customers and the Irish economy

Q. 17 Provided that asymmetric coverage obligations are set in the 900 MHz competition, do you agree with ComReg's proposal that the existing 900 MHz mobile network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date?

As stated in response to question 14, Meteor does not believe that asymmetrical licence conditions would be appropriate.

Q.18 Provided that asymmetric obligations are set in the 900 MHz competition and the aggregation of coverage across multiple frequency bands is allowed, do you agree with ComRe's proposal that the existing mobile (non-900 MHz) network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date?

As stated in response to question 14, Meteor does not believe that asymmetrical licence conditions would be appropriate.

Q.19 Do you agree with ComReg's proposal that a new entrant should meet a minimum coverage level of 30% geographic coverage within 4 years of the licence commencement date, 70% geographic coverage within 7 years of the licence commencement date, and 90% geographic coverage within 10 years of the licence commencement date?

As stated in response to question 14, Meteor does not believe that asymmetrical licence conditions would be appropriate. Furthermore, Meteor disagrees with ComReg's proposal to establish an ultimate minimum coverage obligation of 90% geographic coverage.

The proposed geographic target of 90% gives rise to fundamental questions of discrimination and inequity if applied asymmetrically. Even if applied symmetrically it would still be likely to fail a proportionality test, given that the existing coverage obligations have been overtaken by market forces while the liberalisation of the 900MHz band is likely to result enhanced coverage without the need for regulatory intervention.

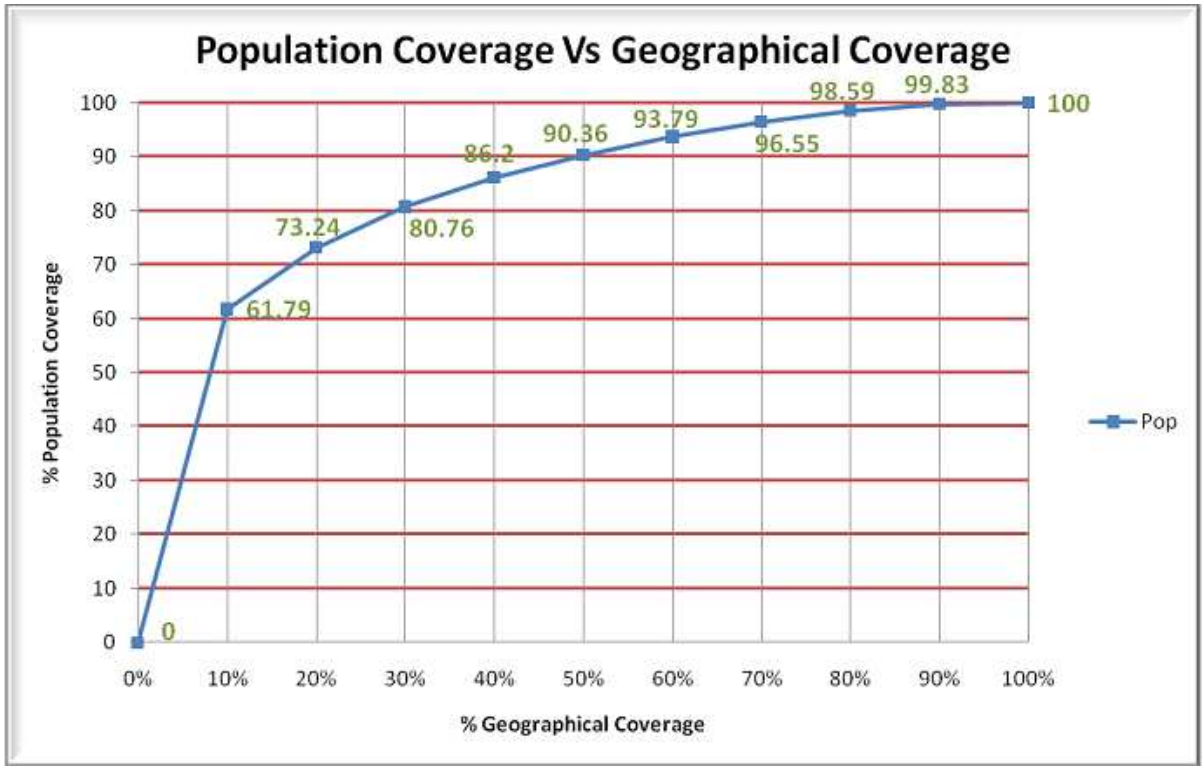
In paragraph 643 of the DotEcon report, a medium level coverage obligation is recommended, sufficient to provide service to 50% to 70% of the population which could apply to the provision of voice and/or mobile broadband services. DotEcon's conclusion follows a reasoned assessment of coverage obligations and international best practice. Furthermore, DotEcon observes that the obligations contained in the current Irish 2G licences ranging from 80% to 99% population coverage

are high by comparison to those identified in Table 18 of the DotEcon report while the report recommends a lesser focus on voice services.

Meteor would tend to agree with DotEcon's recommendations in this respect, to the extent that coverage obligations can be demonstrated to be necessary.

However DotEcon has erred in its subsequent discussion of roll-out obligations. At paragrapg 658 of its report DotEcon suggests that rollout milestones should be set at 25-30% and 50-70% geographic coverage "given the level of coverage obligation recommended." As we demonstrate in the chart below the DotEcon recommendations in respect of population coverage and geographic roll-out are not consistent.

The errors in analysis are further compounded by ComReg's arbitrary determination that the ultimate geographic coverage target should be set at 90%. This is an exceptionally aggressive target which flies in the face of the cautious approach recommended by DotEcon particularly in respect of mobile broadband coverage where the economics of provision have yet to be fully understood.



ComReg's 90% geographic coverage equates to near universal provision of mobile services in Ireland despite the fact that the provision of same may in some cases be uneconomical.

State subsidy in the form of the National Broadband Scheme (NBS) is propping up the delivery of broadband to 10% of the population residing in the remaining 33% geographic area where, supposedly, the provision of commercial broadband is considered uneconomical, and this in particular undermines the case of such an onerous coverage obligation. Requiring all operators to

achieve 90% geographic is neither efficient (forcing three or more operators required to build uneconomical sites) or fair (H3G has inherent advantage due to NBS)

ComReg must also account for the interplay between minimum prices and minimum coverage obligations. As highlighted earlier in response we believe minimum price is fundamentally flawed and is likely to exceed economic value in Ireland. Furthermore, minimum prices have not been adjusted for cost of providing uneconomic coverage. As highlighted by DotEcon excessive coverage requirements like excessive minimum prices would ultimately undermine the competitiveness of auction and may discourage participation.

To the extent that coverage and rollout obligations can be objectively justified, which to date they have not, the targets should be set in accordance with DotEcon's recommended coverage in the region of 50-70% of the population.

Q.20. Do you believe that coverage via national roaming agreements should be allowed to count towards a 900 MHz coverage obligation and if so, to what extent?

Meteor does not believe that coverage via national roaming should be allowed to count towards spectrum licence coverage obligations. If the intended aim of the regulator is to promote use of the spectrum then including coverage via national roaming runs contrary to that aim. That is not to say that operators should be precluded from relying on some degree of national roaming coverage in the provision of their commercial services, for example the provision of coverage in areas where the economics of self provision are questionable. This is why it is important to establish realistic and economically viable obligations in spectrum licences. This is acknowledged in ComReg's scene setting but ComReg has singularly failed to undertake any meaningful analysis to demonstrate that its proposals are objective, proportionate and non-discriminatory.

A degree of flexibility is required over and above the freedom to utilise alternative spectrum bands in delivering seamless service. This should not be limited only to national roaming but should also include spectrum sharing in order to improve the economic viability of serving sparsely populated rural areas.

Q.21. Do you agree with ComReg's proposal to include a €2 million performance guarantee against the coverage and roll-out obligations in any new 900 MHz licence issued?

As outlined in response to question 12, there should not be any need for such guarantees. Such a requirement would merely create un-necessary overhead for the Licensees and indeed ComReg in maintaining and ultimately releasing these guarantees. In Meteor's view the threat of a fine coupled

with the ultimate threat of licence withdrawal would be equally effective while carrying a far lower overhead cost of regulation than that which would result from guarantees. Such overhead cost would only be brought to bear in the case of a default and based on ComReg's experience of the existing licensing regime, the likelihood of a default is minimal.

Q.22. Do you agree with the outcome of the draft RIA that QoS standards should be imposed as a safeguard measure to overcome the potential market failure which may exist in communications markets?

It is generally accepted that quality of service is driven by the highly competitive nature of a given market. Meteor cannot accept, therefore, ComReg's suggestion that safeguard mechanisms are required to mitigate against the possibility of market failure with respect to quality of service.

In ComReg's Regulatory Impact Assessment (RIA) one of the disadvantages posed with respect to not having Quality of Service (QoS) obligations is that consumers may be unable to identify whether poor QOS is on their host network or other networks. Meteor would argue that this argument is weak, as consumers can generally distinguish between on-net and off-net calls. If any one network were to offer a degraded service quality, this should become immediately apparent, resulting in a poor reputation for the network in question. Therefore the market would be efficient in ensuring a generally high level of quality.

ComReg has not demonstrated any failure with respect to quality of service to date therefore in the same vein as Meteor's response to the previous questions, we believe that it has been demonstrated under the legacy licensing regime that such measures are not necessary and would be highly disproportionate.

Q.23. Do you agree with ComReg's proposal to apply the same QoS obligations to each new licensee in the band?

As stated in previously, Meteor does not believe that QoS obligations can be justified, however if in spite of these observations, ComReg is ultimately able to justify these obligations, it should apply the same obligations to each licensee in the band.

Q.24. Do you agree that QoS standards should be set on the basis of the service offered rather than in relation to spectrum used to provide this service?

Meteor's has raised its objections to unnecessary quality of service obligations in response to the previous questions. However, if despite these concerns, ComReg can objectively justify quality of

service obligations, Meteor would then agree that they should be set on the basis of the service offered rather than in relation to spectrum used to provide the service. This is of course without prejudice to the terms of the existing 3G licences in which case the existing 3G licence obligations must apply.

Q.25. Do you agree with the ComReg' proposed voice calls QoS licence condition and the three proposed QoS metrics for measuring the voice call service?

As outlined in response to question 13, a threshold for voice quality of service may be necessary in order to define coverage for voice services just as a speed threshold may be appropriate for establishing broadband coverage, however, Meteor does not believe that additional quality of service obligations are necessary given that the existing licence commitments which in some cases match those currently being proposed, have been consistently exceeded.

Q.26. Should QoS metrics be set for VoIP voice calls? If so, what QoS standards do you believe are appropriate? How would these standards be measured and monitored?

The complications that are introduced by VoIP lends to the argument against excessive voice quality of service obligations in the new licences. Meteor believes that voice services offered through VoIP will have to meet the same high standards that are being achieved today if they are to succeed as a mainstream offering in the mobile market. Because voice represents such an integral element of the mobile service offering, Meteor does not envisage a situation whereby the general quality of voice calls could be dragged down as a result of a small number of operators through a "race to the bottom" approach to voice quality, whether through VoIP or indeed the legacy voice platforms.

Q.27. Do you believe that it is appropriate to set a mobile broadband QoS obligation in any new 900 MHz licence issued? If yes, do you agree with ComReg's proposal to set this obligation at the network level with minimum speeds of 3 Mb/s downlink and 384 kb/s uplink.

Meteor considers a 3Mb/s minimum broadband speed obligation to be excessive. This could distort the market by imposing un-necessary cost on providers and result in the denial of a cheaper, lower speed service to consumers with less demanding broadband needs. As with ComReg's proposals in respect coverage, Meteor is extremely concerned by the arbitrary nature of ComReg's reasoning. Once again Meteor is disappointed by ComReg's unwillingness to rely on competitive market forces

and the risk of such distortion would be magnified as the immediacy of such a requirement is increased.

To elaborate and highlight the difficulties that operators would face in achieving this arbitrary target, Meteor would point to the current obligations of the National Broadband Scheme, of which 3 Ireland is charged to deliver. Even though 3 Ireland is receiving a subsidy in the NBS region (approx 10% pop, 30% area), it can still only guarantee 1.2 Mbit/s initially, rising to 1.6 Mbit/s in July, 2010 and finally guaranteeing 2.3 Mbit/s in October, 2012. To achieve this level, however, use of satellite (up to 8%) is permitted for customers that will still be outside mobile coverage. A target, therefore, of 3 Mbit/s for 90% geographic coverage seems totally unrealistic.

Q.28. Do you agree with ComReg's proposed QoS metrics for network performance and the level at which it is proposed to be set?

Meteor does not believe that it is necessary to specify network availability criteria in spectrum licences. In the first instance network operators have a clear string incentive to provide a reliable service to their customers. Failure to provide a reliable service would lead to customer dis-satisfaction and migration of those customers to alternative competing service providers.

It should also be noted that in conjunction with the Department of Communications Energy and Natural Resources, ComReg has established procedures for reporting on network incidents as provided for in existing legislation which renders obsolete ComReg's proposed obligation for the maintenance of network logs.

Q. 29 Do you agree with ComReg's proposed billing obligation?

Meteor supports ComReg's proposal to include billing standards in the General Authorisation instead of including them in specific licences given the universal application of such standards. This would be consistent with the provisions of the Authorisation Directive which specifically provides for the inclusion of consumer protection rules specific to the electronic communications sector in General Authorisation conditions[35].

With respect to the requirement to provide paper bills, ComReg will be aware of the recent approach made by the mobile operators through the Telecom's and Internet Federation, seeking an alteration such that paper billing could be optional to customers, in the interest of reducing the associated cost to customer and the environment. The proposal to move billing requirements to the General Authorisation would allow for this revision to be introduced in advance of the introduction of the new 900MHz.

[35] Annex to Directive 2002/20/EC –A.8

Meteor would stress the importance of ensuring that such a change would apply not only to new customers but also to existing customers. Operators should be permitted to introduce the change while providing existing customers the opportunity to opt to continue to receive paper bills.

Q.30. Should QoS measures at a consumer level (e.g. billing) be addressed as a licence condition in the 900 MHz licence or as part of a General Authorisation?

Meteor believes that QoS measures at a consumer level (in particular billing) should be part of the General Authorisation for the reasons stated in response to Q 29.

Q.31. Do you agree that it is reasonable for ComReg to review and possibly update the QoS standards over the lifetime of the licence, such as every 5 years, or as appropriate due to changes in the market?

Meteor does not consider it appropriate to provide for a review of any quality of service obligations that might be applied. This would introduce additional and unnecessary uncertainty to both the licence award process and the licences themselves.

Q. 32 Do you agree with ComReg's proposed reporting on compliance obligation?

Yes.

Q. 33 Do you agree with ComReg's proposal to include a €1 million performance guarantee against the QOS obligations in any new 900 MHz licence issued?

Meteor does not agree with ComReg's proposal to include a €1 million performance guarantee against the QoS obligations in any new 900 MHz licence issued for the reasons outlined in response to question 21.

Q.34. Do you agree with ComReg's proposed non-ionising radiation licence condition?

Meteor does not agree with the proposed non-ionising radiation licence condition. The proposed obligation already existing in the General Authorisation as provided for in the annex to the

Authorisation Directive[36], therefore the inclusion of these in the 900MHz licences would result in unnecessary duplication.

Q.35. Do you agree with ComReg's proposed international roaming capability licence condition?

Meteor considers that the commercial attractiveness of roaming services has already rendered the current 2G licence roaming obligation superfluous. Therefore Meteor does not believe that ComReg's proposed international roaming capability licence condition for the proposed 900MHz licences can be objectively justified.

Q.36. Do you agree with ComReg's proposed licence conditions on access to emergency services and calling location information?

The obligations relating to emergency services apply generally to undertakings providing publicly available electronic communications services, therefore Meteor recommends that these should not be included in the new 900MHz licences and should instead be included in a revision to the General Authorisation.

In any case, this condition should be more generally worded. The proposed wording suggests that licensees will have full control over the availability of location information to the emergency services. However the mechanisms that are currently being put in place to provide location information to emergency services requires operators to provide sufficient information with respect to caller location to allow the authority handling the emergency call (ECAS) to convey location information to the emergency services. As licensees will not be directly providing location information to the emergency services they cannot, therefore, accept responsibility for ensuring that location information provided to the authority ultimately reaches the emergency services.

[36]Annex to Directive 2002/20/EC –A.13

CONFIDENTIAL ANNEX RESPONSE

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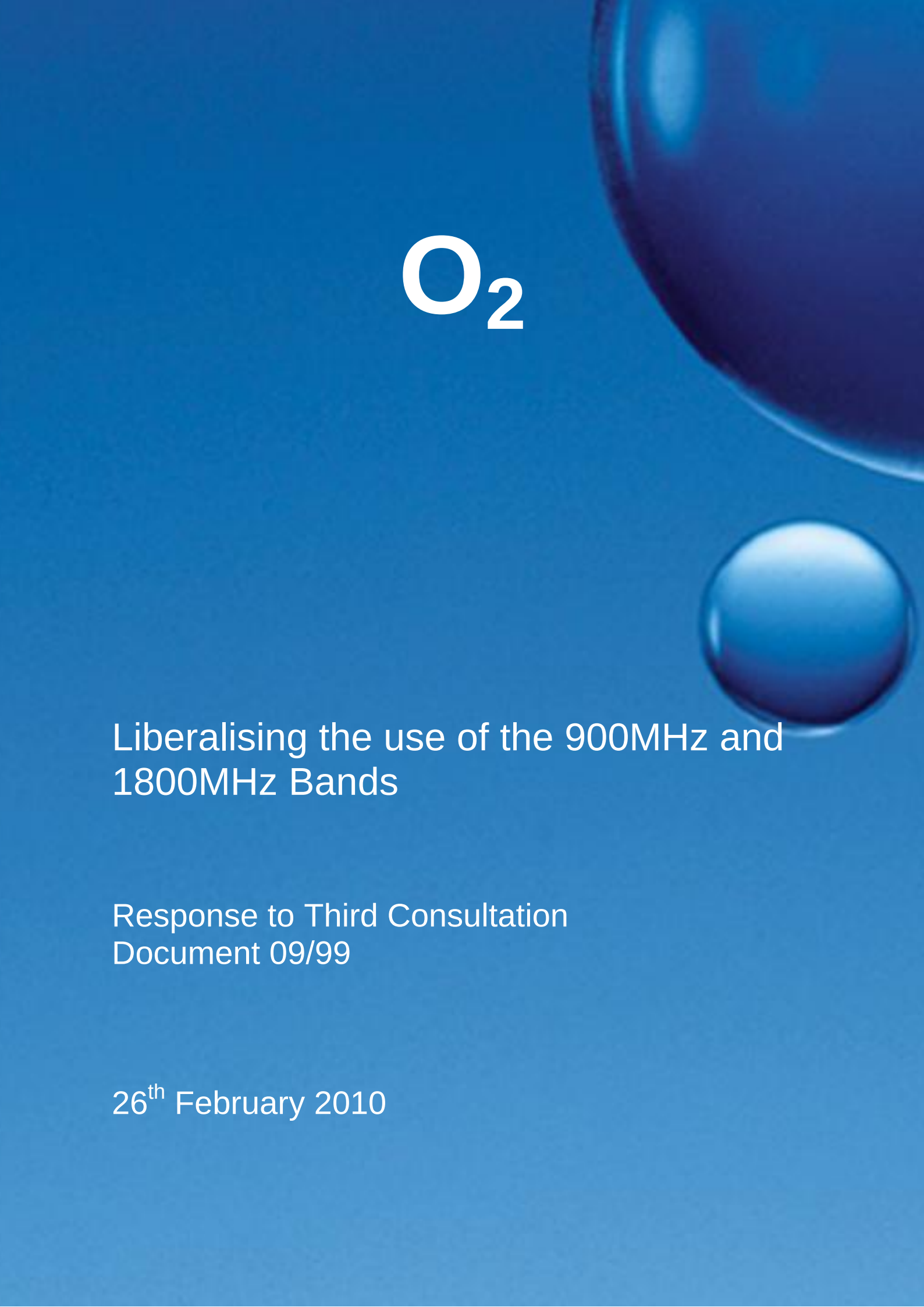

Liberalising the use of the 900MHz and 1800MHz Bands

Response to Third Consultation
Document 09/99

26th February 2010

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1. Executive Summary

1.1. This is O2's response to ComReg's third consultation document in the Consultation Process on "Liberalising the Future Use of the 900MHz and 1800MHz Spectrum Bands, " issued by ComReg on 21 December 2009. ComReg has in its latest Consultation Document indicated an intention to proceed with a Full Band Auction in mid 2010 for assignment in mid 2011 of the 900MHz spectrum band stating that it is the "best available approach". Contrary to this assertion however, there are a number of clearly more favourable and legally compliant alternative options available to ComReg for the assignment of this spectrum. ComReg is obliged in law to take the option that has the least adverse effect on licensees and ultimately consumers, while achieving its objective. It is startling therefore that ComReg is proposing to adopt the proposed auction mechanism particularly having regard to the following circumstances:

(i) The majority of the mobile telecoms industry in Ireland is opposed to ComReg's proposal;

(ii) It builds in a significant risk of disruption to the provision of telecoms services in Ireland, where ComReg expressly acknowledges that risk (albeit ComReg does not appreciate the magnitude of the risk involved), where the industry evidence is that the disruption - to consumers, business and the economy as a whole - would be extensive and would take considerable time to dissipate;

(iii) ComReg's proposal is being advanced at the wrong time, when a short delay in formulating long-term proposals while maintaining interim licensing arrangements in place would bring clarity on a number of important issues and resolve many of the concerns of the industry;

(iv) It places an enormous and unnecessary financial burden on the telecoms industry in Ireland, by extracting from it in excess of €340m (based on the nominal values of lots in ComReg's Consultation Document), with no reinvestment of those monies in the industry; and

(v) It has the potential to stifle innovation, distort competition, restrict investment and damage the international reputation of Ireland.

1.2. This response sets out O2's primary concerns in relation to ComReg's proposal for a Full Band Auction. O2 outlines the importance to the industry of ComReg making the right decision at this time. It then goes on to deal with the following matters:

- **Licence Extension:** ComReg (ODTR at the time) gave an express and unambiguous assurance or commitment in 2001 that the current 900MHz licences would be reviewed three years prior to their expiry, and that retention of spectrum by operators "will be on a demonstrable need basis until the end date of the 3G licences". This assurance or commitment together with the subsequent conduct of ComReg consistent with such assurance or commitment (both its actions and inactions) amounted to a representation by ComReg as to how it would act in respect of an identifiable area of its activity, which

representation was addressed to O2 in such a way that it forms part of a transaction definitively entered into or a relationship between O2 and ComReg. The representation created an expectation reasonably entertained by O2 that ComReg would abide by the representation and O2 has acted in reliance on the representation and ComReg's subsequent conduct to the extent that it would be unjust to permit ComReg to resile from it. ComReg's latest proposal amounts to a resilement from that representation, and is unlawful on that basis alone. Notwithstanding its refusal to honour its representation, ComReg carried out a Regulatory Impact Assessment which it suggests recommends against extending existing licences, but the assessment is flawed and tainted by apparent or objective bias or prejudgement and in fact suggests otherwise. O2 explains why granting an extension of O2's licence in respect of this spectrum is the most appropriate and legally compliant course of action for ComReg to take. *(section 4)*

- **ComReg's Legal Obligations:** The proposal for a Full Band Auction fundamentally conflicts with many of ComReg's statutory and non-statutory legal obligations, and is unlawful. The proposal is manifestly disproportionate to the desired objective or result, and there are many other options that ComReg could choose, that would benefit consumers and operators, and would be lawful. ComReg is obliged in law to take the option that has the least adverse effect on the market, licensees and ultimately consumers, while achieving its objective. *(section 5)*

- **ComReg's Delay:** ComReg has failed to progress this Consultation Process to a decision within an appropriate timeframe. It may be withdrawing spectrum use from operators that have invested in excess of one billion Euro in GSM networks, over many years, and proposes to do so on less than 12 months notice, when it could easily resolve this issue by granting an extension of licences. It has totally misjudged the extent of the financial, practical and legal difficulties that operators, and as a consequence, consumers, will face if that situation arose. ComReg is not required to link liberalisation to the expiry of the 2G licences, which is one of the key mistakes it makes in this Consultation Process. Combining the issues of licence expiry and liberalisation into one has given rise to the flawed proposal of a Full Band Auction in 2010. Extending existing 2G licences, even if done on a unliberalised basis, will avoid many of the problems posed by ComReg's latest proposal. *(sections 4 & 6)*

- **Digital Dividend:** The 800MHz band is considered to be a likely suitable substitute for the 900MHz band. Within a relatively short time period there can be clarity in relation to assignment of the 800MHz band, (indeed a majority of other EU member States have already set the date for analogue switch off and a number have put forward proposals for its assignment). Contrary to its assertion that it "must proceed with this licence competition at this time", there is in fact no legal impediment to extending existing 900MHz licences to a timeframe beyond when that clarity will be given. However, ComReg by proceeding now without that clarity is creating artificially high demand for the 900MHz band, which will only serve to increase the financial burden on bidders in the Full Band Auction it proposes to organise, and unfairly distorts competition in the market. Neither has ComReg provided any clarity with regard to spectrum trading or spectrum

sharing, which are extremely important issues that would impact upon the approach taken by bidders in its auction – again the lack of this clarity, which could easily be given, unnecessarily drives up bidding prices and unfairly distorts competition in the market. *(section 7)*

- **Consumer Disruption:** ComReg has, in one of its most significant failures, failed to properly take account of how current networks operate, and how spectrum bands interoperate. This fundamental misunderstanding has given rise to it reaching mistaken assumptions to support incorrect positions on extremely important consumer issues, and ultimately, to justify its current proposal. ComReg totally underestimates the real and substantial risk of the significant consumer disruption that would arise from a Full Band Auction, loss of access to spectrum, and the effect that would have on the operators and the MVNO. It is of grave concern, given that one of ComReg's primary objectives is to protect the interests of consumers, that it appears to be satisfied to tolerate the prospect of this risk (which contrary to its assertions is a very real one), including the severely detrimental impact it would have on consumers and competitors. *(sections 8 & 9)*

- **EU Law**: It is wrong, as a matter of EU law, for ComReg to proceed with the Full Band Auction. Such an approach is in breach of various EU laws and principles including fundamental principles of non-discrimination and equality. The approach adopted by ComReg also evidences elements of apparent or objective bias or prejudgement contrary to administrative law. A renewal of licences for existing operators, would not, as it has been suggested, breach State aid rules. *(section 10)*

- **Auction Mechanism and Alternative Proposal:** There are a number of fundamental flaws in the mechanism proposed, including but not limited to, the minimum reserve price, the benchmarking process, the lack of transparency, deferred payments and discrimination in favour of Meteor. Furthermore, it is possible that the winning bid combination in the auction will be decided by random selection. O2 cannot accept that a decision of such critical importance to its business, and with such implications for consumers and the industry, can be decided, in effect, by lottery. Without prejudice to its fundamental objection to the Full Band Auction, O2 has proposed an alternative approach that would address some of these flaws. *(sections 12 & 13)*

1.3. In conclusion, ComReg must substantially revise the approach adopted in this consultation process by fully addressing the matters raised in this response before making any final decision on the assignment or award of 900MHz spectrum. For the reasons set out in this document, ComReg will be acting unlawfully if it fails to address the issues and concerns raised by the industry, and to protect the interests of consumers, and it proceeds with its proposed Full Band Auction. O2 fully reserves its legal rights in the event that ComReg proceeds in that manner.

2. Introduction – the importance of ComReg making the right decision

2.1. ComReg has now issued its Response to Consultation 09/14 and Further Consultation

Document 09/99 (the "***Third Consultation***") in the consultation process on "Liberalising the Future Use of the 900MHz and 1800 MHz Spectrum Bands" (the ***Consultation Process****")* This response from Telefonica 02 Ireland Limited ("***02***") deals with the issues raised in ComReg's Third Consultation. This is the single most important issue to arise in the telecoms sector in recent years. It has serious implications for consumers, operators, and investment in the mobile communications industry in Ireland. If the wrong decision is taken at this time, it will cause severe disruption and unjustified cost to consumers and operators in the telecoms sector.

2.2. The availability of effective and functioning mobile communications is taken for granted, and has become integral to the daily lives of the citizens of Ireland. There are as many as 4 million GSM mobile subscriptions in Ireland today. In the current economic environment, there has never been a more important time to ensure continuity of basic mobile service, and the continued development of new and innovative services.

2.3. Mobile has surpassed fixed line as a primary means of communication in Ireland. In this country, according to the latest publicly available figures, 2.5 billion minutes were carried in Q3 2009 (56% of total minutes) and 2.9 billion text messages were sent. Mobile is also a significant means of internet access with 411,000 connections (27% of total connections). Any disruption to the continued availability of, or investment in, the mobile part of the communications sector, would clearly be detrimental to consumers and damaging for the Irish economy. The mobile communications sector has a knock-on impact on the ability of the wider economy to function, and effective, predictable and legally compliant regulation of the sector is of paramount importance to Ireland's international reputation and competitiveness, and its ability to attract inbound investment from international businesses.

2.4. The 900MHz band, as it is used today for GSM services, is the primary carrier for the majority of mobile voice calls made each day. For O2, the 900MHz spectrum band carries 63% of all voice calls and 80% of text messages. ComReg itself has stated that, from an industry perspective, voice and text account for 85% of mobile revenue globally, emphasising the importance of the services currently provided in the 900MHz spectrum band and the significance of ensuring that the right decisions are made affecting it. It provides service to a significant part of the Irish population who are outside of 3G coverage, and even within 3G coverage, it still carries the majority of voice traffic. There is currently no alternative available and capable of carrying this traffic if O2 was required to vacate 900MHz spectrum in 2011.

2.5. Despite the majority of the submissions in response to ComReg's Second Response recommending an extension of existing licences, ComReg has moved away from a position where ComReg itself acknowledged the requirement for an extension of current 900MHz licences. ComReg now proposes however to auction the entire 900MHz band in 2010 without any consideration of an extension of current licences. Given the importance of continuity of a mobile communications service to consumers and to the Irish economy, it is incomprehensible that ComReg has proposed a solution that carries a real risk of widespread disruption to this service. The solution proposed is one that directly conflicts with ComReg's

legal functions, obligations and duties, and is unlawful.

2.6. O2's general points of concern are outlined in this response, followed by answers to the specific questions posed by ComReg. O2 has previously provided responses to the First Consultation and the Second Consultation, and in those responses raised detailed concerns about ComReg's approach to the Consultation Process as it has evolved. O2 fully reserves its rights to continue to raise all concerns and objections raised in all of its responses, including in the event of O2 objecting to any ultimate Decision adopted by ComReg. O2 must also fully reserve its rights to seek an indemnity against losses caused by ComReg or by the State, as a result of it proceeding with the current proposal, or any other unlawful proposal.

2.7. The public record demonstrates that there are objections raised by many other interested parties by way of their responses to the Consultation Process. O2 fully reserves its rights to raise concerns similar to those raised by such other operators in their responses, which equally impact upon the position of O2 and the industry more generally, including in the event of O2 objecting to any ultimate Decision adopted by ComReg.

2.8. O2 fully reserves its position with regard to the limited amount of time that has been provided to O2, and the industry, to deal with ComReg's latest proposal, and this Consultation Process as a whole. It took the period of April 2009 (the time when the industry's last responses were submitted) to the end of December 2009 for ComReg to prepare its latest proposal and yet it has given less than two months (which included the December/January holiday period) for the industry to respond. ComReg has not, in accordance with its statutory legal obligation, consulted with parties within a reasonable timeframe. This is a wholly inadequate period, given at the end of the Consultation Process, to inform parties of their latest proposal representing such a shift in position – it should have been raised much earlier in the process for the industry to respond.

2.9. In this response O2 objects to aspects of the auction process proposed in the Third Consultation (the "***Full Band Auction***"). These objections are raised without prejudice to the fact that O2 is fundamentally opposed to the Full Band Auction in its entirety at this time. O2 has also suggested an alternative mechanism including a fairer auction, which is equally without prejudice to O2's fundamental objection to the Full Band Auction. In suggesting an alternative auction process, it remains of the view that it is entitled to an extension of its licence, and that the timing and the manner in which ComReg is currently approaching liberalisation and assignment of the 900MHz spectrum is contrary to ComReg's legal obligations and is unlawful.

2.10. Although the Consultation Process, and the relevant EU Directive and EU Decision, refer to liberalising the future use of the 900MHz and 1800 MHz spectrum bands, ComReg has in fact decided to only address the assignment of the 900MHz spectrum. Other interested parties have raised issue with this fact, stating that ComReg needs to take a holistic view in relation to spectrum assignment in Ireland. O2 similarly believes that a holistic approach should be taken by ComReg to spectrum assignment and reserves its position on the approach that ComReg has adopted in not addressing assignment of 1800MHz at this time.

3. Understanding of O2's Network

3.1. Throughout the Consultation Process ComReg has failed to display a full and proper understanding of the reality of how O2's network operates, giving rise to numerous erroneous assumptions that are made to support positions it has adopted to extremely important issues. These issues are dealt with throughout this response, but it is important for ComReg to fully understand the O2 network so that it can make informed assumptions or decisions that affect the licensing of the 900MHz spectrum band. It is wrong for ComReg or any third party to suggest that too much reliance has been placed by existing operators on the band, when this arises from consumer demand and for historical and technological reasons.

3.2. At present, O2's services are provided on three networks that operate together seamlessly in three different bands to provide high quality mobile voice and data services. The coverage and services are provided by different network elements in the three bands as follows:

Band	Population Coverage	Service
900MHz	99%+	GSM voice, and EDGE data
1800MHz	XX	GSM voice, and EDGE data
2100MHz	XX	3G voice, and Mobile Broadband

3.3. The network has been optimised to provide the most effective overall performance from the equipment installed in each band, for the benefit of consumers, so data and broadband are carried mainly on the 3G band (2100MHz), with EDGE used to carry data where there is no available coverage or capacity on the 3G network. Voice is mainly carried on the GSM networks (900MHz and 1800MHz), and at present, the distribution of voice traffic carried across the three bands is as follows:

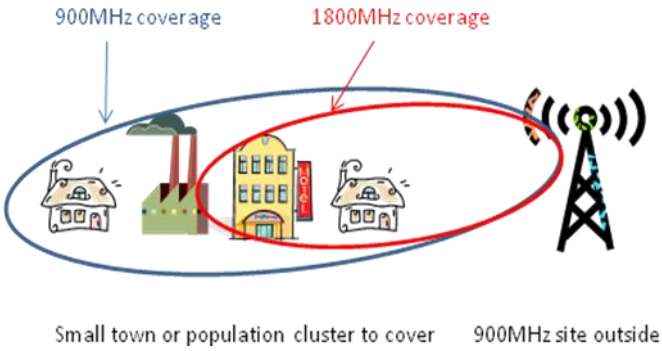
Weekly Voice Traffic (Erlangs)	GSM 900	GSM 1800	3G/UMTS 2100
XX	63%	27%	10 %

3.4. The three networks have at significant cost and investment been engineered, rolled out, and optimised, for the benefit of consumers, according to this distribution. They could not be readily changed without major network re-engineering at significant cost to O2.

3.5. In addition, ComReg needs to understand that XX% of O2's voice service customers, or almost XX consumers, own handsets that are GSM enabled only and simply cannot access the 2100MHz band. Despite a drive by O2 to increase the proportion of Smartphones among

its customers, the base of GSM only users currently migrating to 3G enabled handsets are doing so at a rate of 5% per annum only – this reflects an important fact that consumers themselves adopt certain practices independent of operator's incentives or regulatory restrictions, practices that will be severely affected by ComReg's current proposal.

3.6. O2 has already significantly invested over the years in the roll out of a 900MHz network, and has sited its base stations appropriately for a 900MHz coverage grid. If a network had to be rolled out in an alternative band (e.g. 1800MHz or 2100MHz), a different grid of locations would be needed. A significant number of sites used to provide coverage in a 900MHz network would simply not be suitable for provision of coverage in a 1800MHz or 2100MHz network because they would be in the wrong location. One example of this issue is shown below, where a population cluster is served by a 900MHz service. If the service band was changed to 1800 MHz, the site would no longer be in a suitable location due to the reduced coverage range. To maintain coverage in this case, a new site would have to be located and commissioned, and the old one vacated and decommissioned, at significant cost to O2, and possibly at significant disruption to consumers. This disruption is dealt with in some detail in Section 9. ComReg has failed to take proper account of these issues in the Consultation Process.



4. Extension of Licences

Legal basis why ComReg must Extend

4.1. ComReg is in a position to have existing 900MHz spectrum extended to existing licensees for a period following the expiry of the current GSM licences, and to do so would be in full compliance with its legal obligations. ComReg (ODTR at the time) gave a commitment in 2001 that the current 900MHz licences would be reviewed by it three years prior to their expiry (which it has not done), and that the spectrum could be retained by operators "on a demonstrable need basis until the end date of the 3G licences" (as highlighted in O2's first response in this Consultation Process at paragraph 2.5). The subsequent conduct of ComReg (both its actions and inactions) has been consistent with and implied the continued effectiveness of the position communicated by the Director (ODTR) in 2001. This assurance

or commitment together with the subsequent conduct of ComReg amounted to a representation by ComReg as to how it would act in respect of an identifiable area of its activity, which representation was addressed to O2 in such a way that it forms part of a transaction definitively entered into or a relationship between O2 and ComReg. The representation created an expectation reasonably entertained by O2 that ComReg would abide by the representation and O2 has acted in reliance on the representation to the extent that it would be unjust to permit ComReg to resile from it. O2 has relied on this representation, and has invested substantially, and continues to invest substantially, in its 900MHz network in reliance on it.

