



Commission for
Communications Regulation

Information Notice

Liberalising the Future use of the 900 MHz and 1800 MHz Spectrum bands & Spectrum Release Options

Publication of the non-confidential minutes of bilateral meetings.

Document No:	09/73
Date:	25 September 2009

1 Introduction

On 10 March 2009 the Commission for Communications Regulation (ComReg) published its second consultation (ComReg document 09/14) on the future use of the 900 MHz and 1800 MHz spectrum bands, in which it invited views from interested parties on a range of issues, including new proposals for the future release of radio spectrum.

In light of the importance of this consultation, and the number and complex nature of the issues involved, ComReg considered it desirable to provide opportunities to interested parties to clarify their views as previously submitted in writing. To this end, ComReg invited each party that had responded to one or both consultations on this matter (ComReg 08/57 and ComReg 09/14) to attend a meeting with ComReg where the invited party was provided the opportunity to 'speak to' its written responses¹.

Ten of the eleven parties who submitted written responses to one or both consultations availed of the opportunity to attend a bilateral meeting, which were held between 1 July and 15 July 2009. Bilateral meetings were held with (in alphabetical order):

1. Digiweb Ltd;
2. ESB;
3. Hutchinson 3G Ireland Ltd;
4. Imagine Communications Group Ltd;
5. LM Ericsson Ltd;
6. Meteor Mobile Communications Ltd;
7. Qualcomm Europe Inc;
8. Telefonica O2 Ireland Ltd;
9. UPC Ltd; and
10. Vodafone Ireland Ltd.

The non-confidential version of minutes to these meetings, as agreed between ComReg and the respective parties, are contained in Section 2 of this Information Notice.

¹ See ComReg 09/51: Information Notice: publication of non-confidential responses and announcement of Bilateral meetings.

2 Minutes of Bilateral Meetings

Digiweb Ltd



Minutes of a Bilateral Meeting between ComReg and Digiweb Ltd.

10 July 2009

Present:

For ComReg:

Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For Digiweb: Alan Millett

Michael Mullen
Allan McFadden

1. Welcome

The Chairman welcomed the representatives of Digiweb to the bilateral meeting.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman summarised the main points from the letter of invitation contained in Annex 2 to this document.

4. Presentation of response submitted to consultation 09/14

Digiweb welcomed the consultation and stressed the following points:

- ComReg has a number of different and difficult decisions to make but needs to achieve this as soon as is reasonable in order to give the market certainty as to timing of conditions of spectrum release.
- Digiweb has a number of different views on the market and market competitiveness as compared to other respondents.

5. Questions for Clarification / Discussion

ComReg noted that Digiweb expressed some concern that there was the possibility that the entire 900 MHz band would be taken up by incumbents. ComReg questioned if the spectrum cap, introduced by ComReg in document 09/14, would give Digiweb the necessary comfort that spectrum would be available for a new entrant. Digiweb agreed that the spectrum cap does give some comfort but as a potential new entrant it would like to see the unused blocks at the lower end of the band being made available to only a new entrant as these are unencumbered and would allow new entrants sufficient time to establish themselves in the marketplace.

On the question of defining a new entrant, Digiweb expressed the view that a new entrant is any new player in the 900 MHz band.

ComReg asked if Digiweb believes that 5 MHz is sufficient spectrum for a new entrant to rollout nationally and be able to compete in the current market. Or, would a new entrant also require MVNO access to successfully develop such a business? Digiweb was of the view that at least 5MHz is made available to new entrants. Digiweb was of the view that with 5 MHz of spectrum that it is possible to establish 25 GSM channels and to enter the market as a GSM/Edge provider. It would also be possible to establish a single UMTS carrier and offer 3G services depending on the block edge masks and collaboration between adjacent channel operators. While ideally 10 MHz of spectrum is sought; the use of only 5 MHz limits what new technologies could be used. Digiweb stressed that an operator with only 5 MHz will not be able to offer an equivalent service to an operator with 10 MHz.

ComReg probed as to what specific services might a smaller player offer that could compete with incumbents, e.g., to business and/or residential consumers. Digiweb remarked that it would most likely tailor a different product to each sector. Rural parts of the country will not have adequate broadband even with what is being offered on mobile broadband networks and Digiweb contended that satellite broadband in 2010 will be available with substantially higher bit rates [... <...]. The semi-urban area residential consumer is familiar with the mobile broadband dongle which is giving a decent service and enjoys nomadic services as well - this area could be targeted by a new data provider as the consumer wants are well known.

Digiweb also remarked that it does not see a need to establish a link with a voice service provider to enhance its data offering as VoIP over the data network could be made to work. On the other hand, as users expect 100% coverage, some interconnection facilitation with an existing operator may be required.

On the question on how long it would take to roll out a viable network, Digiweb stated that, [... <...], roll out could be accomplished within 15-18 months. Further to this Digiweb contend that the new operator should be given a lead time to enable it to catch up to existing operators in order to level the playing field. As evidence Digiweb noted that it has a wealth of data from its roll out of an 872 MHz network¹ as to the cost and number of sites required.

¹ See ComReg Document PR211205 - Wideband Digital Mobile Awarded by ComReg – 21 December 2005 - <http://www.comreg.ie/fileupload/publications/PR211205.pdf>

ComReg probed Digiweb's interest in different spectrum bands, Digiweb responded that this question is difficult to answer without knowing what spectrum will become available in the future, e.g. Digital Dividend and how much bandwidth will be available within each band. [...]. Digiweb noted that the attractiveness of different bands increases as harmonisation in actual networks and CPE occurs across Europe. The big advantage at 900MHz is the number of manufacturers who are focusing on providing new equipment in this band.

ComReg questioned what mix of technologies Digiweb believes would be most appropriate in the 900 MHz band (in addition to GSM and UMTS). Digiweb responded that GSM is saturated so a 3G technology that can offer a data service would be most appropriate. However it may be advantageous to leverage new technology that would give Digiweb an advantage over other service providers. To make the Digiweb offering more attractive an LTE offering may be appropriate in preference to WiMax given economies of scale.

ComReg sought Digiweb's views on the inclusion of Quality of Service and roll-out conditions in any liberalised licences. Digiweb responded that it is cost prohibitive to roll out a national network and therefore QoS are more appropriate conditions to include in a licence. Digiweb recommended that QoS conditions such as accessibility, retainability, congestion and integrity are used instead of rollout conditions in any liberalised licence. While it was difficult to stipulate what these QoS conditions should be until the actual service offering is established, 53% coverage equivalent to all the major population areas was offered as a possible appropriate rollout condition. On the basis of technology neutrality Digiweb noted that it is difficult to dictate download speeds and latency conditions as technologies differ. Different services require different conditions and ComReg should not constrain an operator's business case by establishing inappropriate licence conditions that place constraints on operators or increase the costs of the network beyond what is actually required.

ComReg noted that Digiweb had expressed some concern in relation to the possibility of stranded blocks following the auction and questioned if ComReg's proposals with regard to auction format satisfied Digiweb in this regard. In general Digiweb expressed dissatisfaction with auctions as to win an auction for this spectrum band would require extensive capital resources. In its view and given the current economic climate there is a potential discrepancy between the resources available to small innovative new entrants and incumbent MNO's. Digiweb strongly held that any form of open auction will only advantage the well funded large player.

6. Close of Meeting

The meeting was closed at 13:10.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and Digiweb Ltd.

10 July 2009
ComReg Boardroom
12:00

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (Digiweb)
5. Questions for clarification / Discussion
6. Close of meeting



Commission for
Communications Regulation

19 June 2009

Mr Colm Piercy
Managing Director
Digiweb Ltd Head Office
IDA Industrial Park
Dundalk
Ireland

Dear Colm

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation, including Digiweb Ltd

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to 'speak to' their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

The bi-lateral meetings are intended to enable parties to make oral representations in relation to their existing written responses to the consultation. They are not intended to be used as an opportunity to make entirely fresh submissions with regard to matters contained in the consultation, and, in particular, they are not intended to be used as an opportunity to adduce, or hand in, further written submissions.

However, all parties may complement their oral representations with reasonably-sized PowerPoint, or similar, presentations. ComReg will publish any such presentations following the conclusion of all bilateral meetings, and parties will

therefore be required to provide copies of their presentations for publication purposes. Where a presentation contains confidential material, both a confidential version and a non-confidential version (for publication) should be provided at the meeting.

Parties might seek clarification from ComReg during the course of their bilateral meeting with regard to particular matters contained in the consultation. While the meetings are primarily designed to enable parties to make oral representations to ComReg, where clarification is sought ComReg representatives will attempt to give it there and then. If that is not possible, then clarification may be given at some later point in the meeting, or following adjournment of the meeting but on the same date as the meeting. If it is not possible to provide clarification during the meeting or shortly after the meeting, then clarification will be provided at some later date. ComReg reserves the right, and intends, to circulate all requests for clarification - and its answers to them - to all parties with whom bi-lateral meetings are held.

ComReg staff will take notes at all bilateral meetings. The notes of each meeting will subsequently be provided, in draft form, to the particular party with whom the meeting was held in order that that party might agree the accuracy of the draft notes, as well as identifying any information in the draft notes that is considered confidential and ought not to be disclosed to any third party. Once settled with all parties, ComReg will simultaneously publish the notes from all of the bilateral meetings, as well as any clarifications which were sought and given.

In due course, ComReg will issue a further response-to-consultation document, which will be based on the most recent written submissions received to Document 09/14 and on the future bi-lateral meetings.

You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division.

I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely



George Merrigan
Director: Market Framework

ESB



Minutes of a Bilateral Meeting between ComReg and ESB Telecom Services.

9 July 2009

Present:

For ComReg:

Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For ESB: Daragh Moore
Noel Rushe

1. Welcome

The Chairman welcomed the representatives of ESB Telecom Services to the bilateral meeting.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman summarised the main points from the letter of invitation contained in Annex 2 to this document.

4. Presentation of response submitted to consultation 09/14

ESB noted the similarity between its responses submitted to 08/57 and 09/14 and presented some data on the use of GSM devices across the ESB network which is contained in Annex 3.

By way of clarification ComReg explained that the changes envisaged would not suddenly do away with GSM. The proposed liberalisation process does not mean that GSM is no longer allowed, the EC Draft Decision in fact requires Member States to

protect the use of GSM in the band as long as there is reasonable demand for GSM services. Operators will be free to continue offering GSM services.

ESB stressed the following issues:

- There are three main areas of infrastructure development that rely on the GSM network:
 - Gathering of meter data from certain customers
 - Control of the ESB network
 - Backup alarm facilities.
- There has been substantial investment in GSM equipment
- The cost of a switch out of equipment if the GSM network was to be turned off for any reason was difficult to estimate but not insubstantial and a major issue for ESB.
- The cost of an operator losing spectrum was of concern as ESB would need to change all the current SIM cards in use and as these are scattered around the country the costs would be considerable. A SIM change may be required if an operator was to reduce coverage as many of the fixed GSM devices in use are in remote areas where coverage is currently adequate.
 - A change in frequency band from 900 MHz to 1800 MHz is likely to necessitate a major infrastructure renewal and ESB had concerns around the coverage of any 1800 MHz network – the loss of GSM services at 900 MHz would severely affect its operations in remote areas.

5. Questions for Clarification / Discussion

ComReg sought ESB's view on how long any transitional period would be required. ESB responded that a period of 2 – 4 years would be required to change the current network.

If we made the statement deleted here we were mistaken. The main issue would be the costs involved in changing the fixed GSM devices to another operator. Under the circumstances that pertain at present SIM cards need to be physically changed in order to change mobile operator.

On the issue of ESB moving to smart metering, ComReg sought clarification if these developments would overtake the requirement for GSM. ESB responded that this is under consideration and will be based on a cost-benefit analysis. In addition the current SCADA system which is being updated may replace some of the GSM requirements. Additionally, the future update of the Mobile Radio Network, which has a low speed signalling channel, may also take over some of the reliance on GSM. However all of these options are only at the evaluation and feasibility study stage.

6. Close of Meeting

The meeting was closed at 12:05.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and ESB Telecom Services

9 July 2009
ComReg Boardroom
11:30

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (ESB)
5. Questions for clarification / Discussion
6. Close of meeting



Commission for
Communications Regulation

19 June 2009

Mr Daragh Moore
ESB Telecom Services
27 Lower Fitzwilliam Street
Dublin 2

Dear Mr Moore

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document, including ESB Telecom Services. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation, including ESB Telecom Services.

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to 'speak to' their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

The bi-lateral meetings are intended to enable parties to make oral representations in relation to their existing written responses to the consultation. They are not intended to be used as an opportunity to make entirely fresh submissions with regard to matters contained in the consultation, and, in particular, they are not intended to be used as an opportunity to adduce, or hand in, further written submissions.

However, all parties may complement their oral representations with reasonably-sized PowerPoint, or similar, presentations. ComReg will publish any such presentations following the conclusion of all bilateral meetings, and parties will therefore be required to provide copies of their presentations for publication

purposes. Where a presentation contains confidential material, both a confidential version and a non-confidential version (for publication) should be provided at the meeting.

Parties might seek clarification from ComReg during the course of their bilateral meeting with regard to particular matters contained in the consultation. While the meetings are primarily designed to enable parties to make oral representations to ComReg, where clarification is sought ComReg representatives will attempt to give it there and then. If that is not possible, then clarification may be given at some later point in the meeting, or following adjournment of the meeting but on the same date as the meeting. If it is not possible to provide clarification during the meeting or shortly after the meeting, then clarification will be provided at some later date. ComReg reserves the right, and intends, to circulate all requests for clarification - and its answers to them - to all parties with whom bi-lateral meetings are held.

ComReg staff will take notes at all bilateral meetings. The notes of each meeting will subsequently be provided, in draft form, to the particular party with whom the meeting was held in order that that party might agree the accuracy of the draft notes, as well as identifying any information in the draft notes that is considered confidential and ought not to be disclosed to any third party. Once settled with all parties, ComReg will simultaneously publish the notes from all of the bilateral meetings, as well as any clarifications which were sought and given.

In due course, ComReg will issue a further response-to-consultation document, which will be based on the most recent written submissions received to Document 09/14 and on the future bi-lateral meetings.

You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division.

I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely



George Merrigan
Director: Market Framework

ESB data on fixed devices using GSM service

Number of fixed GSM devices, purpose of each type and GSM service used and year installed:

Type of device	Number of units	Distribution of units	GSM Comms service used
Meters and Station alarm units	8,600 approx	Distributed in residences, small business and large electricity users	GSM dial-up modem
Control units, now and to end 2010	2,000	Throughout the ESB network	GPRS (up to 300 on dial up GSM, to be changed to GPRS)
Other telemetry devices	100s	Various	various

Estimated cost of replacing devices in case the existing communication service is discontinued:

Meter units: typical cost - per location (for new modem unit, remainder swap out labour, travel and overhead). These units are industrial grade quality with high reliability.

Meter points can be difficult to access in some locations.

Station alarm units: these have cost between and each. Labour travel and overheads on top of this for replacement.

Control modem units: device price in region of each. Labour travel and overheads on top of this for replacement.

The GSM modem units are professional use devices – specialist functions, high quality. Therefore they are generally produced in low quantity and have a high purchase cost. Also in general these units do not have the newer mobile features – compared to consumer devices they tend to have a longer design and design-upgrade cycle.

Hutchinson 3G Ireland Ltd



Minutes of a Bilateral Meeting between ComReg and Hutchison 3G Ireland Ltd.

15 July 2009

Present:

For ComReg:

Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For H3GI:

Mark Hughes
Ian Cleverly
David Hennessy

1. Welcome

The Chairman welcomed the representatives of Hutchison 3G Ireland to the bilateral meeting.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman summarised the main points from the letter of invitation contained in Annex 2 to this document.

4. Presentation of response submitted to consultation 09/14

H3GI presented its response to ComReg document 09/14 which is contained in Annex 3 to this document and stressed the following issues:

- Spectrum is a key input into H3GI's business
- H3GI is interested in the acquisition of 2 x 10 MHz at 900 MHz.
- H3GI expects the regulator to provide a level playing field across the market
- In the event that the regulator fails to provide a level playing field across the market, H3GI will take all necessary steps to protect its position.

- H3GI favours Option 1 as it provides certainty, promotes competition and the interests of users and ensures the efficient management and use of spectrum.
- Option 2 is fundamentally flawed in a number of areas highlighted in the presentation and will not withstand a legal challenge.
- ComReg's two options are contradictory on the issue of renewal or extension.
- H3GI does not see two markets, that is, there is no split between 2G and 3G markets, and there is only a single mobile market in Ireland.

5. Questions for Clarification / Discussion

ComReg noted that in the first consultation response H3GI supported Option C then Option B but not Option A and wondered if Option 1 of the second consultation superseded H3GI's first response. H3GI responded that in the first consultation H3GI promoted the reserving of at least 2 x 5 MHz for a new band entrant however Option 1 in 09/14 is a superior solution and supersedes the other options. H3GI remarked that demand clearly exceeds supply when just considering current MNO's in the market and an auction is the best way to go.

A number of other respondents have expressed concerns around Option 1 regarding the potential disruption to consumers and excessive cost to operators arising from any loss of spectrum in the 900 MHz band. ComReg understands that H3GI clearly favours Option 1 and sought their views on the alleged disruptive capabilities of Option 1 and the measures that could be adopted to overcome any such disruption. H3GI responded that realistically they do not see any operator losing their entire spectrum holdings at 900 MHz and that a partial loss of spectrum by one of the current MNO's can be more than covered by the market. On this issue H3GI disagreed with MNO's who claim there would be severe disruption to customers, as in areas where operators require more than 2 x 5 MHz at 900 MHz they have a sufficient density of 1800 MHz base stations. In those rural areas served only by 900 MHz traffic is lower and MNOs don't require the full 2 x 7.2 MHz. In addition H3GI responded that in terms of bidding in any auction there is no market distortion as everybody has equal access; market distortion comes into play when operators are gifted an extension on their current licences.

ComReg sought H3GI's views on a scenario whereby if one MNO failed to acquire spectrum at 900 MHz, would other MNO's be able to absorb the traffic. H3GI was unable to offer an informed answer on the ability of other MNO's due to the commercially sensitive nature of the information involved but remarked that there would be a new operator in the 900 MHz band and they could see commercial agreement being reached quickly. H3GI place no weight on the incumbents' assertions that ComReg's proposals would create severe disruption and, to the extent that disruption could occur, it would be of the operator's own making by not planning ahead appropriately and it should not be up to ComReg or any other industry players to fix these problems. H3GI could understand ComReg's legitimate concern around consumer disruption.

ComReg probed further, noting that even though there might be a low possibility of incumbent MNOs losing all of their 900 MHz frequency assignments, the MNO's have said that they simply would not be able to cope. H3GI responded that the only

valid issue is MNO's self-imposed limit of their 1800 MHz rollout and how long it would take to extend this rollout if additional coverage at 1800 MHz was required. In H3GI's view it is not a handset issue as the vast majority of handsets are dual band and the only issue is how quickly an MNO responds by rolling out an extended 1800 MHz network. H3GI further remarked that there is a very low possibility of an incumbent losing all its spectrum, and it is entirely within their control, if they bid adequately they would acquire spectrum. ComReg mentioned that in relation to 1800 MHz, MNOs needing to use this spectrum to make good for spectrum 'lost' at 900 MHz would only have certainty until the expiry of their current 1800 licences (2014/2015), and this could affect their appetite for investment.

ComReg noted that one respondent proposed that renewal of licences should be completed before any auction is held so that incumbents have certainty on their 2G spectrum and can make a better informed bid for 3G spectrum. H3GI responded that they consider that this does improve Option 2 but it is a moot point as the fundamental issue, and the biggest risk to ComReg of legal challenge, is that Option 2 amounts to state aid. H3GI further remarked that the charging of fees at the opportunity cost makes sense in isolation but overall the renewal of a licence remains a state aid issue.

ComReg sought H3GI's view that 5 years was an adequate period of licence extension to facilitate the transition of 2G to 3G. H3GI responded that to some extent the transition can be influenced by operators who offer the right incentives for customers to change but in general it is difficult to set a date at this time. Hutchison's global view is that the rate of transition of 2G to 3G depends on individual markets and in Ireland at this time incumbents are not spending the amounts of money required to move to 3G and are fighting to protect their 2G operations.

ComReg noted that H3GI has disputed MNO's claims regarding radio spectrum requirements necessary to continue the operation of GSM and roll out a new 3G network – in the second response H3GI accepted the proposed spectrum cap of 10 MHz - and wondered if the proposed spectrum cap addressed H3GI's initial concerns. H3GI responded that the cap does address H3GI initial concerns.

In noting that H3GI states that under Option 1 all interested parties have an equal opportunity to acquire spectrum, ComReg questioned if this overcomes H3GI's initial view that other MNO's hold an historical and perhaps unfair advantage over H3GI. H3GI responded that in terms of spectrum H3GI are seeking equality of opportunity to access spectrum and Option 1 provides this. ComReg responded that H3GI might be advantaged under Option 2 if incumbents are limited to renewed licences for 2G use and the unencumbered 10 MHz in blocks A and B, which ComReg would now make available, was acquired by H3GI in the auction on a fully liberalised basis. H3GI understood this point but noted that in an open auction they too could be unsuccessful in bidding.

ComReg questioned if H3GI believed that 2 x 5 MHz of radio spectrum at 900 MHz is sufficient spectrum for a new entrant to rollout nationally and to be able to compete in the current market. H3GI responded that it would expect to bid on the basis of obtaining 2 x 10 MHz and, in the event that it was only able to obtain 2 x 5 MHz, would need to consider their options at that point.

