everything everywhere™

Second consultation on assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues

Everything Everywhere's response to Ofcom

Non-confidential version

22 March 2012

orange™ T··Mobile·

Table of contents

Figures

Tables

Executive summary

This is Ofcom's second consultation on the upcoming Combined Award of 800 MHz and 2.6 GHz. It seems to us that these new proposals are complex and elaborate to an extraordinary degree; in addition, we consider them inequitable between the mobile operators, with Everything Everywhere particularly exposed if the proposals are implemented. Neither of these are small issues.

The complexity of the proposals is so extreme that it threatens the practicability and integrity of the auction process [redacted]. Ofcom has sought to use the auction rules to achieve multiple objectives and, for understandable reasons, it has also sought to respond to multiple requests from stakeholders. The result is that Ofcom proposes to combine a complex auction format with a decidedly innovative competition constraint (the Minimum Portfolio Packages or MPPs) [redacted]

The issue of inequity is very real too. It is commonly accepted across the mobile industry that frequencies below 1 GHz deliver substantial advantages, relative to higher frequencies. Other European regulators have therefore ensured that all operators have access to sub-1 GHz frequency spectrum. Ofcom, in all its recent policy proposals until this one, has strived to achieve the same objective. The current proposals not only move away from this approach [redacted].

The rest of this summary of our response goes into these and other points in more detail, duplicating the structure of the response as a whole.

Ofcom's Competition Assessment.

Ofcom is required by the Direction given to it by Government[1] to undertake a competition assessment when issuing proposals for the combined award of the 800 and 2.6 GHz spectrum. The assessment should take account of the competitive position after the auction. Unsurprisingly, Ofcom's competition assessment provides much of the reasoning that supports its proposals and is therefore a very important part of its consultation document.

Everything Everywhere considers the competition assessment to be flawed for a number of reasons, as follows:

- It ignores the standard approach to assessing competition issues. This standard approach involves market definition and assessment of whether an overall market is competitive. Ofcom, because it considers there are so many possible outcomes of the auction that will then play out over an uncertain timescale, has opted for a different approach. This looks not at the overall market's competitiveness but at the credibility of individual competitors combined with a judgement about how many competitors are necessary to make the market competitive. Although this difference in approach may seem minor, it requires Ofcom to develop completely new analytic frameworks – ones that depart substantially from the tried and tested approaches used by competition economists, analysts and lawyers worldwide. It is also our view that these frameworks are neither rigorous nor sufficiently transparent; and, worse, they enable Ofcom to claim that interventions Ofcom favour are supported by evidence, when this is not the case.
- In particular, we consider the judgements relating to credibility to be suspect to the point of being intellectually disingenuous. Many of the points that support our view are detailed methodological points and are best read in Section 2. However, we will provide two examples here. First, we consider the criteria defining credibility – capacity, the average data rate indoors, early route to LTE and highest peak data rates – effectively measure issues relating to LTE twice. This is because what is distinctive about LTE from a customer perspective is the data speeds it can achieve. The effect of this double-counting is to make Everything

[1] The Wireless Telegraphy Act 2006 (Directions to OFCOM) Order 2010

Everywhere, which has an early route to LTE, look more credible than is merited and by extension to undervalue its weaknesses, such as lack of sub-1 GHz spectrum. Second, while Ofcom explains in the text that its judgements are associated with some uncertainty, it does not extend this caution into the 'traffic light' system it developed to capture its judgements visually; and it is these traffic lights which are then used to arrive at a view of what is credible.

- Turning to Ofcom's view that four national wholesalers are necessary to a competitive market, little compelling evidence for such a fundamental conclusion is supplied and, perhaps because no market definition has been attempted, Ofcom seems to us to ignore a series of issues which are relevant to this judgement. For example, competition from other types of operator, such as sub-national operators and competition from other operators in potentially competitive bands (such as UK Broadband).

Many other detailed points are made in Section 2 which are not summarised here – our main point however does not rest on the detail. It is that Ofcom has departed from the established modes of analysis normally associated with competition assessment and have replaced them with an approach which is neither systematic, consistent nor transparent. And it is this approach which is used to justify an intervention which is wholly inconsistent with Ofcom's previous position and with European precedent.

The importance of sub-1 GHz.

Underlying Ofcom's competition assessment and many of the other judgements in the Consultation is a change of opinion with respect to the competitive significance of sub-1 GHz spectrum. This change of opinion is based on major modifications both to its modelling approach and to its broader arguments. These have – unjustifiably in our view - influenced Ofcom's position, such it now suggests the unique, irreplaceable advantages of sub-1 GHz spectrum are limited.