4.2. At all material times, ComReg has been aware of O2 acting on foot of that expectation. O2 has a legal entitlement arising from this legitimate expectation to retain on a demonstrable need basis its current assignment of 900MHz spectrum and ComReg is estopped from now acting in a way contrary to that representation. Without prejudice to this entitlement, by proposing a Full Band Auction at this late stage (less than 12 months before the purported expiry of O2's existing licence in the 900MHz spectrum) and by failing to make any proposals regarding the 1800MHz spectrum (thereby creating significant uncertainty in the market), ComReg has also breached O2's legitimate expectation that the continued availability of the existing spectrum assignments in the 900MHz and 1800MHz bands would be reviewed three years prior to licence expiry. O2 has noted elsewhere in this Response that, contrary to the mistaken assumptions of ComReg, if O2 were to lose 900MHz spectrum (following the proposed Full Band Auction) it would take a significant period of time - approximately 4 years - and substantial financial investment for O2 to undertake the necessary steps (including building capacity and extending the network) to accommodate its existing customers using other spectrum (such as the 1800MHz band) to ensure that the integrity of communication networks was maintained and disruption to consumers was minimised.

4.3. Without prejudice to O2's legitimate expectation of retention of its spectrum, at all material times O2 had and has a minimum legal entitlement to reasonable notice prior to any proposal which would involve loss of 900MHz spectrum (such as the proposed Full Band Auction). The notice that could be required is such as would reasonably allow O2, which had and has conducted its affairs in accordance with and in reliance on ComReg's representation, to consider and implement an alternative means for dealing with the issues arising from such loss.

4.4. ComReg is aware of the legal position that existing licensees (including O2) will rely upon in relation to their legitimate expectation. In this regard:

(i) ComReg made a representation (both by the express and unambiguous assurance or commitment of its statutory predecessor and by its subsequent consistent conduct (both by its actions and inactions) as to how it will act in respect of the retention of spectrum by existing licensees;

(ii) the representation was made to those interested in obtaining the 3G licences, which included existing 900MHz licensees, who have since that date conducted their business and investment in networks in reliance on that representation;

(iii) the representation was addressed to O2 in such a way that it forms part of a transaction definitively entered into or a relationship between O2 and ComReg; and

(iv) the expectation arising from the representation was reasonably entertained by those to whom it was addressed, and it would be unjust for ComReg to resile from it.

4.5. In response to the First Consultation (98/57), O2 requested ComReg to clarify the reasoning for its change of position in relation to its commitment for retained use of the 900MHz by current licensees. O2 hereby calls upon ComReg to specifically explain why it made the statement. ComReg simply states that it is not required as a matter of law to deliver on this commitment (a position with which O2 disagrees) yet ComReg has still not explained the reasoning behind adopting this legal stance, or indeed its change of position, or indeed why it made the representation in the first place.

4.6. ComReg has not properly addressed the issue of existing licensees having a legitimate expectation in the Third Consultation. It says it has simply “arrived at a position” that GSM licensee’s do not enjoy an enforceable legal right, without providing any firm basis for arriving at that position. ComReg cites three factors to which it had regard in reaching its core conclusion on the legitimate expectations issue. However none of the factors cited provide adequate support for the (erroneous) conclusion reached. Without prejudice to O2's legal entitlement to retention of its spectrum in accordance with its legitimate expectation, the retention option represents the best option regarding the 900MHz spectrum at the current time and in the current circumstances, in compliance with ComReg's statutory obligations and remit and in the public interest.

Alleged Reduction in Competition

4.7. ComReg states that the reduction of the amount of spectrum available for auction by granting an extension of some spectrum, reduces opportunities for new entry which reduces competition. This conclusion is not economically sound, in equating more entrants with better competition, particularly given an already competitive marketplace, where experience around the world has demonstrated that mobile telecommunications markets are not capable of supporting large numbers of network operators. It involves a disproportionate favouring of the pursuit of new entrants to the band, to the detriment of its other legitimate objectives. See section 10 on O2’s competition law concerns in this regard.

ComReg's Objectives in Granting an Extension

4.8. ComReg asserts that the grant of an extension to existing licensees on the basis of their incumbency alone would favour them over potential new entrants to the band and be contrary to its obligations of non-discrimination, fairness, proportionality and reasonableness. Again, there is no basis for this assertion. In the first instance, an extension would not be on the grounds of incumbency alone, but rather on the basis of the licensees existing legal rights, the fact that it is the option that best promotes the interests of users and of competition, and best achieves other objectives such as the promotion of investment and innovation.

ComReg RIA of Granting an Extension

4.9. Notwithstanding the position that it has arrived at, in an attempt to justify its decision to resile from its representation, it has carried out a Regulatory Impact Assessment (which O2 firmly believes is inadequate), the results of which appear at p102 of the Third Consultation. Each alleged "disadvantage" is weak in the extreme, each is clearly influenced by bias (in both wording and substance) and can be easily addressed. The result of this assessment proves very clearly that the option of extending existing licences is in fact a viable one, and one that would, if implemented correctly, have the least adverse effect on the industry (including on existing and future licensees).

Administrative Assignment of Spectrum vs Spectrum Auction

4.10. ComReg states that the administrative grant of an extension carries a risk of long term disadvantage to consumer welfare as it does not ensure that the spectrum will go to the best user. It asserts that this disadvantage outweighs the risk of consumer disruption through an existing licensee's loss of licence. There is no basis for this assertion and it misjudges the scale of consumer disruption at issue.

4.11. ComReg further expresses the concern that administrative assignment would require ComReg to set licence fees via administrative processes that could result in ComReg selecting the "wrong" price. This fails to take account of the fact that O2 has previously indicated its willingness to pay an appropriate market price for an extension of its spectrum licence, and that this market price can be determined by a ready made measure of the price of a lot of 900MHz spectrum in the Irish market at this time, through the auction of unallocated spectrum.

The RIA advantages and disadvantage:

O2 now turns to address the advantages and disadvantages raised by ComReg if it was to follow the option of honouring the commitment given in the 2001 Memorandum, even if the commitment has to be modified by reducing the length of the initial retention period to 2015.

Impact on Consumers:

(i) ComReg states that this option would not guarantee that spectrum goes to the operator(s) which values it the most – *this has simply no basis given that the relevant operator(s) have to date already invested in excess of 1 billion Euro in their networks using this spectrum. This assertion also betrays an unnecessary concern on the part of ComReg since it fails to take into account the measures otherwise available to ComReg under Directive 2009/140/EC to protect against spectrum hoarding. ComReg appears to be attempting to design the assignment process to address perceived dangers in respect of which more appropriate specific counter-measures are available*;

(ii) ComReg states that liberalisation would be significantly delayed – *this is a concern without substance. First, there is no strict statutory deadline for liberalisation of the 900MHz band. Secondly, it ignores the fact that even if liberalised licences are issued for the entire band, some spectrum will continue to be used to provide GSM service at least until 2015, in order to reduce disruption to consumers. Thirdly, this assertion also ignores the fact that a short retention of existing 900MHz licences until 2015, (without prejudice to O2's entitlement to a longer extension as previously represented to it), would not amount to a significant delay and would better promote the interests of citizens of the E.U. (consumers) in particular by ensuring that the integrity and security of public communications networks are maintained;*

(iii) ComReg accepts that this option has the advantage of consumers not facing any potential for disruption to existing services – *this is one of the primary objectives that ComReg must pursue, and in the draft RIA it fails to acknowledge how severe this disruption will be, which if properly appreciated, requires ComReg to grant an extension*.

Impact on Industry Stakeholders/Existing GSM Licensees

(i) ComReg claims that spectrum limited to 2G only use until the expiry of the 3G licences is not likely to be attractive to those existing licensees seeking to roll out advanced networks – *again this ignores the fact that a short retention to 2015, which would be a modification to its promise, but mean it is not entirely resiling from it, would not be a significant delay, especially given existing licensees requirement to continue 2G services for several years, as noted above (particularly in circumstances where there is no statutory deadline for liberalisation) – and as mentioned above, some of the currently assigned spectrum will continue to be used to provide GSM service, until at least 2015*;

(ii) ComReg asserts that, under this option, existing GSM licensees may have to divert resources into demonstrating how much spectrum they would need in order to continue offering 2G services – *this carries little weight in the context of the proposed diversion of enormous resources that would be wasted and financial damage suffered as a result of proceeding with ComReg's current proposal whereby operators might have to*

vacate spectrum.

It accepts that the option has the advantage that it would be of clear benefit to existing licensees. It accepts that the option has the advantage that it would give the opportunity for GSM licensees to put forward evidence to ComReg why they should be entitled to maintain spectrum.

Impact on Other Operators

(i) ComReg states that this option would mean new entrants would be limited to potentially accessing only 10MHz of the band –*This is incorrect. However, without prejudice to O2's entitlement to a longer extension of its existing licence as represented, it has been indicated elsewhere in this response that even if O2 were to be afforded a short extension of its licence in respect of 2x5MHz of the 900MHz band this would entail significantly less potential for disruption to consumers than would arise in respect of a complete loss of spectrum under ComReg's current proposed Full Band Auction (although it would still require a significant amount of time for implementation by O2). This latter proposal would also free up more spectrum for possible assignment to new entrants*;

(ii) ComReg states that with this option there would be a delay to availability of 900MHz spectrum to new entrants and a lack of certainty regarding the outcome of the spectrum retention process – *the delay could be short if only extended for an interim period, and there would be no uncertainty regarding the outcome of the spectrum retention process when ComReg could easily clarify this in advance, and as part of this Consultation Process*;

(iii) ComReg accepts that this option has the advantage that new entrants would have the opportunity to bid for at least two blocks of liberalised spectrum which are currently unassigned and would be available for immediate use. In fact it might be possible to increase that number to four – *see also O2's alternative auction proposal in Section 13 below.*

Impact on Competition

(i) ComReg states again that with this option the full band would not be liberalised until after expiry of the current 3G licenses and it could entrench the position of existing GSM licensees – *However, (without prejudice to O2's entitlement to a longer extension as previously represented to it) a short retention of existing 900MHz licences until 2015 would meet any concern regarding delay in liberalisation. With regard to the attendant potential reduction in competition, as noted above if either O2 or Vodafone (who are competitors) lost access to the 900MHz band in 2011 following ComReg's proposed Full Band Auction process, this would leave only one single network with full national coverage and could result in a significant distortion of competition in the market*

contrary to the interests of consumers;

(ii) ComReg states that this option would reward existing GSM licensees for not taking steps to migrate their customers from 2G to 3G in an orderly fashion in advance of licence expiry – *this ignores the fact that they would not have focused their services on the 2G spectrum if it were not for the representation that was made, and that they cannot undertake a wasteful and extremely expensive exercise to prepare to vacate this spectrum unless and until it is certain that this must be done and that it is ComReg's delay that now leaves the existing operators in a position where it is now too late to be able to put an alternative in place in time for licence expiry in 2011 – it also ignores the fact that use of GSM is market driven by consumer demand*;

(iii) ComReg asserts that with this option the Irish market will be seen as a much less attractive proposition for new entrants – *there is no legal or factual basis for saying this;*

(iv) ComReg accepts that an advantage of this option is that at least two blocks of liberalised spectrum would be available for new entrants, thus creating the potential for new entry.

4.12. The above, it is submitted, adequately addresses all of the "issues" that are alleged to arise under this option, and that appear in ComReg's RIA.

ComReg has Discretion to Extend Licences

4.13. Under options proposed by ComReg earlier in the Consultation Process, ComReg itself proposed a scenario whereby spectrum currently assigned to O2 and Vodafone within the 900MHz band be extended up to the date of expiry of the spectrum currently assigned to Meteor, which would be 2015. Therefore ComReg has clearly already indicated that it is entirely possible to extend the duration of these licenses, on an interim basis, without recourse to the Full Band Auction. ComReg has discretion in its own licensing, but is refusing to exercise it in an appropriate manner or in a manner consistent with its statutory obligations including its obligation to promote the interests of citizens of the E.U. (such as consumers), in particular by ensuring that the integrity and security of public communications networks are maintained and by minimising disruption to consumers.

Prior Investment to be taken into account

4.14. ComReg has ignored entirely the fact that extensive network investment and deployment has already been carried out by the existing licensees. Article 8 of the Authorisation Directive requires that network investment be considered, since ComReg is required to encourage efficient use and ensure effective management of radio spectrum. Recital 22 of the same directive requires an allocation process that ensures optimum use of those scarce resources, including spectrum.

No Discrimination

4.15. ComReg is wrong in suggesting that an extension of licences would favour the existing licensees and would be discriminatory, as it fails to recognise the factual position of those existing licensees. Discrimination arises where persons in similarly situated positions are treated differently. A licensee who has had a licence for 15 years and during the term of that licence has made extensive investment in infrastructure intended to run for, and deliver a return on investment in, a time frame that runs well past the initial licence expiry date, with ComReg's knowledge and build a large customer base dependant on service, is not in the same position as a person seeking to enter the market. Furthermore, an existing licensee (such as O2) to whom a representation was made that retention of this spectrum would be on a demonstrable need basis until the end date of the 3G licences is in a different legal position than a potential new entrant to the market.

The Timing of Liberalisation

4.16. O2 agrees that liberalisation should happen as soon as possible. Pursuant to Directive 2009/114 an NRA in each Member State must consider how to best manage liberalisation, in a manner that avoids distortion of competition in their mobile markets. This includes the ability for the NRA, if it is objectively justified and proportionate, to amend the 900MHz rights of use of existing operators. However it is within ComReg's power to extend existing 2G licences independently of liberalisation. Notwithstanding this, ComReg has used the pending expiry of the 2G licences, as the reason for pressing ahead with liberalisation, and a Full Band Auction this year - but they are two separate issues:

(a) the first issue is a national regulatory one, in relation to the practicalities of the fact that two of the 2G licences granted by ComReg are about to expire at the end of next year;

(b) the second issue is a separate EU policy one, requiring ComReg to liberalise the 900MHz spectrum.

It is not necessary for ComReg to combine the two into one, where that poses the numerous and significant obstacles that it does.

4.17. ComReg is not required to liberalise prior to the expiry of the 2G licences, which is one of the key mistakes it makes in this Consultation Process. Combining the two issues into one has given rise to the drastic proposal of a Full Band Auction. Extending 2G licences, even if done on an unliberalised basis, will avoid this problem, and many of the other issues raised in this response.

4.18. The situation, and ComReg's mistake on timing, can be summarised in the following points:

(i) There is no deadline by which ComReg must liberalise the 900MHz band - it should be

done in a manner and a timeframe that is proportionate and non-discriminatory – there is certainly no legal requirement that liberalisation of the entire band has to happen by mid 2011;

(ii) The above is supported by the fact that ComReg does not propose to liberalise Meteor's existing 900MHz licence nor existing 1800MHz licences, and is willing to leave it on an unliberalised basis until 2015 (unless Meteor itself wants to bid for its spectrum on a liberalised basis);

(iii) ComReg however has taken the position that liberalisation must happen prior to the expiry of the existing 2G licences, with no legal basis for this position – this means that O2 and Vodafone are being unnecessarily and severely penalised because of the practicalities of their existing licences happening to end on a particular date in the near future – a date that was fixed many years ago before liberalisation was even considered;

(iv) It is worth asking the question: if liberalisation was not part of EU policy, would the 2G licences have simply been renewed in mid 2011 without auction? The answer is undoubtedly yes, they would as evidenced by the fact that in excess of 2x12MHz has remained unassigned, and that one operator in the market has previously declined a licence for GSM 900MHz spectrum;

(v) It is then worth asking the alternative question if 2G licences were not about to expire would ComReg have taken more time in which to liberalise (and avoided all the adverse consequences of doing it now)? The answer again is undoubtedly yes, it would be doing it in a more timely manner and avoiding the adverse consequences of running a Full Band Auction in 2010.

(vi) In summary, ComReg is mistakenly conflating the issue of expiry of 2G licences in mid 2011 (a national regulatory issue) with liberalisation (a recently introduced EU initiative). It has discretion to liberalise in its own time, taking into account the local licensing framework it was responsible for introducing, and in a manner that is least disruptive. Therein lies one of the major flaws in ComReg's approach to the timing of liberalisation in Ireland.

4.19. ComReg should see the expiry of 2G licences separate from liberalisation. It should extend the 2G licences in a way it would have done had liberalisation not been on the agenda. This means that ComReg should extend first, then liberalise in an orderly manner at a time when industry can best adapt – that is the logical approach.

Possibility of liberalising licence extension

4.20. ComReg's position is also that any extended licences may not be liberalised, and to grant 2G licences only would be contrary to its stated objective of securing liberalisation as soon as

possible. As outlined above, ComReg has discretion with regard to the timing of liberalisation of the spectrum and this spectrum will in any event continue to be used for 2G for some time to come, regardless of whether it is liberalised. It should liberalise within a reasonable and appropriate timeframe and in a stable regulatory environment – where operators do not have to go into an auction bidding for business survival. Furthermore, ComReg in fact does have discretion, pursuant to Directive 2009/114, to liberalise extended licences, in the same way that it is proposing to take a return of Meteor's current GSM licence and allow it to take a licence of liberalised spectrum in its place. As with the Meteor proposal, the only issue is one of price for the liberalised element, and this is one capable of being set through an appropriate auction mechanism at the correct time and then charged to O2, as O2 has proposed. Once ComReg extends the licences, it can subsequently as it is entitled to do under Directive 2009/114 (ref Recital 7) as part of liberalisation "*amend rights of use…review these rights of use and…redistribute such rights in order to address distortions*" – which can be and should be done within a timeframe that is "*objectively justified and proportionate*".

Precedents in Other Countries

4.21. O2 set out in detail in its first response in this Consultation Process, that a number of other European countries have already considered both refarming of the 900MHz band and licence term expiry. O2 examined the process in a number of these countries and several countries have decided to extend or renew the existing operators licences. To O2's knowledge almost all NRAs in European Countries have taken approaches that avoid any situation whereby existing licensees could lose access to spectrum, even if they faced licence expiry issues.

Conclusion on Extension

4.22. In conclusion, there is no legal obstacle to ComReg adopting a position which involves the retention of licenses for existing GSM operators, even for a short period. To grant such retention would be in compliance with all of ComReg's statutory obligations and regulatory objectives, and not to do so would be unlawful. It would represent a compromise of its commitment, it would not represent a complete resilement from it. ComReg must give weight to a commitment that was given in the award process for 3G licences, particularly when, apart from the reliance placed on it by 900mHz licences, 3G licences were taken up on foot of it. ComReg has carried out a Regulatory Impact Assessment on the issue which is flawed, and says that it recommends against following this option, but in fact when compared with other options, including the Full Band Auction, it is a legally compliant, more favourable and viable option. It also represents the option which best accommodates the statutory obligations of ComReg and it would better promote the interests of citizens of the E.U. (consumers), in particular by ensuring that the integrity and security of public communications networks are maintained and by minimising disruption to consumers.

5. Failure by ComReg to meet its Legal Obligations

ComReg's Obligations Relevant to Spectrum Assignment

5.1. The functions and objectives of ComReg are set out *inter alia* in the Communications Regulation Act, 2002 (the "2002 Act"), the Framework Directive 2002/21/EC ("FD") and Framework Regulations 2003 ("FR 2003"), the Authorisation Directive 2002/20/EC ("AD") and Authorisation Regulations 2003 ("AR 2003") and the Wireless Telegraphy Act 1926 as amended. ComReg has in its Third Consultation set out the statutory legal obligations that it believes are relevant to decision making in this Consultation Process, however has not in O2's view covered each and every relevant legal obligation. O2 has set out below some of the key legal obligations that are most relevant to ComReg's conduct of this Consultation Process and in particular those that are relevant to its proposal for a Full Band Auction. Where reference is made anywhere in this response to a breach by ComReg of its legal obligations that reference is to one or more of its statutory and non-statutory legal obligations, and where reference is made to one or more particular legal obligations it is not to the exclusion of any other legal obligations.

5.2. The primary objectives of ComReg in exercising its functions include but are not limited to, the following:

(i) ComReg shall *promote competition* by *inter alia*:

(a) ensuring that there is no distortion or restriction of competition; [1]
(b) encouraging efficient investment in infrastructure and promoting innovation; [2] and
(c) encouraging efficient use and ensuring the effective management of radio frequencies and numbering resources. [3]

(ii) ComReg shall *contribute to the development of the internal market* by *inter alia*:

(d) encouraging the establishment and development of trans-European networks, interoperability of pan-European services and end to end connectivity; [4]
(e) ensuring there is no discrimination in the treatment of undertakings providing electronic communications networks and services; [5] and
(f) co-operating with electronic communications national regulatory authorities in other Member States and the Commission in a transparent manner. [6]

[1] **Article 8(2)(b) FD; Section 12(2)(a)(ii) of the 2002 Act;**
[2] **Article 8(2)(c) FD; Section 12(2)(a)(iii) of the 2002 Act;**
[3] **Article 8(2)(d) FD; Section 12(2)(a)(iv) of the 2002 Act;**
[4] **Article 8(3)(b) FD; Section 12(2)(b)(ii) of the 2002 Act;**
[5] **Article 8(3)(c) FD; Section 12(2)(b)(iii) of the 2002 Act;**
[6] **Article 8(3)(d) FD; Section 12(2)(b)(iv) of the 2002 Act;**

(iii) ComReg *shall promote the interests of the citizens of the E.U.* by *inter alia*:

(g) ensuring a high level of protection for consumers in their dealings with suppliers; [7]

(h) encouraging access to the internet at a reasonable cost to users; [8]

(i) ensuring that the integrity and security of public communications networks are maintained. [9]

5.3. In exercising these objectives EU and Irish legislation provides that ComReg shall take all reasonable measures which are aimed at achieving the objectives, including, but not limited to, the following:-

(i) ComReg must consult all interested parties on proposed decisions and *take account of their comments* before adopting a final decision; [10]

(ii) ComReg should *co-ordinate its actions* with the regulatory authorities of other Member States in carrying out its tasks. [11] Importantly the legislation also provides that ComReg shall "have regard" to international developments.[12]

(iii) ComReg must take the utmost account of the *desirability of making regulation technologically neutral*, i.e. that it neither imposes nor discriminates in favour of the use of a particular type of technology; [13]

(iv) Radio frequencies are to be assigned according to *objective, transparent and non-discriminatory and proportionate* criteria taking into account the democratic, social, linguistic and cultural interests related to the use of frequency; [14]

(v) The allocation and assignment of radio frequencies is to be *managed as efficiently as possible*. [15] ComReg is also obliged to follow any Policy Directions issued from the Minister in relation to such management of spectrum.[16]

(vi) Where ComReg intends to take measures which have a significant impact on the relevant market, it shall give interested parties the opportunity to comment on the

[7] **Article 8(4)(b) FD; Section 12(2)(c)(ii) of the 2002 Act;**
[8] **Section 12(2)(c)(v) of the 2002 Act.**
[9] **Article 8(4)(f) FD; Section 12(2)(c)(vii) of the 2002 Act;**
[10] **Recital 15 FD; Regulation 19(3) FR 2003;**
[11] **Recital 15 FD; Regulations 20(1) and 20(4) FR 2003;**
[12] **Section 12(5) of the 2002 Act**
[13] **Recital 15 FD; Regulations 20(1) and 20(4) FR 2003;**
[14] **Recital 19 and Article 9 FD; Recitals 11,22 and Article 6AD; Regulation 23(1) FR 2003; Regulation 9(4) AR 2003;**
[15] **Recital 19 FD; Regulation 23(2) FR 2003;**
[16] **Section 12(1)(a)(i) of the 2002 Act; Article 8FD;**

draft measure *within a reasonable period*. [17]

5.4. ComReg has organised and conducted this Consultation Process in a manner contrary to its legal obligations. O2 has set out in this response, and its previous two responses, why this is the case. When one looks at the specific statutory legal obligations set out above in the context of this Consultation Process, it is clear why ComReg has taken the wrong approach and is proposing to take the wrong decision.

Promotion of Competition

5.5. ComReg is failing to "promote competition" when if either one of O2 or Vodafone (who are competitors) lost access to 900MHz in 2011, this would leave only one single network with full national coverage and a resulting significant distortion of competition in the market contrary to the interests of consumers. This is particularly the case for rural areas not currently served by other bands and when one remaining operator would be unlikely to offer wholesale access to its network on reasonable terms in the absence of competitive pressure or bargaining power on behalf of other operators. In pursuing its policy objectives and in safeguarding competition to the benefit of consumers, ComReg is empowered to take due account of the variety of conditions relating to competition and consumers that exist in the various geographic areas within the State.

5.6. It would be an extremely damaging situation for the industry, if there was only one operator left with full national coverage, and this would certainly remove the very strong competition that currently exists in the market. ComReg very flippantly suggests that this might not arise, as the operator that lost access could simply sell its assets – it is of grave concern that a regulator would seriously suggest the destruction of the value of the assets of a well established telecoms operator followed by fire-sale of those assets as a solution to a problem that it is unnecessarily creating through its own discretionary proposal and its persistent failure to take into account the concerns of interested parties (including operators).

5.7. ComReg is failing to ensure that there is "no distortion or restriction of competition" or "no discrimination in the treatment of undertakings", and is in fact proposing to give preferential treatment to new entrants (see section 10 below). Furthermore it has placed undue emphasis in this Consultation Process on an erroneous interpretation of the law that suggests that extending existing 2G licensees may constitute State aid (see section 10 below).

5.8. ComReg is not "encouraging efficient investment in infrastructure" by its proposal. As ComReg will be well aware, from communications with current licensed operators over the years, they have invested in and built 900MHz networks to meet the needs of their customers, and have continued with this investment throughout the term of their existing licences (not just in the initial period) and on the basis of ensuring availability of infrastructure over the coming years well past 2011, only to now face a situation where they could lose access to that spectrum. O2 has 1.6m voice service customers who depend on existing 900MHz GSM service, and XX GSM only customers who are wholly dependent on it. It would take a

[17] **Article 6 FD;**

minimum of 4 years to withdraw this service. For a substantial number of those customers there may be no alternative available.

5.9. ComReg is failing to "promote innovation" by its proposal. A withdrawal from existing operators of their use of 900MHz would have serious financial consequences for investment in networks. ComReg is organising a Full Band Auction that allows a diversion of significant monies (in excess of €340m in nominal terms[18]) away from innovation, and development of the industry.

Contribute to the Development of the Internal Market

5.10. In its proposal, ComReg is failing to "contribute to the development of the internal market" and "encourage the interoperability of pan-European services", or follow the European Commission Decision which envisages that "the current use of GSM in the 900 MHz and 1800 MHz bands should remain protected in the whole Community as long as there is a reasonable demand for the service."[19]

5.11. ComReg would be in breach of the Treaty on the Functioning of the European Union by organising a Full Band Auction to use spectrum rights as a channel to raise public money, without taking into account the specific needs of the electronic communications sector.

5.12. ComReg has failed to clarify the position with regard to spectrum trading and spectrum sharing, and appears not to appreciate its current powers and responsibilities in relation to these issues (see section 6). This is inconsistent with its obligation to contribute to the development of the internal market and is a failure to promote competition. It represents a failure by ComReg to co-ordinate its actions with the regulatory authorities of other Member States, and to have due regard to international developments.

5.13. Furthermore, ComReg is failing in its obligations to have regard to "international developments" and "co-ordinate its actions with other NRAs" by proposing a Full Band Auction that is entirely inconsistent with how assignment and award has been approached in almost all other EU Member States.

Promote the Interests of Users within the Community

5.14. ComReg is failing to "promote the interests of users" by its proposal. It is unnecessarily risking serious and immediate disruption of services to 1.6m O2 voice customers, and the many more customers of other operators. ComReg is not properly taking into account or appreciating the current use of 900MHz spectrum by operators and consumers –900MHz is the primary band used by consumers in Ireland today, and it will continue to be so for a number of years to come, and until at least 2015. In circumstances where both O2 and

[18] **Minimum licence fee based on 6 lots for 19 years and 1 lot for 15 years**

[19] **Recital 4, Commission Decision 2009/766/EC**

Vodafone could lose access to 900MHz spectrum it will leave a significant number of Irish consumers without access to mobile communications service.

Breach of ComReg's Other Legal Obligations

5.15. ComReg is currently proposing - less than 12 months before the expiry of O2's existing licence in respect of 900MHz spectrum - to organise and hold a Full Band Auction that flies in the face of O2's demonstrable need for the spectrum in order to maintain effective network coverage and protect the interests of its consumers. This will constitute an unjustified interference with and an unjust attack on the property rights of existing licensees in their businesses (including their shares) and their right to carry on a business and earn a livelihood contrary to the relevant provisions of the Constitution of Ireland, the EU Charter of Fundamental Rights now given legal status under the TFEU and the European Convention on Human Rights. In advancing this proposal, ComReg has failed to take account of comments of all interested parties (in particular, existing licensees such as O2) concerning the proposed Decision "within a reasonable period" and is failing to adopt the option regarding assignment of the spectrum which best accommodates and gives effect to its statutory obligations.

5.16. ComReg has failed to carry out a Regulatory Impact Assessment in accordance with European and International best practice – the "Regulatory Impact Assessment" carried out in the Third Consultation is incomplete, the arguments for and against each option are qualitative only, not quantitative, and no attempt has been made to weight the importance or impact of the different considerations against each other so that the most proportionate decision is made. O2 does not agree with ComReg's statement in its Third Response that "there is no strict obligation on ComReg to conduct a RIA in relation to particular aspects" – all aspects of this extremely important Decision should be subject to a full RIA. Under Policy Direction Number 6 from the Minister, ComReg must, before deciding to impose regulatory obligations on undertakings, conduct a RIA. In ComReg's own "Approach to Regulatory Impact Assessment" (doc 064/69) ComReg has committed to conduct RIAs on consultations which propose significant regulatory action *"for example changes to the use of a frequency band (including limiting access to a band, or providing open access to a band)"*. Furthermore, in ComReg's "Guidelines on ComReg's Approach to Regulatory Impact Assessment" (doc 07/56a) it states that because RIA constitutes a central part of the decision making process, it should be conducted on an ex ante basis, as close to the outset of that process as possible.

5.17. ComReg has failed to meet its legal obligations by proposing to conduct the Full Band Auction for the 900MHz band in isolation, at a time when there is great uncertainty, particularly where there is lack of clarity surrounding the future use of Digital Dividend and spectrum in other bands. It is not the case, as ComReg asserts, that it must proceed with this licence competition at this time; it has a discretion in this regard. The proposed timing gives rise to artificially high demand and higher prices in the proposed auction. A more holistic approach should be taken particularly in circumstances where ComReg has simply left it too late for O2 to make alternative arrangements in the event it does not secure sufficient 900MHz spectrum. The uncertainty in the market created by ComReg's approach to the assignment of the

900MHz spectrum is also contrary to its obligation to promote regulatory predictability or certainty.

5.18. O2 is concerned that the thrust of the documents and other statements by ComReg in other contexts suggest that this process is tainted by bias. The Consultation Process has proceeded in a manner that was predisposed to a particular outcome – its Full Band Auction. ComReg has failed to recognise that it is not possible to simply view access to 900MHz spectrum on the basis one would view access to currently vacant spectrum. It is not self evident that only an auction approach for the entire spectrum band is the best manner in which to achieve ComReg's regulatory objectives.

5.19. ComReg has not acted "proportionately " in the manner in which it is proposing to manage liberalisation in Ireland of the 900MHz band and, in particular, in advocating the proposed Full Band Auction of the entirety of the 900MHz band. The principle of proportionality requires that measures adopted by ComReg do not exceed the limits of what is appropriate and necessary in order to attain the objectives legitimately pursued; accordingly, where there is a choice between several appropriate measures, recourse must be had by ComReg to the least onerous measure and the disadvantages caused must not be disproportionate to the aims pursued. It should act in a manner that has the least adverse effect on the market and licensees, and respects their legal rights (including without limitation rights of property and rights to a livelihood) while achieving its objective in a fair way. Under Irish and E.U. law, in order to be proportionate, it is necessary to verify whether the proposed measure contributes to the realisation of the objective. In addition, the proposed measure must be necessary. It must be verified whether another measure could be used to attain the objective in the least disruptive manner, i.e. the measure adopted by ComReg would be satisfactory in the absence of a plausible, satisfactory, alternative measure. The effects produced by the measure in question must also be considered under the test of proportionality. Such a measure may be set aside if the negative consequences would be excessive in relation to freedom of commerce and activity and impact on the legal rights of those affected.

5.20. ComReg is also obliged to comply and follow directions issued by the Minister for Communications, Marine & Natural Resources. In its approach to this Consultation Process and the Full Band Auction it has not followed a specific Policy Direction on industry sustainability. That Policy Direction provides that ComReg shall ensure that in making regulatory decisions in relation to the electronic communications market, it takes account of the state of the industry and in particular the industry's position in the business cycle and the impact of such decisions on the sustainability of the business of undertakings affected. ComReg by its proposal in (i) setting the minimum price and (ii) through the steps operators must take to mitigate disruption to consumers posed by the proposed auction process, inherently involves taking investment out of the industry at a time when it needs that investment to address the explosion of data demand driven by consumer behaviour needs. This can only result in a reduction of investment in core infrastructure.

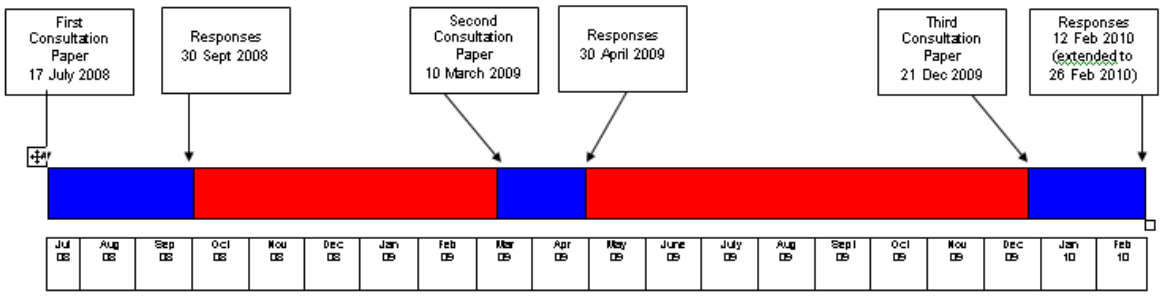
5.21. The proposed Full Band Auction does not represent, even taking into account the rights of

third parties, the minimum interference possible with the constitutionally protected rights of existing licensees and is disproportionate. The actions of ComReg under its latest proposal would constitute an unlawful interference with the Constitutional property rights of O2 (in its business and its Shares) and with its Constitutional right to earn a livelihood (arising from the suggestion by ComReg that if O2 does not secure spectrum, it can simply sell its redundant assets). ComReg's proposed Full Band Auction (and the attendant real risk of loss of 900MHz spectrum for existing licensees such as O2 and, in turn, its customers) would represent a totally disproportionate outcome from the Consultation Process and an unjustified and unlawful interference with and unjust attack on O2's property rights in its business (including its shares). The objective pursued by ComReg in proposing the Full Band Auction - early liberalisation of the entire 900MHz spectrum - is not an objective of sufficient importance to warrant interference with a constitutionally protected right, in particular in circumstances where such rights have not been impaired as little as possible and the means chosen are unfair and disproportionate to the objective.

5.22. ComReg has failed to take account of a key element of O2's proposal. This relates to the proposed mechanism for setting the price for an extension of O2's current licence. O2 proposed that the price could be set by reference to the price arrived at through the auction of the remaining unallocated spectrum in the 900 MHz band. Instead ComReg repeatedly assumes that an extension carries with it the requirement for it to administratively assess a price itself, concluding that this is a major objection to an extension grant. O2 believes that its proposal adequately addresses that concern.

6. Comreg's Delay and Resulting Requirement for Extension

6.1. It would take a minimum of 4 years from today O2 to provide a replacement service, of similar quality to existing services, to the majority of O2 customers if O2 lost access to 900MHz. Even then, the replacement service is unlikely to be equivalent to that which is currently provided on the 900MHz band. Given the delay in ComReg progressing this Consultation Process and reaching any Decision, the industry finds itself in a position of extreme uncertainty in relation to the availability of 900MHz spectrum as soon as mid 2011. The diagram below this paragraph shows the unreasonable timeframes that ComReg has imposed on the industry for addressing the new issues that have been raised at each stage of the process – blue representing the time given to the industry, red representing the time taken by ComReg. O2 reserves its rights in full in relation to this aspect of ComReg's breach of its obligations. As a result of it, O2 is prevented from embarking upon a process now of re-configuring its network to provide replacement coverage using the 2100MHz band, when it does not and can not know if it is likely to retain 900MHz spectrum until a final decision on this issue is made by ComReg. Aside from the fact that it would not be able to properly do so in time, to do so in circumstances where a decision of ComReg (which may not necessarily be the current proposal) could mean that O2 in fact may retain 900MHz spectrum would be an enormous waste of effort and financial resources. This waste would be caused directly as a result of the regulatory delay and uncertainty on the part of ComReg.



6.2. It is worth commenting in relation to the above diagram that this Consultation Process commenced in July 2008, three years prior to the expiry of the existing 2G licences. Notwithstanding the fact that unreasonable periods of time were given to the industry during the course of it, it is of interest that it commenced in line with the commitment given by ComReg (ODTR) in its 2001 Memorandum that spectrum assignments "*will be reviewed three years prior to expiry*". However it is not consistent with and nor did the process from then progress in time with, the accompanying statement by ComReg in that Memorandum that "*Retention of such spectrum will be on a demonstrable need basis".*

6.3. ComReg will not have made a final decision nor completed any assignment process before mid-2010 at the earliest, which leaves an unacceptably short period of time before the expiry of current 900MHz licences. This is insufficient time for O2 to implement any mitigation plan. Loss of 900MHz will reduce coverage for voice and text services and disrupt service to all of O2's customers. It would represent a totally disproportionate outcome from the Consultation Process, and would constitute an unjustified and unlawful interference with O2's property rights in its business.

6.4. The delay in the Consultation Process and an inappropriate decision involving the potential loss by O2 of 900MHz spectrum would have a serious impact on O2's current business and new customers. O2 currently contracts with many customers today for periods of 18 to 24 months. ComReg has failed to take into account the interests of these customers and the many other customers who have similar contracts with other operators. This could cause significant financial damage and could clearly interfere with the economic interests of the operators, who would be entitled to seek compensation.