As a follow up question ComReg asked what specific services might a new operator in the 900 MHz band such as H3GI offer that could compete with incumbents and how would this supplement use of current spectrum holdings? H3GI replied that [....&<....]

ComReg expressed an interest in H3GI's view on how long it might take to bring a new 900 MHz network into commercial operation. H3GI responded that to achieve national coverage, one year would be adequate – such a project could be handled alongside the NBS rollout project.

ComReg noted that H3GI has taken up spectrum in the 2.1GHz 3G core bands across Europe but it seems, based on what has happened in Sweden where H3GI secured 900 MHz spectrum and given the interest shown generally here, that H3GI may be re-prioritising its spectrum band interests.

H3GI replied that [....&<....]

In response to ComReg's question on the inclusion of Quality of Service and roll-out conditions in any liberalised licences H3GI responded that they should be similar to the current 3G licence conditions. H3GI stated that ComReg should not force all operators to adhere to the same conditions.

ComReg referred to one respondent's view that winning the DCENR NBS tender obviates any need for 900 MHz spectrum by H3GI. H3GI responded that while the winning of the NBS has reduced H3GI evaluation of the value of the 900 MHz spectrum band, the additional coverage achievable by using 900 MHz still makes it very attractive. H3GI also stated that in the near term 900 MHz was essential as the timeframe for availability of the 800 MHz digital dividend spectrum was too long.

While not wanting to restate the legal arguments, ComReg questioned why H3GI believes that MVNO obligations in any new 900MHz licences would not be appropriate in the Irish Market and if H3GI expects to be carrying MVNOs in the future. H3GI replied that it is open to approaches and it all depends on commercial terms being agreed. To date no approaches have resulted in suitable commercial terms being agreed. The market in Ireland is changing, driven by costs and the desire for efficiency, and this will drive genuine win-win MVNO arrangements.

In its response H3GI made little reference to the matter of the release of the 1800 MHz band and ComReg sought H3GI's views on the immediate utility for the 1800 MHz. H3GI replied that it will be 2011 before operators see options in equipment availability and 2012 before any investment decisions need to be made and that they agree with ComReg's 'wait and see' position. H3GI further commented that the reason operators are eager to acquire 1800 MHz spectrum as soon as possible is just an aggressive regulatory policy, covering their bases on future developments and muddying the waters around 900 MHz.

Concerning the realignment period, ComReg noted that H3GI agreed with a 6 month timescale, while other MNO's responses vary from 6 months to opposing any set time frame, and sought H3GI's views on this. H3GI replied that without a detailed understanding of each operator's network design it is difficult to say but in urban and

semi-urban areas all MNO's have 1800 MHz coverage and only rely exclusively on 900 MHz in rural areas. However, without knowing the exact split between coverage bands it is difficult to comment further.

6. Close of Meeting

The meeting was closed at 14:40.

Note: On the 12 August 2009, H3GI submitted a letter containing information relevant the bilateral discussions – this document is contained in Annex 4 of these minutes.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and Hutchison 3G Ireland Ltd.

15 July 2009
ComReg Boardroom
13:30

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (H3GI)
5. Questions for clarification / Discussion
6. Close of meeting



Commission for
Communications Regulation

19 June 2009

Mr Robert Finnegan
CEO
Hutchison 3G Ireland Ltd.
3rd Floor
6-10 Suffolk St
Dublin 2

Dear Mr Finnegan

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document, including Hutchison 3G Ireland Ltd. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation, including Hutchison 3G Ireland Ltd.

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to 'speak to' their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

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Commission for Communications Regulation

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ComReg staff will take notes at all bilateral meetings. The notes of each meeting will subsequently be provided, in draft form, to the particular party with whom the meeting was held in order that that party might agree the accuracy of the draft notes, as well as identifying any information in the draft notes that is considered confidential and ought not to be disclosed to any third party. Once settled with all parties, ComReg will simultaneously publish the notes from all of the bilateral meetings, as well as any clarifications which were sought and given.

In due course, ComReg will issue a further response-to-consultation document, which will be based on the most recent written submissions received to Document 09/14 and on the future bi-lateral meetings.

You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division. I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely



George Merrigan
Director: Market Framework

CC: Mark Hughes, Head of Regulatory

Annex 3 – Non-confidential Presentation

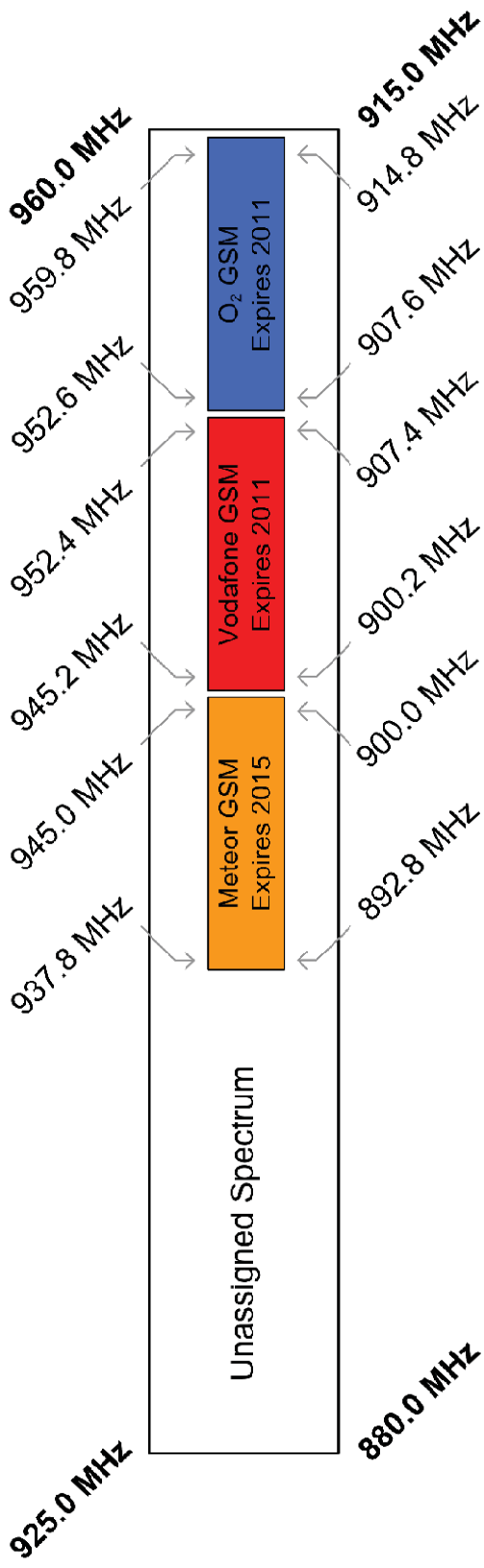
900 MHz, 1800 MHz and Spectrum Refarming



Presentation to ComReg, July 2009

Introduction

Base Transmit Frequency Band



Mobile Transmit Frequency Band



Executive Summary

- 3 welcomes the opportunity to respond to ComReg Doc. No. 09/14 “Liberalising the Future Use of the 900 MHz and 1800 MHz Spectrum Bands & Spectrum Release Options”
- In relation to the two options consulted upon by ComReg, 3 prefers Option 1
 - It provides certainty, promotes competition and the interests of users and ensures the efficient management and use of spectrum



Executive Summary

- In relation to Option 2, it:
 - Is contrary to EC State Aid law
 - Contradicts ComReg's position regarding the renewal or extension of the licences of the 2G licensees
 - Is not based on a sufficiently thorough and rigorous analysis of the 2G legacy issues cited by the 2G licensees in their responses to ComReg Doc. No. 08/57
 - Threatens to delay the whole process of liberalising the 900 MHz band
 - Is inherently uncertain



Executive Summary

- It is not necessary for ComReg to authorise Vodafone and/or O2 to provide 2G services up until 17 June 2015 in order to protect mobile consumers from significant disruption
 - Vodafone and O2 can bid appropriately for spectrum in the 900 MHz band under Option 1
 - If they are unsuccessful in obtaining spectrum under Option 1, Vodafone and O2 can enter into a roaming agreement with Meteor (until 17 June 2015) or whomsoever is successful under Option 1
 - Vodafone and O2 can make attractive offers to their customers to transition to 3G
 - There is sufficient competition in the Irish mobile market to provide services to the customers of Vodafone and O2 in the event that either of these operators were to lose or effectively lose its licence
 - Neither Vodafone, O2 nor ComReg has demonstrated why it should take either Vodafone or O2 until after 2011 to “*transition to other solutions*”



Executive Summary

- The fact that ComReg is proposing to charge Vodafone and/or O2 for the ability to provide 2G services up until 17 June 2015 is irrelevant
- Under Option 2, what ComReg is proposing to do amounts to an unjustified ‘bailout’ of Vodafone and/or O2 for failing to properly plan their businesses and look after their customers
- 3 looks forward to ComReg’s competition proposals



Specific Issues

- MVNO Access
 - 3 does not believe that an MVNO access obligation is appropriate
 - It is currently subject to an MVNO access obligation and there is sufficient competition in the Irish mobile market to provide services to the customers of Vodafone, O2 or Meteor in the event that either of these operators were to lose its licence
 - The current economic climate and the maturing nature of the market will create the incentives for the incumbent operators, including Meteor, to enter into genuine and national MVNO arrangements
 - 3 remains willing at all times to enter into commercially acceptable MVNO arrangements



Specific Issues

- Submissions to ComReg's First Consultation
 - 3 does not agree with the submissions made by Vodafone, O2 and Meteor to ComReg's first consultation
 - Vodafone, O2 and Meteor fail to demonstrate that ComReg's proposals will have the effects claimed



Annex 4 – Relevant Correspondence

Hutchison 3G Ireland Limited
3rd Floor,
6-10 Suffolk Street,
Dublin 2



Mr Samuel Ritchie, Manager Spectrum Operations
Commission for Communications Regulation
Irish Life Centre
Lower Abbey Street
Dublin 1
BY REGISTERED POST AND EMAIL: samuel.ritchie@comreg.ie

12 August 2009

Dear Samuel


COMREG DOC. NO.S 09/14 AND 08/57

I refer to your email dated 22 July 2009 enclosing draft minutes of our meeting with ComReg in respect of the above two consultation papers on 15 July 2009. Please find enclosed our comments in respect thereof. In addition, we would like to clarify a matter that arose at our meeting. At paragraph 4 of page 3 of your draft minutes, ComReg states as follows:

"ComReg noted that H3GI has disputed MNO's claims regarding radio spectrum requirements necessary to continue the operation of GSM and roll out a new 3G network – in the second response H3GI accepted the proposed spectrum cap of 10 MHz - and wondered if the proposed spectrum cap addressed H3GI's initial concerns. H3GI responded that the cap does address H3GI initial concerns."

For the avoidance of doubt, Hutchison 3G Ireland Limited ("H3GI") continues to dispute the incumbent mobile network operators' claims regarding radio spectrum requirements necessary to continue the operation of GSM and roll out a new 3G network. Our acceptance of the proposed spectrum cap of 10 MHz in both our responses to ComReg Doc. No.s 09/14 and 08/57 does not address our concerns in respect of this matter and is based on the separate considerations of: (i) the promotion of competition; and (ii) the efficient management and use of spectrum.¹

Yours sincerely


MARK HUGHES
Head of Regulatory

Copy: Mr Jim Connolly, Senior Spectrum Advisor, ComReg (jim.connolly@comreg.ie)
Mr George Merrigan, Director, Market Framework Division, ComReg
(george.merrigan@comreg.ie)

Encl.

¹ Page 4 of H3GI's response to ComReg Doc. No. 09/14 dated 30 April 2009.

Imagine



Minutes of a Bilateral Meeting between ComReg and Imagine Communications Group Ltd.

2 July 2009

Present:

For ComReg: Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For Imagine: Brian O'Donohoe
Leo Lundy

1. Welcome

The Chairman welcomed the representatives of Imagine Communications Group Ltd to the bilateral meeting and introduced the members of the team.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman reiterated the main points from the letter of invitation contained in Annex 2 to this document.

4. Presentation of response submitted to consultation 09/14

No additional material was presented at the meeting. Based on Imagines' response to 08/57 and their view of 09/14 the following points were stressed:

- [...&<....]
- Imagines purpose in acquiring spectrum is primarily to overcome the deficiencies of the copper network especially with regard to the provision of ADSL and Bitstream in rural areas.
- Imagine has reached the limit of what the wired network can support at this time and see a wireless platform as the only way forward for it at this stage.

- Imagine is interested in moving into the mobile market.
- As active members of the WiMax forum, Imagine is acutely aware of the performance capabilities of available technologies, including multi-modal terminals.
- While it is difficult to speculate, Imagine expect multi-modal WiMax 900 MHz equipment to become available near the end of 2010.
- [.....&<.....]

5. Questions for Clarification / Discussion

ComReg expressed an interest in why Imagine did not respond to the second consultation (09/14). Imagine noted that in its response to the first consultation that it had presented Imagines' views which where not modified by the second consultation.

ComReg sought clarity from Imagine that 5 MHz of 900 MHz spectrum would be sufficient spectrum for a new entrant to rollout nationally and be able to compete in the current market. Imagine responded that 5 MHz will be enough to do something especially in rural areas, however more spectrum would be preferred. It further contended that 5 MHz at 900 MHz is preferred to greater bandwidth in higher frequency bands.

ComReg sought Imagines' views on the mix of technologies that would be most appropriate in the 900 MHz band. Imagine responded that current MNO's will hope to sweat their GSM assets, LTE at this stage is still not standardised and that HSPA is likely to be the technology of choice for some time to come.

Further to Imagines' submission ComReg sought clarity on Imagines' views regarding Quality of Service and whether roll-out conditions should be attached to liberalised licences. Imagine responded that the importance of the 900 MHz band cannot be underestimated and hence it is very important that licences are constructed in a fashion that best benefits Ireland. To this end the licences should contain a wholesale model as well as specific and detailed rollout conditions. For example, broadband speeds of 2 Mb/s is the absolute minimum that any operator should supply in the Irish market.

Noting that Imagine is seeking to be a wholesale player ComReg sought Imagines' views on the MVNO market. Imagine responded that:

- [.....&<.....]
- Any new MVNO licence conditions would need to be very specific and detailed to facilitate commercial agreements.
- Licence conditions would need to be specific regarding roll-out conditions with an appropriate 'use-it-or-lose it' clause and a time limit by which MVNO access must be offered.

6. Close of Meeting

The meeting was closed at 11:40.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and Imagine Communications Group Ltd.

2 July 2009
ComReg Boardroom
10:30

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (Imagine)
5. Questions for clarification / Discussion
6. Close of meeting



Commission for
Communications Regulation

19 June 2009

Mr Sean Bolger
CEO
Imagine Communications Group Ltd
Communications House
Barrow Street
Dublin 4

Dear Mr Bolger

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document, including Imagine Communications. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation.

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to 'speak to' their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

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In due course, ComReg will issue a further response-to-consultation document, which will be based on the most recent written submissions received to Document 09/14 and on the future bi-lateral meetings.

You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division. I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely



George Merrigan
Director: Market Framework

LM Ericsson Ltd



Commission for
Communications Regulation

Minutes of a Bilateral Meeting between ComReg and LM Ericsson Ltd.

1 July 2009

Present:

For ComReg:

Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For Ericsson:

John Holland

1. Welcome

The Chairman welcomed the representative of LM Ericsson Ltd to the bilateral meeting and Ericsson thanked the chairman and ComReg representatives for the opportunity to discuss the Ericsson consultation responses.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman summarised the main points from the letter on invitation contained in Annex 2 to this document.

4. Presentation of response submitted to consultation 09/14

No additional material was presented at the meeting. Based on its written response to 09/14 Ericsson stressed the following points:

- Ericsson wants to see the whole liberalisation process completed as soon as possible as it believes this is in the best interest of not only Ericsson but the wider industry and Ireland.

- Mobile broadband is an increasingly important service and needs to be facilitated not only through spectrum but also through deeper fibre deployment.
- Ericsson believes sustainable infrastructural competition is important and ComReg must be cognisant of this in setting spectrum charges and auction process.
- The 1800 MHz band is likely to be very important to the achievement of ubiquitous very high speed broadband through the deployment of new technologies such as LTE. The sequence of when 1800 MHz is released (with 900 MHz or after 900 MHz band release) is not particularly important to Ericsson as long as there is a clear plan in place and the release of 1800MHz is not unduly delayed.

5. Questions for Clarification / Discussion

In respect of 1800 MHz Ericsson was asked to speak to the timing of the release of this band and in particular its view for releasing earlier than 2013 given likely timelines for availability of LTE equipment, current spectrum assignments and their utilisation. Ericsson responded by stating that in general networks are built for coverage first followed by capacity, as and where required as those involved with the build out of the GSM network will recall. The 900 MHz band is particularly valuable for rural rollout and better in-building coverage. The 1800MHz band is valuable for capacity reasons. This holds through for GSM and other technologies. Concerning 1800 MHz, Ericsson contended that the proposed release date of circa 2013 should be brought forward so as not to unduly delay the possibility of an LTE deployment in Ireland and to provide the industry with the necessary visibility so that investment decisions can be planned and made. Ericsson prefers that ComReg takes action on 1800 MHz within one year at the very most.

ComReg sought Ericsson's view on the possibility for new entrants and whether early liberalisation of the 1800 MHz band could assist. Ericsson's view is that while the Irish market is very competitive, in certain circumstances it might still be attractive to a new entrant and allowing early adoption of LTE through the liberalising of the 1800 MHz band might make it more attractive.

Noting that in response to 08/57 Ericsson had promoted an alternative option, ComReg sought clarity on exactly what the main concerns were that prompted this proposal. Ericsson responded that in its view the uncertainty and disruption to consumers created by a licensee potentially losing its licence was key. ComReg had proposed the option, through the cap, to set aside at least 5 MHz for a new entrant which would deal with ComReg's objective of increased competition. Ericsson believed that it would be more equitable that, having catered for a new entrant with 5MHz of spectrum, that incumbents should be catered for through some form of licence renewal or reservation of 5MHz of spectrum to ensure minimum disruption to existing services while at the same time opening up the possibility of new high speed services.

Noting that Ericsson had made a number of suggestions about how the auction format would be structured, ComReg further probed Ericsson's thinking. Ericsson responded

that ComReg would need to be careful in selecting the right auction format. The concept of an MoU was in theory adequate but experience has shown that practically implementing the MoU may be very difficult to achieve. On this basis a two stage auction process could augment or be better than MoU approach. For example if ComReg eventually decide an auction is the best way forward it may be better to conduct a 1st round for the amount of spectrum each participant wants (in 5 MHz blocks) followed by a round to determine which 5 MHz blocks each participant wished to bid for. This would ensure a participant who won 10 MHz would not be left with two isolated 5 MHz blocks. It would also be the most efficient as the participant who valued one block more than others would pay more for them. The two stage approach would also limit any disruptive behaviour that could occur in a single stage auction.

Questioned on the issue of a time period for retuning networks, Ericsson's view was that a defined maximum period should be set noting that each operators network was different and hence the time frame would vary between operators. Noting that an aggressive network refresh with hardware changes may require 18-24 months to accomplish – the retune of a GSM network, without changing any hardware, would be in the order of 6 months – of course operators would have a better assessment of the time scales involved depending on their network, resourcing and ongoing project commitments.

ComReg noted that in responding to ComReg's two new options in 09/14, Ericsson favoured option 1. It is clear from the responses recently published that many respondents favoured option 2. Ericsson was asked for its views, taking into account said the views expressed by other respondents (as recently published by ComReg), on the best way forward in respect of the options. Ericsson responded that it favours the earliest conclusion of the liberalisation process and market certainty and for this reason supported Option 1. However if there was greater consensus around another option that would lead to speedy liberalisation and market certainty then Ericsson would be in accord.

ComReg referred to Ericsson's claims that there is no justification to increase fees in respect of retention of spectrum for legacy purposes under Option 2 and asked Ericsson to clarify its arguments further. Ericsson responded that firstly, as per its arguments in the initial consultation response, there is not a clear case that liberalised spectrum has more economic value going forward. One could argue that with declining revenues, increased spectrum availability and increased operational costs spectrum is worth less. Notwithstanding this its key argument was that it was hard to see how spectrum usage, limited to GSM, would be of greater value and so could not reconcile the case for a higher charge other than as an incentive to move to more efficient use of the spectrum.

ComReg clarified that the rationale for its proposal was that the fee charged should reflect opportunity cost in order to encourage speedy liberalisation of the entire band. Ericsson noted that in principle the suggestion had some merit but questioned as to whether it would be possible to calculate the opportunity cost over a period as short as five years.

ComReg noted that Ericsson's response, quite uniquely, proposed QoS conditions and asked Ericsson to elaborate further on its proposals and in particular to define its basis for the metrics proposed against each condition. Ericsson responded that the threshold proposed in its response are technically very realistic given current technologies and could be applied nationally as a minimum condition, recognising that for MNO's this is a balancing act between business needs and the costs in providing same.

On a follow up and seeking further clarification ComReg asked should any QoS values be stipulated at all would this not be taken care of by the market? In response Ericsson noted that GSM is ubiquitous because that is what the licence conditions mandate and ComReg needs to mandate in any new licences what it believes is the best licence conditions applicable to achieving Government policy goals and meeting Ireland's needs at the time. Ericsson also believed that in principle most operators would not have a problem with reasonable QoS levels as it would also be in their business and customer's interest.

Ericsson was asked how QoS could be defined in terms of a technology neutral licence regime. Ericsson responded that ComReg in conjunction with the operators could consider establishing agreed QoS for key of services offered (e.g. voice, sms, data) and due to the pace of change of technologies and business conditions it would be appropriate to review these QoS licence conditions at regular intervals such as five years.