6.5. O2's interests and options are already prejudiced by the uncertainty in relation to the availability of 900MHz, without a decision in sufficient time to implement an orderly transition from the band if required. O2's current 900MHz licence must be retained for a sufficient time to allow for an orderly exit from current use of the 900MHz band in the event it suffered loss of access. An extension should be in place before ComReg proceeds further in the process to assign spectrum in the 900MHz band. The minimum extension required is for 2x5MHz to 2015, notwithstanding that O2 was led to believe a more lengthy extension for a greater amount of spectrum would be granted, (for the reasons set out in section 4 above). Even a reduction to this limited amount of spectrum would still involve a significant amount of time for

implementation and may not be achieved without disruption to consumers but significantly less potential disruption than a complete loss of spectrum would give rise to.

7. Material Uncertainties Created by ComReg's Proposal

The Digital Dividend

7.1. ComReg should take a holistic approach to the way in which it manages and releases spectrum in Ireland. This is particularly the case where certain bands are potentially substitutable for each other. Though not identical, the Digital Dividend band (800MHz) is generally considered to be a likely suitable substitute for the 900MHz band.

7.2. A significant flaw in ComReg's approach in this Consultation Process is to treat the re-assignment of spectrum in the 900MHz band in isolation.

7.3. This issue has been considered and addressed by DotEcon in its report to ComReg. [20] DotEcon states that where lots are substitutes they should be sold together as the value of each lot depends on the price and availability of the substitute.

7.4. ComReg's approach presents obvious obstacles for operators in preparing for any proposed auction of spectrum. The timing of results in entering the auction with absence of clarity regarding the Digital Dividend availability, poses grave difficulties for operators in developing an appropriate valuation to bid for 900MHz in isolation. This uncoordinated approach has the effect of limiting the supply of sub-1GHz spectrum that is available for auction, eliminating choice of band, and limiting quantity of available spectrum. It has the effect of artificially increasing immediate demand for 900MHz, and creates an imperative for operators to now secure quantity of sub-1GHz spectrum from the 900MHz band alone.

7.5. Proceeding to auction 900MHz spectrum in the manner ComReg proposes, in the absence of ComReg providing clarity, or waiting to be in a position to be able to provide clarity, on allocation of the Digital Dividend could also increase the likelihood that an existing 900MHz operator will unnecessarily lose access to this spectrum because of the increased artificial demand. This potential loss would occur within a timeframe that prevents operators from mitigating disruptive impact on their customers, their network, and their business. Furthermore, where a new entrant wants to obtain sub-1GHz spectrum and where that demand could be satisfied by using 800MHz, the lack of clarity regarding its availability means a requirement is placed on the new entrant to bid in the 900MHz auction, dislocating one of the current or a future spectrum user.

7.6. ComReg would be properly acting within its statutory functions and obligations if it decided to

20 Paragraph 144 of 09-99c "When determining whether to auction lots simultaneously or sequentially, a key consideration is the extent to which lots are substitutes and/or complements. When there is substitutability and/or complementarity between lots, then the value of each lot depends on the prices and availability of substitute/complementary lots. For this reason, when lots are close substitutes and/or complements, as is the case here, then they should be sold together rather than in separate auctions, as this allows bidders to express their preferences without the risk created by having to form expectations of the pricing and availability of lots in future auctions."

take interim measures, by retention of existing licences for a period, and waited to assign both the 800MHz and 900MHz spectrum bands at the same time. ComReg itself acknowledges the benefit in doing so, but focuses on the fact that it believes the availability of the 800 band cannot be brought forward, without considering that an alternative means of achieving the desired outcome is for ComReg to delay the assignment process for 900MHz, with these appropriate fair interim arrangements being put in place. A slight delay in the liberalisation of the 900MHz band, and assignment of unused spectrum, is the more attractive and appropriate course of action when any delay would be short, and when the overall benefit to consumers and operators would outweigh any disadvantage or cost of delay. Any delay would certainly be considered insignificant, in the context of the overall licence period of 19 years that is proposed for new 900MHz band licences. There is absolutely no legal requirement on ComReg to press ahead with assignment of the 900MHz in the manner it is proposing, when a short delay with appropriate interim arrangements would comply with its legal obligations.

7.7. Furthermore, in the near future, operators are likely to want to offer service using a combination of spectrum in bands, both above and below 1GHz. In fact in ODTR document (01/96) in which ComReg gave its commitment to extend licences, at para 4.1 ComReg accepted that in order to operate effectively operators are required to have spectrum in both the 2G and 3G bands. This will give an optimum combination of both coverage and capacity. As consumer demand for data services grows, operators will want to maximise their spectrum assignments in a single band below 1GHz rather than fragmented assignments in both 800MHz and 900MHz. The approach adopted by ComReg in this Consultation Process means that operators will most likely end up with such fragmented assignments. Given that 900MHz licences are to be issued for a period of up to 19 years, it is unlikely therefore that there will be an opportunity to correct such fragmentation giving rise to a very undesirable situation that ComReg has not given due consideration to in this Consultation Process.

Spectrum Liberalisation – Spectrum Trading

7.8. A separate concern arises from the timing of ComReg's Consultation Process and proposal to auction 900MHz spectrum next year and that is in relation to spectrum trading. ComReg is pressing ahead with liberalisation at a time when there is insufficient clarity in Ireland in relation to spectrum trading for operators to make informed decisions. ComReg should clarify the position with regard to spectrum trading before it makes a decision.

7.9. Like ComReg, O2 supports spectrum liberalisation. In relation to the 900MHz band, this generally refers to the ability to deploy 3G or other technology compatible with GSM and 3G in the band, however ComReg is about to issue licences for a period of up to 19 years, and should be considering liberalisation of these licences in a broader sense. ComReg should be aiming to issue licences that are liberalised to the maximum extent possible following on from any assignment process. This should include the facilitation of spectrum trading and other flexible use of spectrum including spectrum sharing.

7.10. ComReg has rejected the suggestion that the new 900MHz licences can be tradeable, however ComReg has flexibility in this regard. It will be a requirement to make these licences tradable in future as a result of the EU Telecoms Reform Package. The Framework Directive (2002\21\EC) as amended (by 2009\140\EC) includes specific provisions permitting spectrum trading, which must be transposed into Irish law by May 2011. Article 9 as amended provides that in specified bands licence holders may apply to have licences made tradable from May 2011. There is little doubt that the 900MHz band will be included in the initial list of such specified bands. Following a period of 5 years, all licences are required to be made tradable. ComReg has failed to deal with this inevitability, simply saying spectrum trading is a matter for the legislature – this is an extremely irresponsible approach to adopt and is not how an NRA should react to EU driven policy.

7.11. In fact there is currently no specific prohibition or impediment to spectrum licences being made tradable or transferable now. A transfer in the future will require prior notification to ComReg, and may require ComReg's consent in order to ensure efficient management of the radio spectrum. Similar relevant conditions can easily be included in the licences when issued. Furthermore, Regulation 5(4) of the 3G and GSM Amendment Regulations (SI 340 of 2003) already provide for transfer of licences with the consent of ComReg. ComReg may either amend these regulations or make new regulations to specifically provide for spectrum trading after the proposed auction of the 900MHz band, and clarify this for the industry in advance of any assignment process. There is clearly a suitable opportunity now, as part of the current assignment process, to include provisions for the transfer and trading of the licences.

7.12. ComReg is also obliged to make the 900MHz licences as flexible as possible at this time. ComReg knows that operators are currently considering the roll-out of next-generation access to communications services and considering the scale of investment that will be required. There are emerging views that some form of collaboration between operators may be required in order to increase the capacity and coverage that can be achieved. ComReg is obliged in fulfilling its statutory obligation to promote efficient investment and innovation in new and enhanced infrastructures, to ensure that any access obligation takes appropriate account of the risk incurred by the investing undertakings and by permitting various cooperative arrangements between investors and parties seeking access to diversify the risk of investment, whilst ensuring that competition in the market is preserved.

Spectrum Liberalisation – Spectrum Sharing

7.13. Operators would benefit by being able to pool their spectrum together or just use it together in order to increase the bandwidth that is available as a single block, e.g. a combined block of 10MHz might prove to be more efficient than two individual blocks of 5MHz. The sharing might include the use of common sites, transmitters, receivers, etc. ComReg has not clarified its position in the Third Consultation with regard to this issue either but it should clarify that there will be no specific restrictions in the licences that would inhibit such sharing. This is an extremely important regulatory matter that ComReg needs to address in advance of the assignment process, which would have a significant impact on operators approach to the auction – ComReg would be in breach of its legal obligations by not doing so.

7.14. There is already site sharing in Ireland, which is encouraged by ComReg and is even a requirement under current licences. Many operators throughout Europe have begun to consider network sharing to a greater degree as a means to increase the efficiency of networks. Given it is intended that the proposed new 900MHz licences will be issued for up to 19 years, it would seem likely, if not inevitable that some operators will want to undertake a greater degree of network sharing during the lifetime of the licences. Such network sharing may take many different forms, and it is not possible to predict exactly what form might emerge. ComReg should seek to ensure that there are no unwarranted restrictions in 900MHz licences that would inhibit such sharing.

Spectrum Liberalisation – Service and Technology Neutrality

7.15. ComReg's position in relation to spectrum liberalisation is relevant for several aspects of this Consultation Process, including:

- the assignment method;
- whether licences will be service and technology neutral;
- licence duration;
- spectrum trading; and
- specific licence conditions.

7.16. ComReg has stated its belief in spectrum liberalisation, and market based mechanisms for ensuring that spectrum is efficiently used, however its latest proposal demonstrates only a partial willingness to liberalise spectrum assignment. It has led to a number of conflicts within the proposal including but not limited to:

(i) use of an auction to determine the assignments, but possible imposition of different conditions depending on who the licensee is, e.g. asymmetrical roll-out obligations;

(ii) service and technology neutrality, but imposition of licence conditions that limit the licensee's freedom to determine the parameters of their own service;

(iii) a market based mechanism for assignment, but non-tradable licences.

7.17. If ComReg really believes in liberalised and market based spectrum assignment then the following aspects of the proposal would be different:

(i) licences would be tradable or transferable and would be of indefinite duration. This would eliminate the current problem whereby operators have a disincentive to invest in their networks and services as they approach the end of their licence term;

(ii) licences would be truly service neutral, with only the minimum of conditions imposed – roll-out and requirements for access to emergency services;

(iii) there would be no variation in the lots to be auctioned depending on the identity of the licensee.

Further details relevant to these points are given below in response to specific questions asked by ComReg. ComReg must address these issues.

8. Comreg's Error of Judgement regarding Consumer Migration Issues

8.1. As explained above, the O2 network is optimised to use all three bands together. The removal of access to any one of the bands would be extremely disruptive to both consumers and operators. The 900MHz band is of the greatest importance for provision of voice and text service in Ireland. The O2 network has been designed to use 900MHz to provide primary service coverage, reaching 99%+ of the population. It has been optimised to use the GSM bands for voice service, even in 3G coverage areas. The O2 network cannot provide equivalent coverage to the current 900MHz on either of the other two bands, nor has it been designed to do so. O2's network at 1800MHz reaches XX% population, and at 2100MHz reaches XX%. The loss of 900MHz spectrum would immediately leave XX of the population without access to any service from O2. All O2 customers would be affected as 900MHz is currently used to provide high quality voice and text service, even where the other two bands have been deployed. In addition to the loss of service to so many customers, there would be an immediate impact on all 1.7 million O2 customers. Those currently in 900MHz coverage only, would lose service completely, those in the coverage of other bands would suffer immediate deterioration in service quality. Without access to sub-1GHz spectrum, it is unlikely that O2 would again build coverage out to 99%+ of the population as some of the currently marginal sites would become unviable, meaning that customers would lose O2 as an operator, with the resultant loss of competition in the industry.

8.2. At present, (and excluding mobile broadband dongles) XX% of O2 customers use GSM only handsets. As mentioned above, the O2 customer base is currently converting to 3G enabled handsets only at a rate of about XX% per annum. All of these XX O2 customers would be significantly adversely impacted if O2 was to lose access to the 900MHz band, and XX% of them (>XX customers) who are outside of 1800MHz would lose service altogether from O2.

8.3. ComReg has failed to appreciate in the Consultation Process the difficulty faced with migrating customers who own GSM only handsets, to 3G enabled handsets. In Finland, Elisa launched UMTS 900MHz in 2007. Following two years of extensive effort, its UMTS900 handset penetration has only just reached 8%. It is targeting to reach 25% in the next year, and 50% in two years time. With no guarantee that these targets will actually be met, this is a 4 year period to migrate 50% of the base to 3G enabled handsets. ComReg has also clearly not appreciated the fact that in a period of almost 5 years since Hutchison 3G Ireland (H3GI) launched its service in Ireland in 2005, it has only managed to build a customer base of 265,000 voice customers.

8.4. ComReg has failed to recognise the significant disruption that would be suffered by all O2 customers if there was a loss of 900MHz spectrum:

(i) all XX voice and broadband customers would suffer impairment in quality for a period of time;

(ii) for the XX% outside of 2100 coverage (XX voice customers) it is unlikely O2 could viably provide coverage. They lose O2 as a choice and as a competitor;

(iii) for the next XX% of population outside of 1800MHz coverage who are GSM only users (XX O2 customers), but within 3G, O2 would have to build capacity and expand 3G network in addition to forcing customers to migrate to new handsets with the associated difficulty in doing so. It could take up to 4 years to achieve this;

(iv) for the XX% population within 1800MHz Coverage – there would be service and quality disruption. For those who have GSM only handsets, (XX) O2 would have to increase 1800 MHz capacity or migrate to 3G;

(v) it is not viable to simply build out the 1800MHz coverage to replace 900MHz – there is no certainty on the 1800MHz licence. O2 would have a peak of traffic for only 2-3 years then diminishing – the investment could not be recovered. O2 would have no option but to start moving off the band in 2013 in preparation for licence expiry in 2015.

MVNO

8.5. An important point which ComReg may not have considered is that all of the consumer disruption issues outlined above and below for the most part have been directed at O2 customers. There is of course going to be significant additional disruption and harm to competition arising as a result of the disruptive impact that the latest ComReg proposal will have on Tesco Mobile. Tesco Mobile is the only MVNO to have entered the market, and operates on the O2 network. Any disruption to O2's network will impact the customers of Tesco Mobile equally to those of O2. The loss of 900MHz spectrum by O2 would leave only one operator from which national coverage could be obtained, and would obviously have an immediate impact on competition in the retail market. ComReg has not evidenced any

awareness of or proper concern regarding these important adverse consequences of its proposals.

9. Comreg's Error of Judgment Regarding Extent of Consumer Disruption

9.1. ComReg has made a fundamental error in its decision making process and completely misjudged the disruptive impact that loss of 900MHz spectrum by O2 would have on consumers and the economy. Its conclusions are based on several assumptions, in particular that (a) that the likelihood of either or both Vodafone or O2 failing to obtain spectrum is low (b) that there are a range of "mitigation factors" that can be deployed to minimise disruption and that there is time to implement these factors in the (maximum) 12 months between ComReg's final decision and licence expiry. With regard to the first assumption, there is a very real possibility that one or both operators will not secure spectrum as a result of the manner in which ComReg is proposing to structure the auction, in particular given the very high reserve price set, the inability to respond to higher bids by other participants under a single bid structure, and ComReg's repeated assertion that demand for this spectrum exceeds supply. With regard to the second assumption concerning the availability of mitigating factors, these are simply not workable in practice as a means of avoiding significant consumer disruption, in particular because of the very limited time left to implement them as a result of ComReg's delay in reaching a final decision. This disruptive impact is not a hypothetical risk, it is real, and based on factual evidence from the industry operators. The unworkability of the proposed mitigating factors is considered in detail in the following paragraphs.

9.2. ComReg has incorrectly assumed that O2 could readily roll-out replacement coverage using either the 1800MHz or 2100MHz bands. This assumption is wrong, for the following reasons:

1800MHz

(i) 1800MHz currently provides service to just XX% of the population;
(ii) installing 1800MHz equipment on all current 900MHz sites would not provide replacement coverage as the propagation characteristics are different and the 900MHz sites would be incorrectly situated;
(iii) in most cases, further fill-in sites would be required and many 900MHz sites would become redundant - it would be an extremely inefficient deployment;
(iv) in practice, it would take a minimum of 4 years to roll-out 1800MHz to provide XX% population coverage – even with the most aggressive roll-out programme, as O2 estimates that 1800 new sites would be required. O2 is dependant on the co-operation of third parties, in particular landowners in order to be able to obtain and build sufficient new sites;
(v) given that O2's 1800MHz licence is due to expire in January 2015, and that the same uncertainty exists regarding the availability of the band beyond then, (an uncertainty imposed by the manner in which ComReg is dealing with that band, separately to the 900MHz band), this is simply not a viable option for O2. In addition, customers will continue to migrate to 3G handsets, leaving a diminishing pool of customers to be

served, and from which the investment can be recouped.

2100MHz

(i) The same difficulties would be encountered in trying to replicate 900MHz coverage with 2100MHz as was described above for 1800MHz, albeit the difference in coverage may not be as great at the start;

(ii) XX% of O2's current customer base use handsets that cannot operate on the 2100MHz band (O2 believes this is a figure that would be typical for an existing GSM & 3G service provider). While the switchover rate will accelerate from the current rate of X% per annum, O2 does not believe that it would be possible to migrate sufficient customers to allow a switch-off of GSM before 2015.

9.3. ComReg has incorrectly asserted that networks could easily roll-out new equipment and switch to other bands for service. It has cited two access equipment changes as evidence that this can be achieved without disruption (Section 6.6.2 of its Third Consultation). One of the examples is the access equipment update that was carried out by O2 from 2006 to 2008. This analysis demonstrates a fundamental absence of understanding of the scale of network re-configuration or re-engineering that would be required to provide replacement coverage using alternative bands.

9.4. In the examples given by ComReg, as ComReg will be aware from discussions with O2 at the time, radio access equipment was replaced by newer equipment operating in the same bands. It was only necessary to replace radio equipment on the same sites. The existing sites, masts, antennae, backhaul transmission, and ancillary site facilities remained unchanged. It was a replacement of "like for like" and even then the replacement took 36 months from commencement to completion. Those are very different circumstances to those that would apply if an operator were required to roll-out replacement coverage in an alternative band.

Use of number portability to transfer to other networks

9.5. ComReg states that any disruption can be avoided or mitigated by consumers availing of number portability to transfer to other networks. This is wrong for a number of reasons including the fact that number portability is only of use to facilitate a transfer of customers where there is an existing and available service to transfer to. It facilitates the transfer and not the provision of the service itself, so it is irrelevant to consideration of how service can be provided if O2 were to lose access to 900MHz.

Availability of other networks to take the affected operator's customers

9.6. ComReg assumes that if Vodafone or O2 were to lose their licence, their customers could migrate to another operator. As a preliminary point, it must be emphasised that any such involuntary migration of customers from their current network, regardless of how well

managed it is, constitutes disruption for them, and is something which ComReg should seek to avoid. Further, when the various alternatives are considered, it is apparent that they are not workable, or lead to outcomes that entirely go against ComReg's legal obligations:

(i) **New licensee:** a new licensee of spectrum in this band will likely begin to roll-out a 3G network, starting in the most densely populated areas. ComReg's own roll-out criteria anticipates that it would take 10 years for a new entrant to reach 90% population coverage, meaning that it could not offer coverage to the very customers most affected by O2's loss of its GSM licence;

(ii) **H3GI:** H3GI does not currently offer sufficient coverage or sufficient capacity to absorb the O2 customers affected. Further, neither a new entrant network nor the H3GI network (which does not have equivalent coverage) would be of any use to the XX% of consumers who own GSM only handsets without a migration of those customers over to 3G handsets, which as noted earlier cannot be achieved in the time frames at issue here;

(iii) **Meteor:** Meteor's network does not have equivalent coverage to that of O2, but even in areas where coverage is provided, there could not be sufficient capacity available to absorb the O2 traffic without a significant upgrade of the network (particularly if Meteor opts to introduce a 3G service on 900MHz), which is unlikely to be an attractive proposition given that Meteor's own licence will expire in 2015, and so its investment would have to be recovered over an extremely short period of time;

(iv) **Vodafone:** There is only one network other than that of O2 which provides full national coverage – that of Vodafone, however the same risk of potential loss of access to the 900MHz spectrum applies to Vodafone with presumably the same resulting disruption to customers and competition. Though Vodafone's network has full national coverage, there would not be sufficient capacity available to absorb the O2 traffic without a significant upgrade of its network, and again this will particularly be the case if Vodafone opts to introduce a 3G service in the band. If a significant volume of O2 customers were to transfer to Vodafone, this would have the effect of greatly increasing Vodafone's market share. ComReg by its actions would therefore have engineered significantly reduced competition and a potentially dominant player in the market place.

10. EU & Competition Issues Raised by the Auction Proposal

Breach of EU Law

Member States, such as Ireland, are obliged to have an open market economy with free competition.

10.1. Firstly, Article 3 of the Treaty on the European Union and Protocol No.27 of the Treaty on the Functioning of the European Union require that competition must not be distorted in the internal market by the Member States (or emanation of Member States such as ComReg). This means that the State and State authorities such as ComReg have a positive obligation to ensure that their decisions and actions do not jeopardise full and fair competition and, on the contrary, must ensure that the Treaty objectives are fulfilled. Contrary to ComReg's apparent position in this Consultation Process there is no principle in competition law which states that the competition which is provided by a new entrant is of a better quality or nature than competition from an incumbent; what matters is the nature of the competition, not the age or nature of the competitor.

10.2. This obligation on a Member State to have competition finds expression in an obligation on Member States not to do anything to undermine the level of competition. Article 4(3) of the Treaty on European Union provides that Member States (such as Ireland) must not do anything which undermines the achievement of the aims of the EU. This provision states:

> "…The Member States shall take any appropriate measure, general or particular, to ensure fulfilment of the obligations arising out of the Treaties or resulting from the acts of the institutions of the Union.
>
> The Member States shall facilitate the achievement of the Union's tasks and refrain from any measure which could jeopardise the attainment of the Union's objectives."

Member States must refrain from any action which would prevent competition emerging in a market. Speaking of the equivalent provisions in the earlier Treaty, one commentator has said that these provisions "elevated a policy directed at effective competition to the level of a constitutional imperative…"(Flynn, "Competition Policy and Public Services in EC Law after the Maastricht and Amsterdam Treaty" in O'Keeffe and Twomey (eds). *Legal Issues of the Amsterdam Treaty (1999) page 188).*

10.3. Secondly, in matters such as licensing and award of tenders, Member States must not engage in discriminatory behaviour or conduct. It is wrong, as a matter of legal principle, to discriminate between existing operators and possible new entrants in selecting new licensees unless there is objectively valid basis for the distinction, which in the present case there is not.

10.4. Thirdly, using the principles of EU law, as exemplified in the area of public procurement law (which have been applied in telecom licensing cases), it is clear that "purchasers (i.e.,

licensors) will not take into account the different abilities or difficulties faced by individual tenderers but will judge them purely on the results of their efforts, i.e. on the basis of the tenders they submit."[21]

10.5. Therefore, it is wrong for ComReg to have any competition where even if it is not ComReg's intention, there is, or appears to be, a bias or prejudice in favour of new entrants; ComReg has implicitly accepted this. By equal measure it is wrong for ComReg to now organise an auction that is prejudicial to the existing operators.

10.6. It is wrong, as a matter of EU law, for ComReg to take the approach proposed in its Third Consultation Document. Such an approach would be in breach of various EU laws and principles, including the fundamental principles, of non-discrimination and equality. Such an approach would also breach principles of administrative law by virtue of the inevitable element of bias or prejudgment that would be involved.

State Aid Argument

10.7. One of the principal reasons put forward by ComReg to explain why it is necessary to proceed with an auction for the entire band rather than grant an extension of existing licences is because ComReg would be unable to determine the appropriate fee for spectrum access. ComReg believes that if it were to grant an extension of existing licences that it would be difficult to determine the correct opportunity cost for that spectrum access and that an incorrect fee could confer a benefit on current operators. That argument is unsustainable. It would mean that the State would have to auction everything and could not impose a licence fee without an auction by law, which defies logic. Further, it has been claimed by one respondent to ComReg's previous consultation that this could contravene EU State aid laws, and ComReg has incorrectly acknowledged this as a potentially valid concern.

10.8. Without prejudice to the fact that an option providing for extension/retention of existing licences in the 900MHz spectrum would not amount to State aid or otherwise contravene EU State aid laws, in order to constitute "State aid" as a matter of EU law, there is a requirement that the advantage is financed through State resources; this requirement is not satisfied in this case, as the State would be compensated for the spectrum allocated.

The European Commission and the Court of Justice of the European Union ("CJEU") have both stated that if there is no drain on the finances of a Member State then there is no State aid. The CJEU has stated this view emphatically in cases such as *Preussen Elektra v Schlesweg*[22] and *Sloman Neptun*.[23] Commenting on this area, Quigley states in the second edition of his *European State Aid Law and Policy* (2009):

> "…it has been argued on several occasions that Article [107(1)] should also apply to

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21 ***Trepte,* Public Procurement Law: A Practitioner's Guide (2nd ed., 2007), page -14.**

22 ***Case C-379/98 [2001] ECR I-2099.***

23 ***Cases C-72 and 73/91 [1993] ECR I-887 (para.19).***

> competitive advantages granted by the State which do not involve any financial burden on the State or appropriation of private financial resources. Each time the [CJEU] has rejected these submissions."[24]

10.9. The CJEU has been consistent and determined in this view. Moreover, even where there was a drain on Member State resources but it was an incidental drain then the CJEU has held that there would be no State aid involved.[25]

10.10. The CJEU has also confirmed that the grant of an exclusive right is not in itself incompatible with Article 102 on abuse of dominance[26] so that by analogy, the mere selection of a single or a small number of licensees does not cause a difficulty.

10.11. If Ireland charges for a licence/facility (e.g., spectrum) and the charge is market-based (i.e., what a market economy investor would pay) then no State aid issue arises. However, even if there were State aid, it is possible that the aid could be approved by the Commission. This is dependent on the Member State (i.e., Ireland in this case) notifying the alleged aid to the European Commission; it is not open to a beneficiary to notify it. Accordingly contrary to the innuendo in the submissions by H3GI that it would be illegal, even if this option was properly regarded as State aid (which it is not), it could be authorised.

10.12. It is erroneous to suggest that "even if ComReg were to set appropriate usage fees for renewal of any of the current GSM 900 MHz licences…the proposal is still fundamentally flawed and would fail on a State aid basis".[27]

10.13. To constitute State aid, it is not sufficient that one entity has some form of a "selective advantage" to one competitor (i.e., selectivity). If selectivity were sufficient to convert something into State aid then the State could never contract with just one party or award any contract or licence to just one party. More is needed than just selectivity to constitute State aid.

10.14. ComReg will be aware that several other EU Member States have been able to extend existing 900MHz licences without contravening State aid rules.

11. Inherent Flaws with the Full Band Auction

11.1. Without prejudice to O2's position that the Full Band Auction is fundamentally flawed, set out below are some specific concerns that O2 has with the proposal.

11.2. ComReg has portioned the spectrum in the 900MHz band into 7 lots of 2x5MHz each and has proposed to use an auction to assign these lots. An auction is proposed as ComReg believes

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24 ***Page 20 (footnote omitted).***

25 ***E.g., Case C-200/97*** **Ecotrade Srl v AFS** ***[1998] ECR I-7907.***

26 ***Case C-41/90*** **Hofner and Elser v Macrotron,** ***para.29, fn.76.***

27 ***Com Reg Consultation 09/99, para.5.4, page 28.***

there will be an excess of demand for the spectrum over the supply available. ComReg believes that an auction will provide an objective method to determine who should be allocated the lots, and how many to each.

11.3. O2 has a number of concerns regarding the manner in which the minimum reserve price was arrived at, the benchmarking process, transparency and the advantage the proposed auction process will confer on Meteor.

Minimum Price

11.4. O2 has a number of fundamental concerns with the approach taken by ComReg, in arriving at the minimum price and the impact that this minimum price might have on the proposed Full Band Auction.

11.5. ComReg has proposed that the annual Spectrum Usage Fees should be €1.8m per annum and will be linked to inflation. The reserve price for a 4-year licence (2011 to 2015) is proposed to be €6.3m, and for the 15-year licence (2015-2030) to be €10.2m. ComReg has developed these reserve prices by reference to a "notional" 15 year licence commencing in 2010 and by benchmarking the price paid for a 15-year licence in various bands, at various times, and in various markets. The nominal minimum price for these licences would be as follows:

- 4-year = €13.5m
- 15-year = €37.2m
- 19-year = €50.7m

11.6. By applying a discount rate of 10.2%, assuming that CPI=0 and that the initial annual Spectrum Usage Fee would be paid a year in advance, ComReg has determined that the Net Present Value of these minimum price licence fees is as follows:

- 4-year = €12.6m (2011-2015)
- 15-year = €20.3m (2015-2030)
- 19-year = €32.9m (2011-2030)

11.7. ComReg has considered a number of options in setting the minimum price for the licences:

- Modelling costs and revenue
- Setting a low but non-trivial minimum price
- Using the administrative cost
- Benchmarking approach

11.8. ComReg opted to use the benchmarking approach and O2 is concerned with the manner in which benchmarks were used in this case to set the minimum price.

The Benchmark

11.9. ComReg has asked Dotecon to carry out a benchmarking exercise in order to determine the appropriate minimum fee for each lot in the spectrum auction. Benchmarks can be useful to give an indication of what a price should be, but can be very unreliable as they depend on obtaining a sizeable sample of comparators of similar spectrum, sold with similar licence terms, in a similar market in a recent time. The difficulty in finding this comparator group means benchmarks can have a wide margin of error and should be used cautiously.

11.10. In the benchmarking exercise Dotecon carried out for ComReg and presented in its report, Dotecon has taken a wide range of comparators, most of which have questionable relevance for a 900MHz auction in Ireland today. They include prices paid for 3G licences in 2001 in the UK and Germany which are now regarded as excessive and Dr. Daniel Maldroom has given testimony to the effect that those do not reflect the value of spectrum today.[28] The benchmark actually omitted the only spectrum sale that could be regarded as a good comparator for 900MHz in Ireland in 2010 – the recent auction of 900MHz spectrum in Singapore.

11.11. Regression analysis can improve the accuracy of benchmark, and the result of Dotecon's benchmarking exercise produced an expected value per lot in the range €17m to €34m. Given the uncertainty and margin of error that is inherent in the use of benchmarks and the risk that a high price would deter bidders, it is surprising that ComReg seems to have just chosen the upper end almost arbitrarily as representing the value of a lot of 900MHz spectrum. Given that this exercise was undertaken in the context of setting a minimum price for an auction, ComReg should have opted for the lower value in the range.

11.12. The most surprising aspect to the way in which ComReg has chosen to use the benchmark data was to take the estimate of the market value for spectrum and to set the minimum price directly at this level. In effect, ComReg is setting the minimum price at what it believes the sale price should be and as a result is inhibiting the auction as a means to determine the price. If benchmarks were to be used at all, ComReg should have used a benchmark of reserve prices or minimum prices respectively to set the reserve price and minimum price in Ireland.

11.13. ComReg has referred to a number of objectives that guided the benchmarking process, including:

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28 The conclusion of the UK Competition Commission in January 2009, having considered Dr. Maldroom's submission was: *"In those reports Dr Maldoom analysed spectrum awards both in Europe and worldwide and subjected the resulting data to econometric analysis to come to a prediction of what fees a 3G spectrum auction would generate in the UK in 2007. He concluded that, although there is significant uncertainty accompanying his estimate, the value of a 3G licence in the UK in 2007 should be around £3 billion (in 2006/07 prices) but subject to a wide margin of error. Comparing this to the implied spectrum value consistent with the charge controls set by Ofcom and Ofcom's medium-demand scenario (£6.2 billion including holding or gestation costs), he concluded that, whilst there may be considerable uncertainty about the true value of 3G spectrum, it is clearly lower than the one implied by Ofcom's charge controls.*

- Deterring frivolous bidders from participating in the auction;
- The need to ensure that the "long-run economic value" of the spectrum is realised; and
- Avoiding collusive behaviour among bidders.

11.14. O2 sets out below its comments in relation to each of the above mentioned objectives.

Deterring Frivolous Bidders

11.15. O2 can understand and agree with ComReg's desire to deter frivolous bidders in an auction and agrees that it is justifiable to set the minimum at a level to achieve this, provided there are no other ill consequences from setting the price at such a level. Setting a low but non-trivial minimum price would be sufficient to achieve this, particularly if a deposit is required to enter the auction. See our further proposal later to avoid a "walk-away". There will always be difficulties in determining what the correct price is to achieve this objective, however given frivolous bidders are likely to be out-bid by serious bidders, the harm that they can do is limited and so ComReg should err on the side of a low minimum price when considering this objective.

11.16. ComReg should take into account its experience from 2006 when an auction of spectrum in the 26GHz band was launched. In this auction, a minimum price of €1m per lot was set, however the minimum was excessive, and proved to be a deterrent to potential bidders. In the event there were no participants in the auction, and ComReg was forced to re-run the process again in 2008 with a reserve price of just €70,000. This time there was participation and spectrum was assigned. This experience is clear evidence that minimum prices should be kept low to avoid deterring bidders from entering the auction.

The Need to Ensure the "Long-Run Economic Vaule of the Spectrum"

11.17. In the consultation document, ComReg has made several references to the objective of ensuring that the "long-run economic value" of the spectrum is realised. No definition or description of this value has been given by ComReg or of how it is different to the value that bidders will place on the spectrum in preparation for the auction. ComReg has not demonstrated how it has determined what this "long-run economic value" actually is. ComReg has argued in the consultation document that the auction itself is the best means by which to determine who values the spectrum the most, and what the value is, so it is difficult to understand why ComReg is seeking to determine what the market value is and to set the minimum at this level when it is proposed to use an auction to assign the spectrum. A well designed auction process should determine the actual value of the spectrum.

11.18. O2 has reviewed ComReg's statutory functions and objectives and they do not provide anywhere that ComReg has as an express or implied objective to realise the "long-run economic value" of the radio spectrum, or even delivery of "a fair return to the State" for the use of this finite natural resource. On the contrary, the setting of the minimum price in this

manner is contrary to ComReg's objectives under the Authorisation Regulations and the Authorisation Directive.

11.19. Regulation 20 of the Authorisation Regulations, and Article 13 of the Authorisation Directive provide that fees for the right to use radio spectrum may only be imposed in order to ensure the optimal use of the radio spectrum, and must be objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose, and must take into account the objectives of the Regulator as set out in section 12 of the Act of 2002 (including the promotion of competition).

11.20. The imposition of a high minimum price at auction in no way ensures the optimal use of the radio spectrum. In particular, as ComReg maintains that there will be an excess demand for the available spectrum, then a high minimum price can only seek to guarantee that a minimum revenue is raised through the auction process. In practice, a high minimum might very well serve to deter a serious bidder from entering the auction and as a consequence from entering the market. Accordingly, the setting of a high minimum price in order to guarantee a minimum return for the use of spectrum is contrary to ComReg's statutory functions and obligations.

Avoiding Collusive Behaviour

11.21. One of the considerations presented by ComReg as explanation for setting a high reserve price is to avoid collusive behaviour among bidders. The assignment process should be properly designed by ComReg so as to produce an efficient and fair outcome. In the case where ComReg has chosen to use an auction as the method for assignment, then the auction mechanism itself should be sufficiently robust to prevent collusive behaviour. It would be incorrect for ComReg to decide on an assignment method, and then set an excessive reserve or minimum price to mitigate weaknesses in the assignment method itself.

11.22. The setting of a high reserve price does not in itself alter the auction process or mechanism in a way that rectifies inherent weaknesses. As ComReg states it merely reduces the incentive by eliminating possible gains, however to set the reserve price artificially high for this purpose is itself a manipulation of the auction outcome. In carrying out the benchmarking exercise for ComReg, Dotecon has referred to a large number of spectrum auctions in other countries and noted that common practice is to have a low reserve price. ComReg has not presented any evidence (other than that there might not be a large number of bidders) to explain why a spectrum auction in Ireland is more likely to involve collusion between participants than an auction in any other country.

11.23. Setting the minimum price excessively high could well have the effect to deter a bidder from entering the auction which is a distortion of competition and runs contrary to ComReg's legal obligations. O2 is of the view that ComReg has set an excessively high reserve minimum price, and should have opted instead for a small but significant minimum. Given that ComReg cannot set the fee on the basis of a desire to recover the "long-run economic value" and that the auction mechanism itself should prevent collusion, O2 is of the view that

ComReg should opt for a small but significant reserve or minimum price regardless of whatever auction process is run.

11.24. Finally, there are in any event legal mechanisms (e.g. the Competition Act 2002 and Article 101 of the Treaty on the Functioning of the European Union) to deal with any such collusion. Accordingly, if the true motivation underlying ComReg's proposal is the avoidance of collusion, it is unnecessary to design the auction in the manner proposed by ComReg.

Transparency

11.25. ComReg's proposal is to use a single-round sealed-bid auction for both stages. In this process, it is expected that bidders will:

(i) determine the number of lots they wish to bid for and their valuation for each combination of bids;

(ii) write these bids on a bidding slip, hand the bidding slip over to ComReg; and

(iii) ComReg will then report back to the bidders and tell them how many lots they have won and at what price.

This process is fundamentally lacking in transparency, bidders have no means to validate or verify how the result has been determined. It would not be appropriate for ComReg to simply publish the full details of all bids submitted as this would be confidential information and bidders should not be expected to reveal their full valuation to their competitors. This leaves a basic shortcoming in ComReg's process that must be resolved.

Meteor's Advantage

11.26. Meteor must be required to decide and declare whether they are to participate in the auction before any bids are placed. Bidders will need to know the number of lots available as this could impact on their valuation and bids. Meteor would have an unfair advantage over other bidders if they could choose during the auction whether they wish to play or not depending on the price bid by competitors. It would be fundamentally unfair and a distortion of competition to allow Meteor a one-way bet - where they knew that they could not lose any spectrum, but only gain some if the bidding worked out to their advantage. Furthermore, O2 fully reserves its rights in relation to the fact that as a result of the licensing regime imposed by ComReg in Ireland, and how that licensing regime is now being managed in the context of the liberalisation process, ComReg is giving Meteor an unfair advantage in the process and in the market.