ComReg sought to understand why Ericsson believes that MVNO licence conditions are not required in the Irish Market. In response Ericsson commented that in general regulators should not use the licensing process to pursue unrelated regulatory goals. Regulated MVNO access should only be considered following a market review of the relevant market undertaken in accordance with the prevailing EU-wide regulatory framework. In seeking business opportunities Ericsson has examined the market in Ireland and deemed that there are a few opportunities for a number of MVNO players and that these have already come or are coming into the market under commercial agreements without any recourse to an MVNO licence obligation.

6. Close of Meeting

The meeting was closed at 16:05.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and LM Ericsson Ltd

1 July 2009
ComReg Boardroom
15:00

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (Ericsson)
5. Questions for clarification / Discussion
6. Close of meeting



Commission for
Communications Regulation

19 June 2009

Mr John Holland
CTO
LM Ericsson Ltd.
Beech Hill
Clonskeagh
Dublin 4

Dear John

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document, including LM Ericsson Ltd. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation, including LM Ericsson Ltd.

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to ‘speak to’ their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

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In due course, ComReg will issue a further response-to-consultation document, which will be based on the most recent written submissions received to Document 09/14 and on the future bi-lateral meetings.

You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division. I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely



George Merrigan
Director: Market Framework

Meteor



**Minutes of a Bilateral Meeting between ComReg and Meteor Mobile
Communications Ltd.**

15 July 2009

Present:

For ComReg: Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For Meteor: Larry Smith
Clíodhne Whelan
Elaine Robinson
William McCoubrey
Ciara Farren

1. Welcome

The Chairman welcomed the representatives of Meteor to the bilateral meeting.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman summarised the main points from the letter of invitation contained in Annex 2 to this document.

4. Presentation of response submitted to consultation 09/14

Meteor presented its response to ComReg document 09/14 which is contained in Annex 3 to this document, stressing the following points:

- Growing data revenues via mobile broadband is a major focus of Meteor's future vision.
- The current growth rate of mobile broadband in Ireland highlights the importance of this service.

- It is important that Meteor moves with new technologies to be able to compete with its competitors – these new technologies will provide opportunities for new services to be offered to consumers.
- Network sharing in Ireland has not proceeded beyond site sharing to date and in order to be competitive a physical national network option is required.
- Ireland must move quickly to take advantage of the benefits of liberalisation.
- ComReg must focus on sustainable competition as opposed to just increasing the number of players in the market.
- A number of mobile bands have been allocated internationally and Ireland should not deviate from the internationally harmonised position.
- Meteor seeks a separation between current licence renewal and the liberalisation process.
- Operators need confidence through regulatory certainty in order to invest and deliver advanced technology networks.
- Meteor is struggling to understand ComReg's objectives in relation to the two consultations published.
- ComReg should consider alternative approaches taken across Europe which demonstrates a greater degree of flexibility and willingness of NRAs to work with operators to find an agreed solution.

Meteor asserted that ComReg's approach is at odds with international best practice and that ComReg should consider what other European NRAs have done regarding the liberalisation of the 900 MHz spectrum band. In reply ComReg agreed on the importance of studying other NRA mechanisms for possible useful examples but also observed that there was no common best practice emerging and noted the differences in legal frameworks and regulatory precedents in other administrations, especially with regard to how unused radio spectrum is assigned.

Meteor expressed some concern that ComReg's position to use an auction process is merely a revenue generating exercise. ComReg pointed out that ComReg's objective is efficiency in spectrum allocation and that the accumulation of money by using auction to achieve efficiency is not a priority for ComReg. Meteor noted that every Euro taken in spectrum fees is a Euro less to invest in evolving mobile networks to provide national high speed mobile data services for big screen and small screen. Meteor noted that studies demonstrate a direct link between GDP and broadband penetration. Significant investment in mobile RAN, core and support systems is needed to support the Government's policy goal for a smart economy to support Ireland's economic recovery.

5. Questions for Clarification / Discussion

ComReg reasoned that in following ComReg's Option 1, Meteor will have even greater certainty with regard to the availability of the band following its licence expiry in 6 years time. However, noting Meteor's opposition to Option 1 ComReg sought to understand Meteor's principal issues with Option 1. Meteor replied that ComReg must understand that Meteor has not yet made a positive cumulative profit and holding an auction at this stage would put Meteor at a competitive disadvantage as other operators in the band were almost at the end of their licence assignment period. Meteor was still in process of investing in its network and would need significant investment to utilise any new spectrum acquired. Option 1 would also, in Meteor's

view, open up a lot of uncertainty around past decisions made on investing in the current 2G and 3G network.

[...&<....]

ComReg asked if the imposition of the spectrum cap would give Meteor some certainty that not all of the spectrum will be taken up by other operators.

[...&<....]

ComReg then asked if the design of the auction, specifically a 2-stage process, would help to alleviate any of Meteor's concerns. Meteor responded that auctioning existing spectrum rights is an inherently risky process and a 2-stage combinatorial auction format would not address Meteor's fundamental concerns. Meteor commented that a 2-stage combinatorial auction could be an appropriate format for any spectrum released in the 900 MHz band once all of the current MNO's 900 MHz licences have been liberalised and full transition has taken place.

In trying to understand Meteor's principal issues with the proposed options ComReg asked if either of ComReg's proposed options could be improved in any way. Meteor were of the view that neither option could be improved and that their preference was for Meteor's proposal, which in their view, does not appear to have been considered in ComReg's second consultation. ComReg made it clear that it had carefully considered all consultation responses including alternative proposals put forward and that it had not taken any definitive position at this stage on options offered by respondents nor settled on any of the options put forward by ComReg so far.

Noting that Meteor maintains that it would be disadvantaged in an auction due to its current frequency arrangement and licence expiry ComReg asked how might the auction design and the MoU on frequency rearrangement address Meteor's concerns regarding early use and change of use of the band. Meteor argued against any auction in the near term and that the incumbent MNO licences should be liberalised and the incumbent MNOs allowed to change technologies before any remaining spectrum is released – in this regard setting the cap at 2 x 10 MHz would be appropriate, leaving 2x5MHz available for a new entrant to the band. ComReg asked whether this would not lead to a non-level playing field. Meteor responded that under its proposals there would not be an inequitable distribution of spectrum. No operator would have access to more than 2x5MHz of 900MHz spectrum for 3G use during the transition phase. Meteor further noted that the spectrum which would continue to be needed for GSM could after 'several years' be freed up and in principle returned to the regulator for re-assignment/auction as appropriate. ComReg asked if this would provide sufficient certainty and fairness for other players in the market, and whether Meteor had other ideas to address this potential objection. Meteor said they did feel this would provide sufficient certainty and fairness to the market.

ComReg moved on to Option 2 in the recent document 09/14 whereby it has set out a proposed process by which incumbents may be able to retain spectrum in the short term to address alleged GSM legacy issues. In relation to same, ComReg set out its views that opportunity cost is the most appropriate basis by which to set associated fees, noting that Meteor favours marginal opportunity costs. Meteor responded that

in principle opportunity cost is a reasonable method of determining fees but in general amending fees should only be considered once full liberalisation has taken place across the band and it is clear what the foregone opportunities are. In the near term existing users of the 900MHz spectrum will face significant cost to transition their networks and services.

Meteor highlighted that there will be requirements for significant amounts of spectrum to be made available for higher speed mobile services in the coming years. Technological advancements, such as LTE, will require up to 2x20MHz for each channel. ComReg sought to understand Meteor's view of early release of the 1800 MHz band and how it would help to have liberalised spectrum available sooner than 2013 if no consumer equipment was yet available. Meteor responded that its vendors' roadmap shows LTE ready at 1800 MHz in 2009/2010 and that vendors will only invest in products once they see a critical mass, and Meteor anticipates that with a positive response across Europe handsets will appear in the market towards the end of 2010 – emphasising that this is based on equipment vendor estimates. ComReg commented that its position on the release of 1800 MHz was that it is difficult to release the 1800 MHz spectrum before equipment is available as to do so would leave MNO's unable to use the assigned spectrum and meet licence conditions, and could potentially tie up the spectrum prematurely to the detriment of future competition and innovation. Meteor noted it is highly probable that equipment will be available to support advanced mobile services in the 1800MHz band in advance of the 2300MHz band which has been identified internationally for mobile expansion. ComReg is currently consulting on the potential release of spectrum in the 2300MHz band and Meteor urged that a cautious approach be taken to ensure that strategic mobile spectrum resources in Ireland are not inadvertently critically constrained.

While not wanting to restate the legal arguments, ComReg sought to understand why Meteor believes that MVNO obligations in any new 900MHz licences would not be appropriate in the Irish Market. Meteor clarified that it was not opposed to the concept of MVNOs and indeed MVNOs are already a feature of the Irish market. The question was whether there is any objective justification for regulatory intervention. Inappropriate regulatory intervention carries a risk of negatively distorting rather than enhancing competition. Meteor responded that the European Framework had checks and balances built into it and clearly details when access obligations should be imposed. In Meteor's view ComReg has no justification to impose MVNO obligations beyond what is laid down in the European framework. Regarding current practice Meteor noted that MVNO's are a commercial decision and it has had discussions with a number of companies and other discussions are ongoing.

ComReg noted that Meteor mentions in its response that H3GI would not have been able to economically roll out in the NBS rural areas without State Aid, and that this addressed any competitive imbalance H3GI might feel in relation to 900-incumbent MNOs.– ComReg's view is that no MNO would have been able to economically justify rollout in those rural areas and DCENR's open public tender and the subsequent contract was necessary to achieve the Government objective. What is not clear is how H3GI winning the NBS tender addresses the cost savings of using 900 MHz nationally vs. the cost of an equivalent network at 2.1 GHz. Meteor responded that it was of the view that as a result of winning the tender H3GI was now able to provide services economically to rural areas directly as a result of government

intervention - furthermore Meteor maintained that ComReg should not place too much weight on suggestions that H3GI is disadvantaged in the current debate.

ComReg also noted that Meteor's response referenced the release of spectrum as demand for GSM services gradually declines and sought to understand when Meteor believes this will occur, what spectrum tranches might be released and how practically can spectrum be realigned with varying decline rates for different operators. Meteor replied that the decline of demand for GSM services will be driven by commercial factors including penetration of handsets, the start date and speed of network rollout. Meteor accepted that some form of sunset date will need to be established; an open date would not be an option for the regulator and that decline in GSM services will need to be monitored before the sunset date can be set.

As a follow on ComReg noted that each operator will have to develop incentives to move consumers from 2G to 3G and decide on the switch-off date of the 2G network at which point of course this spectrum could be released. Meteor accepted this principle but responded that ComReg would need to take into account Meteor's position in the business cycle, the take up of new 3G enabled handsets in the market place and the fees charged for spectrum.

In its response Meteor contends that dealing with each band individually is a flawed approach and that ComReg should look across all the frequency bands of interest – especially the Digital Dividend. ComReg asked how any certainty can be provided on the Digital Dividend when the timing for analogue switch-off, how much spectrum for non-broadcasting will be released, etc, is not yet known. Meteor responded that its approach provides an evolution path - the transition from 2G to 3G in the 900 MHz band by the current MNO's in the band, the release of 1800MHz to deal with capacity problems and technological evolution, the release of free 900MHz spectrum and the availability of DD spectrum in the medium to long term.

Concerning the realignment period, ComReg noted that in their response Meteor opposed any set time frame while other responses have mentioned 6 months, 12 months, for example. ComReg sought to understand how an open time frame tied in with Meteor's view of regulatory certainty. Meteor responded that it is unable to give a view at this point as the future arrangement of the band is not known and hence the amount of realignment required by each operator and the difference in amount of realignment between the three operators is not known. It is conceivable that Meteor may be the only operator that has to realign or may have to bear the brunt of the realignment costs. In principle a fixed alignment period will be required but whether this would be 6 months or 12 months would depend on incentives and costs.

ComReg noted that Meteor suggested that spectrum trading may solve some of the problems identified in releasing the 900 MHz band and sought input on where this has had a positive outcome and the type of spectrum trading employed. Meteor commented in reply that spectrum trading has been accepted as a regulator tool.

6. Close of Meeting

The meeting was closed at 13:00.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and Meteor Mobile Communications Ltd.

15 July 2009
ComReg Boardroom
11:30

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (Meteor)
5. Questions for clarification / Discussion
6. Close of meeting

Annex 2 – Letter of Invite



Commission for
Communications Regulation

19 June 2009

Mr Larry Smith
CEO
Meteor Mobile Communications Ltd
4030 Kingswood Avenue
Citywest Business Park
Naas Road
Dublin 24

Dear Mr Smith

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document, including Meteor Mobile Communications Ltd. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation, including Meteor Mobile Communications Ltd.

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to 'speak to' their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

The bi-lateral meetings are intended to enable parties to make oral representations in relation to their existing written responses to the consultation. They are not intended to be used as an opportunity to make entirely fresh submissions with regard to matters contained in the consultation, and, in particular, they are not intended to be used as an opportunity to adduce, or hand in, further written submissions.

However, all parties may complement their oral representations with reasonably-sized PowerPoint, or similar, presentations. ComReg will publish any such

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presentations following the conclusion of all bilateral meetings, and parties will therefore be required to provide copies of their presentations for publication purposes. Where a presentation contains confidential material, both a confidential version and a non-confidential version (for publication) should be provided at the meeting.

Parties might seek clarification from ComReg during the course of their bilateral meeting with regard to particular matters contained in the consultation. While the meetings are primarily designed to enable parties to make oral representations to ComReg, where clarification is sought ComReg representatives will attempt to give it there and then. If that is not possible, then clarification may be given at some later point in the meeting, or following adjournment of the meeting but on the same date as the meeting. If it is not possible to provide clarification during the meeting or shortly after the meeting, then clarification will be provided at some later date. ComReg reserves the right, and intends, to circulate all requests for clarification - and its answers to them - to all parties with whom bi-lateral meetings are held.

ComReg staff will take notes at all bilateral meetings. The notes of each meeting will subsequently be provided, in draft form, to the particular party with whom the meeting was held in order that that party might agree the accuracy of the draft notes, as well as identifying any information in the draft notes that is considered confidential and ought not to be disclosed to any third party. Once settled with all parties, ComReg will simultaneously publish the notes from all of the bilateral meetings, as well as any clarifications which were sought and given.

In due course, ComReg will issue a further response-to-consultation document, which will be based on the most recent written submissions received to Document 09/14 and on the future bi-lateral meetings.

You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division. I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely



George Merrigan
Director: Market Framework

CC: Ciara Farren, EU Affairs and Spectrum Manager

Annex 3 – Non-confidential Presentation



A PRESENTATION BY

Liberalising 900 & 1800 MHZ spectrum

Subtitle

PRESENTATION TO
Commission for Communications
Regulation

DATE
15.07.09



Overview of Presentation / Meteor's vision for the future

Why mobile broadband is important for Ireland

- Overall benefits of spectrum liberalisation for Ireland

Positioning Ireland to maximise the potential of next generation broadband

- Strategic Regulation
- Government and regulatory approach

International Precedents

- Lessons learned from International comparisons – how Ireland can benefit from a fresh approach

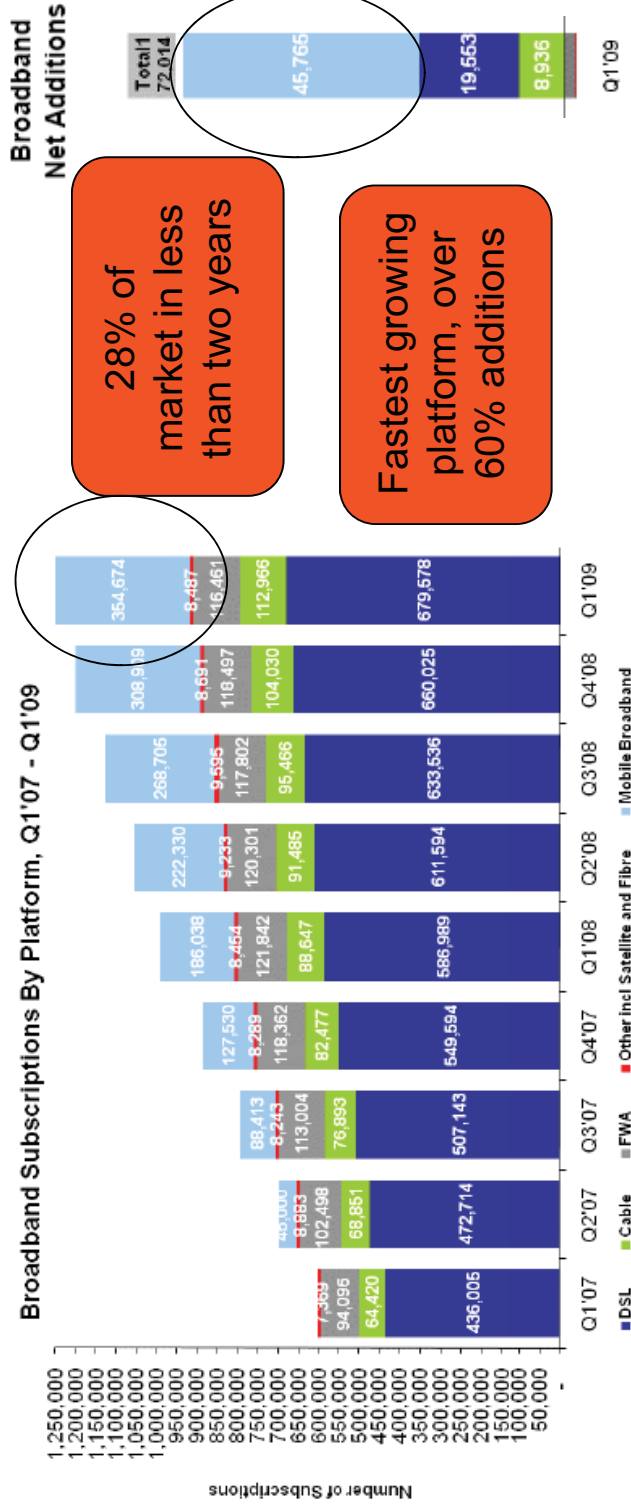
An Alternative Approach

- How Ireland should manage reform





The development of MBB in Ireland



28% of market in less than two years

Fastest growing platform, over 60% additions

Ireland's MBB penetration rate is 8%, ahead of EU average



What are the benefits of liberalisation?

- Liberalisation should be seen as an enabler for the smart economy
- Focus of national government strategy = “Broadband for All”, significant role for Mobile
- Spectrum **re-farming** could be key to delivery
 - Competitive delivery of advanced services in rural areas
 - Facilitate transition of mobile technology to next level
- Impact on economy and development of ICT is critical
 - Timely & cost effective access to liberalised spectrum = competitive economy
- Mobile market (4 MNOs) & emerging MVNOs = functioning market





Strategic and progressive regulation is required

Band	HSPA ready	LTE ready	Max Bandwidth	Max Download rate	Availability in Ireland
2600	2010 / 11	2010 / 11	20 MHz	>100 Mbits/sec	Constrained by MMDS usage – regulatory action required
2300	2011/12	2011/12	20 MHz ?	> 100 Mbits/sec	Consultation on potential award in advance of ITU plan – extreme caution required
2100	Yes	Yes	20 MHz	>100 Mbits/sec	Fully awarded and utilised for 3G / HSPA
1800	2009/10	2009 / 10	20 MHz	>100 Mbits/sec	Ideal source in near term for LTE deployment – regulatory action required
900	Yes	Yes	15 MHz	>75 Mbits/sec	Proportionate liberalisation required to facilitate national provision of HSPA services – regulatory action required
800	DD 2010 / 11 Yes for US 850	2009 / 10	15 MHz ?	>75 Mbits/sec	Additional spectrum required to facilitate national LTE deployment. No national policy on digital dividend or clear DTT migration timescales – regulatory action required

More mobile spectrum capacity required to enhance competitive provision of high speed mobile services.

LTE Advanced 40-100MHz bandwidth requirements.



How can this be achieved in Ireland?