12. Flaws with the Full Band Auction will Result in an Unfair Outcome

12.1. O2 is concerned that the flaws with the Full Band Auction outlined above will inevitably lead to an unfair outcome.

Manipulation of the Auction

12.2. There are a number of flaws in the approach that ComReg has proposed that mean it cannot be a fair process. Unlike an operator who is to be assigned 900MHz spectrum for the first time, O2 has a requirement to retain at least one lot (2x5 MHz) of spectrum in this band simply to provide continuity of service and avoid extensive customer disruption. In order to introduce a 3G or other liberalised service O2 must obtain 2 lots (2x10MHz). These facts will be well known by all bidders in the auction, and it would be possible for a competitor of O2's to bid in a strategic manner simply to increase the cost to O2 of obtaining the spectrum it needs. In addition, a competitor would have incentive to bid in such a manner as to increase the cost to O2.

12.3. A specific example of the kind of strategic bidding that is possible is given in the confidential Annex to this document. In this case, the number of lots assigned to each operator in the main stage of the auction is unchanged, however the runner-up bidder has been able to increase the price paid by the winning bidders by artificially inflating the apparent opportunity cost.

Outcome Decided by Lottery

12.4. The auction mechanism proposed by ComReg could yield a result whereby there is no unique winning combination of bids – in this case several different bid combinations give the same combined total bid. ComReg has suggested that in this case, the winning combination would be decided by random selection. O2 cannot accept that a decision of such critical importance to its business and with such implications for consumer disruption should be decided by lottery. This would be contrary to ComReg's statutory obligation to ensure that spectrum assignments are based on objective and proportionate criteria.

12.5. ComReg must either amend the process or augment it to eliminate the possibility that the spectrum assignments will be decided by lottery.

12.6. In the main stage of the auction, all lots are identical and this part of the process only determines which bidders are to be assigned lots and the number for each one. Any differences between the lots, and the decision regarding which winning bidder is assigned which lot is determined in the assignment round. In this case, where the lots are interchangeable and identical, it would be expected that each lot would be sold for a similar price, or that the winning bidders would pay a similar price for buying what is the same commodity. However under the mechanism proposed by ComReg, winning bidders could pay vastly different prices for equivalent lots. This difference in price does not arise directly

as a result of the bidders' own valuations and bids, but on those of other participants in the auction. This could produce an unfair result whereby competitors must pay vastly different prices to the state for identical lots that are an essential input to their business.

Bidders Who Walk Away

12.7. The only other time ComReg has assigned spectrum using an auction process was the 26GHz assignment that was run in 2008. In this case the same auction process by Dotecon was used – Main Stage followed by Assignment Stage, Sealed-Bid Single-Round Second Price Rule. In that auction Hutchison 3G Ireland Ltd (H3GI) entered the auction, bid for, and won spectrum. When the auction result was announced, and bidders were required to pay the upfront part of the licence fee, H3GI decided not to proceed to take the licence, but instead left the spectrum they had won unlicensed, despite having had to pay a deposit corresponding to the reserve price. In this case, their participation in the auction affected the final outcome, and was not corrected.

12.8. As was described above, there is scope and incentive for other participants to manipulate the bidding in order to increase the price that O2 would have to pay. The scope for this kind of behaviour is facilitated if bidders know they can just "walk away" and forfeit only their deposit. O2 is aware that reducing the minimum price (and as a consequence the deposit) would further facilitate this kind of manipulative bidding, and accordingly O2 requests that an amendment be made to the process to provide proper safeguards.

Proposed Amendment to Process

12.9. ComReg should require that any upfront payment resulting from the Main Stage of the auction is paid before the result from that stage is declared final. In this case, the proposed assignments would be determined and communicated to each bidder together with a demand to pay the relevant upfront amount. This upfront payment would be the deposit plus any amount over and above the minimum price that the auction determined should be paid. A specified time period should be given for payments to be received, and only when all payments were received would ComReg declare the result of the Main Stage as final.

12.10. In the event that a bidder failed to make their upfront payment on time, they would be eliminated from the auction, and the process re-run to determine the correct result. At this time it may be necessary to refund part of the upfront payment already made by the genuine winning bidders.

12.11. This amendment to the process would prevent manipulation of the auction by bidders who were prepared to take the risk of bidding to increase the price paid by other bidders, but "walk away" in the event that they had over-played this manipulation. See further comments below regarding the use of deferred payments.

Deferred Payments

12.12. In the consultation document, ComReg proposes to allow a deferral of up to 50% of the upfront payment for a period of three years. This is proposed as a safeguard against potential financial difficulties that bidders may face. O2 disagrees with the proposal to allow the upfront payments to be deferred. ComReg's logic for favouring the use of an auction is that those bidders who can generate the greatest value from the spectrum will make the highest bids, resulting in efficient assignment. O2 has explained its concerns in section 12.2 above in relation to potential manipulation of bids, or bidders who might have an unsound business case who decide to "walk away".

12.13. Licences will be issued for a period of up to 19 years. If bidders have developed a valuation based on a sound business case, they should be in a position to obtain financial backing from investors, shareholders, lenders or other appropriate sources. ComReg should not act as a surrogate financier for a bidder who is unable to support its bidding valuations. This would in effect reduce the level of scrutiny required for a bidder's business plan, allowing it to bid above actual valuation, but then default on payments. O2 believes all upfront payments arising from the Main Stage of the auction should be received by ComReg before that stage of the auction is declared complete. This would prevent the outcome being effected by a bidder who decides to walk away as was the case in the 26GHz auction.

13. O2's Alternative Proposal

13.1. As detailed already in this document, O2 disagrees with ComReg's proposed approach to liberalisation and assignment of the spectrum in the 900MHz band, and believes there are alternative options available. In the first place, the availability of 800MHz should be clarified before the assignment of 900MHz proceeds. O2 is entitled to have its current 900MHz licence extended on the basis of previous representations made by ComReg (ODTR). Without prejudice to these views and to O2's right to challenge any decision, in the situation where ComReg was to proceed with the assignment of the 900MHz band in isolation, O2 can propose an alternative solution to ComReg. This alternative could, if implemented correctly strike a balance between the various objectives to be met – it could eliminate the disruptive impact that a loss of 900MHz spectrum by either O2 or Vodafone would have; but also allows ComReg to auction up to 4 lots of liberalised spectrum in the band. These lots would be available for either a new entrant or an existing operator to use to introduce 3G or other compatible services in the band.

13.2. As part of this alternative proposal O2 proposes that ComReg would immediately grant to O2 an extension for 2x5MHz of spectrum in the band (O2 can provide further specific information to demonstrate its need if required). On the basis that Vodafone could demonstrate a continuing requirement a similar extension to Vodafone might be granted.

13.3. The extension should be for sufficient time to allow for an orderly migration from the current dependence on GSM in the 900MHz band – at present it appears the most appropriate

minimum period for the extension would be until 2015. However, O2 propose that ComReg could carry out a review in 2012/2013 to determine whether this is indeed the case. This would give ComReg the option to auction the remaining spectrum in the band (Vodafone, O2, and Meteor remaining assignments) in 2012/2013 – 2/3 years before the expiry of the licences. If the Digital Dividend (800MHz) band has not been assigned by then, it could be included in the same process, as could any spectrum not assigned in the 1800MHz band.

13.4. The extension granted to O2 and Vodafone could be on condition that both operators agree to re-tune assignments following the auction of the remaining spectrum – this would allow operators to aggregate their assigned spectrum following the main stage of the auction.

13.5. A fee should be charged for the extension granted to O2 (and Vodafone). This price could be based on the market price established by the auction of the remaining lots in the band. Again the extension could be granted on condition of agreement to this forming the basis of the price. It is not necessary for ComReg to determine a precise fee for the extension granted to O2 and Vodafone – the auction of free spectrum will determine a market value for the spectrum.

13.6. O2 would require at least 9 months notice in order to be able to re-tune its 900MHz network to operate on 2x5MHz. This would require planning, testing and some hardware modification and coordination with other operators during the implementation (particularly around the border area).

14. Conclusion

14.1. In conclusion, O2 calls upon ComReg to substantially revise the approach adopted in its Third Consultation before making any final Decision on the assignment or award of 900MHz spectrum. O2 has shown in this response document that:

- ComReg should allow for spectrum to be retained by existing licensees even for an interim period and that such a course of action would have the least adverse effect on competition and on the industry.

- If ComReg pursues its latest proposal that would be in breach of a number of its statutory and non-statutory legal obligations, in circumstances where there would be no breach by extending existing licenses.

- Extending existing licenses would avoid severe consumer disruption, ensure clarity on a number of important issues, and prevent distortion of competition.

14.2. O2 *inter alia* highlights significant flaws in the mechanism proposed by ComReg including, but not limited to: the proposed minimum reserve price; the benchmarking process; the lack of transparency; the proposal regarding deferred payments; and the inherent discrimination in favour of Meteor raises fundamental objections to aspects of ComReg's proposed Full Band

Auction. Without prejudice to O2's fundamental opposition to the Full Band Auction in its entirety, O2 has proposed an alternative approach to the assignment of the 900MHz spectrum that would address many of these fundamental flaws.

14.3. As stated at the beginning of this response, O2 fully reserves its rights to legally object to any ultimate Decision adopted by ComReg that incorporates the current proposal, or if it proceeds with any other unlawful proposal. ComReg has the opportunity now to address the concerns raised by O2, and the rest of the industry. ComReg should do so in a manner that complies with law, and in a manner that benefits consumers, operators, the market and the international reputation of Ireland.

15. Response to the Consultation Questions

O2 has set out below its answers to the questions posed by ComReg. These answers are provided without prejudice to O2's fundamental objection to ComReg's Full Band Auction proposed in its entirety for the reasons set out in O2's response above. To the extent that any answer is given to a question that relates to or is connected with the proposal for the Full Band Auction, the provision of an answer is not to be taken as any affirmation of ComReg's proposal or approach.

Q.1. A. Do you agree that ComReg should take all reasonable steps in selecting an auction format so as to ensure a competitive outcome?

There are circumstances where an auction is the best method for assignment of spectrum, in particular in situations where spectrum is to be allocated to a particular service for the first time. Auctions are not necessarily the best or fairest method of re-assigning spectrum with existing services as in this case. O2 has described above the many problems that arise from ComReg's proposal to auction all of the band and why this approach should not be taken.

Where auctions are used, the aim of the process should be to decide the outcome in an efficient manner, which would not mean deciding on the assignments at the highest price, but the lowest price that achieves the legitimate objective. The level of competition at an auction will be dictated by the number of lots available, the number of bidders and their demand for the lots, and in addition any particular rules in the auction. It would be wrong for ComReg to implement auction rules solely to increase the bidding competition as this could only have the effect to increase the overall price paid for the spectrum. If there was not an excess demand for the available spectrum, then it would not be necessary to hold an auction at all, and engineering the process to increase the overall price paid is contrary to ComReg's statutory objectives.

Q.1.B. Do you agree that a sealed bid format is the most appropriate approach in this case?

O2 has described above the several flaws in ComReg's overall proposal. There are reasons why a single-round sealed bid auction is not appropriate in these circumstances. The process is inherently lacking in transparency, but more fundamentally, it eliminates the possibility of price discovery. ComReg has selected this method primarily on the basis of two considerations:

(i) that it is necessary to eliminate coordination by bidders that would result in an overall lower price paid; and
(ii) that there is little common value uncertainty in the proposed auction for spectrum so little benefit is to be gained from the learnings of a multi-round auction.

ComReg has not given any evidence to support the belief that there would be coordination between bidders and O2 does not believe that this is a valid consideration – coordinated bidding will be prohibited, regardless of what auction method is used. It seems instead that ComReg is concerned to ensure that there is contention in the bidding so as to ensure that the overall revenue raised by the process is significant.

Bidders will be expected to develop valuations for a total 19-year period, and future predictions regarding network data capacity among other things can have a significant impact on the value operators will place on the spectrum. There is a significant degree of uncertainty surrounding this future requirement for data capacity and other factors relevant for the valuation. It is incorrect to say that there would be no common value uncertainty for this spectrum. O2 has previously stated its view that a multi-round auction would be more suitable. In fact Dotecon's own analysis (reproduced in table 4 of the consultation document) shows that a combinatorial clock auction would be the most suitable method.

Q.2. Do you agree that a "rebate" in respect of the remaining term of a licence should be provided for in ComReg's auction design? Q.3. What factors should ComReg consider in calculating any such rebate?

In section 11 above, O2 has explained how the proposed treatment of Meteor gives an unfair advantage over other bidders in an auction. Notwithstanding those comments, in general where an existing licence is to be foreshortened O2 agrees that it is correct to allow a rebate based on the original purchase terms.

Q.4. Do you have any comments on the setting of minimum prices or the benchmarking process employed by DotEcon and proposed to be adopted by ComReg in arriving at a minimum price?

See detailed comments in sections 11/12 above.

Q.5. Do you have any comments on the structure of reserve prices and spectrum usage fees?

O2 agrees that the overall price should be divided between an annual fee and an upfront element, as this gives an ongoing incentive to use any allocated spectrum. However ComReg has incorrectly approached the minimum or the reserve price, as detailed in section 12.1 above.

Q.6. Do you have any views on ComReg's proposed deferred payment scheme and the indexation that will apply?

O2 disagrees with the deferred payment scheme – it increases the likelihood that a bidder can bid an excessive price in order to win, but then default on their payments, thus depriving other bidders access to the spectrum.

Q.7. Are there any other approaches ComReg should consider to mitigate any potential for auction disruption arising from the current financial and economic climate?

ComReg should modify the process to ensure that all upfront payments are received before the Main Stage auction is declared complete.

Q.8. i) Do you agree that Meteor's continuing presence (within its current assignment of 892.7 – 899.9 MHz paired with 937.7 - 944.9 MHz) has the potential, depending on the auction outcome, to have a detrimental impact on future liberalised use of Block E or any other block in the 900 MHz band?

ii) Do you agree with ComReg's proposal that, if the circumstances justify it, Meteor's assignment should be adjusted post-auction?

iii) Are there any other issues which should be considered?

O2 agrees with ComReg's proposal, without prejudice to its fundamental objection to the approach ComReg is adopting in the Consulation Process as a whole.

Q.9. i) In the event that Meteor's existing frequency assignment must be adjusted post auction, please provide an estimate of the costs which might reasonably be incurred by Meteor in doing so?

The costs involved will depend on Meteor's particular network and configuration. O2 is not in a position to provide an estimate at this time.

ii) Please identify any proposal as to whether and, if so how, Meteor should be fairly and reasonably compensated for any such costs, having particular regard to ensuring that costs would be objectively justified, proportionate and independently verifiable.

Subject to the comments above in response to question 9.i, the adjustment required is relatively minor, and it is possible that the costs involved are negligible. If not, ComReg could consider applying a discount on the auction fee for the relevant amount.

Q.10. Do you agree with ComReg's technology neutrality proposal which does not mandate the deployment of any particular technology?

O2 agrees with ComReg's proposal for a technology neutral licence, subject to guaranteeing that no harmful interference is caused to existing GSM or future 3G services in the band as required under the EC Decision on use of the 900MHz and 1800MHz bands (2009/766/EC).

Q.11. Do you agree with ComReg's service neutrality proposal which does not mandate the provision of any particular service or services?

Yes, O2 agrees with ComReg's proposal to make 900MHz licences service neutral.

Q.12. Do you agree that it is appropriate that coverage and roll-out licence conditions should be included in future licences for liberalised 900 MHz spectrum?

Given the importance of effective mobile communications for society and the economy, and considering that full national coverage is only likely to be delivered using sub-1 GHz spectrum, ComReg is right to include coverage requirements in the licences. There are some difficulties to be

overcome in this regard though, as discussed further below.

Q.13. Do you agree with ComReg's proposal to define a distinct field strength level for each type of technology deployed in the liberalised 900 MHz band?

Yes, O2 agrees with the proposal.

Q.14. In relation to each category of future new 900 MHz licensee –

(1) existing 900 MHz mobile network operators, (2) existing non-900 MHz mobile network operators, and (3) new entrants - should there be symmetric or asymmetric coverage and roll-out conditions?

There is a fundamental difficulty for ComReg's proposal to assign the spectrum by auction, but to have asymmetrical roll-out conditions. The logic behind the use of an auction as the means to determine who should be assigned the spectrum is based on the fundamental premise that the lots for which each bidder is bidding is identical. The auction can only be fair and produce the correct outcome if this is the case. If ComReg were to impose different licence conditions depending on who the winning bidder is then the lots on which bids are placed are not identical and the integrity of the auction is undermined. ComReg can only use an auction as the assignment mechanism if the licence conditions are the same regardless of who the winner is.

Q.15. Do you agree with ComReg's proposal to allow multiple frequency bands to count towards a 900 MHz band coverage obligation?

This is a sensible approach for ComReg to take and it allows operators to manage services, technology and coverage across licensed bands in the most appropriate and efficient way. This approach does raise some conflict with the fundamental reasoning for use of an auction – all bidders must be bidding on identical lots.

Q.16. Apart from the 1800 MHz and 2100 MHz bands do you believe that there are other frequency bands (e.g. Digital Dividend, 2300 MHz, 2600 MHz, etc.) that can deliver seamless services in conjunction with the 900 MHz band and could be added over the lifetime of the licence to the list of multiple frequency bands?

Yes, the 800MHz, 2300MHz and 2600MHz bands and others might emerge.

Q.17. Provided that asymmetric coverage obligations are set in the 900 MHz competition, do you agree with ComReg's proposal that the existing 900 MHz mobile network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date?

Coverage obligations must be equal in order to ensure the integrity of the auction process.

Q.18. Provided that asymmetric coverage obligations are set in the 900 MHz competition and the aggregation of coverage across multiple frequency bands is allowed, do you agree with

ComReg's proposal that the existing mobile (non-900 MHz) network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date?

As stated above, asymmetric licence conditions would fundamentally undermine a fair auction process.

Q.19. Do you agree with ComReg's proposal that a new entrant should meet a minimum coverage level of 30% geographic coverage within 4 years of the licence commencement date, 70% geographic coverage within 7 years of the licence commencement date, and 90% geographic coverage within 10 years of the licence commencement date?

As stated above, asymmetric licence conditions would fundamentally undermine a fair auction process.

Q.20. Do you believe that coverage via national roaming agreements should be allowed to count towards a 900 MHz coverage obligation and if so, to what extent?

O2 does not agree with the proposal. The whole point of specifying a roll-out requirement is to ensure that the licensed frequencies are actually brought into use. There would be little point in including a roll-out condition, but then allowing that it can be met via national roaming – which would not require that the spectrum is used at all.

Q.21. Do you agree with ComReg's proposal to include a €2 million performance guarantee against the coverage and roll-out obligations in any new 900 MHz licence issued?

If ComReg can find an appropriate coverage obligation for inclusion in the licence, then it should be supported by a performance guarantee. €2m would seem to be the minimum that could have any effect.

Q.22. Do you agree with the outcome of the draft RIA that QoS standards should be imposed as a safeguard measure to overcome the potential market failure which may exist in communications markets?

No, for the reasons explained above in section 6, O2 does not agree with the imposition of QoS obligations in the licence. In addition, O2 disagrees with several of ComReg's RIA conclusions:

- Impact on consumers – it is not credible to suggest that consumers would be unable to determine that a service provider was delivering a poor quality service
- The mobile communications market is competitive - one operator is unlikely to be able to bring down the overall quality of service for all operators
- O2 does not agree that a market failure is likely in the subject markets
- ComReg appears to believe that it can set the quality of service better than market forces, eliminating one aspect of differentiation that an operator might choose – low price but reduced quality service.

Q.23. Do you agree with ComReg's proposal to apply the same QoS obligations to each new licensee in the band?

O2 has stated it's belief already in this document that only minimum QoS conditions should be included in the licence. Where obligations are imposed, they must be the same for all bidders, as it would fundamentally undermine the rationale for use of an auction as the assignment method if ComReg were to impose different conditions depending on who the licence is assigned to.

Q.24. Do you agree that QoS standards should be set on the basis of the service offered rather than in relation to spectrum used to provide this service?

O2 will need to continue to use 900MHz spectrum to provide GSM service for a number of years. A licence QoS condition specifying aspects of a mobile broadband service would clearly be irrelevant in this case, so ComReg must either tailor the QoS obligations according to the service provided, or have only a minimum set of requirements. Tailoring the QoS obligations poses a number of practical difficulties:

- ComReg will not know what services will be provided during the lifetime of the licence so will be unable to specify the QoS obligations in advance of the auction, but bidders will need to know these in order to develop their spectrum valuations
- In tailoring the obligations, ComReg would need to ensure it was not providing an advantage to one type of service or technology over another – this would be a difficult task

ComReg should include only the minimum conditions in the licence.

Q.25. Do you agree with the ComReg' proposed voice calls QoS licence condition and the three proposed QoS metrics for measuring the voice call service?

No, O2 does not agree with the proposal to include individual QoS conditions – this is contrary to the principle of service neutrality.

Q.26. Should QoS metrics be set for VoIP voice calls? If so, what QoS standards do you believe are appropriate? How would these standards be measured and monitored?

No, ComReg should not include QoS obligations, except for emergency service calls.

Q.27. Do you believe that it is appropriate to set a mobile broadband QoS obligation in any new 900 MHz licence issued? If yes, do you agree with ComReg's proposal to set this obligation at the network level with minimum speeds of 3 Mb/s downlink and 384 kb/s uplink.

O2 agrees with ComReg's conclusion that there is unlikely to be a market failure in relation to mobile broadband service. For this reason, and for the reasons already explained, O2 does not agree that ComReg should set a QoS obligation for data services. Without prejudice to this view, O2 does not agree that 3Mbps/384Kbps is the appropriate obligation. This could have the effect to eliminate an element of choice and competition from the market – a low price data service below this threshold. ComReg has not explained how this would apply to continued use of GSM in the band, particularly

where EDGE data services are provided.

Q.28. Do you agree with ComReg's proposed QoS metrics for network performance and the level at which it is proposed to be set?

No, O2 does not agree that ComReg should set QoS metrics in the licence as proposed – this is contrary to service neutrality.

Q.29. Do you agree with ComReg's proposed billing obligation?

In the first place, ComReg should note Regulation 10(1) of the Authorisation Regulations (306 of 2003) which specifies that ComReg may only attach such conditions to wireless telegraphy licences as are listed in Part B of the Schedule of the same Regulations. This part of the schedule does not include any reference to specific billing requirements, and accordingly such conditions should not be included in the radio licence. Further, such specific conditions should be removed from the current GSM and 3G mobile licences and any specific conditions regarding billing practice should be included in the General Authorisation where they will apply to both fixed and mobile services as is relevant. There appears to be no objectively justifiable reason to have different specification of requirements for mobile services than for any other electronic communications service.

In considering whether specific billing requirements should be included at all (in the General Authorisation or elsewhere) ComReg should take into account current general developments regarding customer interaction. Consumers in general are moving towards on-line purchasing and account management. There are many advantages to this move away from paper based interaction, from providing quick access to billing and account information to a general reduction in the use of paper. Changing to on-line or electronic ordering and billing will not suit all customers, but for the vast majority it is acceptable if not preferable (one of the most popular applications on the i-phone applications store is the "My Account" application).

O2 considers billing of customers in a transparent and timely manner as fundamental to the way in which it conducts its business. It is imperative that the billing experience it offers to its customers is best in class and meets its customer's specific requirements, whether they require paper billing or billing online. The standard of O2 billing has been recognised as O2 is the only service provider to have been awarded 4 stars for Excellence in Telecommunications Bill Presentation which has been developed by ComReg in association with EIQA. Part of delivering an excellent customer experience includes ensuring that customers can access their bill in a timely manner and in a format which is appropriate to their needs. It is not necessary for ComReg to be prescriptive in this area, and in fact any specification is likely to prove to be a restriction that prevents innovation.

ComReg has proposed including a specific reference to paper based billing in licence text. This text would require paper based billing as the default format. While O2 agrees that a customer should be able to receive a paper bill if they choose, the proposal to make paper billing the default is an unnecessary restriction on a service provider's ability to provide billing information in the most appropriate format, and it should be removed.

In addition, ComReg has proposed a stipulation that calls must be charged on a per second basis and data services must be charged on a per usage basis. O2 does not believe this is a necessary requirement. The regulatory framework should not restrict an operator's ability to innovate in relation to price propositions through the use of different increments, time based billing, usage based billing etc. It should also be noted that the cost structures incurred at the wholesale level will influence the structure of tariffs at the retail level and it is not appropriate to set a requirement on retail tariffs without taking into account the underlying wholesale and network cost structures. All operators should have the ability to design propositions in a way that they feel meets customers needs, while at the time ensuring that information on how services are billed is transparent and accessible for customers. Such restriction runs contrary to ComReg's proposal to grant licences that are service neutral.

Q.30. Should QoS measures at a consumer level (e.g. billing) be addressed as a licence condition in the 900 MHz licence or as part of a General Authorisation?

See response to question 29 above.

Q.31. Do you agree that it is reasonable for ComReg to review and possibly update the QoS standards over the lifetime of the licence, such as every 5 years, or as appropriate due to changes in the market?

As already stated, ComReg's inability to know even what services will be provided (let alone what the appropriate quality metrics would be) is one of the drawbacks of attempting to impose service specific obligations. It is unclear how a difference of opinion or dispute between the operator and ComReg would be resolved for a future service. Any uncertainty in relation to licence obligations introduce uncertainty to the licence process that is unnecessary. ComReg should not include service specific QoS obligations.

Q.32. Do you agree with ComReg's proposed reporting on compliance obligation?

Yes, O2 agrees with the proposed conditions.

Q. 33. Do you agree with ComReg's proposal to include a €1 million performance guarantee against the QoS obligations in any new 900 MHz licence issued?

Without prejudice to O2's view that QoS obligations should not be included, O2 agrees that in the circumstances where obligations are imposed, there should be a performance guarantee bond. €1m would seem to be the minimum that could provide adequate incentive.

Q.34. Do you agree with ComReg's proposed non-ionising radiation licence condition?

Yes, O2 agrees with the ComReg's proposal for non-ionising radiation.

Q.35. Do you agree with ComReg's proposed international roaming capability licence condition?

Yes, O2 agrees with ComReg's proposal for international roaming, however would note that with technology neutral licences, and as the type of technologies permitted in the band increases, a service provider might have limited scope for provision of international roaming.

Q.36. Do you agree with ComReg's proposed licence conditions on access to emergency services and calling location information?

Yes, O2 agrees with the proposal regarding access to Emergency Services, however this condition should be included in the General Authorisation rather than in the licence under the Wireless Telegraphy Act.

Confidential Annex

[Removed]

7 Tesco Mobile Ireland Ltd

Tesco Mobile Ireland Limited
Gresham House
Marine Road
Dun Laoghaire
Co. Dublin

24th March 2010

Mr. Alex Chisholm
Chairman
Commission for Communications Regulation
Irish Life Center
Lower Abbey Street
Dublin 1

Dear Alex

Consultation Document 09/99

I write to respond to the above consultation document regarding liberalisation and licensing of 900MHz and 1800MHz spectrum. Though Tesco Mobile Ireland (TMI) does not itself operate a radio network that requires a spectrum licence, the outcome of this consultation could nonetheless have a material impact on the TMI business. I am concerned that ComReg's proposal for licensing in the 900MHz band in particular could have the unfortunate outcome of causing disruption to current services and /or reducing the level of available network suitable for carrying a MVNO service.

You will be aware that TMI is the only Mobile Virtual Network Operator (MVNO) to have entered the Irish market, and that we have contracted to use the radio access network of Telefónica O2 Ireland. Our strength is in retail services, and our aim is to use this retail strength to bring value, choice, and competition to the market. We give our customers straightforward products that are excellent value for money. Our target market is largely for use of voice and text message services. A key feature of the TMI service is that the quality of service provided is as good as the market leaders, and it is critically important that our customers know they will have full national coverage.
Though TMI has not built its own radio access network, it has nonetheless incurred substantial costs to establish its presence in the mobile market.

It is my understanding that the current term of both the O2 and Vodafone GSM 900MHz licences are due to expire in May 2011, and that ComReg has proposed

in consultation document 09/99 to hold an auction for the purpose of re-assigning the radio spectrum in this band. This proposal is a cause of extreme concern to TMI for the following reasons:

- Under the proposed auction it is possible for either O2, or Vodafone, or even in the worst case both operators to lose access to their 900MHz radio licence
- A substantial proportion TMI customers currently use GSM only handsets
- Loss of the current 900MHz band by the O2 network would leave TMI without full national service, which would severely damage our ability to compete in the retail mobile communications market
- Loss of access to the 900MHz by the O2 network would cause disruption to TMI customers who would suffer reduced quality of service. I understand that outside of urban areas there is currently no alternative to the use of 900MHz for GSM service
- There are currently only two operators in Ireland that can provide full national radio coverage. If the outcome of the auction process was that one of these operators lost access to spectrum such that there was only one remaining operator with full coverage.
- If the result of the auction is that the cost of access to spectrum is increased substantially, this cost will eventually have an impact on wholesale access prices, and in turn on retail prices

TMI is concerned that if the outcome of the proposed auction was that O2 was required to cease to use 900MHz spectrum in May 2011, this would impact a substantial proportion of TMI customers who use GSM handsets, and as a result would reduce competition in the retail mobile communications market. ComReg should avoid the risk of this outcome and the inevitable resulting consumer disruption. TMI believes that ComReg should at the minimum extend the current 900MHz licences with sufficient spectrum to maintain current services. This is the course of action that would be most beneficial for consumers and competition in the mobile communications market.

Yours Sincerely

Noel Burrows
Tesco Mobile Ireland

8 Vodafone Ireland

Non Confidential

Vodafone Response to the ComReg Further Consultation on Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands & Spectrum Release Options

Executive Summary

ComReg's current proposal provides for the expiry of two existing 900 MHz operators' licences in May 2011 (with a third expiring in June 2015) and an auction of all 35 MHz of 900 MHz spectrum (in seven blocks of 5 MHz, with a 10 MHz cap on each auction participant if demand exceeds supply) at the end of this consultation process.

Vodafone's alternative proposal as elaborated in this Response provides for an extension of the three existing 900 MHz operators' licences in respect of 5 MHz only each, with the remaining 20MHz being auctioned (in four blocks of 5 MHz, with a 10MHz cap on each auction participant). Similar proposals have been submitted during this consultation process and have been considered and rejected by ComReg. In rejecting such proposals, ComReg has suggested that the likelihood of an existing licensee failing to acquire 900 MHz spectrum is low. If ComReg is correct, then both its current proposal and Vodafone's alternative proposal would achieve the same set of outcomes in terms of the spectrum holdings of existing licensees, and there is no reason to prefer ComReg's proposal over Vodafone's.

Vodafone's and ComReg's proposals differ in so far that under ComReg's proposal, there is a risk that one or more of the existing 900 MHz licensees might lose its spectrum. Vodafone's alternative proposal eliminates this risk.

The assessment that ComReg must undertake is whether, if an existing licensee fails to acquire spectrum, the associated benefits would outweigh the associated costs.

The loss of spectrum by an existing 900 MHz operator would result in very significant disruption of that operator's ability to provide mobile communications services. The costs associated with this disruption for consumers of mobile telecommunications services will be very high, and will affect not only the customers of the operator that loses the spectrum, but all consumers of communications services (both mobile and fixed).

In summary, if Vodafone fails to secure 900 MHz, in May 2011 this would mean:

(a) up to 1,000,000 Vodafone customers will lose coverage;

(b) of those, 40,000 will not be capable of being served by any other network operator given Vodafone's superior 900 MHz coverage;

(c) Vodafone would take mitigation measures to ensure continuity of service to as many of these customers as possible. It might be possible to ensure continuation of coverage to 100,000 of these;

(d) this means over 900,000 customers would experience a complete loss of service due to loss of coverage from May 2011, despite Vodafone's efforts to mitigate this;

(e) some customers will attempt to switch to another provider prior to such a loss of service. Optimistically and absent porting issues, existing network capacity within the industry might allow 500,000 customers to do this. Those switching away from Vodafone will retain mobile service, albeit on less attractive terms than was previously provided by Vodafone. Any alternative provider is likely to offer inferior coverage for some years;

(f) this means 400,000 customers could be left without any service at all as at May 2011. Although some of these customers will be able to switch to another provider in subsequent months, in some cases this could take many months, particularly if they are required to port their number;

(g) a further **[Redacted]** customers from other network operators who roam on the Vodafone network will also lose coverage;

(h) the 1,000,000 customers who do not experience a loss of coverage (because they live or travel in areas already served by Vodafone using other frequencies) will nonetheless experience a significant in increase in call drop rates. This will also affect any user in Ireland who seeks to call these customers.

ComReg has suggested that various mitigation strategies would be available if an existing 900 MHz operator loses spectrum. However, ComReg has made serious errors in its assessment of the possible effectiveness of these mitigation strategies; the feasibility of such strategies is rendered much more difficult by the limited time now remaining prior to expiry of the existing 900 MHz operators' licences. These errors have led ComReg to overestimate the extent to which these mitigation strategies are possible at all, and the efficacy of these mitigation strategies in reducing the costs associated with an existing 900 MHz operator losing spectrum. These errors fundamentally undermine the validity of ComReg's assessment of the appropriateness of its current auction based proposal.

In addition, the loss of its 900 MHz spectrum by an existing 900 MHz operator, which is possible only under ComReg's proposal, will in fact result in negative competition effects in the market for mobile communications services for a period of time following licence expiry.

The principal benefit ComReg identifies as arising from its current proposal is the facilitation of the entry of new operators in the 900 MHz spectrum band, by allowing them to bid for that spectrum in an auction. Vodafone's alternative proposal also allows for the possibility of new entrants bidding to acquire up to four blocks of 5 MHz spectrum (subject to a 10 MHz cap on each licensee). It is therefore not necessary to put the entire 900 MHz spectrum band up for auction (with the attendant risk of disruption) for new entrants to be able to bid for a substantial part of that spectrum band.

Any benefit arising from ComReg's current proposal in terms of additional new entry over and above that which would be achieved under Vodafone's proposal is speculative and unproven – in contrast to the customer disruption costs and diminution in the ability of existing 900 MHz licensees to compete, both of which would be definite and substantial.

ComReg will therefore make a serious error if it proceeds with its current proposal when Vodafone's alternative proposal, while also allowing for new entry, eliminates entirely the risk of heavy disruption costs and the weakening of competition in the market over an extended period. While ComReg may regard the facilitation of entry as a worthy object, its pursuit whilst disregarding the costs to existing customers and the implications for competition amongst all participants in the Irish market is disproportionate and cannot be justified.

Introduction

Vodafone takes the opportunity to respond to this consultation, noting that this is the third consultation (in a process that has lasted in excess of 18 months) on the key issue of the future licensing arrangements for the 900 MHz and 1800 MHz spectrum bands and that its 900 MHz licence is due to expire in less than 15 months.

This response should be read in conjunction with previous Vodafone submissions.

ComReg's current proposal provides for the expiry of two existing 900 MHz operators' licences in May 2011 (with a third expiring in June 2015) and an auction of all 35 MHz of 900 MHz spectrum (in seven blocks of 5 MHz, with a 10 MHz cap on each auction participant if demand exceeds supply) at the end of this consultation process.

Under this proposal there is, once again, a material risk that one or more of the existing licensees will lose its spectrum usage rights in the 900 MHz band.

ComReg's analysis seeking to justify this proposal is incomplete, profoundly flawed in its factual assumptions, grounded upon no, or no adequate, evidence, contrary to the legal obligations imposed upon it by the governing regulatory regime and irrational.

As ComReg's proposal risks the loss of spectrum by an existing 900 MHz operator, it raises the prospect of very significant disruption of that operator's ability to provide mobile communications services. As will be explained in detail below, Vodafone has concluded that the costs associated with this disruption for consumers of mobile telecommunications services would be very high, and would affect not only the customers of the operator that loses the spectrum, but all consumers of communications services (both mobile and fixed). The issue of the costs of disruption must, therefore, be central to ComReg's assessment.

However, ComReg has made serious errors in its assessment of the costs of disruption associated with the loss of this spectrum by an existing 900 MHz operator. Those errors, on their own, fundamentally undermine the validity of ComReg's assessment of the appropriateness of its current auction based proposal. These are not only Vodafone's views but have also been independently established and verified by Ingenious Consulting, independent spectrum policy advisers who have recently advised the UK government on similar issues. The Ingenious report, commissioned by Vodafone, including comprehensive analysis and conclusions is contained in Annex 4 of this response.

In Vodafone's view, the risk of negative consumer impact and the detrimental impact on competition in the near term under ComReg's proposal is not offset by any demonstrated benefits to competition or customers which cannot be achieved by an alternative option which would eliminate the risk of negative consumer impact. For this reason, the present ComReg proposal is inconsistent with principles of proper administrative decision making (including the principle of proportionality) and the Regulatory Objectives which ComReg is required to follow. (See Annex 2)

Vodafone's Alternative Proposal

In place of ComReg's flawed proposal for an auction of the entire 900 MHz spectrum, Vodafone urges ComReg to adopt an alternative approach which eliminates the risk of costly disruption and loss of competition, while at the same time delivering the benefits, in respect of potential new entrants, which ComReg associates with its current auction model.

This alternative licensing approach, based on auctioning more than half of the spectrum, would have the following elements, drawn in large measure from earlier Vodafone proposals and ComReg's Option 2 in Document 09/14:

(a) All spectrum in the 900 MHz band (whether currently unallocated spectrum or spectrum held under existing licences) would be liberalised from mid-2011 so as to allow the deployment of UMTS technology.

(b) For each of the existing 900 MHz licensees, the term of its spectrum licence would be extended until 2030 (ComReg's proposed end date for the new spectrum licences in the 900 MHz band) in respect of 5 MHz (of its current allocation of 7.2 MHz).

(c) ComReg would allocate the remaining 20 MHz of spectrum in the 900 MHz band by means of an auction[1].

(d) Existing licensees (with 5 MHz as provided for in (b) above) would be permitted to participate in the auction. An overall 10 MHz spectrum cap would apply to all bidders. Existing licensees could therefore not submit bids for packages of lots that, if the bid was successful, would lead to them exceeding the spectrum cap.

(e) The prices paid by existing 900 MHz licensees for the 5 MHz of spectrum retained by each of them under administrative assignment would be determined by a transparent methodology, clearly defined prior to the auction for the remaining unallocated 20 MHz of spectrum, where the information on market valuations of the spectrum realised from the spectrum blocks allocated by auction in the band would be the key data input[2].

Reviewing the Proposals

Vodafone is aware that proposals similar to this Vodafone alternative proposal have been submitted during the consultation process and have been considered and rejected by ComReg. In rejecting such proposals, ComReg has suggested that the likelihood of an existing licensee failing to acquire spectrum is low. [3]

Vodafone and ComReg's proposals differ in so far that, under ComReg's proposal, there is a risk that one or more of the existing 900 MHz licensees might lose its spectrum. Vodafone's alternative proposal entirely eliminates this risk.

Hence, in Vodafone's submission the assessment that ComReg must undertake is whether, in the event that an existing licensee failed to acquire spectrum, the associated benefits would outweigh the associated costs.

Vodafone submits (as set out in greater detail below) that very significant disruption costs would be associated with the loss of 900 MHz by an existing licensee and that ComReg has made serious errors in assessing those costs.

The principal benefit ComReg identifies as arising from its current proposal is the facilitation of the entry of new operators in the 900 MHz spectrum band, by allowing them to bid for that spectrum in an auction.

ComReg risks making a serious error if it finds that it is necessary to put the entire 900 MHz spectrum band up for auction (with the attendant risk of disruption) for new entrants to have the possibility of bidding for a substantial part of that spectrum band. Vodafone's alternative proposal also allows for the possibility of new entrants bidding to acquire up to four blocks of 5 MHz spectrum (subject to a 10 MHz cap on each licensee).

When ComReg's current auction based proposal is compared with Vodafone's alternative proposal, any benefit in terms of additional new entry in the ComReg proposal, over and above that which would be achieved under Vodafone's proposal, is speculative, unproven and likely to be marginal – in contrast with the

[1] ComReg could also consider awarding a further 5 MHz licence to the fourth existing operator, H3GI, for the period to 2030 and auctioning the remaining three blocks. This option better responds to concerns expressed by ComReg in relation to issues raised by H3GI.
[2] The same methodology would be applied to determine the cost of any spectrum awarded to H3GI.
[3] ComReg Document no. 09/99 page 272.

customer disruption costs and diminution in the ability of existing 900 MHz licensees to compete, both of which, as Vodafone will show below, would be definite and substantial.

So far as ComReg's current preference to put the entire 900 MHz spectrum band up for auction is in any part influenced by an erroneous view that an alternative involving an element of licence extension may involve Sate Aid to an existing licensee, those errors are addressed in Annex 3.

ComReg will make a serious error if it proceeds with its current proposal over Vodafone's alternative proposal which, while facilitating the possibility of new entry, eliminates entirely the risk of heavy disruption costs.

Errors in ComReg's assessment of disruption cost

In deciding on the relative merits of the options open to it on the expiry of the existing operators 900 MHz licences, ComReg has acknowledged that an assessment of the costs associated with those options is required. Vodafone has explained that the loss of spectrum by an existing 900 MHz operator would result in very significant costs for consumers of mobile telecommunications services due to the disruption of that operator's ability to provide mobile communications services. The costs associated with this disruption will affect not only the customers of the operator that loses the spectrum, but all consumers of communications services (both mobile and fixed).

ComReg has suggested that various mitigation strategies would be available if an existing 900 MHz operator loses spectrum. However, ComReg has made serious errors in its assessment of the feasibility and / or effectiveness of these mitigation strategies. In addition, ComReg has failed to take account of the very limited time that remains for implementation of mitigation strategies prior to the expiry of the existing operators 900 MHz licences. In Vodafone's view, there is no possibility that any meaningful strategy to mitigate against the loss of 900 MHz spectrum could be implemented in the period between now and May 2011. The lapse of available time for mitigation is due to the prolonged nature of ComReg's consultation process which has already continued for 19 months. These errors have led ComReg to significantly overestimate the efficacy of these mitigation strategies in reducing the costs associated with an existing 900 MHz operator losing spectrum. Vodafone believes that ComReg has made a serious error in assuming that the costs of disruption arising from the loss of 900 MHz spectrum by an existing operator would not occur in practice. ComReg has also failed to take proper account of the submissions made these issues by Vodafone in previous submissions during this consultation process.

ComReg's errors in respect of the costs of disruption, on their own, fundamentally undermine the validity of its assessment of the appropriateness of its current proposal to auction the entire 900 MHz spectrum.

Moreover, the loss of its 900 MHz spectrum by an existing 900 MHz operator, which is possible only under ComReg's proposal, will result in negative competition effects in the market for mobile communications services for a period of time following licence expiry. ComReg's error in omitting a proper consideration of this issue further undermines its assessment of the costs associated with its current proposal.

The impact of spectrum loss and ineffectiveness of Mitigation Strategies

ComReg's consultation implies that customers will face relatively limited disruption costs, and that those disruption costs will be short lived. ComReg's underlying rationale is that:

(a) an incumbent operator will factor disruption costs into its bid, and so if it loses spectrum it is only because an entrant has a significantly higher valuation for the spectrum;

(b) if an incumbent operator were to lose spectrum, it would be able to reconfigure its network sufficiently in good time in order to continue to provide services to its customers;

(c) even if the incumbent did not re-configure its services, it could enter into an MVNO or national roaming agreement with an operator that does hold a spectrum license;

(d) even if customers were likely to face some disruption costs the operator could change its pricing structures to compensate the customer;

(e) even if the operator did not undertake any mitigation activity, the customer could switch away to a competing operator or new entrant who would be in a position to provide services.

In its submission to ComReg's original consultation Vodafone set out in detail the reasons why the potential mitigation factors set out by ComReg would not avoid significant disruption (and hence costs) to consumers.

Existing licensees will not take account of all disruption costs

ComReg is wrong to assert that operators will take into consideration all disruption costs associated with the loss of spectrum. Operators will only take into account those costs that are of direct relevance to their profitability. To illustrate this point consider the costs to a customer associated with loss of coverage from the customer's chosen operator. In the event of coverage loss, the customer will be forced to switch to a less preferred operator, which will be accompanied by a loss of consumer surplus. When deciding how much to bid for the spectrum, the customer's preferred operator takes into consideration only the revenue loss associated with losing that customer – the operator has no incentive to take into account the welfare loss the consumer would incur if he or she were forced to switch to a less preferred provider.

Similarly, operators will not take into consideration the potential costs imposed on customers of other operators. For example, if loss of spectrum is accompanied by reductions in service quality, such as an increase in dropped calls, this will impact on all consumers, and not just those of the operator that failed to acquire spectrum. This occurs for two reasons. First, even though it is Vodafone's service quality that has been affected, this impacts on O2, Meteor and H3GI's customers because they call Vodafone customers. If a large volume of customers were to switch to an alternative provider, then it is likely that that provider will face capacity and congestion issues such that their service quality also diminished.

It is therefore not correct to argue that operators will take into account all the costs of consumer disruption when making their bidding decisions. Consequently, the fact that an entrant may outbid an incumbent for a spectrum licence cannot be taken automatically and unconditionally as evidence that overall welfare will increase.

Network reconfiguration is not possible in the time between the auction process and licence expiry

If Vodafone were to lose the 900 MHz spectrum, the impact would be a substantial reduction in the coverage and capacity of the Vodafone network. Annexes 4 and 6 to of this response provide greater details on the technical effects of a loss of spectrum. We focus here on the impacts from a consumer perspective. The impact would be:

(a) a loss of [Redacted] traffic carried on the Vodafone network – the 900 MHz network carries [Redacted]% of Vodafone's traffic. The most likely impact of loss of 900 MHz spectrum is that [Redacted]% of total traffic would be lost even following mitigation activity;

(b) if the most probable reduction in population coverage is 43%, Vodafone would no longer be able to provide coverage for up to 816,000[4] customers. In a worst case, this figure would increase to 1,000,000 (see maps below); and

(c) a substantial reduction in service quality - the current use of 1800 MHz spectrum by mobile operators in their networks is primarily to reinforce capacity in areas of high traffic demand.

[4] 43% (42.6%) population coverage loss is based on the median case scenario (see Annex 6) where all traffic lost from 900 MHz coverage could be carried on 1800 MHz and 3G where such coverage exists or could be provided within 9 months. Based on Vodafone's voice customer base (excluding 3G Broadband modems) of 1.915m customers. 43% (42.6%) of the base = 816,000.

Switching off the 900 MHZ network would leave significant coverage gaps (in those areas where coverage remained) that would result in a substantial increase in dropped call rates.

Current GSM outdoor coverage

[Redacted]

Fig. 3

GSM outdoor coverage without 900 MHZ

[Redacted]

Fig. 3a

Vodafone has carried out a detailed review of the level of reconfiguration required to offset the loss of the 900 MHz spectrum and the decommissioning of the network. In summary, the conclusion of that review is that it would simply not be possible to reconfigure the 1800 and 2100 MHz networks in the time available so as to offset most of the above impacts:

(a) for the 1800 MHz network, Vodafone estimates that it would need to build an additional [Redacted] sites and upgrade [Redacted] others to achieve the current level of coverage provided by the 900 MHz network;

(b) for the 2100 MHz network, due to poorer propagation characteristics of this spectrum, the number of additional sites required is even higher than for the 1800 MHz network. Vodafone estimates that [Redacted] additional sites would be required. In addition, Vodafone would need to increase the penetration of 3G handsets from the current level of [Redacted] to approximately 2 million.

To put these numbers in context, Vodafone's network today, after 15 years in operation in the market, consists of around [Redacted] sites. Vodafone currently commissions approximately [Redacted] base stations per annum with a planning cycle of [Redacted]. Even doubling this to [Redacted] sites per annum, it would take more than [Redacted] years to replace 900 MHZ coverage. This assumes away the increased risks associated with building that number of additional sites. Base station planning and acquisition is an increasingly difficult process and for many of the sites, it will impossible to build in the optimum location[5].

ComReg and the Department of Communications, Energy and Natural Resources themselves recognise that adding network capacity and coverage cannot be undertaken quickly:

(a) in the licence conditions attached to the current GSM1800 licences, ComReg set a target of 9 new sites per month in the first 9 months of service. This increased to 10 sites per month in phase 2 which lasted 30 months and fell back to 8 sites per month in the final phase of 36 months. At the

[5] For example, in South Dublin planning policy does not allow a site to be built within 100m of a dwelling house and Kerry County Council has a 1km exclusion zone around houses.

maximum of these rates, Vodafone would need up to [Redacted] years to replace its 900 MHz coverage;

(b) in the current national Broadband Scheme, H3GI are set the 'challenging but achievable' site build rate of 24 sites per month. At this rate, Vodafone would need more than [Redacted] years to replace 900 MHz with 1800 MHz infrastructure and more than [Redacted] years for its replacement with 2100 MHz infrastructure;

(c) in the current consultation ComReg proposes to give a new entrant 4 years to build only 30% geographic coverage using the 900 MHz spectrum.

ComReg attempts to support its position on the facility of network reconfiguration by noting:

> *"ComReg notes the views of another respondent which submitted that it had completed a changeover of its Radio Access Network (RAN) infrastructure within six months without disruption to customers, and cited the example of one of the existing GSM operators who apparently completed two major changeovers on its 2G and 3G networks within a two year time period. It is quiet [sic] possible that the period required for change over could be further reduced should the need arise"*

ComReg makes a basic error by using the submission of this "other respondent" to support its proposition on the facility of network reconfiguration in the event of loss of 900 MHz spectrum by an existing operator. The operation which the network operator in question undertook itself and which refers to another operators undertaking is a RAN refresh. This operation involves only the swapping out of some equipment at existing base station sites and software upgrades. It is not in any way comparable to a complete reconfiguration and build out of the network (involving detailed network re-planning, the acquisition of large numbers of new base station sites, and construction of large numbers of new base stations on greenfield sites)..The upgrading of an existing network associated with a RAN changeover would not constitute an effective measure to mitigate disruption to consumers and it is incorrect for ComReg to assert that these two entirely separate forms of network change are in any way equivalent.

In addition to the difficulties of building out the 2100 MHz network, there is also the issue of migrating all or most of the remaining [Redacted] customers with 2G devices to handsets and devices compatible with the use of 2100 MHz spectrum. Vodafone is not aware of a migration of this type or scale having ever been achieved in the 6-9 month period which is now the period likely to be available and believes that it would not be possible. It would require:

(a) sourcing of the additional handsets from a range of suppliers and ensuring their distribution to customers;

(b) identifying customers who have 3G handsets with 2G SIMs[6];

(c) informing customers of the reasons for handset replacement and managing the immediate negative impact such communication would have on customer confidence;

(d) contacting unregistered prepay customers with 2G handsets;

(e) devising the means by which customers could claim their replacement handsets – vouchers, pin numbers etc;

(f) managing the fraud risks from spurious claims for replacement handsets;

(g) increasing resources in all customer- facing channels to deal with peaks in customer activity; and

[6] For example Blackberry customers currently use 2G SIMs due to an industry wide issue on 3G compatibility.

(h) dealing with customers who refuse an upgrade and seek to retain their 2G only handsets or who wish to switch to another operator.

Vodafone estimates that the cost of the activities outlined above would be at least **[Redacted]** million.[7]

National Roaming or MVNO Agreement

ComReg errs in its claim that Vodafone could effectively use roaming or MVNO agreements to avoid disruption to consumers.

The only point made by ComReg in defence of its assessment that the signing of a MVNO agreement is a feasible mitigation factor is:

> *"If O2 and Vodafone were to win no spectrum or only one block between them, this means the likelihood of Meteor and H3GI being awarded spectrum at 900 MHz spectrum is quite high. Both O2 and Vodafone could seek to establish a roaming agreement with either Meteor and H3GI, who both have an existing network."*

ComReg has failed to properly consider whether coverage and capacity would be available on these other networks to accommodate roaming from Vodafone and / or O2. ComReg has not understood that a new 900 MHz licensee would almost certainly build a UMTS or LTE network in this spectrum (possibly for data-only services) [8] rather than a GSM network which is the type of network on which Vodafone would need to roam in order to deal with loss of 900 MHz spectrum. This means that Vodafone would face the same device migration issues detailed above in relation to the migration of customers to its 2100 MHz network – even if its competitors were prepared to offer attractive roaming terms and even if the new entrants were able to roll out a 900 MHz network to provide adequate coverage to substitute for that currently provided by the existing 900 MHz licensees (both unlikely, given the limited coverage of H3GI and Meteor today, the lack of any coverage by new entrants and the modest roll out obligations proposed by ComReg for such licensees if they acquired 900 MHz spectrum).

This leads to the conclusion that the only operator with which Vodafone could consider concluding a national roaming agreement in this context would be O2 (and vice versa).

However, in such circumstances, O2 would be a monopoly provider of GSM coverage in many rural parts of the State for many years, placing it in an extremely strong commercial position vis a vis Vodafone. ComReg errs if it assumes that any agreement would be feasible in such circumstances. O2 would also face significant capacity constraints if it were to acquire only 5 MHz in the auction, which might well make it impossible for O2 to provide roaming services to meet Vodafone's demand, even if it were inclined to do so. Further, even if O2 had adequate capacity as a result of acquiring 10 MHz, it would almost certainly face a new competitor using 900 MHz spectrum to build a UMTS or LTE network. O2's ability to compete with such a new entrant would depend on its capacity to deploy a similar network – for which it would require 900 MHz spectrum unencumbered by its own 2G traffic or by roaming 2G traffic. O2 would face a simple choice: provide roaming to Vodafone and lose competitiveness relative to other entrants, or remain competitive but thereby expose Vodafone's customers to disruption by denying them roaming. It is therefore clear that roaming cannot be regarded by ComReg as a viable option for Vodafone in such circumstances.

There is another roaming related issue which ComReg has not given proper or adequate attention. The disruption and costs arising from the loss of 900 MHz spectrum by Vodafone would affect not only

[7] **[Redacted]**

[8] In section 10.7 ComReg states: *"Additionally it is possible that a disruptive new entrant might concentrate on the provision of ubiquitous broadband and perhaps choose not to provide any voice services. Such an entrant might compete aggressively in this space. ComReg's view is that it should not artificially constrain this possibility but rather allow for it as a possible outcome of market-driven processes. The administrative assignment of spectrum would weigh against a new disruptive entrant to the market."*

Vodafone's own retail customers but also those of Vodafone's current national roaming partners. Vodafone currently provides 2G national roaming services to both Meteor and H3GI. [Redacted] This service would be seriously jeopardized – without the certainty of a replacement being available if the amount of 900 MHZ available to Vodafone and O2 is reduced.

ComReg has failed to take any or adequate account of the issues relating to existing national roaming agreements that would arise if Vodafone loses its 900 MHZ spectrum as follows:

(a) Vodafone would be required to cease its current national roaming agreements with 3 and Meteor [Redacted]. It is clear that Vodafone with reduced spectrum could no longer carry the additional traffic arising from national roaming. In any case, national roaming partners would be unlikely to want the reduced coverage and quality of Vodafone's remaining 2G network. Nor could they afford to wait until Vodafone took the mitigation actions proposed by ComReg in respect of replacement spectrum;

(b) Vodafone would be left with stranded investments in network capacity, national roaming billing capability, and national roaming specific network features (e.g. national roaming restrict, In-call handover functionality); and

(c) Enhanced national roaming features may not be available on other networks because those networks do not carry national roaming traffic. For example, if In-Call handover is not available on O2, customers of 3 and Meteor will – at least for a period of time- will receive a far poorer service that they previously enjoyed assuming both can conclude a new national roaming agreement with O2.

Lowering prices to compensate customers

ComReg says that, if an existing operator loses 900 MHz spectrum, that operator could compensate customers for any disruption costs by offering price discounts or other incentives.

ComReg's assessment is incorrect because it fails to recognise that:

(a) for some customers, it will not be possible to offer discounts to mitigate the effects of disruption; and

(b) for others, price discounts may not be enough to offset the reduction in the operator's network coverage and quality of service.

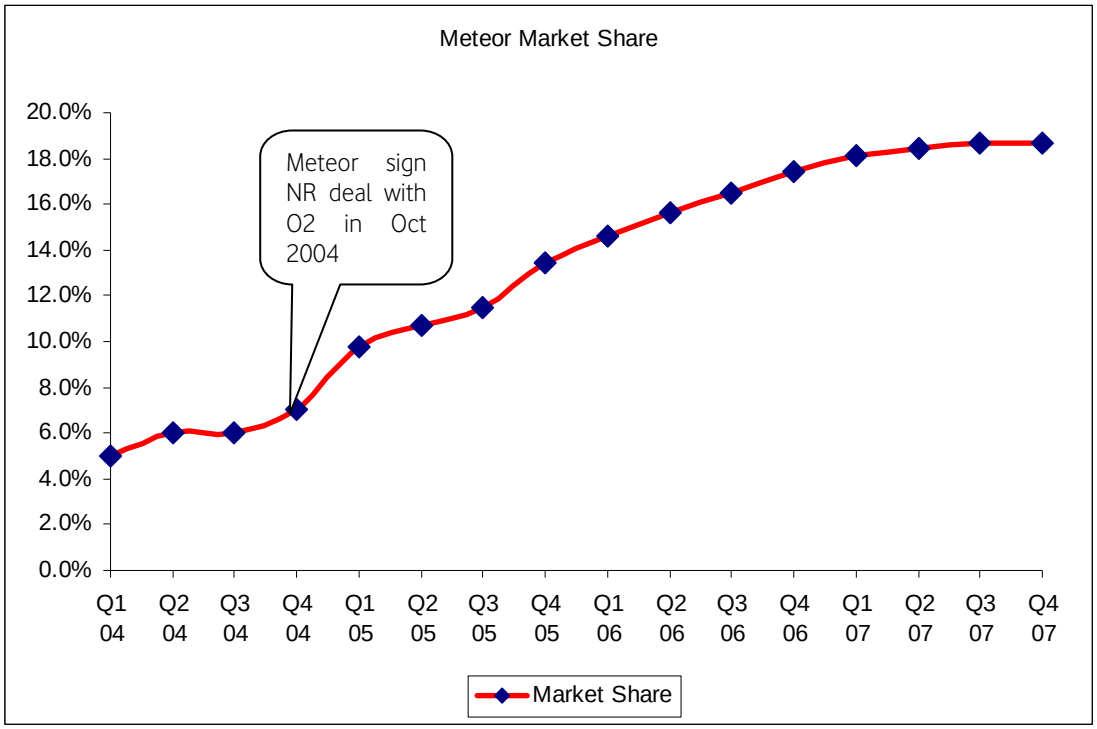
The biggest impact of Vodafone failing to acquire spectrum would be the loss of coverage for up to 1 million subscribers. There is no mitigation strategy based on price that Vodafone could implement relation to customers for whom it can no longer provide services. If a customer is out of coverage and unable to make or receive calls, they will simply switch provider (although it is estimated that at least 40,000 will be unable to do even this because they reside in areas where Vodafone is the sole provider of coverage). In switching, they will incur switching costs and their consumer welfare will be reduced as a result of being forced to switch to a less preferred operator.

For Vodafone's remaining customers, price reductions would be a highly imperfect substitute to reduced quality of service and coverage. However, coverage and network quality are extremely important to customers[9] and the losses in both cases would be very significant – potentially a 50% reduction in their coverage and a [Redacted]% increase in call failures.[10]

[9] [Redacted]
[10] Reference - Vodafone network expert opinion.

ComReg have erred in considering that, for all affected customers, a mitigation strategy based on price could be effective. There is a category of customers, that is to say those that frequently spend time in areas where there would no longer be coverage, for whom, in all likelihood, a mitigation strategy based on price reductions would have a very limited impact on their willingness to remain with Vodafone. In the event that Vodafone's coverage and service quality were reduced substantially; lower prices would not be enough to prevent its customers from switching to alternative providers.

To illustrate the importance of coverage for consumers, Vodafone refers to the history of Meteor's market share (set out in the chart below). This clearly shows that the conclusion of a national roaming agreement with O2 and Meteor's subsequent improved network coverage was accompanied by a significant increase in market share. The importance of network coverage and quality was highlighted by both Meteor and ComReg at the time the agreement was concluded.



Mobile Number Portability

ComReg claims that another mitigation strategy available to Vodafone is to use the MNP process to facilitate their customers switching to other operators if Vodafone is no longer able to serve them. ComReg has failed to consider the likely behaviour of customers if Vodafone were to lose access to 900 MHz spectrum or the capacity limitations of the existing MNP system.

In the event of a significant reduction in coverage and service quality, Vodafone estimates that up to 1,000,000 of its customers will wish to leave. Not all departing customers will wish to port. However, on the basis of its experience, Vodafone estimates that approximately **[Redacted]** of departing customers would wish to port.[11]

The current MNP system can facilitate a maximum throughput not exceeding 1,500 ports per day. At the current maximum daily rate it would take at least **[Redacted]** days to process those departing Vodafone customers who wish to port.

This estimate does not account for ports that would be occurring as part of the normal competitive process. In this connection Vodafone notes that ComReg has failed to realise that competition will be further

[11] Percentage calculated from Vodafone's Port in/total connections ratio for October and November 2009.

impeded in this scenario because customers porting for other reasons, in particular those wishing to port in to Vodafone, will be severely constrained whilst porting arising from the loss of spectrum is being undertaken.

Under any scenario, a significant number of customers would not be able to port as quickly as they wished and many would be forced to change network without porting their existing number (imposing significant costs in notifying changes in number). Moreover, this assumes an even flow of ports over the period of disruption, whereas in reality, most users will not act until service is actually discontinued (i.e. coverage is lost) and will seek to switch mobile provider only at the last minute. This will overwhelm the capacity of the MNP system and lead to further backlogs.

ComReg has not provided evidence to support the following assertion, which is contrary to Vodafone's experience:

> *"ComReg is of the view that any switching that may occur will be over a period of time and hence the likelihood of such a 'mass migration' event is extremely low."*

Aside from porting restrictions, operators face other constraints on their capacity to accommodate large numbers of customers who are seeking to switch. The other operators could not accommodate the customers of Vodafone and/or O2 in the timeframe relevant to avoiding any consumer disruption. ComReg states:

> *"The only limiting factor is to what extent Meteor and H3GI's existing networks would be capable of serving a very large increase in the number of subscribers on their networks, in the very unlikely event that there were to be a large exodus of customers from Vodafone and O2 to the other two established networks (for example customers living outside the main urban areas who do not have a 3G handset)."*

ComReg has however failed to analyse the effects on an operator's networks of taking on large volumes of new customers in a short period in the event that there was a loss of 900 MHz spectrum. There are likely to be significant bottlenecks in current mobile networks which would not only impact on the connection of new customers but would also impact on the quality of service for existing customers, at least in the medium term, if large numbers of new customers join their network.

Large influxes of new customers would encounter capacity constraints in the following areas – at least in the medium term:

(a) in store systems for processing new customer connections.

(b) switching functionality such as HLRs, media gateways, core switching, SMS platforms, voicemail.

(c) transmission capacity both for on-net traffic and interconnect traffic with other networks.

(d) base station capacity and other radio access resources.

(e) customer care systems.

While recipient networks have incentives to remedy these resource constraints as soon as possible, there would be further costs to customers whilst they did so.

Impact on Consumers

This section focuses on the costs to customers associated with Vodafone losing its 900 MHz spectrum. In doing so, it distinguishes between:

(a) customers in areas that face loss of coverage; and

(b) customers in other areas.

Customers in areas that face loss of coverage

For customers that live in areas where Vodafone currently provides coverage based on 900 MHz spectrum, the impact will be that Vodafone will no longer be able to provide mobile services – Vodafone estimates that this would be the case for up to 1 million subscribers. Moreover, given that Vodafone would no longer be able to offer national roaming to H3GI and Meteor, loss of coverage is also likely to affect a considerable proportion of their customers.

Customers facing loss of coverage from their existing operator will be forced to switch operator. These customers face:

(a) costs associated with temporary loss of service – for 2-3% of Vodafone customers (or at least 40,000 users) there is simply no other provider of mobile services; and

(b) switching costs of moving to a new provider; and the loss of consumer surplus associated with moving from a consumer's preferred operator to their second choice operator – 'choice disruption costs'.

Temporary loss of service

Vodafone's network coverage is more extensive than that of any other operator. This means that were Vodafone to lose 900 MHz spectrum, a proportion of its customers (2-3% or at least 40,000) would no longer be able to access mobile services. This would continue to be the case until an alternative operator extended its coverage to provide services for those customers.

Additionally, if Vodafone were to lose 900 MHz spectrum, it is unlikely that all of its 1,000,000 affected customers (and those of its roaming partners whom it could no longer serve) would switch to an alternative provider in advance of licence expiry. This raises the prospect of a bottleneck of switchers around the point of licence expiry, a significant proportion of whom would likely be faced with a temporary loss of service from the time of licence expiry or network decommissioning. Vodafone estimates this figure to be at least 400,000.

Switching costs and loss of consumer welfare

The Irish market is characterised by effective competition for mobile services. This competition is facilitated by a significant number of customers who face low switching costs, are sensitive to price and service quality and who have no strong preference for the services of any particular operator.

However, there are other customers, who may face higher switching costs, or who have a significant preference for one particular provider. For these customers, being forced to switch provider, as a result of Vodafone's loss of 900 MHz spectrum, is likely to impose significant costs, either in the form of switching costs or in the form of reduced consumer surplus.

The switching costs for customers in the event that they must change provider include:

(a) search costs associated with finding the best alternative provider and package;

(b) for pre-pay customers, costs associated with the purchase of a new handset or SIM card (approximately 70% of Vodafone's customers are pre-pay customers);

(c) for post-pay customers, there may be costs surrounding the termination of existing contracts; and

(d) for enterprise customers, there may be substantial costs associated with switching over employees, notifying customers, changing stationary and market materials etc.

Some customers may also face a consumer surplus cost of being forced to switch from their preferred operator to a less preferred operator. The extent of that consumer surplus loss is likely to depend on the proportion of customers that have a strong preference for a particular operator or aspects of the service provided by that operator. In this regard, we note that for older customers, 81% of customers aged 50-64 have never switched operator, while 89% of 65-74 year olds have never switched. Older customers are more likely to be Vodafone customers (Vodafone has a 53% market share amongst customers aged over 65).

Vodafone's internal customer research measures non-price related aspects which customers value. That research suggests that customers perceive key differences between the different operators.

[Redacted]

Customers in other areas

If Vodafone loses 900 MHz spectrum, not all its customers will lose service coverage with their current preferred operator. We anticipate however that even those Vodafone customers who would still receive coverage from Vodafone would be likely to face a reduction in the service quality they receive compared to what they were used prior to Vodafone's loss of spectrum:

(a) to the extent that they travel to areas that no longer have 900 MHz coverage, their ability to make or receive calls will be affected; and

(b) to the extent that they make calls to or receive calls from Vodafone customers that are located in areas that will no longer be covered, they will also face disruption.

The reduction in the capacity on the network is also likely to lead to:

(a) reduced call success rates;

(b) higher proportions of dropped calls; and

(c) poorer call quality.

One of the biggest impacts for customers remaining with Vodafone is the likely increase in dropped call rates associated with the loss of the 900 MHz spectrum. This is likely to occur because Vodafone's 1800 MHz and 2100 MHz networks are configured to operate in tandem with the 900 MHz spectrum, and in the absence of that spectrum large numbers of calls are likely to be dropped as customers move in and out of coverage. The figure below illustrates this point, showing Vodafone Ireland indoor GSM coverage for Dublin without 900 MHZ spectrum. The non-shaded areas on the figure indicate locations in Dublin where Vodafone would not have coverage in the absence of 900 MHz spectrum. This illustrates that as consumers move around the city they are likely to experience a much higher proportion of dropped calls than currently. Similar projections can be provided in respect of other urban locations which will be affected, if required

[Redacted]

For Vodafone customers, they will face a trade off between staying with Vodafone and receiving a reduced quality of service and switching to a competitor and receiving the lower consumer surplus associated with being forced to switch to a less preferred operator. We note again, that for customers for which indoor coverage is important, any mitigation strategy involving lower prices or other means (e.g. free minutes) would have a limited impact on their likelihood of switching.

Moreover, this impact would not just affect customers of Vodafone if it loses 900 MHz spectrum, but also would affect all customers in the market because they communicate with Vodafone customers.

The costs of consumer disruption are likely to be large

The previous sections have outlined in detail the costs that customers are likely to face. To demonstrate the potential magnitude of these disruption costs, Vodafone's internal experts have developed estimates of impact (see Annex 6) which have been verified by Ingenious Consulting. The results of this independent verification are set out in Annex 4 to this response.

The Table below summarises the costs associated with consumer disruption. While this is illustrative, it is important to note that it is based on highly conservative assumptions. Moreover:

(a) it does not take into consideration the potential disruption costs facing Meteor and H3GI's customers who currently receive coverage through national roaming on Vodafone's network;

(b) it does not consider the impact on other consumers who will also experience increased dropped calls when they call Vodafone customers;

(c) it does not take into account the impact on customers associated with congestion and capacity issues on rival network operators;

(d) it does not consider the costs associated with the potential loss of competition (see below); and

(e) the Table shows only the annual costs for loss of service and loss of surplus associated with switching provider. These costs are likely to be incurred for many years, as it will take time to reconfigure the network such that coverage and service quality are equivalent to today.

[Redacted]

The effects of spectrum loss on competition

Many of the benefits ComReg has outlined in relation to auctioning the spectrum rely not just on the auction process leading to new entry, but on that entry leading to a strengthening of competition, with consequent benefits for consumers.

Vodafone has previously set out a detailed critique of ComReg's approach to measuring benefits[12]. Vodafone does not believe that ComReg has addressed this critique. Moreover, Vodafone submits that any benefits associated with entry over and above that which could be achieved under Vodafone's proposal are both speculative and unproven.

In the event that new entry were at the expense of an existing licensee losing 900 MHz spectrum, Vodafone also submits that, in addition to the substantial customer disruption costs detailed above, there is also likely to be a weakening of competition.

In particular, were either Vodafone or O2 to lose 900 MHz spectrum:

(a) in the absence of a short term roaming agreement, the new entrant may have a limited impact on competition in the market as it will take time for it to develop its network capacity – this fact is recognised by ComReg, as its proposed coverage requirement for a new entrant is set at 30% of the

[12] Vodafone's Regulatory Impact Assessment of ComReg's Proposed 900 MHz Spectrum Licensing Options

population after four years. Moreover, it is possible that a new entrant might focus only on data services and would not therefore have any effect on competition for voice calls;

(b) in the event that Vodafone lost 900 MHz spectrum, O2 would be the only provider available to 20%[13] of 2G customers. Other operators' ability to compete for those customers would, in the short term, be dependent on O2's willingness to offer national roaming. Vodafone has already shown that O2 would be unlikely to provide such roaming, unless required to do so by ComReg. Even if it were required to do so, there must be substantial doubts as to whether it would have the network capacity to do so. Even if this were the case, the consequence of obliging O2 to offer roaming would be to make O2 less competitive in the provision of UMTS services (since it could not then refarm its 900 MHz spectrum to UMTS or LTE whilst also fulfilling roaming obligations);

(c) Vodafone will be unable to compete effectively for up to 1,000,000 customers for a significant period of time (absent a national roaming agreement). Moreover, the quality of services it can provide to its remaining customers will be degraded; and

(d) O2 is likely to become capacity constrained (in the event of substantial switching from Vodafone customers, and/or the provision of national roaming to the other operators) and competition between the other three operators to become less intense.

Weighing the cost against the benefit

In Vodafone's submission, the costs associated with the disruption arising from the loss of spectrum by an existing 900 MHz operator would be very significant. The risk of these costs arises only in connection with ComReg's proposal to auction of the entire 900 MHz spectrum. The risk of the disruption associated with loss is eliminated in Vodafone's alternative proposal.

The principal benefit ComReg identifies as arising from its current proposal is the facilitation of the entry of new operators in the 900 MHz spectrum band. It suggests that this benefit is best achieved this by allowing new entrants to place bids in an auction in which the entire 900 MHz spectrum will be in play.

Vodafone's submission is that it is not necessary to put the entire 900 MHz spectrum band into play in an auction (with the attendant risk of disruption) for new entrants to have the possibility of bidding for a substantial part of that spectrum band. That possibility is also present in Vodafone's alternative proposal; it would allow new entrants to bid to acquire up to four blocks of 5 MHz spectrum (subject to a 10 MHz cap on each licensee) which is more than half the spectrum available in this band.

Before ComReg can proceed to a decision to put the entire 900 MHz spectrum band up for auction, it must, if it is to avoid serious error, compare its proposal to put the entire spectrum into play in an auction with Vodafone's alternative proposal and identify any benefit in terms of additional new entry in its proposal over and above that which would be achieved under Vodafone's proposal. In Vodafone's submission, any incremental benefit associated with ComReg's proposal when compared to Vodafone's alternative proposal is speculative, unproven and not likely to be significant given the diminishing marginal benefits from additional entry. This contrasts with the customer disruption costs and the weakening of competition in the market over an extended period, , both of which would be definite and substantial.

ComReg will therefore make a serious error if it proceeds with its current proposal when Vodafone's alternative proposal, while also allowing for new entry, eliminates entirely the risk of heavy disruption costs and the weakening of competition. While ComReg may regard the facilitation of entry as a worthy object, its pursuit whilst disregarding the costs to existing customers and the implications for competition amongst all participants in the Irish market is disproportionate and cannot be justified.

[13] Reference - Tables 10 and 11 contained in ComReg document 09/99.

Annex 1
Response to Consultation Questions

This Annex contains Vodafone's responses to the questions set out in ComReg Doc No 09/99. These responses are entirely without prejudice to Vodafone's submission that ComReg will make a serious error if it proceeds with the auction based proposal rather than Vodafone's alternative proposal set out elsewhere in this response.

Q1. A Do you agree that ComReg should take all reasonable steps in selecting an auction format so as to ensure a competitive outcome ?

No. Irrespective of the auction format used, Vodafone is opposed to ComReg's current proposal to auction 2 x 35 MHz of spectrum in the 900 MHz band. Vodafone's views in relation to the flaws in ComReg's analysis and the risks and costs of its proposed licensing approach are set out in the main section of our consultation response.

Q1. B Do you agree that a sealed bid format is the most appropriate approach in this case ?

Appropriate Auction Format

(a) Vodafone does not accept Comreg's proposed auction approach and does not think that a sealed bid format is the most appropriate approach in the event that the auction were nonetheless to be held.

(b) Vodafone agrees that, in the case where a competitive award process for the whole of the 900 MHz band were to be held, it would be desirable that the auction format used should allow package bidding as this eliminates bidder aggregation and fragmentation risk and enables the fullest and most efficient utilisation of the spectrum. However a sealed bid combinatorial (SBC) auction format is not the most appropriate choice among the available combinatorial auction formats that could be adopted. Most importantly, the choice of a SBC auction format is inconsistent with minimising the probability of one or more of the existing licensees failing to obtain any 900 MHz spectrum, where common value uncertainty is clearly present.

(c) Vodafone disagrees with the proposed use of a sealed bid combinatorial auction. DotEcon's rationale for proposing the SBC format is that:

(i) Common value uncertainty is relatively low on the basis that the technologies likely to be used in liberalised 900 MHz spectrum are known and the demand conditions for mobile broadband and data services are now well understood.

(ii) An auction format such as CCA that facilitates price discovery would have to be an open format and this would raise concerns around the potential for strategic behaviour or collusion by auction participants in what ComReg and DotEcon consider to be the most likely scenario of limited competition in a spectrum award process.

Vodafone strongly disagrees with this reasoning. Vodafone believes that there is considerable common value uncertainty in relation to 900 MHz spectrum, and believe that the choice of an SBC format is likely to significantly increase the prospect of inefficient entry resulting in the loss of spectrum by an existing licensee. Moreover, Vodafone believes that there are a number of other mitigation strategies that ComReg could employ to counter any concerns regarding collusive behaviour.