- **Flexibility** - use currently assigned GSM spectrum for alternative technologies / operators then have the ability to deploy core technologies in core bands
- **Separation** of the link between current licence renewal and liberalisation
- Introduction of real **reform** to spectrum framework thereby ensuring **Confidence** for operators to invest and deliver advanced technology networks
- **Transitional** arrangements to facilitate technology evolution
- Action by regulator to “**assign**” additional spectrum to GSM operators to ease co-existence of GSM / 3G => 2x30MHz
- Leaves vacant 2x5 MHz block for award to new entrant to spectrum band facilitating competitively **neutral intervention**



Government / Regulatory policy

- “Telcos need more than ever to continue to invest significantly in infrastructure. Development of a national telecommunications infrastructure is central to future economic and social development” (Minister for Communications, Energy and Natural Resources, 2009)
- “We are very conscious that it is not just a question of bringing in new technologies and ideas, but of keeping the flow of investment going in the communications industry. We are very conscious, as the regulator, that we need to provide very considerable stability and predictability in our decisions because although the market invests, it takes place within a framework which is described by policy and regulation. We need to ensure we are very even-handed in our view of the different parts of the industry” (Commissioner Alex Chisholm, 2009)
- “The challenge for an organisation like ComReg is that the consultancy budget may have produced multiples of the amounts had the consultancy been undertaken. In other words, if we wanted to do a complex spectrum auction, we could well save €300,000 in the context of not doing that, but alternatively it may well have generated €10 million which would in effect fly through to the State”, (Commissioner John Doherty, 2009)



International Precedents

Alternative approaches across Europe demonstrate a greater degree of flexibility and willingness to work with operators to find an agreed solution, examples include:

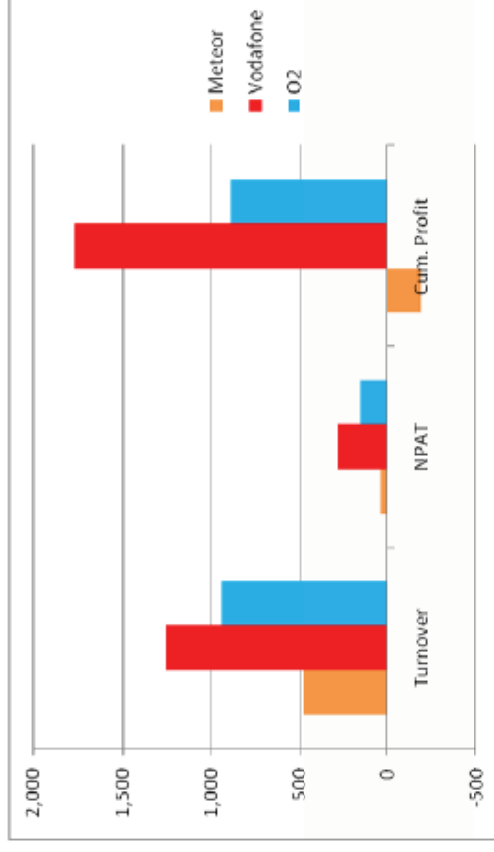
- **Finland:** Award of additional frequencies in the 1800 MHz band to existing operators to support development of fourth generation (LTE) mobile networks
- **France:** 2007 decision to liberalise use of 900 and 1800 MHz bands in hands of the incumbents
- **Sweden :**Extension and amendment of licence conditions: decision based on legitimate expectations of current operators, promotion of long-term investment, reasonable rate of return, promotion of competition and economic conditions
- **UK :** Focus of government attention now on a holistic approach to spectrum reform, rolling licences, spectrum liberalisation, trading and spectrum caps

According to Yankee Group “Total reclamation of the spectrum is the least likely option because it would trigger major legal disputes from incumbents and could threaten the continuity of existing services to GSM-only subscribers”

Source: Refarming spectrum for mobile broadband in Europe, May 2009

The proposed options will hinder the promotion of investment

- Meteor is currently in the ninth year of its licence term
- Positive returns on investment are yet to be made
- Holding auction at current stage in Meteor's investment cycle is unfair and prejudicial



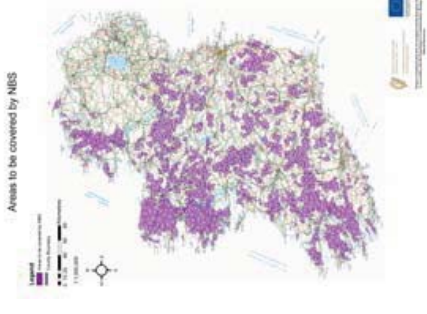
Failure by ComReg to live up to its stated aims of:

- Promotion of sustainable competition
- Promotion of efficient investment
- Ensuring that users derive maximum benefit in terms of choice, price and quality



How can an even-playing field be maintained?

- H3G has an economically viable solution to the provision of national mobile broadband coverage courtesy of State subsidy
- ComReg's proposals will create competitive distortion
- A full impact assessment is required
- Vodafone and O2 have enjoyed significant returns from the Irish mobile market. Meteor has not.
- Under option 1, Meteor may effectively be required to pay twice for rights to provide mobile services to 2015
- Under option 2, Meteor is critically constrained from cost effectively evolving its mobile services



Meteor alternative proposal

- 2x10 MHz to be assigned to all existing 900MHz licences so that each has a contiguous 2x10 MHz block
- 2X5 MHz of currently unassigned spectrum to be administratively assigned or auctioned to a new entrant to the band
- Requirement to maintain GSM network to determine continued access to 2x10 MHz blocks
- Possible future auction of spectrum that becomes vacant when migration to 3G services is complete
- Solution allows for a new entrant to the 900 MHz band, allows for liberation of use, takes into account current market structure, obligations and responsibilities of current users of the band



Qualcomm Europe Inc



Minutes of a Bilateral Meeting between ComReg and Qualcomm Europe Inc.

9 July 2009

Present:

For ComReg: Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For ESB: Wassim Chourbaji
James Semple

1. Welcome

The Chairman welcomed the representatives of Qualcomm to the bilateral meeting.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman summarised the main points from the letter of invitation contained in Annex 2 to this document.

4. Presentation of response submitted to consultation 09/14

Qualcomm presented its response to both ComReg document 08/57 and 09/14 which is contained in Annex 3 to this document. The following points were stressed:

- Qualcomm is in a position where it has good visibility of where the market is going in terms of technology and spectrum usage.
- 3G services will drive the majority of mobile broadband connections well into the next decade. Qualcomm's view, based on Analysts predictions, is that 3G will remain the dominant technology for some time to come, supplying 80% of mobile broadband subscriptions in 2013.

- LTE initial deployment will start in 2010 and is on a parallel evolution path with HSPA+ and will be best suited for new and wider FDD bandwidth as well as in TDD spectrum. With access to a 5 MHz block the clear choice is HSPA+. In a 2x10 MHz block performance in terms of spectral efficiency, etc., between HSPA+ and LTE is similar, with LTE proving more efficient at 20 MHz.
- In the 900 MHz, WCDMA benefits from a mature ecosystem. UMTS900 device support is growing fast with currently more than 130 devices from 23 vendors. The technology is ready and Ireland needs to move to allow these new technologies and associated services into the market.
- In order to achieve economies of scale it is important that the manner in which spectrum is released balances the entry of new players and existing MNO's.

5. Questions for Clarification / Discussion

ComReg sought Qualcomm's view on how long MNO's will need to operate UMTS alongside GSM. Qualcomm contended that this depends on each operator's marketing strategy, support of roamers, migration strategy for current users and pricing of new handsets. Qualcomm contended that 4.2 MHz of spectrum cleared in the 900 MHz to introduce UMTS, in a sandwiched approach (i.e. UMTS sandwiched between two GSM blocks of the same operator) is actually sufficient in coordinated mode (i.e. UMTS and GSM base stations are co-located) – this would necessitate MNO's wishing to operate in this fashion to acquire contiguous spectrum.

ComReg noted that Qualcomm proposed that ComReg should only licence UMTS technology as other technologies have not been shown to be compatible with GSM. In attempting to understand this ComReg asked if Qualcomm is opposed to any other technologies in principle or just those that have yet to be shown to operate without causing interference to GSM and UMTS? Qualcomm clarified that they are clearly in favour of technology neutrality within the framework of the EC and ECC decisions. Any other technologies should be subject to ECC compatibility studies before being accepted into the band.

ComReg sought Qualcomm's views of the timings regarding likely deployment and mass availability of kit & CPE at 900 MHz and 1800 MHz in respect of LTE. Qualcomm communicated in general that it plans to begin sampling to OEMs its first multi-mode (covering both 900 MHz and 1800 MHz) HSPA/LTE chipset catering for the thin modem/datacard segment in the 2nd half of 2009, followed by subsequent multi-mode chipsets for handsets in 2010. If infrastructure is available for interoperability testing, it would enable the delivery of commercial LTE devices with dongles/datacards before the end of 2010 and handsets sometime in 2011. As operators deploy commercial networks, Qualcomm anticipates device ramp up in 2012. Qualcomm made it clear that its LTE chipsets support LTE or HSPA+ in all relevant frequency bands being considered globally and at the same time, the handset/device manufacturers have the option to choose whether to make all or some of the capabilities become available in its devices; and the deployment timescales and volume will also depend on demand from operators.

6. Close of Meeting

The meeting was closed at 14:40.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and Qualcomm Europe Inc.

9 July 2009
ComReg Boardroom
13:30

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (Qualcomm)
5. Questions for clarification / Discussion
6. Close of meeting



Commission for
Communications Regulation

19 June 2009

Mr Wassim Chourbaji
Director, Government Affairs Europe, Middle East and North Africa
Qualcomm Europe Inc.
wchourba@qualcomm.com

Dear Mr Chourbaji

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document, including Qualcomm. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation, including Qualcomm.

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to 'speak to' their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

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In due course, ComReg will issue a further response-to-consultation document, which will be based on the most recent written submissions received to Document 09/14 and on the future bi-lateral meetings.

You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division. I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely

George Merrigan
Director: Market Framework

Annex 3 – Non-confidential Presentation



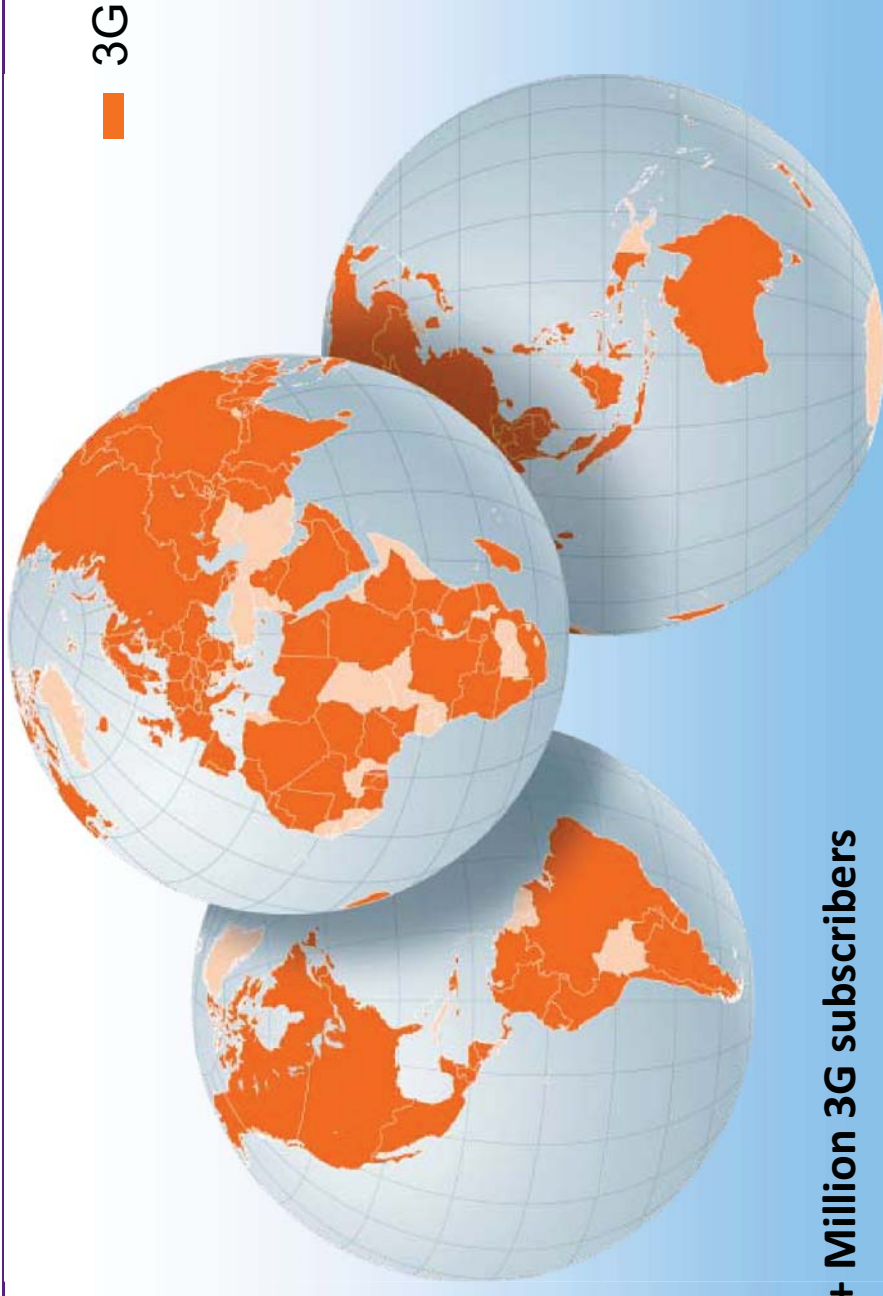
Presentation of Qualcomm response submitted to consultation 09/14

ComReg, 9th July 2009



QUALCOMM®

More Than 1.5 Billion People Have Access to Over 535 3G Networks Today



750+ Million 3G subscribers

Over 210 Million HSPA and EV-DO subscribers

**> 535 Commercial 3G Operators
in 152 countries**

**> 245 HSDPA (> 65 HSUPA)
> 260 WCDMA**

3G Offers Mobile Broadband Today



Video Telephony



Business users and consumers can today browse the Internet or send and receive e-mails using HSPA-enabled notebooks, or using HSPA modems including USB dongles, as well as send and receive video or music using their 3G/HSPA phones...GSA Press Release, March 2009

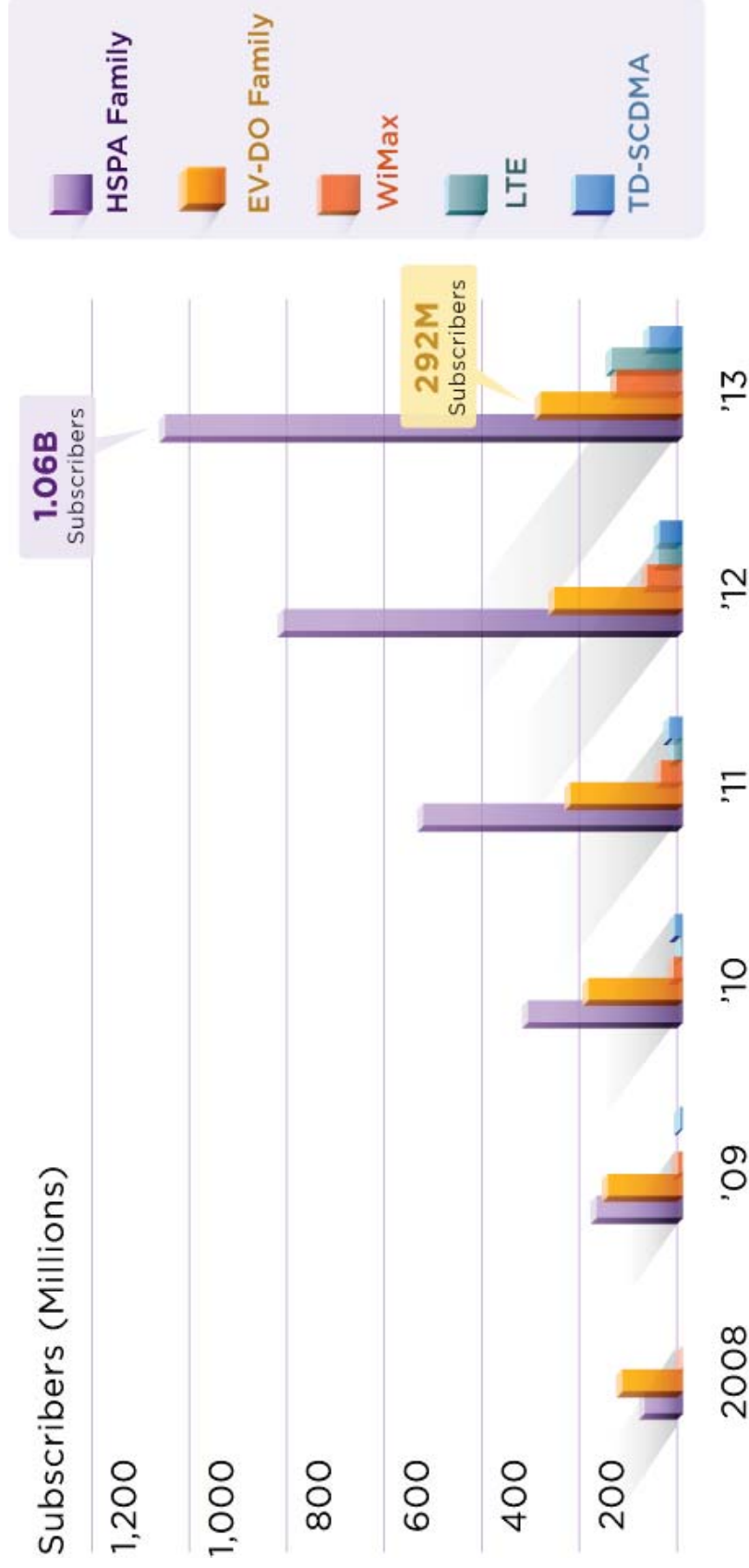
..the number of Mobile Broadband (HSPA*) connections in Indonesia has surpassed the number of fixed broadband connections. ...GSMA Press Release, April 2008

"In just over two years, we have taken our world leading network from peak network speeds of 3.6Mbps to 21Mbps and today we are launching the world's first commercial 21Mbps peak-rated modem – more than three times faster than devices currently in market," ...Mr. Trujillo, CEO, Telstra, February 2009.



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3G Will Drive the Majority of Mobile Broadband Connections Well Into the Next Decade

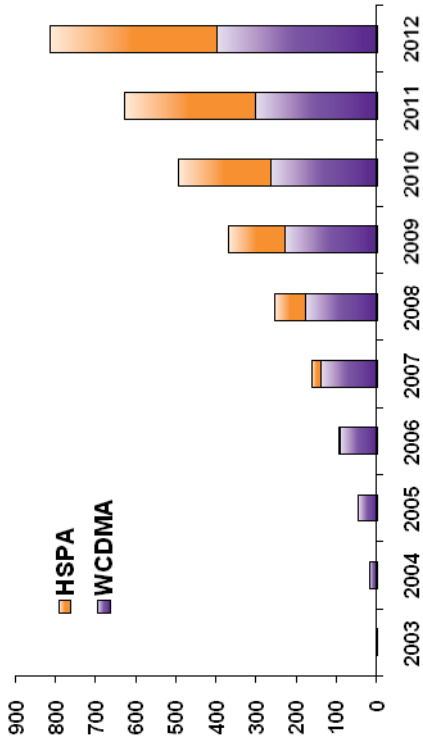


3G will enable **80%** of mobile broadband subscriptions in 2013

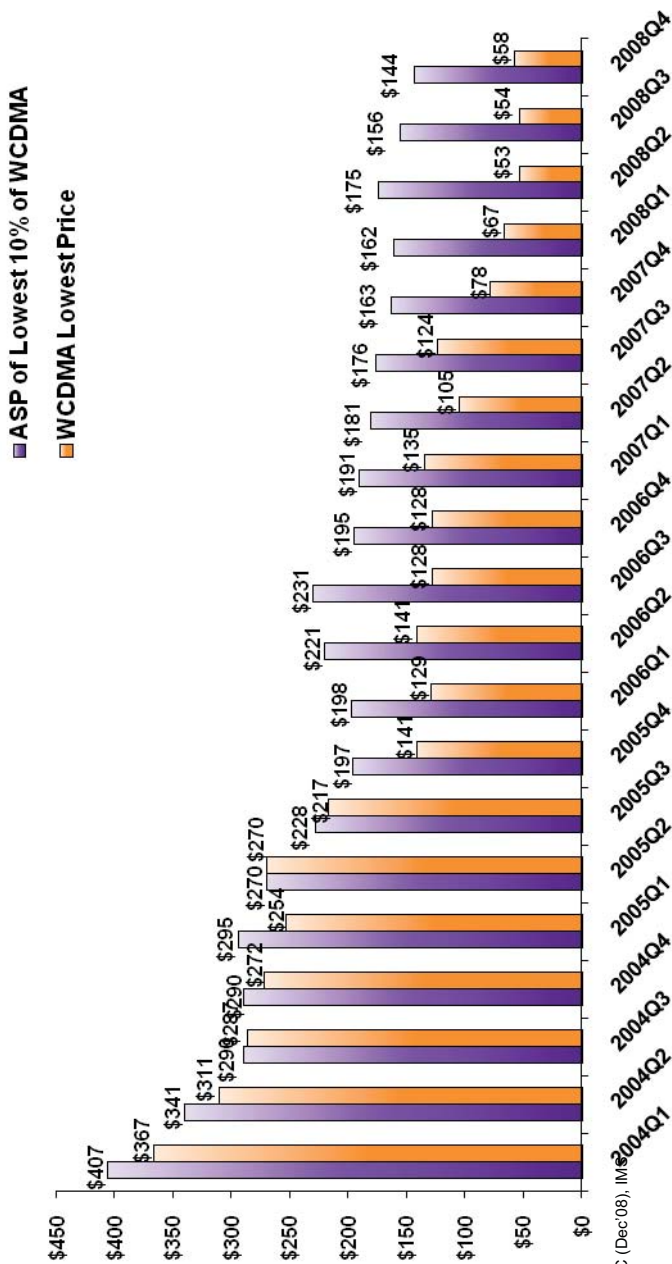
Sources: HSPA Family and EV-DO Family - Average of SA, WCIS+, WI, In-Stat and ABI. WiMax - Average of ABI (Q3 2008) and In-Stat (June 2008). LTE - Average of SA, n-Stat and ABI. TD-SCDMA - Average of SA, WI, In-Stat and ABI. Note: Forecasts from In-stat and WI are available only till 2012. Forecasts from WCIS do not have data for 2008. Does not include any 1X and WCDMA subs.

3G Device Cost Declining as Scale Increases

WCDMA/HSPA Global Device Forecast



WCDMA Handset Costs Decline to US\$58



Sources: Average of ABI (Q4'08), Yankee (Q4'08), Garthner (Dec'08), IDC (Dec'08), iSuppli (Oct'08), SA (June'08) (Dec'08), WCIS+ (Q1'09), In-Stat (Oct'08), iSuppli (Oct'08), SA (June'08)

Superior Performance of WCDMA/HSPA Combined with Coverage Benefits of 900MHz

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~40% Less Sites for Rural Coverage

Compared to 2.1 GHz

Excellent Urban In-Door Coverage

Co-exists with GSM900

Robust and Growing UMTS900 Ecosystem

UMTS900 Device Support is Growing

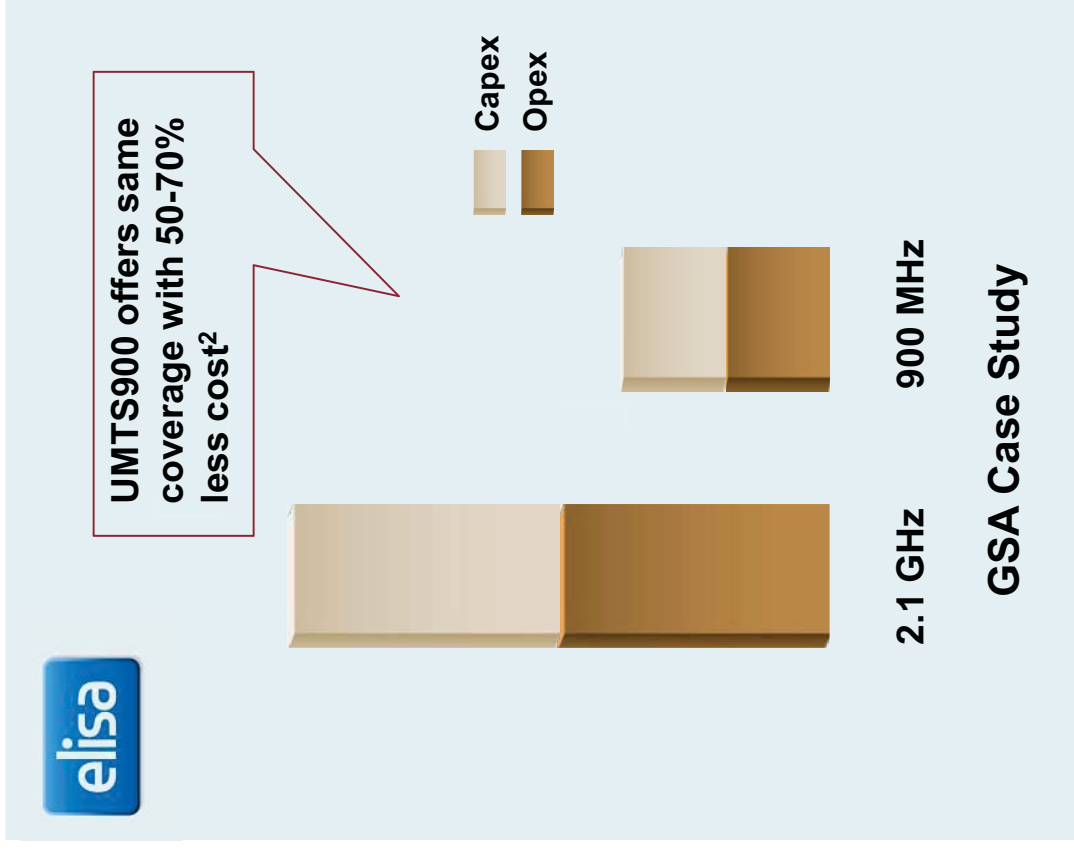
More than 130 commercial UMTS900-HSPA devices by 23 vendors



“.. UMTS900 is on the roadmap for most device manufacturers, and is becoming a standard feature in virtually every new data modem and most 3G phones destined for European and Asian markets....”

- Global mobile Suppliers Association, June 2009

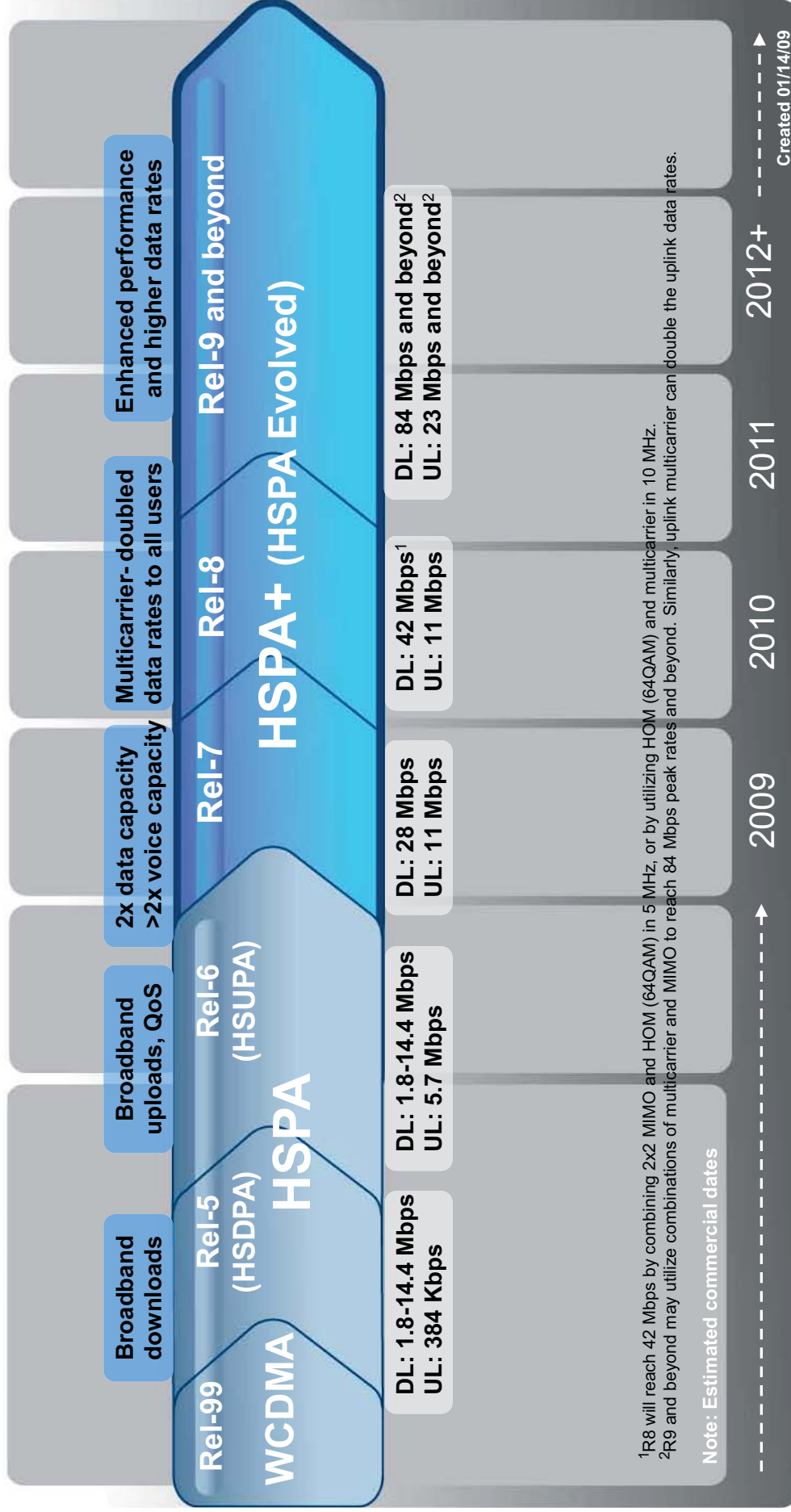
UMTS900 is Cost-Effective for Rural Coverage



¹ Hata Model for 900 MHz, COST-Hata Model for 2.1 GHz (1.9 GHz uplink), 30m effective antenna height for urban and suburban, 50m effective antenna height for rural. Site count based on uplink limited scenario

²Source: GSA whitepaper, 2008

HSPA+ R8 is Commercial in 2010



HSPA+ R8: up to 42 Mbps peak data rates

HSPA+ R7 is gaining industry momentum

Devices

HUAWEI

SIERRA WIRELESS
HEART OF THE WIRELESS MACHINE™

CONDA
MOBILE COMMUNICATION

ZTE中兴

NOVATEL WIRELESS

BandRich Inc.

OPTION

Launched

Telstra

mobilkom austria

StarHub

CSL
Create a Simple Life

SoftBank

Committed

at&t

SingTel

O2

Dialog
TELEKOM

vodafone

PCCW

Telecom

M1

Telefonica

TELECOM
ITALIA

SK telecom

etisalat
اتصالات

EMOBILE

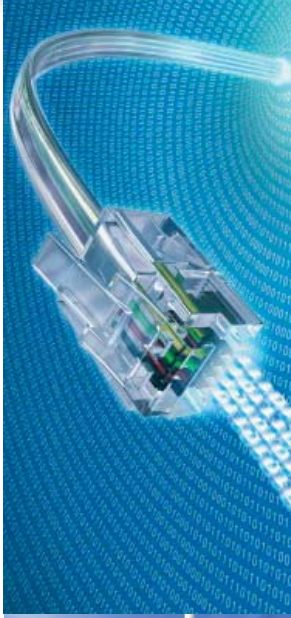
HSPA Supports Entire Range of IP Services



With simultaneous voice and high-speed data services

HSPA/HSPA+: Mobile Broadband for All Market and Device Segments

All Market Segments



Enterprise

- *Ethernet-Class Performance*
- *Consumer*
- *Cable/DSL-Class Performance*

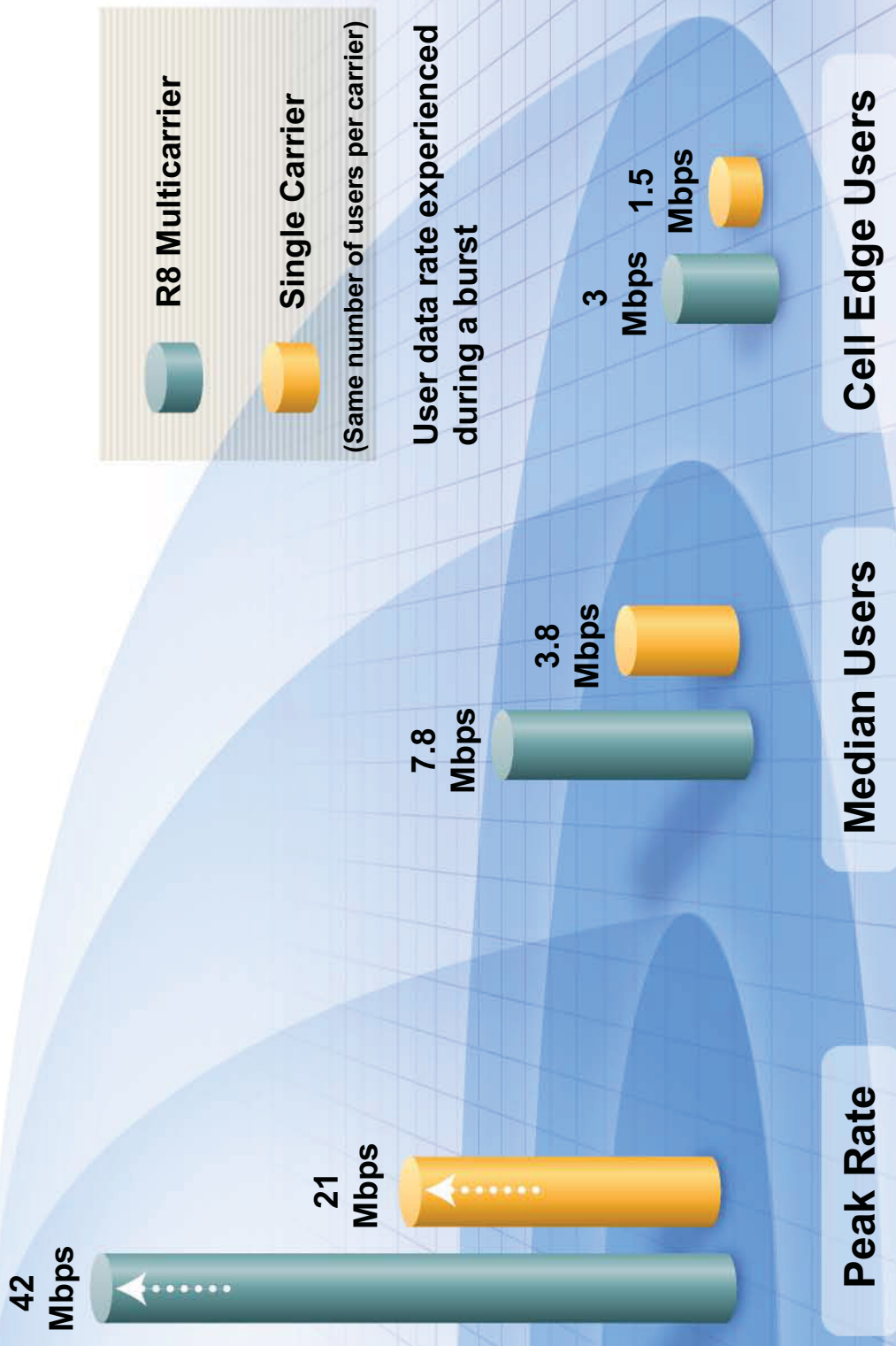
Mobile/Fixed/Nomadic

- *Handsets and PC cards*
- *Consumer Electronics*
- *Ultra Mobile Devices*
- *Embedded Laptops*
- *Desktops*

All Device Segments

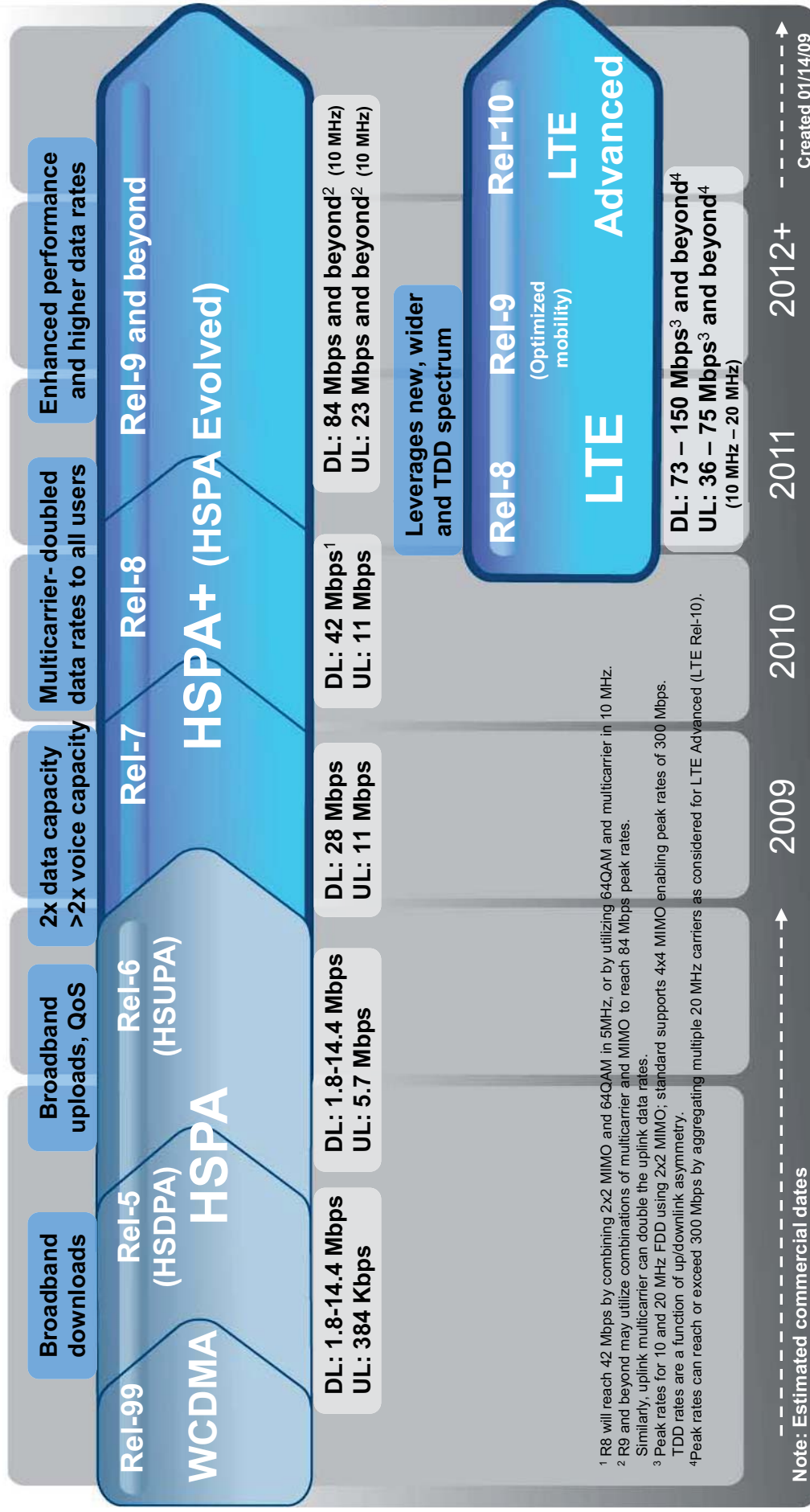


HSPA+ R8 Multicarrier Doubles Data Rates to All Users



Qualcomm simulations. Each scenario is based on the same total number of users (eight users), see 3GPP R1-081890 for details. Shows the theoretical peak data rate and the burst data rate for the median users and the 10% worst (cell edge) users. No MIMO with Multicarrier in R8. Bars in the picture are not to exact scale

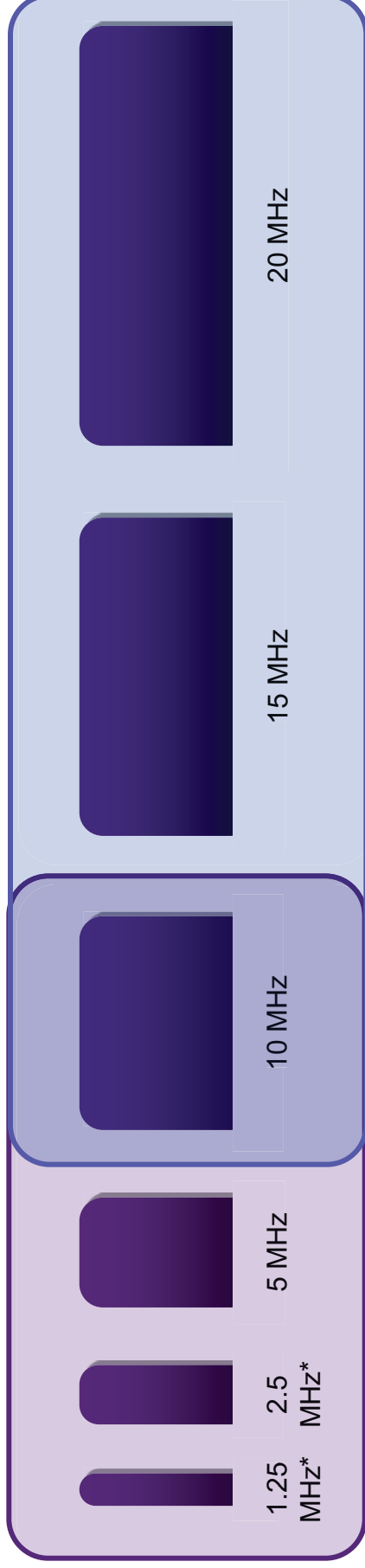
LTE: A Parallel Evolution Path to HSPA+



LTE best suited to leverage wider FDD bandwidths and TDD spectrum

3G and its evolution
Similar LTE and HSPA+ performance in up to 10 MHz bandwidth

OFDMA(LTE)
Leverages wider bandwidths and TDD spectrum

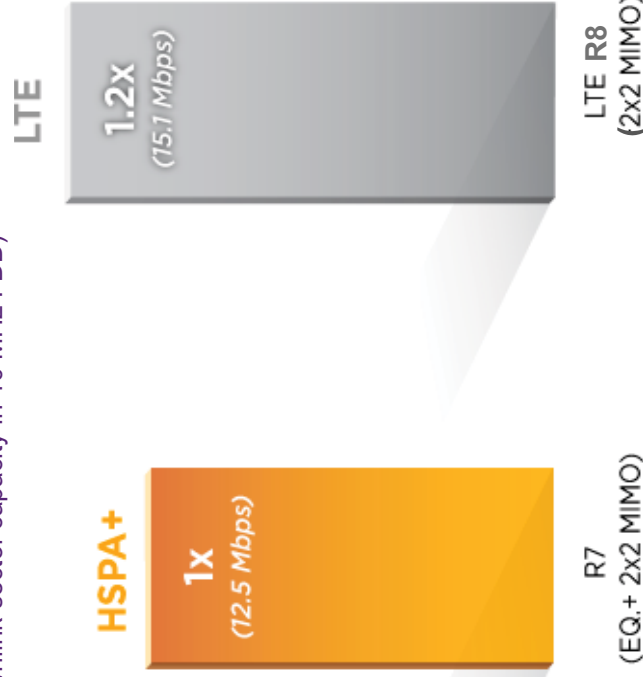


Note: LTE also supports 1.4 MHz and 3 MHz bandwidths
TDD 2:1 shown as an example, LTE also supports Half-Duplex

Similar HSPA+ and LTE Performance

Similar Spectral Efficiency

with the same number of antennas and bandwidth
(Downlink sector capacity in 10 MHz FDD)



Note: Handset Interference Cancellation and HSPA+ multicarrier MIMO would further improve HSPA+ spectral efficiency.

Similar Peak Data Rates

with the same bandwidth and number of antennas
(Downlink peak data rate in Mbps)

Bandwidth	HSPA+	LTE
5 MHz	42 Mbps	37 Mbps
10 MHz	84 Mbps	73 Mbps
20 MHz	3GPP R10 Candidate ²	150 Mbps

Note: Assuming 2x2 MIMO. LTE supports 4x4 MIMO but initial deployments will support 2x2 MIMO. 10 MHz HSPA+ Multicarrier supported in R8. MIMO and multicarrier considered for HSPA+ R9.