Common Value Uncertainty

Vodafone believes there is considerable common value uncertainty in relation to the 900 MHz band. In particular, Vodafone considers there to be considerable uncertainty surrounding:

(a) Future economic and technological conditions,

(b) Future trends in service demand, revenues and margins,

(c) Cost efficiencies likely to be achievable from use of 900 MHz spectrum rather than other spectrum bands.

(d) It is difficult, even for existing licensees, to forecast with any confidence the likely evolution of the key factors driving spectrum valuation beyond the first 3-4 years.[1] DotEcon themselves note the possibility that the information provided during other auction formats such as CCA allow bidders 'the opportunity to revise their business case during the auction'. This is given as an advantage of a sealed bid auction but rather indicates that there is uncertainty over valuations and that the CCA auction process provides bidders with information which allows them to reduce this uncertainty (otherwise bidders would not seek to revise their business cases). DotEcon also fail to explain why any bidder with predatory intent (assuming such behaviour was feasible) would need to revise their business plan.

(e) The valuation problem is even more acute for potential new entrants who do not have any practical experience of operating in the Irish market. Experience in previous spectrum auctions internationally[2] such as in the German and Italian 3G auctions shows that prospective new entrants generally adopt unrealistically aggressive and optimistic assumptions about their future customer acquisition, revenues, margins, and cost efficiencies achievable, among other relevant factors. As a consequence, they are likely to overvalue the spectrum.

(f) There is always a risk that auctions go badly wrong, whatever the format. There are examples of auctions leading to inefficient and/or unexpected results for all the major auction formats.[3]

Minimisation of Incentives for Collusion

(g) Vodafone also rejects DotEcon and ComReg's view that the minimisation of incentives for collusion by participants in any 900 MHz auction justifies the selection of a SBC auction format over a CCA format or a SMRA format with package bidding features[4],. Vodafone considers that specific measures can be included in the auction rules that can ensure that the scope for collusion or strategic behaviour on the part of auction participants is minimised in an open auction format such as the CCA format with a second price rule. In particular, Vodafone considers that the anonymisation of bidder identities during the auction and a requirement that bids can only be raised in fixed increments (of say €50,000 or €100,000) to avoid any potential for signalling through bid prices would minimise any scope for strategic or collusive behaviour that may exist. ComReg and DotEcon have omitted any consideration of how the open auction formats such as CCA or SMRA could be used while minimising the scope for collusion through appropriate measures in the auction rules. This is a serious error in the analysis that in Vodafone's view requires the proposed approach to the auction design to be revised.

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[1] With regard to the considerable uncertainty around alternative spectrum availability as a 900 MHz spectrum valuation driver, Vodafone notes ComReg's claim on page 50 of the consultation that "... while any spectrum deriving from analogue television broadcasting switch off (ASO) may become available during the life of new liberalised 900 MHz licences, there remains considerable uncertainty over the quantum, nature and availability of this spectrum – both at an Irish and European level."

[2] In Germany two new entrants were successful in the German auction in 2000: Mobilkom and Quam. These were well supported by MNOs (France Telecom and Telefonica/TeliaSonera respectively), but both failed to launch commercial services. The result is that a total of 40MHz of prime 2.1 GHz spectrum (33% of the total band) has remained entirely unused for 10 years.

[3] *Problems with 2nd-priced Sealed Bid: Paul Milgrom, Putting Auction Theory To Work; excerpt at http://assets.cambridge.org/97805215/51847/sample/9780521551847ws.pdf*
Problems with 1st-priced Sealed Bid: Paul Klemperer, What Really Matters in Auction Design; http://www.nuff.ox.ac.uk/users/klemperer/wrm6.pdf
Problems with SMRA, Paul Klemperer, How (Not) to Run Auctions, http://www.nuff.ox.ac.uk/economics/papers/2002/w5/runauction.pdf

[4] http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.19.2583&rep=rep1&type=pdf

(h) We note that the CCA format developed by DotEcon has been proposed for use in the 2.6 GHz auction in the UK, where DotEcon has been advising Ofcom on auction design. The consultation for this auction set out a number of methods for reducing the risk of collusion and, through a process of balancing the costs and benefits of each potential measure, set out those measures that Ofcom considered appropriate[1].

(i) Vodafone considers that an open auction format view achieves essentially all of the objectives for an appropriate auction design as set out by DotEcon in section 6.1 of its report while reducing significantly the probability of existing licensees losing access to 900 MHz spectrum (relative to use of the SBC auction format). An open auction format such as CCA or SMRA should therefore be adopted in any competitive allocation process for the allocation of the 900 MHz spectrum.

Q.2. Do you agree that a "rebate" in respect of the remaining term of a licence should be provided for in ComReg's auction design?

(a) Where a combinatorial auction design is used to allocate all the spectrum in the 900 MHz frequency band as proposed in ComReg's Modified Option 1, Vodafone does not agree that a "rebate" in respect of the remaining term of the licence is objectively justified or necessary. Vodafone agrees that a time disaggregated approach to the packaging of spectrum, is superior to a time aggregated approach as the latter option would pose serious risks of distorting competition and would limit the options and flexibility available to bidders in a manner that could lead to inefficient auction outcomes. However, in terms of effectively incentivising release and early liberalisation of spectrum usage rights held under Meteor's existing licence from 2011, Vodafone considers that allowing Meteor the option within the auction process to make an offer to release some or all of its existing spectrum contingent on winning new liberalised licences, in essence a 'free bet', as described in paragraph 369 of the DotEcon report, is on its own sufficient to achieve this objective.

(b) Vodafone considers that the proposed option for Meteor to make such a contingent offer would be sufficient, in the absence of any additional compensation or "rebate" measure, to incentivise early release of this spectrum. The incremental value of a liberalised 2 X 5 MHz spectrum block is likely be high enough to induce early release of at least 2 X 2.2 MHz of Meteor's existing 2 X 7.2 MHz spectrum allocation for liberalised use in the 900 MHz band.

Consideration of Meteor Spectrum Release Scenarios

(c) The apparent most likely scenario is where only 2 X 2.2 MHz of Meteor's existing spectrum usage rights were offered to be released contingent on it being successful in bidding for one block, given that Meteor would almost certainly require the remaining 2 X 5 MHz which it currently holds to support continued provision of existing GSM services until at least 2015. This would allow an additional full 2 X 5 MHz block to be released on a liberalised basis in the 2011-2015 time period in the event that Meteor's bid were successful. A successful Meteor bid in this scenario would avoid a 2 X 2.8 MHz portion of one block going unallocated for the period 2011-2015, and lead to 2 X 30 MHz of the 2 X 35 MHz of spectrum in the 900 MHz band being liberalised from the outset.

(d) Vodafone considers that given the high likelihood of the above partial release of Meteor's existing spectrum allocation occurring, in the context of the proposed contingent bid option being in place, the justification offered by DotEcon for the proposed rebate scheme, set out in paragraph 370 of its report is entirely insufficient. The concern around Meteor's bid potentially being based on the "upgrade" value of a liberalised licence relative to its existing licence, as opposed to a non-GSM operator's bid being based on the full value of a licence, and the claim that this would give too little

[1] Ofcom consultation document: Award of available spectrum: 2500-2690 MHz, 2010-2025 MHz and 2290-2300 MHz – 11 December 2006

incentive for Meteor to release its licence early does not provide an adequate rationale for a rebate. This is the case as Meteor would be making a contingent offer to release 2 X 2.2 MHz of unliberalised spectrum to obtain 2 X 5 MHz of spectrum on a liberalised basis.

(e) It would not only be the "upgrade" value of liberalised versus unliberalised spectrum that would be relevant to Meteor's valuation and associated bid, but the fact that a much larger amount of additional spectrum would be available to it. The additional spectrum would be particularly important in terms of providing the practical capability for Meteor to deploy advanced technologies such as UMTS in the 900 MHz band at an early stage, while also maintaining GSM service provision. It can reasonably be claimed that the factor of the additional spectrum available from a new licence would be of at least comparable importance as the liberalisation of its use in Meteor's valuation and bid for a 2 X 5 MHz block.

(f) The incentive for Meteor to release at least part of its current 2 X 7.2 MHz allocation of spectrum usage rights contingent on winning liberalised licences is therefore far stronger than DotEcon or ComReg have indicated. Consequently it is Vodafone's view that the proposed rebate would be superfluous in terms of incentivising early release of spectrum under Meteor's existing licence.

Absence of Key Information on Meteor 'Rebate' Proposal

(g) Notwithstanding Vodafone's view that any rebate is not justified nor proportionate:

(i) The lack of details on the working of the proposed rebate scheme considerably limits the ability of consultation respondents to comment effectively. The proposed methodology for calculating the extent of any rebate that would be offered to Meteor, as set out by DotEcon in paragraph 373 of its report to ComReg, is described only in the most general terms. It is stated that the rebate would be based on the original purchase price of the licence and the remaining term, assuming some amortisation schedule but no proposed amortisation schedule is set out in the document that would allow Vodafone and other respondents to assess its implications.

(ii) DotEcon and ComReg have failed to address how the proposed rebate to Meteor for the remaining term of its existing licence would be funded. Vodafone considers that it would be entirely unjustified, disproportionate, and distortive if any rebate to Meteor were to be funded, either directly or indirectly, by other telecoms operators. It would be perverse if other operators, and in particular prospective bidders were to effectively part-finance any Meteor bid for new spectrum licences. This could artificially inflate the Meteor's bid price with potential impacts on both the effective price paid for licences and the efficiency of the outcome of the spectrum award process.

Q.3. What factors should ComReg consider in calculating any such rebate ?

As Vodafone considers that ComReg's proposal for a rebate in respect of the remaining term of a licence in the auction design is neither objectively justified nor proportionate, for the reasons set out in the response to question 2, the question of what factors ComReg should consider in calculating any such rebate is not relevant.

Q.4. Do you have any comments on the setting of minimum prices or the benchmarking process employed by DotEcon and proposed to be adopted by ComReg in arriving at a minimum price ?

(a) Vodafone considers that ComReg's proposed approach to the setting of minimum prices is flawed. It is based on the incorrect assumption that it is both necessary and proportionate to use the level of the minimum price as a tool to minimise the incentives for strategic behaviour or collusion in an

auction. Yet these concerns can be effectively and fully addressed through the selection of the auction format and the implementation of other measures in the auction rules, as we have already explained in the response to question 1 above.

Long Run Economic Value of Spectrum and 'Fair' Return to the State

(b) Vodafone notes that the second key factor in ComReg's proposed decision on the minimum price is that an auction may not reveal the true long run economic value of spectrum access. It is not clear to Vodafone why this is a relevant objective in ComReg's setting of the minimum licence price. As concerns around any scope for collusion in a competitive award process can in any event be effectively addressed through other more direct and effective measures than through the setting of the level of the minimum licence price, as previously described, the economic value of the spectrum can be best determined primarily through the auction process.

(c) In the absence of any other justification, we wonder whether the decision on the proposed high level of the minimum price was influenced by other factors, which ComReg has outlined in section 13.2, in particular the stated objective that the minimum price should ensure a "fair" return to the state for the use of this finite natural resource.

(d) Vodafone does not believe that the factor that the minimum price should deliver a fair return to the state is a valid objective in the setting of the minimum licence price. This cannot be reconciled with ComReg's statutory objectives under the EU Regulatory Framework and the Communications Act 2002. Vodafone does not believe that the statement of the DCENR Working Group on spectrum policy is relevant to informing ComReg's objectives as claimed in the consultation, particularly as it has no clear relationship to ComReg's statutory objectives under the EU Regulatory Framework or the Communications Act 2002 and in Vodafone's view may clearly conflict with these objectives. Vodafone notes in particular that ComReg's explicit focus on avoiding the possibility that if a low but non-trivial price were set, that 'revenues would likely be very low' in section 13.3.2 does not appear to have any link to any of ComReg's statutory objectives.

Deterrence of Speculative Bidding

(e) Vodafone considers that a non-trivial minimum price should be set and that this should be at a level that is sufficient to deter frivolous or speculative bidders and ensure that only serious and credible bidders participate in any auction. However, in the context of an auction process for 900 MHz spectrum, the minimum price consistent with achieving this objective would have to be much higher than the €100,000 level for a 2 X 5 MHz block suggested by ComReg to achieve the objective of deterring frivolous or speculative bidders. Vodafone considers the experience of the recent 26 GHz auction process, where a reserve price of €75,000 per block had been set and where one of the successful bidders declined to take up the lot awarded to them, leading to their forfeiting the reserve price deposit and to one spectrum lot inefficiently going unallocated following the auction process, is particularly relevant.

(f) In light of the much greater importance of 900 MHz spectrum relative to 26 GHz spectrum, this is clear evidence that the reserve price, which should be required in full as a deposit as a prerequisite for participation in the auction, and which should be non-refundable in the event of a bidder being awarded but declining to take up lots awarded to them resulting from an auction process, would have to be set substantially higher than €100,000 to effectively deter participation of frivolous or speculative participants

Proposed Benchmarking Approach

(g) Vodafone does not believe that there is any rationale for seeking to determine a minimum licence price on the basis of benchmarking of licence prices realised in previous spectrum auctions internationally. Once the minimum price is set at a level that deters non-serious or speculative bidders, the underlying value of the spectrum is best elicited through the auction process itself rather than through benchmarking.

(h) Further, we consider that it is inappropriate to rely heavily on estimated valuation ranges based on outcomes of previous spectrum auctions in establishing a minimum licence price in the context where, as DotEcon concedes in its report in paragraph 465, no auction for 900 MHz spectrum liberalised for use by technologies other than GSM has been held to date in any other jurisdiction, and where as noted in paragraph 503 of the report, there is a lack of sufficient data on the market value of unliberalised licences for GSM spectrum previously auctioned. Vodafone considers that the fundamental, and potentially structural, adverse change in economic and financial conditions in Ireland following the credit crisis in 2008 and 2009 is likely to materially reduce expectations for demand and revenues from the services that would be provided using liberalised 900 MHz spectrum, at least over the medium term.

(i) Vodafone notes that the econometric model adopted by DotEcon in its benchmarking approach to licence price determination takes explicit account (through dummy variables) of structural changes that have previously occurred in the market over time, and which have had a material impact on the prices for spectrum licences paid in auctions. Bidders' assessments of the valuation of spectrum are forward looking, and the recent fundamental adverse change in economic conditions (which has been substantially greater for Ireland than for most other European countries) greatly limits the relevance of previous spectrum auction outcomes in other countries to the determination of a minimum price for liberalised 900 MHz spectrum in Ireland at this time. This is particularly the case as the effect of this adverse change in economic and financial conditions has been substantially greater in Ireland than in other European countries.

(j) It is Vodafone's conclusion that a minimum licence price of €20 million per 900 MHz lot would best achieve the objective of ensuring that only serious and credible bidders would participate in any competitive award process. The determination of the economic value of the spectrum should be left to the outcome of the competitive bids of licence applicants in the auction process.

Q.5. Do you have any comments on the structure of reserve prices and spectrum usage fees ?

(a) Vodafone disagrees with ComReg's current proposals on the structure of reserve prices and spectrum usage fees and considers that it is both proportionate and justified that most of the licence price of the spectrum should be captured in the up-front payment. The charging of most of the licence price in the up-front payment would serve to limit the risk of bidders overpaying for spectrum and subsequently being unable to finance the rollout of a network or having to return the spectrum allocation to ComReg part way through the licence term.

(b) Annual SUFs, if any, should be charged only within the first 3-5 years of the licence and set at a level broadly in line, on a per MHz basis, with those currently charged for existing 900 MHz and 2.1 GHz licences. In this regard, Vodafone notes that DotEcons' review of existing practice across European countries with regard to the setting of SUFs, in section 11.2 of its report to ComReg, found that most countries benchmarked had low, or no, SUFs and most of the licence price was captured in an up-front payment. Vodafone's proposal for the structure of reserve prices and spectrum usage fees is therefore consistent with the practice in most other European countries, while ComReg's proposals differ significantly and are not in Vodafone's view adequately justified.

(c) Vodafone considers that ComReg's assessment of the issue of spectrum trading, as set out in section 6.4 of the consultation document, is seriously deficient as it omits any reference to the recent

reforms to the EU Regulatory Framework in respect of spectrum management (in particular the facilitation of spectrum trading) that must be transposed into national legislation in the near term. In section 6.4 of the consultation document ComReg states that:

" enabling legislation is not being considered at this point, and it can therefore be assumed that a spectrum trading regime will not apply in Ireland at least in the near future."

(c) However even if national legislation facilitating spectrum trading is not currently in place, the likelihood of the implementation of spectrum trading in Ireland in the medium term, and during the term of the proposed new 900 MHz licences, means that it must be explicitly taken into account in ComReg's approach to the setting of SUFs.

Q.6. Do you have any views on ComReg's proposed deferred payment scheme and the indexation that will apply ?

(a) Vodafone considers that the proposed deferred payment scheme is neither proportionate nor justified, and runs the risk of undermining ComReg's statutory objectives in regard to the efficient use of the spectrum and the promotion of end user rights.

(b) The provision of mobile communications services of national scope, largely on the basis of use of a licensee's own infrastructure, is a capital intensive proposition. If a successful participant in a 900 MHz spectrum award process has difficulty in funding the up-front licence payment then this should certainly raise serious concerns around their ability to fund the substantial network investments required to achieve coverage targets and provide innovative services

(c) DotEcon's analysis and recommendation of the proposed option for deferred payment, and ComReg's acceptance of this proposal, appears to be based on the implicit assumption that any successful bidders for 900 MHz licences would be credible entities and that any capital constraints experienced by 900 MHz licence bidders that would prompt them to take up the option for deferred payment would be transitory and related to temporary adverse macroeconomic conditions. However, this assessment does not appear to attach sufficient weight to the possibility that a bidder for 900 MHz spectrum may be unable to finance the full amount of the up-front licence payment immediately, not because of any temporary upheaval in the capital markets, but because their business model is high risk (perhaps based on a decision that it is acceptable to take the risk that additional capital will be forthcoming once a licence is awarded). While this high risk approach to commercial and financial strategy may be rational for some licence applicants to pursue, facilitating it through a deferred licence payment option would not appear to be consistent with ComReg's statutory objectives of efficient use of the spectrum and the promotion of the welfare of end users. In the event that this strategy proved unsuccessful for a successful bidder following licence award the consequences could be the near term return of spectrum that could remain fallow for an extended period and the possibility of disruptive cessation of service and the imposition of significant switching costs on any existing customers of the licensee.

(d) A different risk arises in the event that the capital constraints experienced by a successful 900 MHz licence bidder that would necessitate their taking up the option for deferred payment would arise from adverse conditions in financial markets, but that these conditions and associated restrictions on financing would be in effect for an extended period. In this case the licensee would likely experience difficulties in funding the network investment required to provide widespread coverage in a timely manner with the possibility of the spectrum being inefficiently underutilised and the licensee failing to provide services outside of a restricted coverage area.

(e) The proposal to charge an interest rate of 12%, above the cost of normal commercial funding, to the deferred portion of any up-front licence price would not deter the take up of the deferred payment

option by an operator pursuing a high risk commercial strategy, but would in fact only increase the probability of their defaulting, with all of the associated adverse impacts on spectrum use and end user welfare that this would involve.

(f) To effectively minimise these risks, Vodafone considers that not only should a deferred licence payment option not be made available, but it should be a requirement that for licence applicants to qualify to participate in a 900 MHz licence award process, they would need to demonstrate their ability to meet reasonable criteria in relation to financial strength and access to capital. Vodafone considers that a requirement to demonstrate the necessary financial strength should be included in the application and qualification stages of an award process in addition to the current proposed bid deposit and bidder non-association criteria.

Q.7. Are there any other approaches ComReg should consider to mitigate any potential for auction disruption arising from the current financial and economic climate ?

No. Vodafone is not aware of other approaches that ComReg could consider to mitigate any potential for auction disruption arising from current financial and economic conditions. Additional measures do not in any event appear to be warranted.

Q.8.

(i) Do you agree that Meteor's continuing presence (within its current assignment of 892.7 MHz – 899.9 MHz paired with 937.7 – 944.9 MHz) has the potential, depending on the auction outcome, to have a detrimental impact on future liberalised use of Block E or any other block in the 900 MHz band ?

(ii) Do you agree with ComReg's proposal that, if the circumstances justify it, Meteor's assignment should be adjusted post-auction ?

(iii) Are there any other issues which should be considered ?

(a) Vodafone agrees that Meteor's continued presence in its current assignment of spectrum in the 900 MHz band may, depending on the outcome of the proposed auction process, inhibit the efficient use of spectrum in the band and substantially reduce the efficiency of the proposed auction process itself for the reasons set out by ComReg.

(b) Vodafone considers that there is a good prospect that inter-operator frequency co-ordination and co-operation between Meteor and other licensees can effectively address the concerns around efficiency of use of the spectrum subsequent to any auction process for spectrum assignment. However such an agreed outcome between licensees is not assured and therefore ComReg's proposed approach of providing clarity prior to the assignment process on measures that it would take, ex-post, to secure efficient spectrum use in the event that inter-operator co-ordination was not effective is both proportionate and objectively justified.

Q.9.

(i) In the event that Meteor's existing frequency assignment must be adjusted post auction, please provide an estimate of the costs which might reasonably be incurred by Meteor in doing so?

(ii) Please identify any proposal as to whether and, if so how, Meteor should be fairly and reasonably compensated for any such costs, having particular regard to ensuring that costs would be objectively justified, proportionate, and independently verifiable.

(a) An accurate estimate of the costs that might be incurred by Meteor in adjusting its existing frequency assignment following ComReg's current proposed spectrum allocation process can only be provided by Meteor itself as no other party has the requisite knowledge of Meteors' network costs and current network structure to do so.

(b) Adjustment by some or all of the existing licensees of spectrum assignments used by them, in the event that they were to be successful bidders in the proposed auction process, is almost certain to occur given the specific frequencies within each of the proposed 2 X 5 MHz spectrum lots in an auction process when compared with existing licensee's current frequency assignments. There are many scenarios where the retuning required by existing operators (including Vodafone and/or O2) would be very extensive. Vodafone does not believe that there is therefore any justification for a proposal to solely compensate Meteor for adjustment costs that may be claimed to be incurred by it. This is particularly the case as Meteor could also in any case be the beneficiary of the outcomes obtained from any required adjustments in terms of facilitation of liberalised use of the spectrum.

(c) ComReg has not provided any indications regarding the source of any compensation. Vodafone considers that it would be wholly unjustified and unacceptable if other licensees were to be expected to compensate Meteor, either directly or indirectly, for any adjustment costs claimed to be incurred by it.

Q.10. Do you agree with ComReg's technology neutrality proposal which does not mandate the deployment of any particular technology ?

Yes. As previously set out in our submission to ComReg document 08/57, Vodafone believes that a technology neutral licensing regime should be introduced in the 900 MHz band subject to co-existence issues being effectively addressed. Technology neutrality, by allowing the deployment of technologies such as UMTS will improve the efficiency with which the spectrum is used and allow the enhanced provision of services such as mobile broadband that have proven to be of enormous value to end users.

Q.11. Do you agree with ComReg's service neutrality proposal which does not mandate the provision of any particular service or services ?

Vodafone agrees with the proposal to implement a service neutral licensing regime in the 900 MHz band. This should maximise the flexibility of operators to respond to changing consumer demands over the medium to long term.

Q.12. Do you agree that it is appropriate that coverage and roll-out licence conditions should be included in future licences for liberalised 900 MHz spectrum ?

(a) Yes. Vodafone believes that there are major social and economic benefits to end users from the provision of electronic communications services (including voice and mobile broadband) with extensive population and geographic coverage and it is therefore appropriate that coverage and roll-out conditions be included in future 900 MHz licences. Comreg can only hope to realise the potential benefits from new entrants or new users (on which it relies to justify the auction approach) if it applies demanding coverage conditions to them.

(b) The inclusion of symmetric coverage obligations, as proposed by DotEcon, is therefore both objectively justified and necessary.

(c) Once all licensees have met their coverage obligations there will be effective competitive incentives to achieve coverage levels substantially above the 60%-70% coverage obligation recommended by DotEcon. Vodafone believes that a requirement to meet a 70% minimum geographic coverage obligation within 3 years, applied symmetrically to all licensees, would be appropriate. However, even

such symmetric coverage obligations in new 900 MHz licences would not mitigate the consumer disruption that would arise in the event that one or more of the existing licensees were to lose access to 900 MHz spectrum This is for the reasons set out in the main body of Vodafone's response to this consultation.

Q.13. Do you agree with ComReg's proposal to define a distinct field strength level for each type of technology deployed in the liberalised 900 MHz band ?

Vodafone is not opposed to ComReg's proposal to retain the existing field strength levels in existing licences for GSM and 3G technologies for new licences in the 900 MHz band, and to add objectively justified and proportionate field strength conditions for additional types of technologies that can co-exist with GSM and UMTS if and when they are deployed in the future.

Q.14. In relation to each category of future new 900 MHz licensee – (1) existing 900 MHz mobile network operators, (2) existing non-900 MHz mobile network operators, and (3) new entrants – should there be symmetric or asymmetric coverage and roll-out conditions ?

(a) For the reasons set out in the response to question 12, Vodafone considers that symmetric coverage and roll-out conditions requiring all licensees to achieve a minimum geographic coverage level of 70% within 3 years of licence award must be adopted.

(b) ComReg has not provided adequate justification for declining to accept the well reasoned recommendation of DotEcon for the inclusion of symmetric and moderate coverage obligations in licences. The current proposal for a low coverage obligation for new entrants for an extended period from the outset of the licence undermines ComReg's arguments that incumbents can use roaming on new entrant networks to mitigate disruption

Q.15. Do you agree with ComReg's proposal to allow multiple frequency bands to count towards a 900 MHz band coverage obligation ?

Yes. Vodafone agrees that licence holders should be permitted to use multiple frequency bands in order to meet any coverage conditions imposed in licences for spectrum in the 900 MHz band. This proposal will allow operators the flexibility to use the various spectrum holdings and infrastructure that they have to maximise the efficiency with which they provide services to consumers.

Q.16. Apart from the 1800 MHz and 2100 MHz bands do you believe that there are other frequency bands (eg. Digital Dividend, 2300 MHz, 2600 MHz, etc.) that can deliver seamless services in conjunction with the 900 MHz band and could be added over the lifetime of the licence to the list of multiple frequency bands ?

Yes. Vodafone agrees that coverage in the 1800 MHz and 2100 MHz frequency bands should count towards a 900 MHz coverage obligation. However the Digital Dividend (790-862 MHz and any additional adjacent spectrum that may be released following digital switchover by broadcasters) and 2600 MHz frequency bands would also be capable of providing seamless service in conjunction with the 900 MHz band. Vodafone therefore recommends that ComReg should formally permit use of spectrum in these latter bands to also count towards a 900 MHz licence coverage condition as soon as these frequencies become available for appropriate licensing of communications services such as mobile broadband.

Q.17. Provided that asymmetric coverage obligations are set in the 900 MHz competition, do you agree with ComReg's proposal that the existing 900 MHz mobile network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date ?

For the reasons set out in the response to questions 12 and 14, Vodafone does not believe that asymmetric coverage obligations between licensees in a 900 MHz competition are either appropriate or justified. The

implementation of symmetric coverage obligations requiring all licensees to meet a minimum 70% geographic coverage level would reflect the improved economics of providing wide area coverage for advanced mobile broadband services using the 900 MHz band relative to, for example, the 2.1 GHz band. With a 70% geographic minimum coverage requirement there would also be effective incentives for operators to differentiate themselves on the basis of coverage, with licensees likely to significantly exceed the minimum coverage obligations set down in their licences. Existing licensees in the 900 MHz band will maintain their current very high levels of geographic coverage gjven the value that mobile subscribers attach to national coverage.

Q.18. Provided that asymmetric coverage obligations are set in the 900 MHz competition and the aggregation of coverage across multiple frequency bands is allowed, do you agree with ComReg's proposal that the existing mobile (non-900 MHz) network operators should meet a minimum coverage level of 90% geographic coverage within 3 years of the licence commencement date ?

Please see the response to Question 17.

Q.19. Do you agree with ComReg's proposal that a new entrant should meet a minimum coverage level of 30% geographic coverage within 4 years of the licence commencement date, 70% geographic coverage within 7 years of the licence commencement date, and 90% geographic coverage within 10 years of the licence commencement date ?

For the reasons set out in the responses to questions 12 and 14, Vodafone strongly disagrees with ComReg's proposal that a new entrant should have a coverage obligation under its licence that would require it to achieve only a very low level of geographic coverage for up to the first 6 years of the licence.

Q.20. Do you believe that coverage via national roaming agreements should be allowed to count towards a 900 MHz coverage obligation and if so, to what extent ?

(a) No. Vodafone believes that coverage via national roaming agreements should not be allowed to count towards a 900 MHz coverage obligation, or at least should not do so to any significant extent. 900 MHz coverage obligations should be met either primarily, or wholly, on the basis of each individual licensee's own frequency assignments and network infrastructure.

(b) In Vodafone's view the key justification for the allocation of spectrum in particular frequency bands between multiple licensees (in the present case the 900 MHz band) is the facilitation of robust infrastructure based competition. This relies on the competitive provision of electronic communications services on the basis of each licensee's own spectrum usage rights held under their licences and, at least to a large extent, on the use of individual licensee's own network infrastructure. While national roaming agreements are in place in the market and have had many undoubted benefits for operators, competition, and the welfare of end users, they have only supplemented the coverage footprint of operators that already have significant levels of coverage based on their own network infrastructure. Indeed the 'rollout' obligation in respect of the time required to achieve the coverage conditions in a licence clearly implies the construction by the licensee of their own network infrastructure to achieve the coverage target.

(c) If it really were irrelevant in terms of the achievement of ComReg's objectives whether the coverage conditions of 900 MHz licensees, and competition in the market, were achieved primarily on the basis of use of licensee's own individual frequency assignments and network infrastructure or primarily on the basis of use of other licensees' frequency assignments and network infrastructure, then it is hard to see how Comreg can justify the auction of spectrum at all.

Q.21. Do you agree with ComReg's proposal to include a €2 million performance guarantee against the coverage and roll-out obligations in any new 900 MHz licence issued ?

Yes.

Q.22. Do you agree with the outcome of the draft RIA that QoS standards should be imposed as a safeguard measure to overcome the potential market failure which may exist in communications markets ?

(a) No. Vodafone considers that there is robust competition in the provision of mobile communications services and that this is sufficient to ensure that acceptable QoS standards will be maintained for those services (voice, mobile broadband etc.) that can be provided using spectrum in the 900 MHz band. The inclusion of QoS standards in new 900 MHz licences is neither proportionate nor objectively justified.

(b) If ComReg considers that there is a potential market failure in respect of QoS then there are alternative, and more appropriate and effective, means of addressing this than the inclusion of QoS conditions in licences for use of specific frequency bands. Vodafone would note that ComReg's proposed approach would lead to QoS conditions being imposed on only some market participants (holders of the particular spectrum licences in which QoS conditions are included) but not on others (those who do not hold licences for the spectrum). This would not effectively address any issue of a market failure in respect of QoS that was common across the market, and would involve a serious risk of distorting the basis of competition between operators.

Q.23. Do you agree with ComReg's proposal to apply the same QoS obligations to each new licensee in the band ?

See the answer to question 22 above.

Q.24. Do you agree that QoS standards should be set on the basis of the service offered rather than in relation to spectrum used to provide this service ?

See the answer to question 22 above.

Q.25. Do you agree with the ComReg's proposed voice calls QoS licence condition and the three proposed QoS metrics for measuring the voice call service ?

No. Please see the answer to question 22 above.

Q.26. Should QoS metrics be set for VoIP voice calls? If so, what QoS standards do you believe are appropriate? How would these standards be measured and monitored ?

No. Please see the answer to question 22 above. Moreover, demand for VoIP services is still only at an emerging stage and it is premature to consider specifying QoS standards for VoIP voice calls at this time.. There is no objective justification for the setting of QoS metrics for VoIP service calls unless there is evidence of anti-competitive discrimination or consumer harm. There is no evidence that such discrimination or consumer harm is present in Ireland.

Q.27. Do you believe that it is appropriate to set a mobile broadband QoS obligation in any new 900 MHz licence issued? If yes, do you agree with ComReg's proposal to set this obligation at the network level with minimum speeds of 3Mb/s downlink and 384 kb/s uplink ?

No. Please see the answer to question 22.

Q.28. Do you agree with ComReg's proposed QoS metrics for network performance and the level at which it is proposed to be set ?

No. Please see the answer to question 22.

Q.29. Do you agree with ComReg's proposed billing obligation ?

Vodafone does not agree with ComReg's proposed billing obligations. Such obligations should only be addressed as part of a General Authorisation where they can be applied on an impartial and non-discriminatory basis. Billing obligations imposed on mobile operators only (resulting only from their requirement for 900 MHz spectrum) places them at a competitive disadvantage vis-à-vis other telecommunication sectors and risks distorting competition in the provision of electronic communications services. In addition, current directives preclude ComReg from attaching license conditions to spectrum awards except under specific circumstances which do not include billing obligations.

Q.30. Should QoS measures at a consumer level (e.g. billing) be addressed as a licence condition in the 900 MHz licence or as part of a General Authorisation ?

Yes. Vodafone considers that consumer level QoS measures would be most appropriately addressed as part of the General Authorisation only, rather than as a condition in the 900 MHz licence.

Q.31. Do you agree that it is reasonable for ComReg to review and possibly update the QoS standards over the lifetime of the licence, such as every 5 years, or as appropriate due to changes in the market ?

See above

Q.32. Do you agree with ComReg's proposed reporting on compliance obligation ?

Yes.

Q.33. Do you agree with ComReg's proposal to include a €1 million performance guarantee against the QoS obligations in any new 900 MHz licence issued ?

No. Please see the answer to question 22.

Q.34. Do you agree with ComReg's proposed non-ionising radiation licence condition ?

Yes.

Q.35. Do you agree with ComReg's proposed international roaming capability licence condition ?

No. Vodafone considers that, given the robust competitive conditions observed in the provision of electronic communications services in Ireland, an international roaming capability will continue to be provided by all operators on competitive terms. The proposed international roaming licence condition is therefore neither proportionate nor justified.

Q.36. Do you agree with ComReg's proposed licence conditions on access to emergency services and calling location information ?

Yes. We agree in principle with the inclusion in any new 900 MHz licences of the proposed condition that ComReg may give directions in writing to the licensee in relation to the required criteria for the accuracy and reliability of the location information to be provided to the emergency services. However Vodafone considers that it is important that ComReg consult extensively with the licensees before any such directions

are issued so that social and public safety objectives can be achieved in the most effective and proportionate manner.

Annex 2
ComReg's Compliance with its Regulatory Objectives and Obligations

Introduction

ComReg's current proposal provides for the expiry of two existing 900 MHz operators' licences in May 2011 (with a third expiring in June 2015) and an auction of all 35 MHz of 900 MHz spectrum (in seven blocks of 5 MHz, with a 10 MHz cap on each auction participant if demand exceeds supply) at the end of this consultation process.

Vodafone's alternative proposal as elaborated in this Response provides for an extension of the three existing 900 MHz operators' licences in respect of 5 MHz only, with the remaining 20MHz being auctioned (in four blocks of 5 MHz, with a 10MHz cap on each auction participant)[1].

Elsewhere in this Response, Vodafone has explained that ComReg will make a serious error if it proceeds with its current proposal when Vodafone's alternative proposal, while also allowing for new entry, eliminates entirely the risk of heavy disruption costs and of weakening competition in the provision of mobile communications in the State for an extended period. Vodafone submits that the adoption of ComReg's current proposal, in place of Vodafone's alternative proposal, would not be compliant with ComReg's regulatory objectives and obligations, arising under Irish and EU law.

Telecommunications Regulation Act 2002

Section 12(2) (a) and Section 12(3) of the Telecommunications Regulation Act 2002 (the "**Act**") Act impose requirements of reasonableness and proportionality on ComReg in respect of the measures it adopts in exercise of its functions under the Act. Clearly, any failure by ComReg to comply with these requirements involves a serious error of law.

Given the nature and the extent of the costs associated with ComReg's current proposal (detailed elsewhere in this Response), Vodafone submits that it would not be reasonable or proportionate for ComReg to prefer its current proposal over Vodafone's alternative proposal. Vodafone says this because its proposal avoids entirely the costs associated with ComReg's proposal while allowing for new entry, the benefit ComReg claims for its proposal.

The unreasonableness of ComReg's current proposal (when compared to Vodafone's alternative proposal) lies in the risk that one or more of the existing 900 MHz licensees might lose its 900 MHz spectrum. Vodafone's alternative proposal eliminates this risk. The loss of 900 MHz spectrum by an existing operator would result in very significant disruption of that operator's ability to provide mobile communications services. The costs associated with this disruption for consumers of mobile telecommunications services will be very high, and will affect not only the customers of the operator that loses the spectrum, but all consumers of communications services (both mobile and fixed). Vodafone has explained elsewhere in this Response why the mitigation strategies suggested by ComReg are ineffective in reducing the costs associated with disruption.

Under Section 12 (2) (a), the reasonableness of a ComReg measure must be tested against*, inter alia*, the likelihood of its "encouraging efficient investment in infrastructure and promoting innovation", and "encouraging efficient use and ensuring the effective management of radio frequencies and numbering resources". It is not possible to reconcile the potential disruption costs associated the loss of 900 MHz spectrum by an existing licensee under ComReg's current proposal with these elements of its regulatory objectives when an alternative is available (namely Vodafone's proposal) which avoids those costs while preserving the benefit ComReg claims for its proposal.

Vodafone also submits that a preference for ComReg's current proposal over Vodafone's alternative proposal cannot be reconciled with the proportionality test in Section 12 (3) of the Act.[2]

[1] ComReg could also consider awarding a 5 MHz licence to the fourth existing operator, H3GI, and auctioning the remaining three blocks. This option would also better achieve ComReg's objectives than that which it currently proposes.