¹ Source: Qualcomm Simulation, details in 3GPP R1-070674. 500m ISD. HSPA+ R7 results scaled up from 5MHz. HSPA+: 16QAM not considered for the UL and UE IC not considered for the DL. HSPA+ multicarrier and DL Interference Cancellation would narrow the gap with LTE. ² Future HSPA+ release may support up to 20 MHz.



Thank You

Telefonica O2 Ireland Ltd



Minutes of a Bilateral Meeting between ComReg and Telefónica O2 Ireland Ltd.

1 July 2009

Present:

For ComReg:

Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For TO2:

Paul Whelan
Tom Hickey
Karim Benabdallah

1. Welcome

The Chairman welcomed the representatives of Telefónica O2 Ireland Ltd to the bilateral meeting and both groups of participants introduced themselves.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman summarised the main points from the letter of invitation contained in Annex 2 to this document. ComReg clarified the treatment of confidential information and the envisaged timetable for the process.

Concerning the timetable ComReg further clarified that it envisages publishing its next consultation document by the autumn and that its current target is for the launch of an auction circa end of 2009 depending on what option(s) are ultimately employed.

On a high level, O2 detailed the depressed state of the Irish and international market at this current time and noted that key to accessing capital and investment funds is the degree of certainty that ComReg creates through this process.

4. Presentation of response submitted to consultation 09/14

O2 presented its response to ComReg document 09/14 which is contained in Annex 3 to this document. The following points were stressed:

- ComReg should take a holistic approach to spectrum planning. Operators need to be able to plan in advance for multiple bands and technologies.
- Plain voice is still the majority service used by TO2 customers.
- The technology roadmap for 900 MHz is clear and investment decisions can be made with certainty in this area.
- Regulatory certainty is imperative for MNO's to convince investors to continue network investment.
- Any loss of spectrum in the 900 MHz band would in TO2's view cause serious disruptions for subscribers and O2 held that there is no commercially viable alternative to the use of 900MHz.
- GSM services will be in demand beyond 2015 and O2 sees the need to maintain a high quality GSM service at least until then.
- Long term players/investors such as O2 should be encouraged in Ireland's best interests.
- ComReg should verify that an auction is necessary by testing demand.

On the issue of ComReg verifying that an auction is actually necessary, O2 noted that it is very easy to express interest in obtaining spectrum, but that does not necessarily reflect an intention to invest in and use spectrum. ComReg noted that in its past experience of auctions to date, it is practically very difficult to place any reliance on expressions of interest. It was agreed that there are practical difficulties involved.

5. Questions for Clarification / Discussion

ComReg probed why Option 1 is unacceptable to O2. O2 responded that under Option 1 it could lose spectrum and that this risk is too great – the consequences of a loss of spectrum at 900 MHz would affect funding and cause disruption to customers.

ComReg noted that as a major player and incumbent in the Irish market O2 has a lot of information at its disposal and hence O2 would have a high certainty of acquiring spectrum in any auction that was to take place. O2 reasoned that everybody would know that it must re-acquire spectrum and that without a guaranteed license extension there was a risk that it could become hostage to other bidders in the auction which would result in artificially inflated prices. It was agreed that a new entrant might not correctly value the spectrum.

ComReg responded that a well designed auction process should prevent such a problem from occurring and both parties agreed that the auction design is a very important element of the process.

ComReg sought to understand how much spectrum in the 900 MHz band O2 would need to continue GSM operations at the current level. [...&....]

ComReg sought clarification on O2's submission that neither O2's other spectrum holdings nor another operator would be able to cope with displaced subscribers in the event that O2 lost 900 MHz spectrum. O2 argued that the 1800 MHz network only provides a little more than 40% population coverage so this is not an avenue for consideration currently and that the penetration of 3G enabled handset is quite low. O2 further contended that there is only one other network with equivalent coverage and it could not accommodate the traffic of O2 customers with its current spectrum allocation and hardware configuration. In addition, other operators will be squeezing their existing GSM customers on their 900 MHz network to make space for a 3G carrier leaving even less GSM capacity available and would not be able to take on the number of customers likely to be affected. O2 further contended that it is unlikely that any purchaser of O2's GSM network, if it were to be sold as a consequence of O2 not securing any 900 MHz spectrum, would offer GSM as the purchase would be with a view to moving to 3G technology.

ComReg requested clarification on how O2 envisaged a process for the release of spectrum prior to the auction might work. O2 responded that operators will need to decide on how much spectrum they wish to maintain for GSM, and if there is an excess, this could be released immediately or at the end of their licence periods. However, extension at an unviable price will not work, and any early release raised the question of what to do about the rights that would be surrendered. In any case, the granting of licence extensions must be done first and then the auction held. Only releasing block A and B would artificially inflate prices, whereas if the licence extensions are granted in advance of the auction then it will be clearer how much spectrum could be made available. This spectrum could be added to the auction, going some way to alleviate scarcity. O2 further advocated a two stage auction: bidding on the amount of spectrum first and then bidding on preferred blocks to allow operators to bid around the timing of spectrum block release.

ComReg followed up by requesting O2's view on the period of extension that is offered and O2 responded that 2015 seems to be adequate.

Under Option 2 ComReg noted that it has set out a process by which incumbents may be able to retain spectrum in the short term to address GSM legacy issues. In its recent consultation, ComReg set out its views that opportunity cost is the most appropriate basis by which to set associated fees and sought clarification on O2's response to this issue. O2 understood the principle of the opportunity cost methodology but asserted that it must be based on real market values and that the problem was that the real market value may only be known after the auction. However, while this does not provide clarity for incumbents regarding extension costs which should be known at that the time the extension is granted, it might be necessary to delay setting of the extension price until after an auction has occurred.

While not wanting to re-visit the legal arguments, ComReg sought to understand why O2 believes that MVNO obligations in any new 900MHz licenses would not be appropriate in the Irish Market. O2 pointed out that both MVNO's in Ireland are with MNO's who have no MVNO obligations and the one operator with MVNO

obligations has no MVNO's attached. Clearly in O2's view the market in Ireland is competitive enough to facilitate MVNOs without regulatory intervention.

On a follow up question ComReg asked if in the absence of any regulatory intervention, that Ireland would see any more MVNO's. O2's view was that the scale and size of the Irish market with four operators and two MNVOs' (i.e 6 players) in a market the size of Manchester is unlikely to be attractive to an further MVNO entrants

In respect to O2's response on the issue of the release of 1800 MHz spectrum, ComReg asked how it might help to have liberalised spectrum in the 1800 MHz band available sooner than 2013. O2 responded that the same issues that are being dealt with now at 900 MHz could potentially arise when the 1800 MHz band is released. O2 said that there was no 3G/LTE equipment currently available for the 1800 MHz band, nor was there any visibility expected of such equipment in the medium term. However, if the 1800 MHz band was liberalised now it would allow MNOs to make investment decisions on a holistic basis. ComReg's noted its position that the situation is still evolving and that at this stage releasing the spectrum in sequence, in or about 2013, appears in ComReg's view to be the most appropriate approach.

ComReg noted the importance of setting coverage and roll out obligations, given the strategic importance of the 900 MHz band, and looked for clarification on O2's position. O2 indicated that it makes sense that spectrum is fully utilised and that rollout actually occurs but that operators should be free to choose the technology that is most appropriate to customer's requirements and licence conditions should be flexible enough to accommodate this. This is particularly important where an operator might have more than one band in operation.

ComReg sought clarification on O2's view that spectrum trading may solve some of the problems identified and if O2 could give examples of where this had happened. O2 responded that spectrum trading is a potential solution to encouraging investment provided licenses are rolled over and can be traded between interested parties.

6. Close of Meeting

The meeting was closed at 14:25.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and Telefónica O2 Ireland

1 July 2009
ComReg Boardroom
11:30

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (TO2I)
5. Questions for clarification / Discussion
6. Close of meeting



Commission for
Communications Regulation

19 June 2009

Ms. Danuta Gray
CEO
Telefonica O2 Ireland Ltd.
28-29 Sir John Rogerson's Quay
Dublin 2

Dear Ms. Gray

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document, including Telefonica O2 Ireland Ltd. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation, including Telefonica O2 Ireland Ltd.

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to 'speak to' their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

The bi-lateral meetings are intended to enable parties to make oral representations in relation to their existing written responses to the consultation. They are not intended to be used as an opportunity to make entirely fresh submissions with regard to matters contained in the consultation, and, in particular, they are not intended to be used as an opportunity to adduce, or hand in, further written submissions.

However, all parties may complement their oral representations with reasonably-sized PowerPoint, or similar, presentations. ComReg will publish any such presentations following the conclusion of all bilateral meetings, and parties will therefore be required to provide copies of their presentations for publication

purposes. Where a presentation contains confidential material, both a confidential version and a non-confidential version (for publication) should be provided at the meeting.

Parties might seek clarification from ComReg during the course of their bilateral meeting with regard to particular matters contained in the consultation. While the meetings are primarily designed to enable parties to make oral representations to ComReg, where clarification is sought ComReg representatives will attempt to give it there and then. If that is not possible, then clarification may be given at some later point in the meeting, or following adjournment of the meeting but on the same date as the meeting. If it is not possible to provide clarification during the meeting or shortly after the meeting, then clarification will be provided at some later date. ComReg reserves the right, and intends, to circulate all requests for clarification - and its answers to them - to all parties with whom bi-lateral meetings are held.

ComReg staff will take notes at all bilateral meetings. The notes of each meeting will subsequently be provided, in draft form, to the particular party with whom the meeting was held in order that that party might agree the accuracy of the draft notes, as well as identifying any information in the draft notes that is considered confidential and ought not to be disclosed to any third party. Once settled with all parties, ComReg will simultaneously publish the notes from all of the bilateral meetings, as well as any clarifications which were sought and given.

In due course, ComReg will issue a further response-to-consultation document, which will be based on the most recent written submissions received to Document 09/14 and on the future bi-lateral meetings.

You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division. I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely



George Merrigan
Director: Market Framework

CC: Tom Hickey

Annex 3 – Non-confidential Presentation



O₂

Liberalisation of the 900MHz and 1800MHz Bands

Response to Document 09/14

July 2009

A *Telefonica* company

General Issues to be Considered

O₂

Holistic View

- Irish Operators don't have a holistic view on all the spectrum bands playing a role in the Voice/Text/Data services ecosystem (800, 900, 1800, 2100, 2300, 2600MHz).
- Difficulty to establish a viable long term strategy that ultimately will support the Smart Economy initiative from the Government.

Continuity of Service

Customers must not be impacted. The 900MHz band is critical for Ireland because it:

- Is the only band able to ensure continuity of services
- Allows the preparation for new network technology
- Guarantee seamless transition of the customer base over the time frame to 2015

Long-term Investment

- Operators invest on a on-going basis mainly for the long term (10 years), They require regulatory certainty to have the confidence to continue those investments.
- With uncertainty on the frequency band, uncertainty on the licence expiry, and uncertainty on the cost, it is very difficult to establish a reliable business case to drive investment.
- Ireland is competing at worldwide level within multi-national companies; therefore it must remain competitive to get access to capital.

General Issues to be Considered

O₂

Licence Extension

- Loss of 900MHz would seriously undermine O2's ability secure ongoing investment in Ireland
- It would be seriously disruptive for our 1.7 million customers.
- There is no currently commercially viable alternative to the use of 900MHz by O2.
- O2 made a significant investment in a "state of the art" GSM network to support continuing demand for GSM services by our customers beyond 2015.
- ComReg must understand the impact of existing operators loosing 900MHz spectrum would have.
- Comreg must extend the GSM licence.

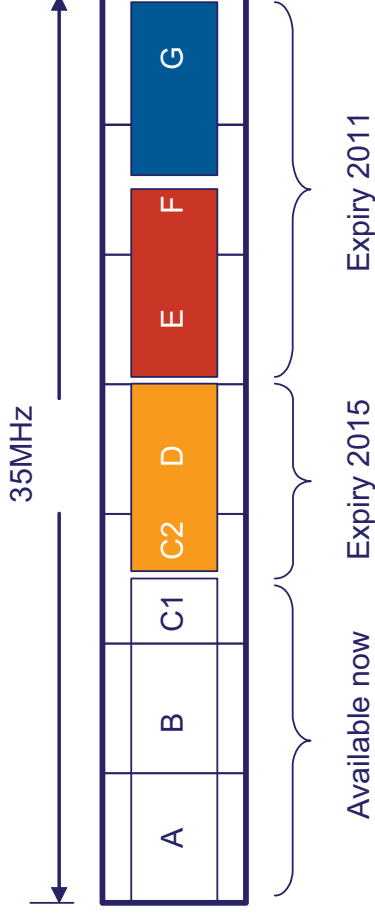
Auction

- Comreg should test the real demand for spectrum before making decisions on the basis that there is an excess of supply over demand.
- We believe there is enough spectrum to meet the demands of all operators/entrants.
- ComReg needs to verify that an auction is necessary

Issues to be Resolved in the Consultation Process

O₂

- O2 and Vodafone GSM Licence expiry mid-2011
- Liberalisation to allow new technologies operate in the Band (including 3G)
- Current assignments don't match with the final arrangement of 7 blocks of 2x5MHz.
- Current assignments do not allow for easy aggregation into whole blocks of 2x5MHz
- Unassigned spectrum that ComReg should make available for use
- 2x7.2MHz not sufficient for an existing operator to introduce 3G service and maintain GSM
- The licence terms need to facilitate continued investment in networks and services
- Any operator assigned 2 blocks needs them to be contiguous



Options Presented in 09/14

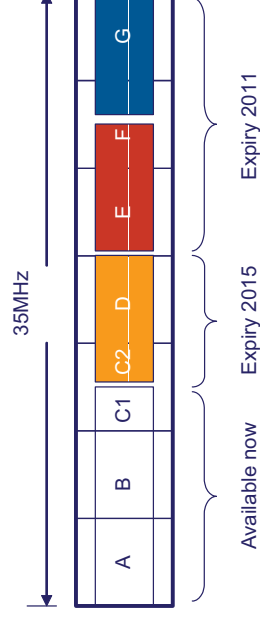
O₂

Option 1 - whole band auction in 2009/2010

- Unacceptable as places O2 (and Vodafone) at risk of loss of 900MHz

Option 2 – possible extension of GSM, and auction of free spectrum

- Could be a solution under certain circumstances:
 - Fees must not be prohibitive (ComReg proposals unclear)
 - Complete extension process first, and no restrictions (except cap) on existing operator in auction
 - Include all un-assigned spectrum in any a single auction – that released by existing operators, A, B, C1, Guard Bands
- Re-tuning necessary to allow for aggregation
- Any auction process must be properly designed for efficient spectrum assignment
- No State Aid issue if fair price charged



Other Issues

O₂

MVNO

- O2 does not agree that it is necessary, desirable or permitted to include MVNO Commitments in spectrum licence

UPC Ltd



Commission for
Communications Regulation

Minutes of a Bilateral Meeting between ComReg and UPC Ltd.

15 July 2009

Present:

For ComReg:

Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For UPC:

Kate O'Sullivan
Ray Collins
Joe Jennings

1. Welcome

The Chairman welcomed the representatives of UPC to the bilateral meeting.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman summarised the main points from the letter of invitation contained in Annex 2 to this document.

4. Comments on response submitted to consultation 09/14

UPC, while not a holder of mobile spectrum, is seeing the convergence of mobile and fixed networks. As a result UPC as it grows its telephony business is gradually getting into the mobile market in the markets it has a presence in and its response to both consultations so far is with a view to accessing spectrum in Ireland.

5. Questions for Clarification / Discussion

ComReg noted that in its most recent consultation response, UPC only entertained Option 1, and sought for the two currently available blocks (A&B) to be reserved for one new entrant. ComReg sought UPC's view on what constitutes a new entrant to the 900 MHz band. UPC responded that in their view a new entrant is an entrant to the Irish mobile market.

[...<...]

ComReg asked if the spectrum cap, introduced by ComReg in document 09/14, provides UPC with sufficient comfort that spectrum will be available for a new entrant to the 900 MHz band. UPC replied that it does, but this still only leaves 5 MHz for a new entrant who might very well be outbid by incumbents in an auction for a further 5 MHz. ComReg followed up that UPC would be able to get some other spectrum at 1800 MHz, Digital Dividend (790-862 MHz) or 2300 MHz. UPC countered that this would involve a number of contingent investment decisions [...<...]

ComReg followed up noting that if 10 MHz was set aside for a new entrant then this would only leave 25 MHz for all other players – this reduces the equality of opportunity as at least one of the incumbents would not be able to get more than 5 MHz. UPC responded that there is an opportunity for frequency sharing between operators but again expressed their preference for 10 MHz set aside for a new entrant. They also expressed a preference for a spectrum cap across all of the mobile bands in order to constrain incumbent MNOs from having undue advantage over new entrants.

ComReg noted that some MNO's have suggested in their responses that only 5 MHz is required to roll out a national 3G network and UPC's proposal could lead to a new market entrant holding 10 MHz. ComReg queried whether UPC believes that 5 MHz of 900 MHz spectrum is sufficient for a new entrant to rollout nationally and be able to compete in the current market or is more required [...<...]

ComReg asked what specific services might a new entrant offer that could compete with incumbents. [...<...]. On questioning UPC's views on the suitability of LTE as a stand-alone network UPC replied that currently views differ between vendors and, in any case, roaming on other networks for voice traffic may be possible. ComReg commented that the LTE roadmap appears uncertain and the timing of delivery of customer equipment is vague. [...<...]

ComReg asked UPC to state its hierarchy of spectrum needs at this time. UPC responded that it sees a number of opportunities in Ireland. For mobile services spectrum sub-1 GHz spectrum, be it 900 MHz or the 800 MHz Digital Dividend, would be required. [...<...]

ComReg then sought UPC's views on the inclusion of Quality of Service and roll-out conditions in any liberalised licences and what would be acceptable minimum parameters. UPC replied that their general view was that the market will set the QoS standards and that speeds will be set based on customer demand. Furthermore the

competition in the market will allow consumers to select the best offering in the market place.

In responding to UPC's proposal that ComReg should regulate economic site access and economic roaming charges outside built-up areas ComReg questioned how it could facilitate this. UPC relied that ComReg should regulate economic access to sites and roaming charges to prevent anti-competitive behaviour against new market entrants.

Noting that UPC proposed that ComReg should implement bidding credits as have been applied to spectrum auctions in the USA, ComReg asked for views on how these can be applied in Ireland. UPC replied that this was more of a proposal that ComReg should consider if such an approach would be of any use in Ireland and understood that it was difficult to set up the measurements matrix of when requirements have been met and the credits that should apply. UPC further proposed to push the issue onto bidders as to how much each is prepared to offer in the way of MVNO access conditions.

UPC noted that in its response to ComReg 08/57 UPC held that if ComReg was to renew licences in the 900 MHz band then such an approach would have applicability in all future licence renewals. ComReg made it clear that any Decision appropriate for the 900 MHz band would not carry any such precedence value. ComReg's approach to each case is informed by what is most appropriate having taken into account the market circumstances and regulatory context applicable at the time.

6. Close of Meeting

The meeting was closed at 16:30.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and UPC Ltd.

15 July 2009
ComReg Boardroom
15:30

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (UPC)
5. Questions for clarification / Discussion
6. Close of meeting

Annex 2 – Letter of Invite



Commission for
Communications Regulation

19 June 2009

Mr Robert Dunn
CEO
UPC Ltd.
P.O.Box 321
Dublin

Dear Mr Dunn

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document, including UPC Ltd. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation, including UPC Ltd.

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to 'speak to' their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

The bi-lateral meetings are intended to enable parties to make oral representations in relation to their existing written responses to the consultation. They are not intended to be used as an opportunity to make entirely fresh submissions with regard to matters contained in the consultation, and, in particular, they are not intended to be used as an opportunity to adduce, or hand in, further written submissions.

However, all parties may complement their oral representations with reasonably-sized PowerPoint, or similar, presentations. ComReg will publish any such presentations following the conclusion of all bilateral meetings, and parties will therefore be required to provide copies of their presentations for publication

An Coimisiún um Rialáil Cumarsáide
Commission for Communications Regulation

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purposes. Where a presentation contains confidential material, both a confidential version and a non-confidential version (for publication) should be provided at the meeting.

Parties might seek clarification from ComReg during the course of their bilateral meeting with regard to particular matters contained in the consultation. While the meetings are primarily designed to enable parties to make oral representations to ComReg, where clarification is sought ComReg representatives will attempt to give it there and then. If that is not possible, then clarification may be given at some later point in the meeting, or following adjournment of the meeting but on the same date as the meeting. If it is not possible to provide clarification during the meeting or shortly after the meeting, then clarification will be provided at some later date. ComReg reserves the right, and intends, to circulate all requests for clarification - and its answers to them - to all parties with whom bi-lateral meetings are held.

ComReg staff will take notes at all bilateral meetings. The notes of each meeting will subsequently be provided, in draft form, to the particular party with whom the meeting was held in order that that party might agree the accuracy of the draft notes, as well as identifying any information in the draft notes that is considered confidential and ought not to be disclosed to any third party. Once settled with all parties, ComReg will simultaneously publish the notes from all of the bilateral meetings, as well as any clarifications which were sought and given.

In due course, ComReg will issue a further response-to-consultation document, which will be based on the most recent written submissions received to Document 09/14 and on the future bi-lateral meetings.