[2] Lenaerts and Van Nuffel, "Constitutional Law of the European Union", Second Ed. Thompson Sweet & Maxwell, 5-036 describe proportionality as follows: *"The principle of proportionality serves principally to assess the legality of an exercise of power where an admittedly legitimate aim is pursued but at the same time other objectives deserving of protection are damaged. The exercise of power in such a case will be regarded as lawful only if it is appropriate to attain the intended aim and also indispensable in that alternative forms of exercise of power – which would inflict no or less damage on other objectives worthy of protection – would not be capable of achieving the intended aim.*"

For a measure to be proportionate, it must be appropriate and necessary to achieve its objectives. In a proportionality review of a measure it is necessary to establish whether the means it employs to achieve the aim correspond to the importance of the aim and whether they are necessary for its achievement.

The principal benefit ComReg identifies as arising from its current proposal is the facilitation of the entry of new operators in the 900 MHz spectrum band, by allowing them to bid for that spectrum in an auction. Vodafone's alternative proposal also allows for the possibility of new entrants bidding to acquire up to four blocks of 5 MHz spectrum (subject to a 10 MHz cap on each licensee). It is therefore not necessary to put the entire 900 MHz spectrum band up for auction (with the attendant risk of disruption) for new entrants to be able to bid for a substantial part of that spectrum band. Any benefit arising from ComReg's current proposal in terms of additional new entry over and above that which would be achieved under Vodafone's proposal is speculative and unproven – in contrast to the customer disruption costs and diminution in the ability of existing 900 MHz licensees to compete, both of which would be definite and substantial. ComReg will not be acting proportionately if it proceeds with its current proposal when Vodafone's alternative proposal, while also allowing for new entry, eliminates entirely the risk of heavy disruption costs and loss of competitiveness on the part of existing licensees. While ComReg may regard the facilitation of entry as a worthy object, its pursuit whilst disregarding the costs to existing customers and the implications for competition amongst all participants in the Irish market is disproportionate and cannot be justified.

Policy Directions

ComReg is obliged to take account of Policy Directions published by the Government or the Minister. In particular, Vodafone refers to Policy Direction No. 11 which requires that in the interests of the management of the radio frequency spectrum, ComReg should take account of the interests of all users of the radio frequency spectrum. As detailed elsewhere in this Response, a significant number of Vodafone customers will lose service if Vodafone loses its 900 MHz spectrum. The risk of this disruption to users is present in ComReg's current proposal but is eliminated in Vodafone's alternative proposal. In Vodafone's submission, a proposal that could have that such as serious impact upon customers could not be considered to be in the interests of users of the radio frequency spectrum where an alternative which avoids that impact is available.

Directive 2002/20/EC

Vodafone submits that ComReg's current proposal is not compliant with Directive 2002/20/EC ("the Authorisation Directive") and in particular (but not limited to) Article 7 of that Directive which applies to decisions to limit the number of rights of use to be granted for radio frequencies and requires that, in making such decisions, the relevant regulatory authority must, *inter alia*, give due weight to the need to maximise benefits for users and to facilitate the development of competition. The disruption costs for consumers associated with a loss of 900 MHz by an existing operator are detailed elsewhere in this Response. The risk of those costs arising is present in ComReg's current proposal but is entirely absent in ComReg's alternative proposal. ComReg will not be acting in compliance with its obligations under Article 7 if it proceeds with its current proposal when Vodafone's alternative proposal, while also allowing for new entry, eliminates entirely the risk of heavy disruption costs associated with a loss of 900 MHz by an existing operator.

Annex 3
EU State Aid Law

Introduction

As there is reference in ComReg's documents to a submission of H3GI, concerning the application of the State aid rules set out in Articles 107-109 of the Treaty on the Functioning of the European Union ("**TFEU**") to the options available to ComReg in connection with the expiry of the existing 900 MHZ licences, Vodafone takes this opportunity to clarify some important issues. This is done because ComReg's current proposal to auction the entire 900 MHz spectrum band may erroneously be influenced by a submission (or a view) that an alternative proposal involving licence extension may amount to, or involve a risk of, State aid to an existing licensee whose licence is extended.

The State aid rules in Articles 107-109 of the TFEU to do not require that ComReg allocate the entire 900 MHz spectrum band by auction. Administrative allocation of 900 MHz spectrum would not involve State aid where the allocation is compliant with the principles of the pan-European common regulatory framework governing enterprises active in the communications sector (the "CRF"). ComReg has accepted that administrative allocation of 900 MHz spectrum can be consistent with the principles of the CRF.

The State aid rules

As ComReg is aware, Article 107(1) TFEU provides that any aid granted by a Member State or through State resources in any form whatsoever, which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall be incompatible with the internal market, in so far it affects trade between Member States.

The European Courts have identified within this provision four requirements which must be met for a measure to fall within the definition of State aid: First, there must be an intervention by the State or through State resources. Second, the intervention must be liable to affect trade between Member States. Third, it must confer an advantage on the recipient. Fourth, it must distort or threaten to distort competition.[1] All four requirements must be satisfied before a measure can be found to involve aid.[2]

ComReg's allocation of 900 MHZ spectrum

H3GI's suggestion, to which ComReg appears implicitly to have given some credence, appears to be that the allocation of spectrum by a non-auction method, which is otherwise compliant with the CRF, would be a selective measure favouring one or more undertakings over competitors.

H3GI's position, however, ignores a series of decisions of the European Commission and judgments of European Courts, in the precise context of the allocation of spectrum for mobile communications services, specifically UMTS licensing procedures. Those decisions recognise that no economic advantage is conferred by a regulator when it allocates State resources, in those cases (and this case) wireless spectrum, using an allocation procedure compliant with the principles of the CRF. Where a State measure does not confer any advantage within the meaning of Article 107(1) TFEU, one of the four elements set out in that Article is absent and the measure in question cannot involve State aid.

The Commission considered two cases in which complaints were filed alleging a breach of the State aid rules (one concerning a retrospective reduction of UMTS licence fees in France[3] and the other concerning the award of the third UMTS licence in the Czech Republic[4]). In both cases, the Commission found that there was no aid, on the grounds that no advantage had been conferred in the process in question. The decision in the French case was confirmed both by the EU General Court (formerly the EC Court of First Instance) and the EU Court of Justice.[5]

[1] For example, Case C-431/07 P, *Bouyges*, judgment of 2 April 2009, para 102
[2] See the approach of the Commission in No NN 76/2006 – Czech Republic - Award of the third UMTS licence, para 24.
[3] NN 42/2004 – France- Modification rétroactive des redevances dues par Orange et SFR au titre des licences UMTS
[4] No NN 76/2006 – Czech Republic- Award of the third UMTS licence
[5] Case T-475/04, *Bouyges*, judgment of 4 July 2007; Case C-431/07 P, *Bouyges*, judgment of 2 April 2009

The Commission and the European Courts have confirmed that at no point in the CRF is there a requirement that Member States should require market prices for the licences they award. Moreover, the Member State is free to opt between a public auction and other allocation procedures when awarding spectrum[1], provided that the procedures followed are open, transparent and non discriminatory and that the selection criteria are objective, transparent and non discriminatory.[2]

ComReg may award licences for 900 MHz using procedures which do not involve an auction (contrary to H3GI's suggestion) without conferring an advantage within the meaning of Article 107(1). Such procedures can be undertaken in a manner that is compliant with the CRF's requirements of openness, transparency and non discrimination[3], as ComReg itself clearly concluded when it proposed a non-auction form of allocation in its Option 2 of ComReg Document No 09/14. Accordingly, Vodafone's proposal for the allocation of 900 MHz spectrum would, if adopted, not involve the award of State aid. To the extent that ComReg's preference for an auction of the entire 900 MHz spectrum is influenced by a concern that an allocation of the type proposed by Vodafone may be State aid, such a concern has no proper basis in law and is entirely unwarranted.

[1] Case T-475/04, *Bouyges*; paragraph 108, 110; followed by the Commission in No NN 76/2006 – Czech Republic- *Award of the third UMTS licence* paragraph 26

[2] At paragraph 29:"En effet, le droit communautaire, en l'état actuel, n'impose pas aux Etats membres de "*vendre" les licences UMTS aux enchères contre un prix qui correspond à leur valeur marchande. Les Etats membres peuvent attribuer les licences UMTS selon des procédures de sélection comparative et contre une redevance administrative qui ne correspond pas à la valeur marchande des licences, sous réserve que les procédures d'attribution suivies soient ouvertes, transparentes et non discriminatoires et que les conditions d'attribution des licences soient objectives et non discriminatoires*."

[3] As set out in Article 7 of Directive 2002/20/EC [2002] OJ L 108/21

NON CONFIDENTIAL

INGENIOUS CONSULTING

Assessment of Ireland's 900MHz liberalisation process

Ingenious Consulting
Network

February 2010

Reference Com Reg Doc 09/99
26 February 2010

Executive summary

Ingenious is a firm which has recently been involved in a number of spectrum policy issues. Most relevantly, Kip Meek, chairman of Ingenious, was appointed the Independent Spectrum Broker in the UK, tasked by government to redefine UK spectrum policy to achieve a number of public policy objectives. We were asked by Vodafone to perform an assessment of the project ComReg has undertaken to determine the future of the 900MHz spectrum in Ireland.

In our assessment we have looked at both elements of due process as well as the substance of the arguments made by both ComReg and the stakeholders, including Vodafone.

In terms of due process, our main findings are that:

- All European nations who have been faced with these questions have at the very least considered options which would have included renewing the licences of the existing 900 MHz operators. However, ComReg excluded consideration of any such options very early on in the process, without giving a clear and compelling justification of why it had taken this step.

- Although ComReg has made mention of the potential disruption that could be caused to stakeholders and consumers, it has not addressed the concerns of stakeholders on these matters in a comprehensive fashion.

Looking at the substance of the arguments, we have found that:

- A comprehensive impact assessment of the options should have been undertaken by ComReg to help justify the decisions that it is proposing.

- The impact assessment that has been offered by Vodafone is broadly correct in its assessment of the network costs that ComReg's proposal could impose on operators. However, we have corrected and downwardly adjusted Vodafone's estimates for the direct impact on consumers.

- Nonetheless, we believe Vodafone is correct in its assertion that ComReg's proposal has the potential to create economic costs of the magnitude of hundreds of millions of Euros.

In conclusion, we believe that ComReg has not developed sufficient justification for pursuing its option over the latest alternative proposed by Vodafone. ComReg's proposal appears not to provide any demonstrated benefits over and above Vodafone's approach, whilst simultaneously creating the additional risk of serious economic costs and disruptions to consumers.

Section 1. Introduction

Radio spectrum is a limited, natural resource and is vital for the delivery of several telecommunications and media services, including mobile telephony. It is the national telecommunications regulator's responsibility to ensure that this resource is used effectively and efficiently. In Ireland this responsibility is held by the Commission for Communication Regulation (ComReg).

In mid 2008, ComReg launched a consultation entitled *Liberalising the Use of the 900 MHz and 1800 MHz Spectrum Bands* (consultation documents 08/57, 09/14 and 09/99). In these documents the regulator outlined a number of proposed policies for the future of the spectrum bands used to provide GSM mobile telephony services. A series of submissions, responses and further consultations have since been published, in which the regulator, mobile operators and other stakeholders have discussed the proposals at length.

Ingenious has been engaged by Vodafone Ireland Ltd. (Vodafone) to perform a review of the consultation. As part of the review, Ingenious has examined ComReg documents, submissions to consultation, responses to consultation and further consultation documents. We have also looked at evidence provided by Vodafone, including confidential versions of submissions to ComReg, and an analysis of the impact of losing part or all of the GSM900 spectrum which has also been submitted to the regulator.

Through Kip Meek and Rich Thanki, Ingenious has been closely involved with the process in the UK which has recently led to a direction to Ofcom to be proposed by the UK government. This also necessitated our being aware of international approaches taken in this area. Furthermore, members of the Ingenious team have previously been closely involved with spectrum allocation issues at the highest levels within Ofcom. As such we believe that we can provide insight into the Irish process so far, on both process and substance.

Section 2. The Irish mobile telecommunications market and ComReg's aims for 900 MHz spectrum

The 2002 Communications Regulation Act sets out the functions and objectives for ComReg, including the efficient and effective management of Ireland's radio frequency spectrum. ComReg's objectives in carrying out this function are to:

- Ensure the efficient management and use of radio frequency spectrum in Ireland;
- Promote competition;
- Contribute to the development of the internal market; and
- Promote the interests of users within the Community.

These are objectives which are shared by other regulators in Europe (since they derive from Directives). Other regulators have also taken these into account when addressing similar circumstances to those faced by ComReg.

At present, the 900 MHz band is occupied by three licensees: Meteor, O2 and Vodafone (the other provider of mobile telephony in Ireland – 3 – holds a licence for 2100 MHz spectrum, and accesses 900 MHz spectrum using a national roaming agreement), each of which have access to 2 x 7.2 MHz of spectrum.

All four players are well established in the market, having been in operation for at least four years[1] and with even the smallest operator providing services to over 8% of all mobile subscribers.

Table 1: market share for the four mobile operators in Ireland, in terms of subscriber numbers and revenue[2]

	Number of subscribers (%)	Revenue (%)
Vodafone	39.0%	42.6%
O2	33.0%	34.9%
Meteor	19.8%	18.5%
3	8.2%	4.0%

[1] '3' was the fourth provider to acquire a licence and launched in July 2005; Meteor was the last of the three GSM 900 licensees to launch, doing so in February 2001.

[2] Source: ComReg Q3 2009 Quarterly Key Data Report

It is understandable that ComReg should seek to ensure that a new entrant into the 900MHz band – whether this is '3' or a completely new mobile operator – be able to obtain at least 5MHz of 900MHz spectrum. And indeed, there are a number of methods that could be used to ensure such an outcome, including Vodafone's original proposal and its latest revised proposal.

These methods include:

1. Renewing the licences held by the existing 900 MHz operators, and disposing of all or some of the currently unallocated spectrum. Vodafone's original proposal was based along these lines.
2. Renewing licences of the incumbent operators for a part of the spectrum they have used and then disposing of the revoked spectrum alongside the unallocated spectrum. Vodafone's revised proposal adopted this approach.

However, ComReg has decided to adopt a very specific and particular approach – one that involves the competitive award of the entire 900MHz band, including spectrum that is currently licensed to three of Ireland's mobile operators.

It should be noted that this is not an approach that has been adopted by regulators in other European countries. For example, the UK does not propose to remove any 900 MHz spectrum from the two operators who currently hold it – despite having powers to do so, and initially proposing to do so. The French and German regulators allowed the 900 MHz operators to retain the majority or their entire spectrum holdings and the Dutch regulator extended the licence period for three years. Most recently the Belgian government announced that the three existing operators would be able to extend their GSM licences from end-2015 to the beginning of 2021.

In this document we assess the approach that ComReg has decided to take, both on the grounds of the process adopted and in terms of the costs and benefits that this approach might be expected to yield.

The document is structured as follows.

- In section 3 we consider the process followed by the regulator in reaching the initial proposals, as well as the process of consultation since the proposals were published.
- We go on to discuss substantive points in section 4, critiquing the arguments made by both ComReg and Vodafone, and outlining particular concerns we have about points made by both parties.
- Finally in section 5 we present our conclusions.

Section 3. The process so far

In this section we briefly focus on the process by which ComReg has formulated its proposals, and suggest that there are a number of areas where a wider consideration of the options may have been merited. In the next section we move on to points of substance, as raised by Vodafone in its impact assessment.

In July 2008, ComReg launched a consultation[3] regarding the future of spectrum bands used to provide GSM mobile services. ComReg put forward proposals in three main areas:

- The first proposal concerned the liberalisation of the GSM spectrum bands. ComReg proposed to remove restrictions on the technology and services that can be provided in the 900 and 1800 MHz bands in order that they can support services other than GSM.
- The second proposal addressed the amount of spectrum that was made available within the 900 MHz band. ComReg proposed to increase the available spectrum by 30%, by awarding the currently unused portion of this band.
- The final area ComReg addressed was the question of how to allocate spectrum amongst existing and new entrant 900 MHz licensees.

The following discussion centres on the process by which ComReg came to its initial conclusions on this issue. As highlighted by the Commissioner, the consultation addresses matters of considerable consumer and commercial importance. It is therefore vital that ComReg has considered every relevant practical option that addresses ComReg's aims and followed a reasonable process throughout. We consider these issues in time sequence: the first phase being the preliminary investigation that led to ComReg's publication (in the July 2008 consultation) of three spectrum allocation options available to the industry; the second phase being the period after the initial consultation document was published.

Phase 1: the investigation prior to the publication of consultation document 08/57, July 2008

With the imminent expiry of operators' 900 MHz licences in May 2011, and with the approach of other changes to the 900 MHz band, ComReg published its intentions for the spectrum band. Of particular interest to the existing licensees were ComReg's plans for allocating spectrum after May 2011.

As part of the decision making process, ComReg explained that a number of factors were considered:

[3] Liberalising the Use of the 900 MHz and 1800 MHz Spectrum Bands – Liberalisation of the GSM Spectrum Bands & Options for the Release of Spectrum in these Bands, ComReg, document no. 08/57, 17th July 2008

> " The size and scale of the Irish market, public policy considerations, social considerations, economic and market considerations, legal factors and expected demand and use, in order to determine the most appropriate allocation method."

The investigation into how spectrum could be allocated while meeting its objectives in managing Ireland's radio frequency spectrum "to promote competition" and "to ensure the efficient management and use of the radio frequency spectrum in Ireland", resulted in three proposed strategies for spectrum allocation:

- Option A: three separate award processes in line with the availability of spectrum;
- Option B: a single competition for the award of the entire 900 MHz band, followed by a phased assignment process as current licences expire;
- Option C: a single competition for the award of the entire 900 MHz band, but with an amount (to be determined) of spectrum reserved for new entrant(s) to the band.

It is notable that all three of the proposed options involved a competitive award process or auction for the entirety of the 900MHz spectrum. Although alternative methods that had previously been used to award new licensing regimes were mentioned – including first-come-first-served and comparative selection – ComReg concluded that the only viable strategy was a competitive award process.

> " ComReg would expect demand to far outweigh supply. In this context, ComReg considers that a competitive award process is likely to be the most fair and transparent means of awarding future licences."

In our opinion, there were a number of alternative methods available to ComReg that could also have been practical and addressed the needs ComReg had identified. For example, one approach would have been for ComReg to extend the existing 900 MHz licences – an approach adopted by other regulators subject to similar statutory duties. A statement released by the regulator in 2001 suggests that this had at one time been considered a viable strategy in Ireland:

> " Continued availability of existing spectrum assignments in the 900 MHz and 1800 MHz bands to mobile telecommunications licensees will be reviewed three years prior to licence expiry. Retention of such spectrum will be on a demonstrable need basis until the end date of the 3G UMTS licences.[4]"

[4] Information Memorandum for 3G UMTS Licensees released by ODTR the Director

However, further discussion along these lines does not appear in later documents, and no explicit explanation is provided as to why this approach does not feature[5]. It is highly likely that ComReg considered the full range of options available to it, from the spectrum award methods mentioned in the 2008 consultation document, to less interventionist approaches including licence renewal for existing operators. Indeed, ComReg did explain that any administrative decision to renew the licences of the existing operators would have "serious disadvantages to long term customer welfare"; however, there is no elaboration on the particular disadvantages that are found. We believe that a timely description of these "serious disadvantages" would have allowed greater insight into ComReg's justification for the course it has chosen, as well as reassuring stakeholders on points of process. Such reassurance is clearly particularly important in the case where the regulator proposes a course of action that risks disruption to the operators and more importantly the consumers that depend on the services that are provided.

Phase 2: post publication of the initial consultation document (08/57), July 2008

Since the publication of the initial consultation document in July 2008, ComReg has held two major public consultations, conducted bilateral discussions, sought expert advice, and researched in detail the approaches being adopted in other EU countries. Thus ComReg has gone to considerable lengths to follow due process, gathering facts, understanding precedent and providing stakeholders with various opportunities to participate in the decision making process.

We have reviewed the consultation, submission and response documents, and found that on the whole the process taken is one that is thorough. However, in certain areas there appears to be less evidence of a complete process than in others.

Firstly, as part of an evidence-based regulatory approach, it would have seemed appropriate for ComReg to conduct a detailed and robust impact assessment, featuring an appropriate cost-benefit analysis of the options available. However, as noted by Vodafone, this is absent from ComReg's documents to date. (Vodafone has prepared a CBA which we discuss elsewhere in this document). Furthermore, ComReg has also not subjected other alternative proposals suggested by stakeholder to a sufficient level of scrutiny.

[5] However, we note that ComReg's proposed Option 2 in its second paper – document 09/14 – did propose to provide for retention of up to 7.2 MHz by Vodafone and O2 on a 'demonstrable need' basis. However this was a very limited proposal: the extension was for a maximum of only 4 years (the end date of Meteor's current licence), was not automatic but would have to be proved by the operators to ComReg's satisfaction, would be subject to ongoing review during the period, and any spectrum so retained would not be liberalised for use by services other than GSM. In the latest consultation ComReg have omitted it from further consideration

Secondly, there is the question of the mitigation strategies that an operator could undertake should it lose access to some or all of the 900MHz spectrum that it currently uses. Three strategies were outlined for current licensees in ComReg's response to consultation:

- Make use of their alternative (1800 or 2100 MHz) spectrum allocations;
- Enter into MVNO or roaming agreements with operators who had been successful in acquiring 900 MHz spectrum;
- Make use of Mobile Number Portability (MNP) to facilitate customers switching to other networks.

In its response to these consultations, Vodafone raised a number of concerns with these strategies to mitigate for the loss of 900MHz spectrum[6]. We have found only a cursory consideration of these objections to ComReg's mitigation strategies in ComReg's responses to submissions. Furthermore, ComReg has not made public any analysis it may have undertaken into the costs of implementing any of these three mitigating strategies.

Thirdly, there is the question of the timescale in which these strategies could be implemented. ComReg suggests that, should operators fail to acquire 900 MHz spectrum, they could take advantage of other spectrum allocations to continue to provide service to customers. In support of this assertion ComReg cites evidence put forward by another network operator that "it had completed a changeover of its Radio Access Network (RAN) infrastructure within six months without disruption to customers". However, ComReg has provided no details on any work it has done to assess whether this is sufficiently comparable a change to the one that would have to be undertaken by the 900MHz operators which fail to acquire spectrum.

A fourth – related – process issue which does not seem to be given due weight is the interplay of the timing of any auction and the date at which the 900MHz licences expire, and so mitigation strategies need to have been implemented . In previous documents, ComReg gave consideration to these issues:

> " In relation to respondents' views regarding the relatively short timeframe within which to mitigate any loss of access to 900 MHz spectrum, ComReg has made it clear that it proposes to hold a competition in 2009, two years before expiry of the two GSM900 licences in 2011."

[6]For example, Vodafone questions the validity of the second mitigating strategy: MVNO or roaming agreements with other operators. Vodafone claims that in order to continue to provide the same level of service, the only MVNO option available to it would be with O2, because O2 is the only other operator with equivalent national coverage. Other operators rely on MVNO agreements with O2 and Vodafone to provide coverage to up to 15% of the population. Vodafone question the extent to which O2 could carry an additional operator's traffic, and how Meteor and 3 could provide national coverage.

However such consideration is absent from later documents, perhaps because no auction was held in 2009 and the timeframe for implementing mitigating strategies is no longer as comfortable. It is important that ComReg revisits the question of timing, as we approach the expiry of licences.

Section 4. Substance of the arguments

Whereas the previous section looked at the process which has led to the existing consultation it did not look in any detail at the options that have been presented by both ComReg and licensees, such as Vodafone. In this section we examine the merits of these options, largely from the point of view of a cost benefit analysis that would form part of an impact assessment.

The importance of an impact assessment

The options for 900MHz spectrum laid out by ComReg in its initial consultation document (08/57) and in its subsequent consultation (09/14) all sought to relicense all the 900MHz spectrum on an open basis. Under none of the options suggested by ComReg would any of the existing licensees have certainty that they would be able to retain the 900MHz spectrum they use on a liberalised long-term basis. Vodafone, and other existing 900MHz licensees, have suggested that ComReg should consider alternative options which would grant extended liberalised licences to the existing operators alongside an auction for at least one 5 MHz block of the spectrum.

In many other jurisdictions, as questions of licence expiry began to arise, serious consideration was given to options that allow the existing licensees to retain some or all of the 900 MHz spectrum they use to deliver services. As detailed out in the previous section, in all other cases in Europe licences have been fully or partially renewed. Therefore, ComReg's exclusion of this entire category of potential solutions without serious consideration is surprising. This is especially true given the criteria ComReg initially laid out that would guide its decision-making, which included:

- technical efficiency;
- the implications of the options for existing 900 MHz licensees;
- the extent to which the options would provide regulatory certainty for all stakeholders; and
- overall implications of the options for competition and consumers.

The last of these areas is perhaps the most important measure in deciding between options, especially as the goal of regulation can be cast as ensuring the best outcome for citizens and consumers. This is also implied by ComReg's statement:

> " Although consumer disruption could be eliminated by renewing existing GSM licences (or otherwise administratively assigning spectrum to these licences), ComReg considers there to be serious disadvantages to long term consumer welfare attached with such an approach."

In this quote, ComReg dismisses the renewal of existing licences by reference to the potential effects on "long term consumer welfare", although it provides little further detail as to why renewal would jeopardise consumer welfare in the absence of a directly competing use other than mobile services being endangered by renewal. Nonetheless, it appears that an estimation of the outcome for consumers is central to choosing between options. Impact assessments are

commonly employed in regulatory and governmental decision-making. Often these include a numerical cost-benefit analysis which attempts to quantify the magnitude of the net benefit of each of the options under consideration.

An important element of an impact assessment is to identify the potential benefits and costs.

The benefits and costs in relicensing 900MHz spectrum

A number of factors will have implications for consumer welfare, and I list some of these below. It should be noted that even though some of these may be easier to model quantitatively than others, this should not be taken to mean that those which are more difficult to quantify should be given less weight in any consideration. The main factors are:

- Efficient spectrum usage
- Increase in competitive pressure
- Minimal costs imposed on consumers
- Minimal costs imposed on producers
- The conditions for investment

Below, we look at each of these factors in the case of the current decision over 900MHz spectrum, and also examine to what extent ComReg has already given due consideration to them.

Efficient spectrum usage

It is one of ComReg's duties to promote the efficient use of the radio spectrum. In the case of mobile communications, this duty is becoming ever more important as demand for mobile broadband data increases with no sign of abating. Although carriers can and will respond to these trends by increasing the number of sites they deploy, new spectrum will also be needed to respond effectively to rising demand for services.

Although 3G services were originally deployed using UMTS at 2.1GHz, the potential benefits of also using 900MHz spectrum have recently come into focus. As ComReg has identified, this has the potential to significantly improve the coverage and ubiquity of mobile broadband, both within buildings and in rural areas. At present the 900MHz licences do not allow the use of 3G UMTS services, and not all the 900MHz spectrum is allocated. Furthermore, 3G UMTS services using WCDMA technology operate in 5MHz wide bands. As such spectrum bands need to be at least this wide to enable mobile broadband.

Any new entrant into the 900MHz band is likely to deploy 3G UMTS in preference to 2G services. This is because 3G UMTS can provide mobile broadband and voice coverage to an increasing proportion of handsets and to an increasing array of other devices. This is also likely to put

pressure on existing operators to also speed up the deployment of 3G services using 900MHz spectrum.

The path to deploying 3G UMTS at 900MHz for existing operators is less clear than that for new entrants due to the presence of legacy 2G GSM traffic. The Irish 900MHz operators each currently has access to 7.2MHz spectrum, with this amount they would need to reduce the GSM traffic at 900MHz to less than 2.2MHz to be able to launch a 5MHz 3G UMTS carrier. However, this cannot be done until licences are liberalised. Should the existing licensees gain 10MHz of 900MHz spectrum in total the task would become considerably easier, since GSM traffic at 900MHz would need only be reduced to 5MHz or less. Should the operators retain access to only 5MHz the task would be made significantly harder as all GSM traffic would need to be cleared. Although the number of 2G only handsets is beginning to decline, the clearance of all 2G traffic is likely to take a very long time, and (like the switch to digital terrestrial television), only be complete when the switch-off of the legacy network forces the last remaining users to switch.

These different scenarios are likely to substantially affect the dates at which existing licensees will be able to launch 3G UMTS services. In the first two cases it is likely that they would be able to do so within the term of the next licence, in the case of 10MHz potentially much earlier than in the case of 7.2MHz. However, where an existing licensee gains access to only 5MHz, the timing of launch of UMTS services becomes much more uncertain.

ComReg's basic principle is to re-award all the spectrum on a liberalised basis. This would indeed help to achieve the maximum efficient use of this spectrum. However, this can also be done by liberalising the existing licences and auctioning only some of the spectrum to ensure that new entrants can gain access. It is not immediately clear that either approach has clear benefits from a spectral efficiency viewpoint.

Increase in competitive pressure

Those countries that have seen the most competition in their mobile sectors have often reaped benefits for consumers. These have normally arisen in two forms, through lower pricing for consumers and greater investment in networks as competitors seek to gain an advantage. For example, in the aftermath of the 3G UMTS auctions, new entry often led to lower prices and faster 3G UMTS network roll-out as new entrants sought to gain a share of the marketplace.

Ireland already has a competitive mobile market with four mobile operators all offering 3G UMTS services. However, the deployment of 3G UMTS services in the 900MHz spectrum has the potential to bring substantial benefits both for operators and more importantly for consumers. There is the distinct possibility that a new entrant into the 900MHz band, obtaining clear spectrum, would be incentivised to make use of this spectrum for 3G UMTS services quickly. This, in turn, might prompt existing operators to roll out these services more quickly and create significant timing benefits for Irish consumers.

The approach proposed to be taken by ComReg seeks to relicense potentially the whole 900MHz band by open competition. By doing so it maximises the potential for new entry into the band. The original proposal by Vodafone, that ComReg expands each existing licensee's holding to 10MHz and auctions the remaining 5MHz block would also ensure new entry to the band. In this case, a new entrant would have gained access to 5MHz of clear 900MHz spectrum. For ComReg to prefer its approaches to that put forward by Vodafone, it would need to present compelling arguments that either:

- A new entrant with 10MHz of spectrum at 900MHz would serve to increase competitive pressure substantially more than one with 5MHz, or
- More than one new entrant would serve to increase competitive pressure substantially more than a single player.

Moreover, the new alternative licensing approach proposed by Vodafone would allow 20MHz of 900MHz spectrum to go to auction. For ComReg to prefer its options to this revised proposal, on the grounds of increasing competitive pressure, it must believe that either:

- 5 or more new entrants with 5MHz of spectrum would increase competitive pressure more than the 4 new entrants with 5MHz that would be possible under Vodafone's proposal, or
- 3 or more new entrants with 10MHz of spectrum would increase competitive pressure more than the 2 new entrants with 10MHz that would be possible under Vodafone's plan.

Therefore, it appears that ComReg needs to present compelling evidence as to why alternatives that involve the administrative relicensing of spectrum on competition grounds would fail to increase competition. Part of this analysis would need to include a much more detailed analysis of the likelihood of any of the seemingly improbable scenarios of new entry that would lead to ComReg's options being preferred as described above.

Minimal costs imposed on consumers

Any costs directly imposed on consumers by a regulatory approach can serve to depress the overall net benefits that might be realised otherwise. For example, a number of the options considered by the UK for clearing the 800MHz band would have enabled earlier deployment of 4G LTE mobile services; however, they would also have entailed the necessity for households to change their television antennas. Although the economic cost of this was difficult to measure accurately, these options were avoided in large part because of the difficulty they would cause the end user of services.

Most of the options proposed by ComReg hold out the possibility that operators could lose the entire 900MHz spectrum they use and all of them countenance the possibility of some of this spectrum being lost. There are two direct costs that consumers might suffer. The first is the possibility of disruption of service whilst a service provider reconfigures its network to cope without the same level of 900MHz spectrum. This disruption could be temporary through a

transition process but also might be permanent as identical coverage using different frequency bands cannot be guaranteed. The second is the possibility that an operator may decide to cease operation were it to lose access to its 900MHz spectrum. This would entail costs for the consumer in switching to another network.

These costs were considered in some level of detail by the UK regulator, Ofcom, as it decided the fate of the UK's 900MHz spectrum. The first case examined was that of a partial loss of spectrum.

Firstly, amongst the costs imposed on networks, Ofcom looked at technical costs of squeezing more capacity from remaining 900 MHz networks, and also the costs of accelerating migration to 3G. Importantly, Ofcom did not dismiss the possibility that these costs could be passed on to some extent to consumers.

Secondly, Ofcom consider the potential for quality degradation falling on consumers. Although incumbent operators would seek to avoid service disruption where possible during this process of network upgrade, it is likely that there would be a short term period of interruption, for example, through reduction in coverage or increased call blocking. Although primarily affecting customers, this could also have indirect costs for the incumbents in terms of churn of customer base.

Furthermore, Ofcom also mentions a small risk that wider access to liberalised 900 MHz spectrum may encourage the construction of more network infrastructure than might be socially optimal.

Although, most of Ofcom's focus was on the scenarios where existing operators lost access to some of the spectrum that they currently use, it also looked at the costs that would be incurred should incumbent operators be required to release all of their current 900 MHz allocations. In this case Ofcom identify three major costs:

- Unacceptably high cost of release, due to the clearance of existing traffic on the network;
- Unacceptably high risk of consumer disruption as operators conduct major reengineering of their networks; and
- Unacceptably long timescale, if release of spectrum is delayed in order to reduce costs

Although Ofcom's conclusions were made about the UK market, they are applicable to the Irish context. In the case where there is partial loss of spectrum it would appear that the effects on consumers would not be trivial for those consumers affected, especially considering the importance of mobile communications in everyday life. In the case where all of the spectrum is lost, Ofcom considered that there would be an enormous risk of consumer disruption that would render the approach in question highly unattractive.

ComReg has alluded to these issues only indirectly, in reference to the difficulties operators might encounter. The thrust of its argument has been that customers, *once faced with these costs*, can use MNP or some other mechanism to then alleviate the harm caused. This approach

seems to be somewhat cavalier, in that it seems to be justifying the potential pain caused to consumers by noting the presence of avenues for mitigation, which are themselves incomplete. As such it is not clear that ComReg has placed sufficient weight on the possibility and seriousness of these effects in its consideration of options for the relicensing of this spectrum.

Minimal costs imposed on producers

In the same way as costs imposed on consumers will reduce the net benefits of any regulatory decision, so will costs imposed on producers. These will either be absorbed by the producers or passed on to consumers. In either case this will represent an impairment to total economic welfare, either to producer surplus or to consumer surplus.

Costs will be imposed on the 900MHz operators if they fail to obtain at least as much spectrum as they currently use in any competitive award process. There are two principal sources for the economic costs to producers that will arise:

- Costs to mitigate loss of spectrum
- Costs imposed by operators withdrawing coverage

The costs from mitigating for the loss of spectrum will be the financial costs from re-engineering a network to deliver appropriate coverage and capacity with smaller holdings of 900MHz – this process is described in greater detail below. The costs of this exercise will represent a direct reduction in the total economic surplus.

In addition to attempting to maintain the same network footprint there is a second potential response that operators could take. They could choose to reduce their coverage and/or capacity footprints. In this case they would incur smaller direct financial costs. However, this would result in a reduced quality of service for customers and would lead to impairments in the consumer surplus.

The cost to mitigate loss of spectrum has been mentioned by ComReg in its consultation documents as being a potential response by operators to not gaining requisite spectrum at auction. However, there is no detailed analysis of either the scale of the cost or the potential trade-off that operators would make between mitigation and coverage reduction.

The conditions for investment

Finally, any regulatory decision taken over the 900MHz spectrum has the potential to impact the level of investment that operators make in the services that they offer. Over the last 5 years, mobile network operators around the world have invested significantly in their 3G UMTS networks, which has resulted in mobile broadband services becoming widely available for consumers. Operators are continuing to invest in increasing both coverage and capacity for their customers as demand for these services is becoming central to the mobile business proposition.

For the last two years there has been real uncertainty over the continued use of 900MHz spectrum in the Irish mobile industry. Although it is unlikely that the 900MHz operators have

lessened investment in the upkeep of their networks, they may have delayed or modified plans for major investment in their 3G UMTS networks, as they have faced the possibility of requiring major changes to their 2G networks should there be an adverse outcome to the 900MHz auctions[7].

Although this point is potentially less serious than those listed above, ComReg appears to have placed little emphasis on this cost.

Assessing Vodafone's Impact Assessment

Whereas ComReg has not performed a full impact assessment of its proposals, Vodafone has attempted to undertake such an exercise, and a confidential version was sent to ComReg on 20th July 2009. As part of our work we have reviewed the Vodafone work, along with the assistance of the economic and technical experts within my team.

We begin by assessing the technical validity of the work that Vodafone has done, and subsequently look at the economic arguments that its work then deploys.

Technical assessment

Our technical assessment has looked at three aspects relevant to Vodafone's work:

a) The overall trends and network assumptions pertaining to Ireland in the period 2010 to 2015 as a background to reasonable and/or likely actions that an MNO might take

b) The selection of options to build and enhance the network both without losing spectrum and in the case of the loss of either 2.2MHz or all 7.2MHz of 900MHz

c) The calculation of costs associated with recovering network capacity following such an event

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A) Overall trends and assumptions

Considering the background to current network evolution is a critical input to any assessment of options available to an MNO following changes to the spectrum available to them. It impacts

[7] This is likely to subdue investment in Irish mobile networks on a long-term basis if similar fears are faced in the case of 1800MHz spectrum, 2.1GHz spectrum and other mobile-suitable spectrum.

both what would be reasonable for an operator to do and the consumer benefit (or consumer difficulty) that arises from these actions

In the current case we have the following country-specific situation as of the start of 2010:

- A competitive market with four operators present in a relatively small economy
- Overall, a low population density but with significant high-density areas
- GSM voice service at 900 and 1800MHz is fully built out to a large proportion of the population with an on-going slow growth of voice minutes due to saturation compounded by reductions in expected growth due to the economic situation. 1800MHz spectrum is only deployed in areas where the capacity provided by 900MHz alone would prove insufficient. 3G UMTS services, both voice and data, at 2100MHz are in place for portions of the geographic area and population but effectively only in more densely populated parts of the country. There are unallocated parts of the GSM spectrum at 900MHz (specifically the E-GSM band) and at 1800MHz.
- Compared with many other countries, Ireland has large amounts of un-allocated spectrum and existing allocations are not fully used nationwide due to the relatively low population density

In addition a number of significant changes are happening at a global level, which will affect Ireland amongst other nations.