You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division. I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely



George Merrigan
Director: Market Framework

CC: Kate O'Sullivan, Director Regulation & Public Policy

Vodafone Ireland Ltd



Commission for
Communications Regulation

Minutes of a Bilateral Meeting between ComReg and Vodafone Ireland Ltd.

9 July 2009

Present:

For ComReg:

Alex Chisholm (Chairman)
George Merrigan
Jim Connolly
Samuel Ritchie (Minutes)

For Vodafone:

Gerry Fahy
Damian Murray
Michael Maher
Eamonn Farrell

1. Welcome

The Chairman welcomed the representatives of Vodafone to the bilateral meeting.

2. Adoption of Agenda

The draft agenda sent out previous to this meeting was approved and is contained in Annex 1 to this document.

3. Introduction by ComReg

In setting the framework for this bilateral meeting the Chairman summarised the main points from the letter of invitation contained in Annex 2 to this document.

4. Presentation of response submitted to consultation 09/14

Vodafone presented its response to ComReg document 09/14 which is contained in Annex 3 to this document. Vodafone rehearsed its view that it has a legitimate expectation concerning the roll over of 2G licences and that everything said at the meeting is without prejudice to this position.

5. Questions for Clarification / Discussion

ComReg probed why Option 1 is fundamentally unacceptable to Vodafone. Vodafone responded that while Option 1 provided some regulatory certainty, under this option it could lose spectrum and therefore this risk is simply too great for it to contemplate

ComReg noted that as a major player and incumbent in the Irish market Vodafone has a lot of information at its disposal and understands the market very well, hence Vodafone would have a very reasonable chance of acquiring spectrum in any auction that was to take place. While acknowledging this Vodafone reasoned that in its view the auction carries an extremely high impact risk that it is not prepared to accept. Although the possibility of acquiring no spectrum might be low, the financial and commercial impact would be so great that even a low possibility had to be avoided.

ComReg sought clarification on how long might it take Vodafone to re-provision its current network to deal with any potential loss of spectrum. [.....]

ComReg put forward the scenario whereby an existing operator in the 900 MHz band failed to acquire spectrum in the 900 MHz band and asked as to whether Vodafone would be able to deal with an increase in subscribers on its network. Vodafone responded that it was beyond its capacity to double subscriber's numbers and to their knowledge beyond the current capacity of any other Irish operator to handle all of Vodafone's GSM900 traffic, not to mention roaming and MVNO customers.

ComReg enquired as to how much longer Vodafone believes that it will need to support GSM traffic. Vodafone noted that as things currently stand there is a significant market for GSM services and not all handsets going into the market place support 3G –Vodafone foresees a 10-year lifetime for GSM services at which time there could still be a fairly significant number of GSM-only users that will need operator intervention to transition. In discussion it emerged that the shift from 2G to 3G will not only be driven by technology and market trends but also by individual operator marketing strategies and hence it was difficult to predict precisely. However, at some point operators would need to offer incentives to move the last 2G users off the network.

On Vodafone's alternative approach¹, ComReg asked if this approach would not be seen as favouring a limited number of operators; also whether a new operator obtaining 5 MHz would over time suffer a disadvantage vis-à-vis MNO's obtaining 10 MHz, if the entire band ultimately became available for 3G use. Vodafone responded that this is why it is important, in its view, to open up the entire available spectrum so that additional competition has opportunity to enter the market – this includes opening the Digital Dividend spectrum. In addition Vodafone argued that the entire spectrum that is available and is likely to be available should be put on the table so that the market has a view of the totality of available spectrum. This, it believes, will alleviate the medium and long term constraints that currently apply to spectrum availability. ComReg responded by asking how it could make spectrum

¹ See Vodafone's response to question 7 on page 40 of Vodafone's response to ComReg 09/14.

available in respect of the digital dividend when DTT had not been launched, no firm date for switch-off had been set in Ireland and no decision had yet been taken regarding how much spectrum would be available for ECN as opposed to broadcasting. Vodafone acknowledged this point but expressed significant surprise and concern that the analogue switch-off date was in doubt and pointed out that Commissioner Reding in her address at the ComReg organised Digital Dividend Conference had confirmed that wireless broadband usage should be given a primacy in consideration of use for Digital Dividend spectrum.

ComReg sought Vodafone's view on the scenario where an operator has only a single 5 MHz block and how this would influence the operator's choice of technology, e.g. HSPA vs. LTE. Vodafone noted that with only 5 MHz of spectrum available the choice of technology becomes marginal but there are other spectrum bands such as 1800 MHz which could support technologies that perform better with wider bandwidths.

ComReg raised the matter of the recent public statements from Vodafone Group's R&D² Unit to the effect that LTE rollout in Europe would not occur until 2012 or later, and asked Vodafone Ireland to comment. Vodafone replied that the timing of LTE rollout would depend on a number of factors and varied by market but believed that it was possible that deployment could occur earlier than this timeframe in Ireland and foresaw initial availability in 2010/11. Vodafone would also be talking to its equipment vendors.

Concerning Vodafone's view on licence requirements, Vodafone accepted that reasonable roll out requirements should be included in licence conditions but noted that it may be difficult for any new entrant to match current GSM roll out coverage given the present financial climate.

ComReg sought to understand Vodafone's principal issues with Option 2. Vodafone asserted that all existing licences should be liberalised and that it does not make sense not to liberalise existing licences. On the issue of licence extension ComReg noted that this is of course needs approval of the Minister and is not totally within ComReg's remit, a point which Vodafone acknowledged.

Vodafone stated its preference not to deal any further with how either of ComReg's options could be modified. Rather it rehearsed its view that its proposal is its preferred way forward and the appropriateness of this approach has been borne out by recent events in Sweden. In reply ComReg agreed on the importance of studying other NRA mechanisms for possible useful examples but also observed the notable differences in legal frameworks and regulatory precedents in which the Irish and Swedish NRA's operate, especially with regard to how unused radio spectrum is assigned.

ComReg referred to Vodafone's view that the real demand for spectrum should be assessed before any auction is held. ComReg sought proposals on how to undertake such an assessment of demand, as experience has shown that an expression of interest is not always an accurate predictor. Vodafone suggested that ComReg had full powers to demand any and all information from petitioners and should be in a position

² For example: www.rethink-wireless.com/?article_id=1642

to weigh the credentials of each party expressing an interest in order to evaluate the robustness of the interest being expressed.

Concerning the setting of fees in line with opportunity cost, ComReg sought views from Vodafone on what could be used to establish the opportunity cost. Vodafone replied that the price paid at an auction would establish the opportunity cost but the price paid might need to be discounted if it were judged that inflated prices would be paid given spectrum scarcity in the 900 MHz band. Vodafone also argued that opportunity cost was the only basis for fee setting if the spectrum is liberalised but if ComReg limited the use to 2G then it believed that fees should be lower. ComReg commented that this could appear to be inconsistent as in the first case there would continue to be 2G use of spectrum obtained at 3G rates, but not in the second case, where 2G use would be at 2G rates. Vodafone maintained its position but agreed to reflect on this.

Concerning the auction design ComReg asked how it might address Vodafone's concerns regarding asymmetry in the bidding. Vodafone indicated that it may be possible that a suitable auction design could be produced but that it was difficult to judge this question without understanding the final auction design.

In dealing with the period of potential extension under Option 2, O2 had put forward the proposal that 5 years would be sufficient, whereas Vodafone suggests that a longer period is required. ComReg sought Vodafone's justification for its suggestion. Vodafone responded that 5 years is the absolute minimum period that can be considered. It further contended that in the last 5 years of a licence, any reasonable operator is running down the network during this period; hence a 10 year extension is a better option.

With regard to Vodafone's alternative proposal, and notwithstanding that ComReg has already settled its views on block size, ComReg sought the reasoning behind Vodafone's rationale that auctioning spectrum in 200 kHz blocks would be more efficient than 5 MHz blocks. Vodafone agreed that contiguous 5 MHz blocks of spectrum is preferable and that the suggestion of 200 kHz channel was simply with a view to aggregating 200 kHz channels into 5 MHz blocks – this could be extended to aggregating 200 kHz blocks shared amongst MNO's. Vodafone also commented that the 5 MHz block would prevent smaller portions of spectrum being returned as GSM requirements declined.

ComReg questioned Vodafone's view that a 12 month realignment period would be more appropriate than the 6 month period proposed by ComReg. Vodafone held that this was merely a practical consideration and in its view a 12 months period is more realistic. Vodafone did agree that some fixed time period is however required.

While not wanting to re-visit the legal arguments, ComReg sought to understand why Vodafone believes that MVNO obligations in any new 900MHz licenses would not be appropriate in the Irish Market. Vodafone responded that demand for MVNO access in Ireland has been quite low and recent MVNO results were not likely to encourage a rush of further MVNO entry beyond those already announced. [...&<....]

Concerning bundles ComReg suggested that, as a fixed line operator, Vodafone sits in a position of some strength as it has the capability to restrict access to MVNO to other fixed line operators who do not have an MNO arm. Vodafone responded that in the last two to three years they have not been approached by any fixed line operators for MVNO access and, in any case if they were approached in the future, Vodafone would deal with it on a fair commercial basis.

6. Close of Meeting

The meeting was closed at 16:55.

Note: On the 24 July 2009, Vodafone submitted a document setting out an alternative licensing proposal for ComReg's consideration – this input is contained in Annex 4 of these minutes.

Note: On the 25 August 2009, Vodafone submitted relevant correspondence – this input is contained in Annex 5 of these minutes.

Annex 1 – Approved Agenda

Bilateral Meeting
ComReg and Vodafone Ireland Ltd.

9 July 2009
ComReg Boardroom
15:30

Approved Agenda

1. Welcome
2. Adoption of Agenda
3. Introduction by ComReg
4. Presentation of response submitted to consultation 09/14 (Vodafone)
5. Questions for clarification / Discussion
6. Close of meeting



Commission for
Communications Regulation

19 June 2009

Mr Charles Butterworth
CEO
Vodafone Ireland Ltd.
Mountainview
Central park
Leopardstown
Dublin 18

Dear Mr Butterworth

Re: Consultation on liberalising 900MHz and 1800MHz spectrum and spectrum release options - Invitation to Bilateral Meeting

As you know, ComReg launched its consultation in relation to liberalising the use of spectrum in the 900 MHz and 1800 MHz bands, and releasing spectrum in those bands, in July 2008 (ComReg Doc. 08/57). Nine interested parties responded to that first consultation document, including Vodafone Ireland Ltd. In due course, ComReg issued its response-to-consultation and further consultation (ComReg Doc. 09/14). Ten interested parties responded to that further consultation, including Vodafone Ireland Ltd.

ComReg believes that this is a particularly important consultation with many, sometimes complex, aspects to it, and the responses received echo this belief generally. In light of the importance of this consultation, the number and nature of the issues involved, and the potential impact its outcome might have, ComReg considers it desirable to ensure that the opportunity to make representations as effectively as possible is maximised.

To this end, ComReg is inviting all interested parties who responded to one or both consultation documents, including your organisation, to 'speak to' their written responses. ComReg will facilitate this by arranging a separate bi-lateral meeting with each interested party for that purpose.

The bi-lateral meetings are intended to enable parties to make oral representations in relation to their existing written responses to the consultation. They are not intended to be used as an opportunity to make entirely fresh submissions with regard to matters contained in the consultation, and, in particular, they are not intended to be used as an opportunity to adduce, or hand in, further written submissions.

However, all parties may complement their oral representations with reasonably-sized PowerPoint, or similar, presentations. ComReg will publish any such

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presentations following the conclusion of all bilateral meetings, and parties will therefore be required to provide copies of their presentations for publication purposes. Where a presentation contains confidential material, both a confidential version and a non-confidential version (for publication) should be provided at the meeting.

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You are invited to attend such a bi-lateral meeting, in ComReg's offices. The meeting will be set for one hour's duration and I will attend together with Commissioner Alex Chisholm, and Jim Connolly and Samuel Ritchie of the Market Framework Division. I would appreciate if you could confirm that you wish to attend a bi-lateral meeting and that you are happy with the terms under which the meeting will be held, as set out above. If you do wish to attend, please inform us in advance as to who from your organisation will be attending and whether you will require PowerPoint, or similar, presentation facilities.

Yours sincerely



George Merrigan
Director: Market Framework

CC: Gerry Fahy, Director of Strategy

Annex 3 – Non-confidential Presentation

Vodafone Submission to ComReg Consultation 09/14: Liberalising Future Use of 900 MHz and 1800 MHz Spectrum Bands & Spectrum Release Options

9 July 2009

Introduction

- Vodafone thanks ComReg for this opportunity to explain our position in relation to the optimum way forward for the future use of GSM spectrum.
- At the outset, Vodafone asserts that we firmly believe there is a better solution to address this issue than that currently proposed by ComReg. We believe that Vodafone's approach - as proposed in both consultations to date - will allow ComReg to achieve its regulatory objectives without the risk of serious disruption to communication services in Ireland in the event that an existing license holder loses spectrum.
- Although the immediate risk of spectrum loss (Option 1) is predominately borne by the 75% of Irish mobile users represented by Vodafone and O2, this would cause material disruption to the wider telecommunication industry through existing interworking between operators via interconnect and national roaming agreements.
- It is also clear that ComReg has made no attempt to estimate the economic loss arising from any incumbent operator losing spectrum, which would be an essential component of any valid impact analysis study. Vodafone's detailed modelling shows that the impact on an average* mobile network of maintaining current service levels exceeds €750m⁺ of economic loss in the event that GSM 900 spectrum was no longer available.
- We also believe that any benefits identified by ComReg as arising from their proposals are not unique to the ComReg solution. They can be replicated without the risks and costs mentioned above and any welfare value accruing from, for example a new entrant, equally applies under Vodafone proposals.

* Average mobile network in terms of the number of sites.

+ Based on 2100MHz network deployment due to uncertainties with 1800MHz licence renewal

Reservation of Position

- Vodafone must emphasise at the outset that our views in regard to the optimal licensing approach for the 900 MHz band set out in this presentation and previous consultation submissions are entirely without prejudice to our primary contention that:
 - a) ComReg is obliged to roll over Vodafone's existing licence until 2021
 - b) The proposal to auction the entirety of the 900 MHz band is unlawful
- Vodafone also reserves the right to make additional submissions and raise additional points, either in this consultation process or in any other forum

ComReg's Regulatory Objectives

- Ensure the efficient management and use of the radio spectrum.
- Promote competition.
- Contribute to the development of the internal market.
- Promote the interests of users within the community.
- Of particular importance is requirement to take all reasonable measures which are aimed at promotion of competition including:
 1. Encouraging efficient infrastructure and promoting innovation.
 2. Encouraging efficient use and ensuring efficient management of radio frequencies and numbering resources.

- **It is Vodafone's considered view that ComReg's current licensing proposals are disproportionate and unnecessary with respect to the objective of promoting competition.**
- **They risk serious disruption and are counterproductive with regard to the interests of end users, investment, innovation, and efficient spectrum use.**
- **Vodafone submit that readily feasible alternative options provide these benefits without the associated costs/risks.**



Assessment of ComReg Proposed Licensing Option 1

- **Advantages:**

1. A single early award process for the entire 900 MHz band would provide a high degree of regulatory certainty.

- **Disadvantages:**

1. Poses significant risks that one or more existing licensees would fail to obtain sufficient spectrum to reform 900 MHz spectrum to UMTS and/or would lose (partially or completely) their existing spectrum assignments in this band. Substantial costs and disruption in this scenario would not be to any meaningful extent mitigated by alternative options suggested by ComReg (e.g. use of alternative spectrum at 1800 MHz and 2.1 GHz).
2. The non-homogeneous nature of spectrum blocks (in terms of timing of availability for use) would artificially restrict bidding options and risk part of Block C being inefficiently underutilised for an extended period. Contrary to efficient use of spectrum.
3. Current Meteor use of part of Block C would introduce asymmetry between bidders. Precludes a level bidding playing field.

Assessment of ComReg Proposed Licensing Option 2

- **Advantages:**

1. Recognises that there are public policy grounds (existence of legacy GSM services) justifying extension of existing 900 MHz licences.
2. Would provide some certainty around ability to continue providing GSM services to customers in the short term.

- **Disadvantages:**

1. Proposed restriction on liberalisation of spectrum held under an extension is contrary to the spirit of the GSM Amending Directive on Liberalisation and hinders realisation of benefits for consumers from 900 MHz refarming.
2. Possibility of only a short term extension for existing licensees does not provide necessary regulatory certainty for business planning and investment – too short.
3. Failure to liberalise spectrum under existing licences could distort basis of competition (by allowing some 900 MHz licensees, but not others, to refarm) and artificially inflate bids in early auction stages.
4. Would have all deficiencies of phased spectrum allocation approach in terms of prolonging regulatory uncertainty, inefficiently restricting options in each licensing phase.

Legal Issues with ComReg's proposals

- Vodafone believe that the proposal to auction the entirety of 900 MHz spectrum is unlawful for the following reasons:
1. It ignores the totality of the legislative objectives under Section 12 of the Communications Regulation Act 2002 and instead focuses almost exclusively on one aim only i.e. ensuring there is no restriction or distortion of competition;
 2. It is entirely disproportionate to the aim being pursued i.e. the promotion of competition
 3. It negates the consultation process because ComReg has failed in the first round to give due consideration to the particular circumstances of the existing licensees representing 95% of all mobile customers.
 4. The second round of consultation have partly acknowledged the “legacy” issues, as described by ComReg, but have done so in an unsatisfactory manner in that they do not provide regulatory certainty and, moreover, limit the proposed extension of the licences to no later than 2015, and for GSM only. This has no rational basis, save for the fact that it is the date upon which Meteor’s licence expires. This approach fails entirely to recognise the factual position of Vodafone and its customers.
 5. It grants excessive credence to un-substantiated potential new entrants to the detriment of efficient and substantial incumbent operators without a transparently objective basis
 6. It breaches the requirement to carry out a valid regulatory impact assessment, which assessment must address the factual position of the licensees, and it constitutes a failure to take all relevant matters into account.
 7. ComReg cannot depart from a representation made in the 3G Memorandum of Understanding which meets the criteria necessary to establish a legitimate expectation of Vodafone

Vodafone's Alternative Licensing Approach

- Vodafone believes that there is an alternative option, that would best achieve regulatory objectives on an agreed basis without the costs and risks of ComReg's current proposals. This alternative option would :
 1. Extend the term of 900 MHz licences held by existing licensees until 2021 (expiry date of current 3G licences) without an auction. (principle of licence extension already conceded by ComReg)
 2. Subject to agreement from all existing 900 MHz licensees, increase spectrum holdings of existing licensees from 2 X 7.2 MHz to 2 X 10 MHz.
 3. Re-align spectrum assignments of existing licensees as appropriate.
 4. In context of 2 X 10 MHz spectrum cap per operator, assign single remaining 2 X 5 MHz block to operator other than existing licensees if there is any demand.

The recent decision on the licensing of the 900 MHz band in Sweden is a relevant precedent for such an agreed approach in Ireland

Reasoning of Swedish Regulator for Liberalised GSM Licence Rollover 30/01/09

- It safeguards the consumer interest by ensuring continued high levels of coverage
- It promotes efficient spectrum use while also promoting technological progress
- It provides a path to migration to new technology and a greater extent of wireless broadband provision
- It enables the continued operation of and investment security for existing GSM networks
- It enables a demand driven transition from GSM to UMTS or LTE
- It ensures continuity in the range of quality telephony and broadband services
- It prevents the risk of competition being distorted in the mobile market.

This reasoning applies equally well to the Irish mobile market

Link for press release : <http://www.pts.se/en-gb/News/Press-releases/2009/Pressmeddelande/>

Merits of Vodafone's Preferred Licensing Approach

- Long term extension of duration of existing licences without auction would maximise regulatory certainty and enable efficient long term investments in infrastructure and innovation.
- Serious risks of disruption to existing 900 MHz licensees and their customers from ComReg's auction proposals would be avoided.
- All spectrum in the band would be used efficiently, and deployment of 3G technologies in 900 MHz band simultaneously with unaffected provision of 2G services would be possible for all existing licensees (if provisions are made for spectrum sharing).
- A single 2 X 5 MHz block could be assigned to an operator other than existing licensees where there is proven demand (consistent with promotion of competition). Note : for a new entrant 5MHz is ample spectrum for a national network rollout allied to an allocation of 1800MHz/2100MHz for capacity infill.
- Maintains the current extent of 900MHz service coverage which may no longer be economic for new entrants to provide given the economic trends. Today only Vodafone and O2 self-provide full national coverage.
- Vodafone contends that ComReg must therefore engage with stakeholders to seek to adopt this approach in place of the current licensing proposals set out in document 09/14.

Rebuttal to Objections to Vodafone's Approach (1/3)

1. Licence extension is not a legal possibility
 - **Rebuttal** : ComReg's own proposed licensing Option 2 reflects the principle that there are public policy considerations justifying extension of existing licences. The relevant licensing regulations can be amended with consent of Minister.
2. Spectrum should be assigned only through an open/ transparent process
 - **Rebuttal** : An auction process is not the only open and transparent process for assigning spectrum. Requirements under EC Regulatory Framework regarding spectrum assignment do not require an auction approach, nor has this approach been used in any other EU market in relation to GSM.

Rebuttal to Objections to Vodafone's Approach (2/3)

3. To extend existing licences would be discriminatory.
 - **Rebuttal:** Discrimination arises only where equivalent entities are treated differently in equivalent circumstances. There are objective differences between existing licensees and other parties (in terms of existing subscriber bases, substantial investments already made) that justify the proposed approach.
4. There is excess demand for 900 MHz spectrum that warrants an auction.
 - **Rebuttal :** Effective demand at a reasonable reserve price has not been demonstrated and in any event there has been in excess of 10MHz of 900MHz spectrum un-utilised for 10 years. Expressions of interest in consultation submissions are costless to make and do not commit parties to subsequent action. They must not be given undue or unwarranted weight in assessment of the appropriate approach.