Liberalisation of spectrum use is happening world-wide and is specifically being mandated in Europe. A rapid change-over to 3G UMTS services is underway with 3G UMTS being the dominant technology. Hence equipment is readily available for 3G UMTS in the 2100MHz band, and increasingly in the 900MHz band.

Very significant quantities of further spectrum are to become available in the European standardised bands of 800MHz (Digital Dividend) and 2.6GHz (as well as other less commercially attractive frequencies) over the period 2013 to 2018. The 800MHz band is technically equivalent to 900MHz in terms of propagation and building penetration and may be considered a close substitute.

4G LTE services are about to become a commercial reality in some parts of the world. These services offer greater download speeds, responsiveness and reliability. The 1800MHz band has emerged as a front-runner for early deployment after the Finnish award of spectrum for that use. Importantly, this development suggests that 1800MHz equipment for 3G UMTS does not seem to be on the horizon. 4G LTE will run in many different sized spectrum blocks but to deliver higher speed data services 10MHz, 15MHz or 20MHz blocks are desirable.

It is against this background that operators would select a viable course of action in response to the loss of spectrum.

B) Selection of options for an MNO which loses spectrum holdings at 900MHz

As noted above the timing of this loss is critically important, given the shift to 3G UMTS / 4G LTE that is underway. If the reduction occurs in the near future – as contemplated by the current ComReg consultation – the MNO is faced with a particularly difficult challenge:

- an MNO's focus of attention would naturally be on migrating customers and traffic to 3G UMTS /4G LTE rather than re-building 2G since the latter route would imply stranded assets
- 4G LTE services at 800MHz would provide a good substitute for 900MHz due to similar propagation characteristics. However, these will not be available in the required timeframe.
- As such it seems inevitable that a major re-build of 1800MHz and /or 2100MHz capacity would be needed.

Although 1800MHz is lightly used, and therefore available, it is not a cost-effective substitute in rural areas or within buildings in some urban areas, due to its more limited propagation characteristics. Hence costs are not just replacing 900MHz kit with 1800MHz equivalents but also building new cell sites to fill in the propagation range deficit.

3G UMTS at 2.1GHz would suffer from the same propagation limitations. In addition, most users do not have 2.1GHz capable phones and so these users would require new handsets to be able to use the alternative spectrum. A carrier could accelerate the movement to 3G UMTS but would have to subsidise these more expensive handsets.

We note that the alternative option of awarding extensions to Vodafone and O2's licences up to 2015 to align with Meteor's would have significant benefits in terms of then allowing the combined 800 and 900MHz bands to be considered together and making transition from GSM at a point where the market will have already moved much more capacity to 3G UMTS

C) Cost implications of the loss of 900MHz spectrum

Having concluded that Vodafone's assumptions leading to the decision to the major mitigation options are to build new capacity at 1800MHz and/or 2100MHz, then the only remaining question is whether the magnitude of that cost has been correctly assessed.

We have examined Vodafone's cost calculations for the cases outlined above and in their response to the current consultation. Overall, we find that their methodology and assessment of the costs in either scenario is broadly comprehensive, conservative and is likely to be correct.

In particular, we agree with the assumptions and the methodology used, in that consideration is given to each existing cell site where the excess traffic (both current and predicted) is calculated so as to show which sites need to be upgraded and by how much. Costs are then calculated using the increased Capex and Opex arising from these changes.

In the case of all the 900MHz spectrum being lost, sensitivity analysis of the calculations shows that the the primary driver of costs and base station build in the model is, unsurprisingly,

coverage replacement. Even in the case of the loss of some 900MHz spectrum, new base station build would also be required in high traffic urban areas, to maintain deep in-building coverage and capacity. Another important variable is the rate of assumed traffic growth. Vodafone has revised its assumptions downwards on this factor due to actual network conditions experienced in the economic downturn. However, this might be conservative as the growth rate may bounce back sharply as the economy recovers

D) Cost factors not included in the Vodafone analysis

There are some forward-looking cost elements that Vodafone has excluded from its analysis but that may well prove relevant.

We note that there appears to be adequate spectrum in the current 1800 and 2100MHz allocations to achieve the required traffic offset in the short-term, if sufficient 1800 MHz and/or 2100 MHz base stations could theoretically be built out in the relevant timeframes to utilise it, but that further spectrum will eventually be needed by any operator to accommodate future growth.

More significantly, we believe that the prospect of any operator losing 2.2MHz may in fact be more problematic than previously indicated. 3G UMTS services can only function in 5MHz wide channels. However, 5MHz of 900MHz spectrum is not sufficient to both create a 3G UMTS carrier and still service legacy GSM traffic. It is expected that some level of legacy services will exist for many years, especially in machine-to-machine uses where the economics of change-over are not attractive. Thus losing 2.2MHz stops the use of 900MHz for 3G UMTS for an operator when this is the most effective way of reaching the rural population and achieving greater building penetration.

Consumer surplus assessment

We agree with Vodafone when they state that the estimation of the impact to consumer welfare is notably difficult to calculate, in comparison to the more readily quantifiable costs of network equipment that would be faced by the producer. Nonetheless, it is important to be aware of the magnitude of these costs since ComReg's duty is to the Irish consumer.

The consumer surplus impact of the loss of 900MHz spectrum by an operator would be composed of two elements. Firstly, it would be the costs of service disruption or higher prices in the short term as an operator loses access to spectrum, which are described in greater detail in the relevant section above. Secondly, it would be the opportunity cost of better services foregone in the future as a result of forced investment into legacy networks and insufficient spectrum resources to launch newer services. All of these reductions in consumer surplus would have to be balanced against any gains in consumer surplus caused by the reallocation of spectrum.

Vodafone's approach to assessing the potential reduction in consumer surplus from the loss of spectrum can be described very simply. It assumes that there would be a reduction of 25% in

the total yearly consumer surplus of the affected network, and assumed that the affected network is responsible for generating 30% of the total consumer welfare ascribed to mobile services. According to Vodafone's original calculations this was equivalent to an annual impairment in consumer surplus of €154 million. However, we have discovered that there has been an element of double-counting in Vodafone's calculations and that the actual figure should come to an annual impairment of €81.2 million. This compares to a direct mitigation cost to an operator of **[Redacted]** in the case of 2.2MHz of spectrum being lost and **[Redacted]** should all the 900MHz spectrum be lost.

One way to assess the reasonableness of such an approximate calculation is to perform sensitivity analysis around the assumption. In the table below we present a modified set of numbers based on varying the level of impact and introducing a new element looking at the proportion of consumers affected.

Table 1 -

Consumer surplus lost (€m)		**Proportion of customers affected**		
		50%	**75%**	**100%**
Proportion of consumer surplus lost	**10%**	16.2	24.4	32.5
	25%	40.6	60.9	81.2
	50%	81.2	121.9	162.5

In the table above we have highlighted the scenario that Vodafone chose as its base case, and by adjusting the assumptions around the proportion of customer affected and the severity of the impact we have derived a number of other possibilities for the impact. These range from €16m per annum, if only 50% of consumers are affected and the consumer surplus reduction is a much more modest 10%, to over €160m per annum if the impact is twice Vodafone's estimated level. In any case, the magnitude of the cost is in the tens of millions of Euros a year. It should also be noted that this number contains two separate elements, the short-term disruption elements and the continuing opportunity cost.

Vodafone makes the further assumption that the consumer surplus of subscribers other than those of the licensee directly affected would decline by 5% over the relevant period. This is equivalent to a further reduction in the net present value of the consumer surplus of approximately €72 million. This cost is ascribed to a reduction in competitiveness in the wholesale market for mobile services caused by the difficulties that the affected licensee would face in competing with reduced spectrum available.

It is difficult to set-out a definitive assessment of Vodafone's calculation of the consumer impact, given the definite but diffuse costs involved.

Our sensitivity analysis of the costs experienced by the customers of the affected network shows, under a large range of assumptions this could be in the tens of millions of Euros a year. As such we believe that Vodafone's revised assessment of this cost as €81m is reasonable. However, we feel it is difficult to justify Vodafone's assumption that this cost could be the same in the scenario that an operator loses the full 7.2MHz as in the case where an operator loses

only 2.2MHz. A number lower than €81m would be more justifiable in the latter case. However, in both cases, Vodafone has also only assumed that this cost would be experienced for one year. If the impact were felt for longer, then the magnitude of the cost could be greater.

As for Vodafone's assessment of the costs caused by a reduction in competition in the wholesale market we can agree that the loss of spectrum capacity would affect the ability of the affected licensee to offer a wholesale service. However, without a detailed econometric analysis of the wholesale market in Ireland we would be wary of providing a numerical estimate of the level of this cost.

Our conclusions over Vodafone's approach and possible enhancements in methodology

The table below sets out the costs calculated by Vodafone split into a number of different categories.

Table 2 – Confidence in Vodafone's calculations

	2.2MHz lost & 1800MHz used to mitigate	2.2MHz lost & 2.1GHz used to mitigate	7.2MHz lost & 1800MHz used to mitigate	7.2MHz lost & 2.1GHz used to mitigate
Direct costs to operator (network, handset subsidy)	**[Redacted]**	**[Redacted]**	**[Redacted]**	**[Redacted]**
Consumer surplus impact (network's own customers)	81	81	81	81
Consumer surplus impact (due to wholesale impact)	72	72	72	72
TOTAL COST (including all items)	**[Redacted]**	**[Redacted]**	**[Redacted]**	**[Redacted]**
TOTAL COST (excluding uncertain items)	**[Redacted]**	**[Redacted]**	**[Redacted]**	**[Redacted]**

Those costs in unshaded cells are those for which we believe that Vodafone's analysis is robust. Even amongst these cells there is a degree of variation in the level of confidence that can be ascribed. For example, network costs can be calculated to a much greater level of confidence than consumer surplus effects of disruption. However, even for these consumer surplus impacts we believe that Vodafone's approach is reasonable and delivers impacts of an appropriate magnitude,

The figures in cells shaded grey are those of the direct consumer surplus effects of the loss of 2.2MHz of spectrum. At present Vodafone does not differentiate these from those that would be experienced were all 7.2MHz to be lost. This appears to be an unreasonable assumption given the much lower levels of disruption that would be expected in the case of a loss of only some spectrum. As such we believe that these figures would need to be appropriately discounted to be more credible.

The figures in cells coloured black are those for the negative consumer effects due to a softening of competition in the wholesale markets. For these any numerical estimate is difficult to justify without extensive further analysis. We have not formed a view as to whether these costs are stated too high or too low by Vodafone, but would suggest that in the interest of conservative analysis that they be treated with caution.

Even taking into account these considerations, the economic costs of an adverse auction result for any of the existing 900MHz operators is likely to be measured in hundreds of millions of Euros. There is also a marked difference between the costs of an operator losing some of the spectrum and of losing the entire spectrum. The economic cost in the latter case could be up to an order of magnitude greater.

In terms of improving its analysis of the costs, there are two main modifications that Vodafone could undertake, it could:

- Recognise the implicit trade-off between network costs incurred and consumer surplus impact. For example, an operator losing access to spectrum can either choose to mitigate to a greater level of expense, or choose to mitigate to a much lower level. However, this would incur significant customer surplus impacts as existing customers could lose their service entirely.
- Rework its analysis to split out more detail within the loss of consumer surplus. For example it could look to assess the impact of a loss of 2.2MHz differently to that of losing 7.2MHz, or build out different scenarios which take into account likely actions of a new entrant.

However, we consider these refinements highly unlikely to change our basic assessment that there would indeed be a significant negative economic impact of a loss of spectrum by the 900MHz operators, especially in the case where all 7.2MHz is lost.

Section 5. Conclusions

Although ComReg has run a detailed programme of consultation, there are certain important areas in which there appear to be major omissions, both in terms of due process and the substance of arguments.

Firstly, ComReg has not given sufficient consideration to proposals which involve extending or renewing the licences of the existing operators. This has excluded from the debate a number of options that would achieve the aims that the regulator has stated without risking incurring major costs. It is particularly noteworthy that ComReg has excluded from its consideration licence renewal/extension options that have been adopted by nations such as Germany, France, Spain, the UK and Belgium.

Secondly, ComReg has acknowledged that the failure by existing 900MHz operators to obtain spectrum at auction could lead to substantial costs, but has downplayed the significance of these outcomes by claiming that they are unlikely to come to pass. By doing so, it has argued that there is no need to conduct an impact assessment containing a sufficiently detailed cost-benefit analysis. However, this is not a particularly defensible position. Knowledge that there is a low probability of an adverse outcome is insufficient in being able to recommend that outcome without an appropriate understanding of the magnitude of the costs involved. Only by knowing both of these factors can the net benefits of a riskier option be properly assessed.

Vodafone has attempted to quantify the costs that might arise should a 900MHz operator lose access to this spectrum through an award process. We have reviewed Vodafone's work, and conclude that the network cost analysis is robust in both the partial and total spectrum loss scenarios, and the consumer detriment assessment appears defensible in the case of a total loss of spectrum. Conversely, we have suggested that the level of the consumer detriment calculated for the partial loss scenario may be too high, and that the detriment that might be caused by changes in the wholesale market should not be quantitatively assessed without a much more rigorous econometric exercise. Nonetheless, we believe that Vodafone has convincingly made the case that the quantum of cost in the case of a loss of spectrum is likely to be high, and much of it will be borne ultimately by consumers.

Therefore, we believe that ComReg has not developed sufficient justification for pursuing its option over the latest alternative proposed by Vodafone. ComReg's proposal appears not to provide any incremental benefits over and above Vodafone's approach, whilst simultaneously creating significant additional risks of serious disruptions to consumers.

Section 6. About the authors

Ingenious Consulting Network (Ingenious) provides consulting and information services to businesses in telecommunications, media and technology. We have particular expertise in areas of public policy and telecommunications regulation and count UK and international regulators and service providers amongst our clients.

Kip Meek – Kip has most recently completed his work as the Independent Spectrum Broker, appointed by the UK government to resolve the questions around existing and future mobile spectrum allocations. Through his positions as a former founding partner of Ofcom, former Chairman of the European Regulator Group, and Chairman of the Broadband Stakeholders Group (BSG) he has deep knowledge of public policy and regulation in telecommunications

Richard Thanki – Richard assisted Kip throughout the Independent Spectrum Broker process, conducting much of the economic analysis and developing many of the mechanisms used in the final report, now being consulted upon by the UK government. He has worked at Ofcom and the OFT and is therefore well versed in many areas of telecommunications and competition economics. At Ofcom he led a number of initiatives in radio spectrum especially in the Digital Dividend Review (DDR)

Ian Vance – Ian worked alongside Kip and Richard in the second phase of the ISB process providing technical insight. He is a senior figure in the telecommunications industry, with a background as Vice President and Chief Engineer of Nortel plc, responsible for all Nortel products in European markets. He has 38 years experience of the mobile radio, photonics, and semiconductors industry. He is probably best known for his innovative design of the world's first 'professional' radio on a silicon chip and his patenting of Time Division Duplex (TDD).

Aileen Dennis – Aileen has worked for Human Capital – one of the companies within the Ingenious Consulting Network – for over three years, and has been involved in projects for UK and international telecommunications and media companies. Recently Aileen has supported a mobile operator in Hong Kong in an interconnect dispute, and provided support to GSMA during the preparation of their European Mobile Manifesto submission to the EU. She has a Masters degree in Natural Sciences from the University of Cambridge.

Annex 5
Consumer Disruption Technical Annex

Costs of consumer disruption

This Annex sets out the approach, data and assumptions used to arrive at the illustrative estimates of consumer disruption costs (as contained in the response) were Vodafone to lose all of its 900 MHz spectrum. This Annex starts with a description of our approach to measuring both total consumer surplus associated with the consumption of mobile services and consumer surplus associated with consuming mobile services from Vodafone in preference to any other operator.

Following our discussion of consumer surplus measurement, we set out in detail the calculation of cost impact for:

- The 40,000 of Vodafone's customers who may lose coverage on a long term basis;
- The just over 400,000 of Vodafone's customers who may face a short term coverage loss;
- The switching costs faced by Vodafone's customers;
- The loss of consumer surplus faced by those Vodafone customers who would be forced to switch to a less preferred supplier; and
- The loss of consumer surplus associated with the reduced service quality facing those customers remaining with Vodafone.

It is important to note that the calculations that follow exclude a number of costs, including the loss of consumer surplus associated with increased congestion on other networks, especially O2, and welfare losses associated with weakening of competition.

Measuring consumer surplus

Consumer surplus associated with the consumption of mobile services

There are no up to date measures of consumer surplus associated with the consumption of mobile services in Ireland.

In consequence, we have used price elasticities to provide a potential estimate of consumer surplus. Consumer surplus can be calculated by the formula[1]:

$$CS=PQ/2e$$

Where PQ is price multiplied by quantity sold and e refers to the industry level price elasticity.

In implementing this approach we have made the following assumptions.

- The price variable used is annual Average Revenue Per User (ARPU), as reported in ComReg's Quarterly report. The most recent estimate for ARPU is €37.90 on a monthly basis.
- The quantity variable in the model is total mobile subscriber volumes as reported in ComReg's Quarterly report. There are currently around 5.2 million mobile subscribers.
- Elasticity of demand of (-)0.3. We are not aware of any widely accepted measures of demand elasticity for mobiles in Ireland. This figure comes from the UK Competition Commission's Report on mobile termination

[1] See Europe Economics (2006) "Economic Impact of the Use of Radio Spectrum in the UK", a report prepared for Ofcom for a fuller description of this approach. This formula assumes that demand is linear.

rates, and is a figure that Ofcom has frequently used when carrying out analysis of the UK market. While these figures are for the UK and not for Ireland, they are a reasonable approximation[1].

Using the assumptions above, we arrive at an estimate of total consumer surplus from the consumption of mobiles of almost €4 billion per annum. This equates to consumer surplus per subscriber of €758 per annum, and consumer surplus per minute of use of €0.28[2].

Consumer surplus associated with the consumption of mobile services from Vodafone, in preference to other operators

To provide an illustrative estimate of the potential loss of surplus that consumers would face were they forced to switch to an alternative provider of mobile services, we have also sought to consider the surplus Vodafone's customers receive from consuming services from Vodafone in preference to other operators. Paragraphs x-y of the submission set out the evidence supporting our position that customers would suffer a reduction in consumer surplus were they forced to switch supplier.

To measure the Vodafone specific consumer surplus, one can use the same formula as above[3]:

$$CS=PQ/2e$$

However, in this case price and quantity refer to Vodafone specific revenues, while the elasticity is not the market elasticity, but rather the operator specific elasticity – i.e. the response of consumers were Vodafone to raise its prices.

In implementing this approach we have made the following assumptions.

- The price variable used is annual Average Revenue Per User (ARPU), as reported in ComReg's Quarterly report. The most recent estimate for ARPU is €37.90 on a monthly basis;

- The quantity variable in the model is Vodafone's total mobile subscriber volumes. Vodafone currently has just over 2 million mobile subscribers;

- We have assumed Elasticity of demand of **[Redacted]**. We are not aware of any operator specific measures of demand elasticity for Ireland. The assumed elasticity of **[Redacted]** is entirely illustrative, but is considered by Vodafone to be not unreasonable, and if anything, higher than might be expected[4].

Using the assumptions above, we arrive at an estimate of total consumer surplus from the consumption of Vodafone's services in preference to other operators of over **[Redacted]** per annum. Dividing this figure by the total number of Vodafone subscribers, suggests that consumer surplus per Vodafone subscriber is **[Redacted]** per annum.

This figure suggests that, if a current Vodafone subscriber forced to switch to a an alternative operator, the total surplus they would receive from consuming mobile service would fall by **[Redacted]** from €758 to **[Redacted]**, a fall of just over **[Redacted].**

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1 In Consultation 05/01B "preparing the Radio Spectrum Management Strategy for 2005-2007", ComReg itself noted that "...similarities between the UK and Ireland in the services received, income levels and penetration rates would suggest that use of UK data would not be unreasonable. Although it is noted that mobile usage rates are higher in Ireland, perhaps suggesting consumers gain more benefits from the use of their mobile phones.

2 Based on average monthly MoU of 225, reported in ComReg's Quarterly Report.

3 See Europe Economics (2006) "Economic Impact of the Use of Radio Spectrum in the UK", a report prepared for Ofcom for a fuller description of this approach. This formula assumes that demand is linear.

4 Using the Lerner Index, and assuming profit maximisation, an elasticity of **[Redacted]** implies a gross margin (p-c/p) of 1/e or **[Redacted]**. In this case, P is given by ARPU, and costs reference to the long term incremental costs associated with acquiring and servicing a customer.

Measuring the costs of consumer disruption

As noted above, we have identified a number of different costs associated with disruption. Below we describe the approach we have taking to estimating the cost impact associated with each.

- The 40,000 of Vodafone's customers who may lose coverage on a long term basis;
- The just over 400,000 of Vodafone's customers who may face a short term coverage loss;
- The switching costs faced by Vodafone's customers;
- The loss of consumer surplus faced by those Vodafone customers who would be forced to switch to a less preferred supplier; and
- The loss of consumer surplus associated with the reduced service quality facing those customers remaining with Vodafone.

40,000 of Vodafone's customers may lose coverage on a long term basis

As set out in the main submission, Vodafone has the most extensive coverage of any operator. In the event that Vodafone were to fail to acquire spectrum, a small proportion of customers would be without service until another operator extended their network to provide coverage.

2% of Vodafone's consumers being without coverage equates to just over 40,000 subscribers. Given that they would not have access to any mobile services, it is appropriate to assume that they would lose the entirety of the surplus associated with the consumption of mobile services (€758 per annum).

In consequence, the loss to this group of customers in the first year following the loss of spectrum by Vodafone would be €31 million. In estimating the total costs of disruption, we assumed that the average disruption will last for no longer than one year, but in reality this is likely to be a highly conservative assumption.

400,000 of Vodafone's customers may face a short term coverage loss

As set out in the main submission, Vodafone anticipates that, in the event that Vodafone were to fail to acquire spectrum, there would be considerable bottlenecks facing those consumers without coverage who would be forced to switch to rival providers. Those bottlenecks would be in relation both to number porting, where there are substantial capacity issues, and to the ability of other operators to process large volumes of switchers.

In these circumstances it is likely that a reasonable proportion of Vodafone's customers will be without coverage for a period of time as they seek to switch to an alternative provider.

To illustrate the potential costs associated with this loss of coverage, we have made the conservative assumption that approximately 50% of Vodafone's customers who lose coverage would be without any service for a period of one month. Vodafone submits that its expectation is that the average period without coverage may be substantially longer than a month. In consequence, Vodafone submits that this assumption is highly conservative.

In consequence just over 400,000 customers would be without service for a month. Given that they would not have access to any mobile services, it is appropriate to assume that they would lose the entirety of the surplus associated with the consumption of mobile services for that period (one twelfth of €758).

The loss to this group of customers would be almost €26 million.

The switching costs faced by Vodafone's customers

As set out in the submission, customers are likely to face switching costs associated with being forced to change provider. We are not aware of any widely accepted estimates of switching costs for Irish consumers.

In consequence, to illustrate the potential magnitude of switching costs, we have assumed that the average switching cost would be €15. We consider that, given the search costs and handset purchase costs, this is likely to be a highly conservative estimate of switching costs. We note also, that if consumers are forced to change operator without porting their number (given the capacity issues associated with number porting), then the costs of switching are likely to be substantially greater, particularly for business users.

Vodafone has just over two million subscribers in Ireland. Given that 40% of Vodafone's subscribers (816,000) would be forced to switch, the loss to this group of customers would be just over €12 million[1].

Loss of consumer surplus faced by those Vodafone customers who would be forced to switch to a less preferred supplier

The 816,000 customers who would be forced to switch provider because Vodafone could no longer provide coverage face a loss of consumer surplus as a result of being forced to switch to a less preferred supplier. We have estimated that loss above at **[Redacted]** per year[2].

The loss to this group of customers would be just over **[Redacted]** per annum of loss of coverage.

Loss of consumer surplus associated with the reduced service quality facing those customers remaining with Vodafone

The remaining 60% of customers (just over 1.2 million) for whom Vodafone could still provide services would also face disruption costs. In particular, Vodafone estimates that the loss of 900 MHz spectrum would lead to a significant reduction in service quality, and a substantial increase in dropped calls.

To demonstrate the potential magnitude of these costs, consider dropped call rates. Vodafone has previously submitted that the loss of 900 MHz spectrum would be expected, at minimum, to lead to the dropped call rate increasing to **[Redacted]**[3]. It is likely that customers will re-dial in the event of a call being dropped. If we assume that re-dialling leads to the call being successfully made half the time, then this suggests a net increase in the dropped call rate of **[Redacted]**.

Average monthly Minutes of Use is 225, which equates to an annual figure of 2,700. Assuming a **[Redacted]** reduction in use equates to **[Redacted]** minutes per subscriber. For Vodafone's affected customers, this equates to almost **[Redacted]** million lost minutes.

We calculated above that the average consumer surplus per minute of use is €0.28.

The loss to this group of customers would therefore be almost **[Redacted]** per annum of disruption. Note, that this assumes no mitigation on the part of Vodafone. However, as discussed in the main submission, Vodafone is of the view that options for mitigation are likely to be limited.

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1 We assume that this 40% of customers is in addition to Vodafone customer who might have been expected to switch in any event.

2 Note, the 50% of customers who we assumed would lose service for a month only lose 11/12 of the loss.

3 Vodafone, Regulatory Impact Assessment of ComReg's proposed 900 MHz spectrum licensing options

Summary

The Table below summarises the costs associated with consumer disruption. While this is illustrative, it is important to note that it is based on highly conservative assumptions. Moreover:

- It does not take into consideration the potential disruption costs facing Meteor and H3GI's customers who currently receive coverage through national roaming on Vodafone's network;
- It does not consider the impact on other consumers who will also experience increased dropped calls when they call Vodafone customers;
- It does not take into account the impact on customers associated with congestion and capacity issues on rival network operators;
- It does not consider the costs associated with the potential loss of competition;
- The Table shows only the annual costs for loss of service and loss of surplus associated with switching provider. These costs are likely to be incurred for many years, as it will take time to reconfigure the network such that coverage and service quality are equivalent to today.

Type of Cost	Cost Estimate (€,million)
40,000 of Vodafone's customers who may lose coverage on a long term basis (assuming loss over 1 year)	31
Just over 400,000 of Vodafone's customers who face a short term coverage loss (loss over 1 month)	26
Switching costs faced by Vodafone's customers	12
Loss of consumer surplus faced by those Vodafone customers who would be forced to switch to a less preferred supplier (assuming loss over 1 year).	[Redacted]
Loss of consumer surplus associated with the reduced service quality facing those customers remaining with Vodafone (assuming loss over 1 year).	[Redacted]
Total	[Redacted]

Annex 6
Vodafone Technical Annex

The Network Impact of 900 MHz Spectrum Loss

Many of the points previously made by Vodafone regarding the intractable obstacles to implementing mitigation strategies have only been further reinforced by the 19 months that have elapsed since ComReg's original consultation was issued. With the imminent expiry of Vodafone and O2's existing 900 MHz licences in mid 2011, Vodafone would have as little as 6-9 months following the announcement of the final outcome of the proposed 900 MHz competitive award process, to attempt to mitigate the disruption that would arise in the event that it were to be unsuccessful in the auction

There are clearly strong commercial incentives for existing 900 MHz licensees to ensure that consumers were not negatively affected if they lost their 900 MHz spectrum. But in many cases it is not in fact practically possible for existing licensees to adopt or implement such mitigation strategies.

Use of Alternative Spectrum

(a) Vodafone's submission to ComReg document 08/57 set out comprehensively why it would not be economically or practicably feasible for an existing 900 MHz licensee, such as Vodafone, that loses access to 900 MHz spectrum to sustain unaffected service provision on the basis of use of their alternative spectrum usage rights in the 1800 MHz and 2.1 GHz bands. The points made then have even greater force and validity now given the time that has elapsed and the extremely limited 6-9 month timeframe that now appears likely to be available for operators to seek to implement such a strategy.

ComReg notes that Vodafone's 1800 MHz and 2100 MHz networks currently cover 53% and 90% of the population respectively. However coverage does not equate to capacity It is possible to provide a given area with coverage by a single base station. Such a base station could handle a finite number of simultaneous calls. Once the volume of simultaneous users exceeds the capacity of the base station it is necessary to add additional base stations to carry the excess traffic. These base stations need not provide additional coverage to that provided by the first but must provide additional capacity. The fact that an area is covered by a base station doesn't mean that it has the capacity to carry all of the traffic from customers within the coverage area. Because of the overlaid nature of the coverage provided by base stations in the 900MHz, 1800MHz and 2100MHz frequency bands all three sets of coverage act to provide capacity at a given location. Removing one layer of coverage doesn't in principle affect the coverage of the other two. However it does affect the overall traffic carrying capacity of the network at that location. A simplistic approach which only takes account of coverage or fails to take adequate account of the issues involved in adding capacity is a serious error .

It should also be noted that coverage figures are based on the licence definitions of coverage. Attaining these standards does not guarantee ubiquitous indoor or outdoor coverage within an area. As base stations are added to meet capacity requirements it has the secondary effect of improving the quality of coverage in a given area by in-filling gaps in the coverage of the existing base stations. Removing a layer of base stations not only has the effect of reducing the capacity of the network but also reduces the ubiquity and quality of the remaining coverage. The maturity of the Irish mobile market and high penetration rates means that customers have come to expect the highest quality coverage that arises from densely layered networks that have been deployed to meet capacity rather than coverage considerations. While the nominal coverage of Vodafone's 1800 MHz and 2100 MHz infrastructures is 53% and 90% of the population respectively these cannot be viewed in isolation from the complementary and overlaid coverage of the Vodafone 900 MHz network. This third layer provides both capacity and quality improvements to coverage at a given location. It is simplistic and a serious error to assert that a two tiered coverage based on existing 1800 MHz and 2100 MHz infrastructures is equivalent to the coverage provided by the existing three tiered network comprising overlapping 900 MHz, 1800MHz and 2100 MHz infrastructures.

It is therefore a serious error for ComReg to claim that customers who have 3G handsets would be in a position to avail of 90% coverage on the current 2100 MHz network. This is explained in greater detail later in this response.

This analysis is supported when the position of H3GI is considered. Although H3GI have met their licence obligations of 85% population coverage, and are currently claiming 94% broadband coverage[1], it nevertheless requires national roaming on GSM from Vodafone on a nationwide basis to provide an acceptable level of voice and SMS services to its customers.

(b) The current use of 1800 MHz spectrum by mobile operators in their networks is primarily to reinforce capacity in areas of high traffic demand and it is simply not possible to provide equivalent coverage as currently provided using 900 MHz spectrum within the very limited time that would be available to seek to avoid service disruption to end users. As explained further below, this would require Vodafone to roll out **[Redacted]** additional new 1800 MHz base stations and to upgrade approximately **[Redacted]** of its existing 900 MHz base stations to 1800 MHz. To put this in context, the total number of base stations in Vodafone's network currently, after 15 years in operation in the market, is **[Redacted]** sites.

(c) ComReg has also made a serious error by failing to have regard to the issue of the spare capacity of the 1800 MHz and 2100 MHz infrastructures and their potential to provide services to customers if it was required to accommodate the traffic currently carried on the 900 MHz infrastructure.

[Redacted]

This makes clear, Vodafone customer's current dependency on 900 MHz spectrum for the delivery of voice and SMS services which account for over 80% of current revenue.

[Redacted]

Geographic effects of 900 MHz loss

(a) Vodafone has also undertaken an analysis of the effects of 900 MHz loss as it impacts on different geographic area. We looked at the impacts in Urban (Dublin city), suburban districts and rural areas

[Redacted]

(b) Loss of 900 MHz spectrum would require the installation of a significant number of additional sites in order to reach customers at the alternative 1800 MHz or 2100 MHz frequencies. In many areas, planning permission restrictions (c.f. Kerry Co. Council's 1 km exclusion zone around houses) would prevent the additional sites required being built leading to a total loss of service to customers.

[Redacted]

Replacing 900 MHz with alternative infrastructure

(a) Vodafone estimate that any credible attempt to replace 900 MHz coverage with alternative spectrum would take **[Redacted]** years. In reality it is unlikely ever to occur for the following reasons;

[1] http://www.three.ie/broadband/index.htm as at 22nd February 2010

- The uncertainty regarding the future use of 1800 MHz means it is unlikely that any significant investment in this area would take place.

- Migrating all current voice and SMS service to UMTS would severely impact on its data carrying capacity and would place any operator attempting this course of action at a fatal competitive disadvantage against other mobile broadband providers who do not face similar constraints.

- The extent of the investment required to effectively replicate a network that was already in existence and which took 15 years to build.

- The opportunity cost to Vodafone arising from the expenditure of resources on building a replacement network and which could have been used in a much more productive manner.

Notwithstanding the above, Vodafone did examine the impact and feasibility of replacing 900 MHz coverage with both 1800 MHz and UMTS infrastructure

[Redacted]

(b) Effective mitigation using any alternative spectrum would require:

- Completion of a detailed planning exercise identifying capacity constraints and holes in coverage that would arise with shutdown of the 900 MHz network. This would involve planning capacity expansions on the existing 1800 MHz and 2.1 GHz networks and planning new sites to address coverage loss and capacity issues.

- The acquisition of new sites for the very large number of additional base stations required.

- Planning permission to be secured for all new base station sites with current planning cycles running at between 8-9 months.

- Additional new base stations would need to be constructed and many existing sites would need to be upgraded.

Mitigation using 1800 MHz infrastructure

[Redacted]

To replace 900 MHz coverage and capacity with 1800 MHz, Vodafone would need to build an additional **[Redacted]** sites and upgrade **[Redacted]** others to remain at the current level of coverage. The total cost without AMR handset replacement is **[Redacted]**.

(a) Vodafone currently commissions approximately **[Redacted]** base stations per annum with a planning cycle of **[Redacted]**. Assuming our highest ever roll-out performance of **[Redacted]** new sites per month, it would take **[Redacted]** years to replace 900 MHz coverage with additional 1800 MHz infrastructure.[1]

[1] In the license conditions attached to the current 1800 MHz licenses –Schedule part 6, ComReg set a challenging target 9 new sites per month in the first 9 months service. This increased to 10 sites per month in phase 2 which lasted 30 months and fell back to 8 sites per month in the final phase of 36 months. In

(b) At this optimum rollout, only [Redacted] % of the required replacement build would be in place. In reality, mitigation action through additional 1800 MHz network build is unlikely to have any meaningful effect in the time to license expiry.

(c) The size of the investment required and the resources and focus which would have to be devoted to rolling out the new infrastructure would represent an enormous opportunity cost to Vodafone. It would divert resources from the delivery of new and innovative services and from delivering increased value to customers. Instead, the resources would be used to simply replicate a network that was already in place and which took 15 years to build. This could not be regarded as an optimal use of capital.

(d) ComReg's own rationale for asymmetric coverage obligations in the proposed new 900 MHz licences recognises the challenges faced in site acquisition:

> *"A new entrant may not have access to an existing network and so would probably not have access to existing radio transmitter sites. As such, a new entrant would find it more difficult to meet coverage and roll-out obligation compared to the first two types of potential licensee described above.....If symmetric coverage and roll-out conditions were imposed, then they would have to be set at levels that suited any new entrant, who would require* ***enough time*** *in which to build a complete network."*[Vodafone's emphasis]

(e) Comreg proposes to give a new entrant 4 years to build only 30% coverage in urban areas at lower frequencies – yet assumes Vodafone could add 40% in largely rural areas in higher frequencies in a matter of months!

Mitigation using 2100 MHz infrastructure

(a) Due to the poorer propagation characteristics of 2100 MHz spectrum relative to 900 MHz spectrum, the number of additional sites required to replace 900 MHz is greater than that for 1800 MHz at [Redacted].

The overall cost is [Redacted].

(b) Replacing 900 MHz with 2100 MHz would take longer than 1800 MHz at almost [Redacted] years. It would entail the same risks in relation to site acquisition, opportunities costs and the absence of any material impact in the time remaining before the 900 MHz license expiry.

3G Handset replacement

(a) Seeking to migrate all or most of the remaining [Redacted] customers with 2G devices to handsets and device compatible with the use of 2100 MHz spectrum would pose significant practical obstacles in a 6-9 month timeframe now likely to be available. Among the challenges Vodafone would face would be;

- Sourcing of the additional handsets from a range of suppliers, and ensuring their distribution to customers..
- Identifying customers who have 3G handsets with 2G SIMs. (for example Blackberry customers currently use 2G SIMs due to an industry wide issue on 3G compatibility).

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the current national Broadband Scheme, 3 are set the 'challenging but achievable' site build rate of 24 sites per month. At that rate, it would still take more than 7 years to replace 900 MHz with 1800.

- Informing customers of the reasons for handset replacement and managing the immediate negative impact such communication would have on customer confidence.
- Contacting unregistered prepay customers with 2G handsets.
- Devising the means by which customers could claim their replacement handsets – vouchers, pin numbers etc.
- Devising the means by which handsets would be delivered to customers. This would involve both online and in-store activity.
- Managing the fraud risks from spurious claims for replacement handsets.
- Increasing resources in all customer-facing channels to deal with peaks in customer activity.
- Dealing with customers who do not agree to an upgrade and keep the 2G only handset or who wish to switch.

(b) Vodafone estimates that the cost of the activities outlined above would be of the order of [Redacted] million.[1]

(c) In reality, nothing along this scale is likely to happen. Without the investment in additional 2100 MHz infrastructure (coverage and capacity), it would be largely pointless migrating customers to 3G capable handsets. As shown previously, Vodafone estimates that over 800,000 customers could lose coverage resulting from the loss of 900 MHz. Supplying these customers with 3G handsets for a 3G network that could not provide effective coverage and capacity in their area would be futile in averting disruption to their service.

[Redacted]

[1] [Redacted]