Rebuttal to Objections to Vodafone's Approach (3/3)

5. Proposals involving extension of existing licences amount to a form of state aid.
 - **Rebuttal** : Not the case as no free benefit conferred. Existing annual fees will be reviewed to account for opportunity cost of spectrum use. Some 900 MHz spectrum would remain available for allocation using an appropriate assignment process to any potential new entrant(s) to the frequency band. 5Mhz is sufficient for National Rollout of a new entrant.
6. Loss of 900 MHz spectrum by existing licensees, as a possibility of Licensing Options 1 and 2, would not in any event preclude provision of communications services by existing licensees given their access to other spectrum at 1800MHz/2100MHz and possible MVNO/national roaming agreements
 - **Rebuttal** : Use of alternative spectrum would require expanded number of sites, rapid network re-design and other changes that would be enormously costly and disruptive for all operators and consumers for an extended period of time. Entirely new entrants could never provide effective national roaming/MVNO access until their networks rolled out. Untenable that other operators could provide capacity/coverage equivalent to Vodafone given their current reliance on wholesale agreements to provide national coverage or the scale of additional capacity needed.

Economic Cost Analysis of ComReg Licensing Options

- Vodafone has carried out a high level assessment of likely costs to an existing 900 MHz licensee and its customers in the event that they were to lose all or part of their 900 MHz spectrum usage rights:

- **Vodafone considered 2 spectrum loss scenarios:**

1. Reduction of 900 MHz spectrum allocation from 7.2 MHz to 5 MHz
2. Loss of entire 900 MHz spectrum allocation from 2011

- **Vodafone also considered 2 implementation options:**

1. Re-engineer network to provide equivalent service through reliance on 1800 MHz spectrum
2. Re-engineer network to obtain required capacity and coverage through reliance on 2100 MHz spectrum

Economic Cost Analysis of ComReg Licensing Options

Table 1: Indicative Number of Additional Base Stations/Upgrades of Existing Sites

Implementation Option	Spectrum Loss Scenario	
	Scenario 1	Scenario 2
Option 1 (1800 MHz)	218/322	1,575/600
Option 2 (2100 MHz)	338/218	1,725/300

Table 2: Estimated Costs of 900 MHz Spectrum Loss (millions of euros)

Implementation Option	Spectrum Loss Scenario	
	Scenario 1	Scenario 2
Option 1 (1800 MHz)	249	686
Option 2 (2100 MHz)	296	768

• These costs do not factor in the massive disruptive effect on the entire telecoms industry of such an event and the consequent negative impacts on call quality, congestion and overall consumer welfare

• Note: Figure shows costs arising in event of adverse 900 MHz auction outcomes for a generic (average) licensee.

Dealing with the loss of 900MHz spectrum

- An adverse auction outcome is highly disruptive, requiring widespread hardware/software changes ; the acquisition and build of new sites
- It would be extremely difficult to remove 900MHz service in parallel with engineering a nationwide network expansion in 1800/2100MHz.
- At an industry level, the degree of coordination necessary between inter-working companies would be extremely complex with consequent potential mistakes (with QoS impacts) and/or delays in the project timescales for others.
- It is highly improbable that the acquisition and build of sufficient sites could be completed in a 2 year period. In some areas, it may not be possible to acquire the sites at all, forcing an unacceptable increase in congestion and dropped calls.
- The majority of the loser's limited technical and deployment resources would be directed to the 2G engineering activities at the expense of service innovation
- With changes of this magnitude, degradation in Quality of Service impacting the entire industry will inevitably occur.

Adverse customer effects of 900 MHz spectrum loss

- The effects of an adverse outcome will be felt by customers making calls both to and from the losing bidders network.
- There will inevitably be a reduction in QoS arising from increased dropped calls and congestion both during the transition phase and beyond.
- Coverage 'holes' will appear, removing service from people who formerly enjoyed mobile coverage. These 'holes' could be permanent.
- Increasing numbers of calls will be unnecessarily diverted to voicemail causing inconvenience and annoyance to both calling and called customers (note: some networks still charge for voicemail retrieval)
- Customers from other networks, both national and international will have increased difficulties contacting subscribers of the losing bidder, risking reputational loss not only for the loser but for Ireland in seeking to promote the concept of 'Smart Economy'
- In the event of a loss of spectrum by large operators such as Vodafone and/or O2, others can not take up the slack. National roaming is not an option when Vodafone is already conveying national roaming traffic in significant quantities for other operators.
- Loss of spectrum by one large operator could result in a monopoly supply situation for national roaming access at 900MHz.

Proposed Licensing Approach to 1800 MHz Band

- Current proposal to hold a competitive award process in 2013 would be sub-optimal.
- Large amounts of spectrum in the 1800MHz band would consequently remain unutilised for a further period of 4 -5 years at a high opportunity cost.
- Vodafone notes that the 1800 MHz band is suitable for the deployment of advanced technologies such as LTE and equipment will be available for this purpose from 2010.
- ComReg should therefore liberalise the use of the 1800 MHz frequency band, to facilitate deployment of these technologies, upon entry into force of the EC Liberalisation Decision.
- ComReg should, in parallel with the 900MHz process, seek to assign the currently unallocated 1800MHz spectrum upon application at a reasonable minimum price.
- If demand for the unallocated spectrum exceeds supply on this basis, then this should be assigned using a competitive allocation process.
- To maximise regulatory certainty and avoid the risk of disruption to the provision of existing services, ComReg should also take the necessary steps to extend existing 1800 MHz licences for at least another 10 years.
- Lack of clarity about the future award of 1800MHz spectrum will serve to undermine investment in this band and delay the rollout of very high speed wireless broadband services (LTE).

Economic Impacts of ComReg's Approach

- Economic loss in the range of €750m - €1,500m⁺ is being risked (if 1 – 2 incumbent operators lose access to 900MHz spectrum) under Option 1
- Economic benefits identified by ComReg of €206ml are not unique to their solution - this benefit applies equally to the Vodafone solution
- The scale of loss being risked to the Irish economy is enormous and unnecessary, particularly in respect of Option 1
- The Smart Economy agenda will be severely undermined and set-back by ComReg's proposals
- In the current difficult economic conditions the only solution which should be contemplated is one which risks no economic damage and indeed underpins economic growth, innovation and the Smart Economy – the Vodafone proposal.

+ Based on 2100MHz network deployment due to uncertainties with 1800MHz licence renewal

Conclusions

- The current licensing proposals are sub-optimal as they do not take account of the factual position of existing licensees, representing 95% of mobile customers.
- The 2 licensing options proposed in consultation 09/14 pose considerable risks that one or more existing licensees would fail to obtain sufficient spectrum to reform 900 MHz spectrum to UMTS and/or would lose (partially or completely) their existing spectrum assignments in this band.
- Substantial costs and disruption in this scenario would not be effectively mitigated by alternative options suggested by ComReg (e.g. use of alternative spectrum at 1800 MHz and 2.1 GHz). There is the potential for significant economic loss and service disruption for a prolonged period affecting all telecommunication providers. This can be avoided.
- There is an urgent need to engage with industry on an agreed approach, indeed operators representing 95% of mobile customers have already presented a consensus position to ComReg on 900MHz re-farming.
- ComReg need to strive for a speedy resolution to reduce the continuing uncertainty otherwise the investment climate will be undermined, including for 1800MHz also.
- ComReg will fail to fulfil its legal obligations if it persists with its current approach
- ComReg's current approach contains significant risk of causing material and lasting damage to the Telecoms Industry and to the Irish Economy

Appendix A: Second Alternative Licensing Approach (1 of 5)

- Vodafone considers that if, despite reasoning previously provided by Vodafone demonstrating that our preferred option is the optimal approach, ComReg nonetheless concludes that an option involving the auction of at least the currently unallocated spectrum in the band must be implemented, then there is an additional approach that would be superior to ComReg's current licensing proposals while satisfying this requirement. This approach has the following elements:
 1. The term of the spectrum licences held by the existing 900 MHz licensees to be extended until at least the expiry dates of their current 2100 MHz licences in 2021 (or until 2024-2025 when any spectrum usage rights awarded for currently unallocated spectrum in the band would come up for renewal on the basis of ComReg's current proposals for 15 year licence durations).
 2. All spectrum in the 900 MHz band (whether currently unallocated spectrum or spectrum held under existing licences) would be fully liberalised from the outset so as to allow the deployment of UMTS technology in the band.
 3. In late 2009 or early 2010 ComReg would auction all the currently unallocated spectrum in the band in generic (non frequency specific) blocks of 200 KHz. The auction format chosen (eg. simultaneous multi-round ascending) would allow participants to bid for packages of contiguous lots so as to mitigate aggregation risks.

Appendix A: Second Alternative Licensing Approach (2 of 5)

4. A 10 MHz per operator overall spectrum cap would be in place, but existing licensees would not be prevented from participating in the auction. However existing licensees could not submit bids for packages of lots that, if the bid was successful, would lead to them exceeding the overall 10 MHz per operator spectrum cap.
5. All applicants for 900 MHz spectrum would have to sign a binding Memorandum of Understanding/agreement consenting to facilitate contiguous spectrum blocks through retuning/realignment of frequencies as appropriate as a condition of participation in the award process prior to the auction for currently unallocated spectrum in the band going ahead. Existing 900 MHz licensees would have to sign the same Memorandum of Understanding/agreement as a condition of being granted the extension to their existing spectrum licences.
6. Following the auction, spectrum usage rights held under licences would be re-aligned as necessary in order to give all operators blocks of contiguous spectrum.

Appendix A: Second Alternative Licensing Approach (3 of 5)

7. Access fees to be paid for the proposed extensions of spectrum usage rights retained under the licences held by the existing 900 MHz licensees (2 X 7.2 MHz of spectrum for each operator) would be determined by a transparent methodology, clearly defined prior to the auction for currently unallocated spectrum, where the information on market valuations of the spectrum realised from the auction of the currently unallocated spectrum in the band would be the key data input.
8. Existing licensees would have to pre-commit to paying the price determined as an outcome of this process as a condition of the extension of their existing licences. To facilitate re-alignment these licences would be defined in terms of generic spectrum usage rights equivalent to the amount of current spectrum held under the existing licences (2 X 7.2 MHz) rather than in terms of frequency specific blocks.

Appendix A: Second Alternative Licensing Approach (4 of 5)

- **Advantages of Licensing Approach:**
 1. Long term extension of duration of existing licences without auction would maximise regulatory certainty and enable efficient long term investments in infrastructure and innovation.
 2. Serious risks of disruption to existing 900 MHz licensees and their customers from ComReg's auction proposals would be avoided.
 3. As the auction for the currently unallocated spectrum in the 900 MHz band under this proposal would be for generic blocks of 200 KHz that could be bid for in packages of blocks, existing licensees could each submit bids for packages of 14 blocks of the unallocated spectrum to enable them to obtain 2 X 10 MHz spectrum assignments.
 4. Consistent with the regulatory objective of promoting competition as applicants that do not hold spectrum in this band would also be able to bid for the currently unallocated 900 MHz spectrum, and the use of 200 KHz spectrum blocks would mean that while existing licensees would be facilitated in obtaining the additional spectrum that they require, **individual new licence applicants would not be prevented from bidding for packages of lots of 200 KHz blocks amounting to a maximum of 10 MHz where they wished to do so.**

Appendix A: Second Alternative Licensing Approach (5 of 5)

- **Disadvantage of Licensing Approach:**
 1. With regard to the efficient management and use of the radio spectrum, there is a risk that if applicants were to bid for some types of non-standard amounts of spectrum this could leave small amounts of currently unallocated spectrum underutilised or unutilised. However, as the amounts of spectrum that applicants would typically require to provide commercial services to consumers based on wideband technologies are standardised, the probability of this outcome remains limited and could be mitigated ex-post through re-assignment of unused spectrum blocks

Annex 4 – Alternative Licensing Proposal

A Proposed 900 MHz Licensing Approach Consistent With Effective GSM Migration

This approach would have the following elements:

1. Existing licensees would obtain rollover of 2 X 5 MHz of their current 2 X 7.2 MHz assignments in the 900 MHz frequency band for a period of at least 15 years.
2. All existing 900 MHz licensees would also be allocated an assignment of an additional 2 X 2.8 MHz of 900 MHz, contiguous with their current spectrum allocation. This spectrum, together with the other 2 X 2.2 MHz of spectrum in their existing spectrum assignment not covered under the minimum 10 year extension proposed at point 1, would be held by the existing licensees until a date corresponding with the current expiry date of Meteor's license i.e. mid 2015.
3. In mid 2015, each of the existing licensees would relinquish the 2 X 5 MHz of spectrum usage rights in the 900 MHz band held by them on the basis of the short term extension. This 2 X 15 MHz of spectrum would become available for re-assignment at this stage as a result of the outcome of a competitive award process.
4. All spectrum in the 900 MHz band would be fully liberalised at the outset so as to allow the deployment of UMTS technology in the band. This would also permit the most efficient use of the total of 2 X 10 MHz of spectrum assigned to each existing licensee for the purposes of providing both GSM and UMTS 900 services in parallel for an extended transition period.
5. As part of this approach, the remaining currently unallocated 2 X 5 MHz of 900 MHz spectrum in this band not included within the rollover and assignment measures previously mentioned would be allocated by ComReg to a new entrant to the band by means of an auction in 2009 or 2010. The term of this license would coincide with the 2 X 5 MHz granted on a rollover basis to the existing 900 MHz licence holders for a minimum period of 15 years.
6. All existing 900 MHz licence holders would at the outset sign a binding Memorandum of Understanding/agreement consenting to facilitate contiguous spectrum blocks through retuning/realignment of frequencies as appropriate as a condition of being assigned an additional 2 X 2.8 MHz of spectrum and being granted the extension to their existing spectrum licences.
7. In 2013, two years prior to the current expiry date of Meteors licence in May 2015, ComReg would auction 2 X 15 MHz of spectrum in the band. This auction should also include all an award process for all the spectrum in the 1800 MHz band (both currently unallocated and that held by existing licensees whose usage rights are currently due to expire from 2015) and the Digital Dividend spectrum in the UHF band

that will be freed up by digital switchover of the terrestrial broadcasters.

8. As part of this auction, a 10 MHz per operator overall spectrum cap for 900 MHz spectrum would be in place, but existing licensees would not be prevented from participating in the auction.
9. Following the auction, spectrum usage rights held under licences would be re-aligned as necessary in order to give all operators blocks of contiguous spectrum. The re-alignment would be carried out in accordance with the principle of achieving this outcome while minimising the extent of the re-alignment required for all licensees.
10. Access fees to be paid for the proposed extensions of spectrum usage rights retained under the licences held by the existing 900 MHz licensees (2 X 7.2 MHz of spectrum for each operator) would be determined by a transparent methodology, clearly defined prior to the auction for currently unallocated spectrum, where the information on market valuations of the spectrum realised from the auction of the unallocated 5 MHz of spectrum in the band in 2009 or 2010 would be the key data input. Existing licensees would have to pre-commit to paying the price determined as an outcome of this process as a condition of the extension of their existing licences.

This spectrum allocation approach set out above is dependent on the existing licensees consenting to the proposed amendment to the duration and nature of their spectrum usage rights and signing the proposed Memorandum of Understanding. Vodafone considers that the likelihood of securing agreement across the existing 900 MHz licensees to adopt this approach is very good as there are strong incentives for existing licensees to support an approach that assures them of certainty around the availability of at least their current allocation of spectrum to maintain existing services to their customers, while also providing them with the opportunity to acquire additional spectrum up to a 10 MHz limit to enable them to deploy UMTS in the band. ComReg should therefore seek agreement from the existing licensees on such an approach.

Advantages of the proposed approach

1. Compliant with ComReg's objectives. This option has considerable merit when assessed against ComReg's statutory regulatory objectives under the 2002 Communications Regulation Act and other relevant public policy criteria.
2. Regulatory certainty. The renewal of existing 900 MHz licences (with an additional 2.8 MHz included within these assignments) without an auction until at least 2015 ensures a necessary level of regulatory certainty.
3. Business certainty. It enables existing 900 MHz licensees to plan and invest for the long term since a minimum of 5 MHz is guaranteed until 2025 with the possibility of a further 5 MHz being made available through an auction.
4. Minimises disruption. This proposed approach avoids the serious risks of disruption, and the substantial costs for operators and end users as described

in Vodafone's submission to ComReg's initial 900 MHz licensing consultation (ComReg document 08/57) and in Vodafone's Impact Assessment.

5. Smooths transfer to next generation services. The liberalisation of all 2 X 10MHz of spectrum assignments allocated to existing licensees will facilitate a timely and efficient migration to enhanced services and more ubiquitous broadband coverage, driven by customer demand.
6. Additional Spectrum availability. The extension of usage rights until 2015 is further justified since it can be reasonably expected that additional spectrum in other bands (UHF band, 1800 MHz) will become available at this time, coinciding with the needs of existing licensees and possible new entrants. In 2015, spectrum is foreseen to be available from the following sources;
 - a. 2 X 15 MHz of 900 MHz spectrum handed back by current GSM licensees.
 - b. 1800 MHz spectrum available following the expiry of the current licences
 - c. Currently unallocated 1800 MHz spectrum
 - d. A minimum of 2 X 72 MHz of spectrum in 790-862 MHz sub-band (analogue switch-off due in September 2012).
7. Increased competition. Guarantees an immediate new entrant to liberalised 900 MHz band (assuming successful auction outcome). Subsequently a new entrant to the band would be able to participate in an auction to obtain additional 900 MHz spectrum if they wished to do so.
8. Incentivises innovation. Since all of the 2 X 10 MHz of spectrum allocated to existing 900 MHz licensees is liberalised (and priced accordingly), operators are incentivised to maximise value by delivering enhanced services to their customers.

Disadvantages of the proposed approach

1. Uncertainty around 900 MHz spectrum holdings in long term. No certainty that existing operators would have more than 2 X 5 MHz allocation of 900 MHz spectrum from 2015. Risk that if aggressive targets for migration of existing GSM customers to UMTS are not achieved then some issues of disruption to provision of legacy services after 2015 will remain. Availability of alternative spectrum at this point will mitigate but not eliminate this risk. Some provision for continued provision of a legacy service by at least one operator in the 900 MHz band may have to be made.
2. Requires broad industry agreement. Broad agreement is likely from existing licensees given incentives to avoid disruption and achieve maximum regulatory certainty. However there is a risk of disagreement/legal challenge by a party or parties that are not current licensees in the band. This could be addressed through open and transparent public consultation on the proposals by ComReg.
3. Uncertainty around pricing of spectrum usage rights. This approach envisages that the price paid for extensions to the duration of, and the additional spectrum granted to, existing 900 MHz licences would be derived

from the outcome of the auction for the single unallocated 2 X 5 MHz spectrum lot in 2009 or 2010. As the outcome of the process would not be known prior to the finalisation of this licensing approach however, existing licensees would be required to make open-ended commitments to pay a price related to the outcome of that auction. It is possible that this price could exceed their economic valuation of the spectrum. This disadvantage can be mitigated through a transparent pricing methodology with the minimum complexity which is known from the outset.

Annex 5 – Relevant Correspondence

25 August 2009



Commissioner Alex Chisholm
Commission for Communications Regulation
Abbey Court
Irish life Centre
Lower Abbey Street
Dublin 1



Confidential

Dear Mr. Chisholm,

I refer to our recent meeting in respect of ComReg's Consultation No. 09/14, in which a number of questions were raised by ComReg.

In discussions on Vodafone's use of GSM 900MHz spectrum and licence renewal and spectrum refarming issues, ComReg outlined a scenario of a reduction in Vodafone's allocation of GSM 900MHz spectrum to 5MHz, at the point of 2G licence renewal in 2011. We would like to supply further information on the implications for Vodafone and our customers of this scenario.

We have looked in more detail at the cost and service implications of theoretically implementing the major engineering project that would be required to complete a reduction in GSM spectrum from 7.2MHz to 5MHz by mid 2011.

Implementation would include additional base-station sites, addition of 2100MHz equipment, addition of half rate AMR and the accelerated migration of customers to 3G service. Note: use of 1800MHz equipment is ruled out due to the uncertainty over the long term availability of 1800MHz spectrum.

[REDACTED]

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[REDACTED]

The most that could be achieved in this timescale is the reduction of usage of GSM spectrum from 7.2MHz to 5MHz in some of the lowest population areas. We believe that this approach would be consistent with our previous proposal to roll-out UMTS 900MHz in these areas. It would require ComReg to make an additional 2.5MHz available and also require tight engineering control to ensure no interference between this usage and use of this spectrum for GSM in city areas. The cost of the GSM re-engineering would, in these areas, be balanced by the reduced cost of UMTS roll-out and there would be a customer gain as 3G coverage would be achieved in areas that could not feasibly be covered at 2100MHz.

Also in response to a number of issues raised in respect of LTE availability Vodafone's position is as follows. Fixed line broadband in the home has set customer expectations regarding internet performance. Vodafone recognises LTE as the most natural evolution path in Vodafone's 3G markets and LTE is expected to be commercially available [REDACTED] Vodafone is well positioned to deploy LTE technology in suitable markets in a cost effective manner as these deployments build upon existing 3G/HSPA infrastructure and accordingly Vodafone is also continually upgrading its infrastructure by increasing backhaul and core network capacity to manage increasing growth in data traffic.

I trust you will find this information satisfactory. Please feel free to contact me if you require any further clarification.

Yours sincerely,



Gerry Fahy
Strategy Director

087 2423738

This is the final page of
ComReg document 09/73.