We believe Ofcom's views are wrong for the following reasons:

- Ofcom underestimates the effects of poor coverage: while the differential indoor coverage between high and low frequency spectrum will only affect about [redacted] of calls or data sessions, this differential will affect all customers at times.
- Ofcom does not take properly into account the intractable nature of indoor coverage issues. This is largely because it overstates the commercial usefulness of means of mitigating these effects, such as Femtocells and repeaters.
- Ofcom introduces a sensitivity approach to issues around indoor propagation which we regard [redacted].

Given that Ofcom's downplaying of the benefits of sub-1 GHz spectrum puts it at odds with its own previous conclusions and with its European regulatory colleagues, it seems to us that its new conclusions are so poorly supported as to be almost cavalier.

[redacted]

[redacted]

Ofcom's proposed interventions to support competition.

In the light of its competition assessment, Ofcom cites seven different options for intervention to address competition concerns. It then develops a methodology for evaluating these options. It

seems to Everything Everywhere that many aspects of the approach adopted suffer from the intellectually inconsistent thinking cited in the context of the competition assessment; and that as a consequence, Ofcom's conclusions are unsound.

The detailed analysis is described in Section 7, but, at a high level, examples of our objections are as follows:

- Ofcom's evaluation criteria are overlapping and the way they are scored is inconsistent; the resulting unmerited weighting means that options that Everything Everywhere would favour do not score well.
- Having designated a number of options as being potentially effective, Ofcom then introduces the concept of whether an option is 'onerous'. Ofcom seems to us to apply this in a too binary way – Option 3 is apparently onerous and therefore it is dismissed. This is despite it being the most effective according to Ofcom's scoring and even though there are clear ways of alleviating its onerousness.

This particular example matters a great deal to Everything Everywhere – Option 3 represents a much simpler way of addressing competition concerns than the competition constraint and MPPs and seems to us to have been rejected by sleight of hand rather than on the basis of serious analysis.

Reservation of 2.6 GHz for low-power use.

Ofcom expresses a preference for reserving 2x10 MHz of 2.6 GHz spectrum for concurrent, low-power use. Everything Everywhere opposes this on the grounds that:

- It is not technology neutral; not only does this infringe a principle embodied in the European framework, it also will, in our view, have damaging consequences by attempting to dictate to the market a specific form of innovation.
- Ofcom has based its view of the benefits of such a reservation on an unproven business model; if this proves unviable, the spectrum would be stranded.
- Ofcom has not conducted a proper evaluation of the costs and benefits of reserving spectrum nor has it thoroughly evaluated the technical risks of its proposal. Everything Everywhere dislikes any intervention in this area but would be prepared to accept the much more limited intervention implied by Ofcom's Option B – which permits aggregation of low power bids to compete directly against bids for standard power use.

Coverage obligation

Everything Everywhere is supportive in principle of a coverage obligation being attached to 800 MHz spectrum. However, Ofcom needs to strengthen its proposals in a number of ways and define them more tightly. In particular, it needs to:

- Clarify whether the coverage obligations are meant to address deficiencies in fixed or mobile broadband coverage – we would suggest this is about mobile broadband [redacted].
- Define the geographical extent of the coverage obligation clearly - given the desirability of addressing not-spots, we actually suggest a modified version of Ofcom's Approach A that we label Approach C;
- [redacted]

In conclusion:

- While we admire Ofcom's industry in producing these proposals, we think that they have become over-complicated; and that partly as a result, they are not well-founded, create unnecessary risks around the auction process and are occasionally biased and unfair.
- We also think that Ofcom's multiplicity of objectives means that Ofcom's desired outcome for the auction has become too tightly specified; the result is its proposed intervention contravenes the notion that a regulator should look for the least intrusive mechanisms to achieve its objectives.
- Our strong conviction is that improving Ofcom's proposals is not about modifying them but about radically simplifying them; serial modification has produced the complexity which we think so damaging.

1 Introduction

This is Everything Everywhere's response to Ofcom's "Second consultation on assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues" published on 12 January 2012 ("the Consultation") with an Addendum published on 17 February 2012. This document comments mainly on the areas where Ofcom's proposals have changed compared to its first consultation published on 22 March 2011. As such, our response should be read in addition to the evidence and opinions submitted in Everything Everywhere's response to Ofcom's first consultation. We reserve the right to comment further at a later stage on the elements of Ofcom's proposal which are not yet fully defined.

This response is structured as follows:

- Section 2 comments on Ofcom's competition assessment.
- Section 3 looks at the importance of sub-1 GHz spectrum and explains why Ofcom's revised technical modelling is biased to the extent that it cannot be relied on to support Ofcom's lack of intervention to ensure a healthier distribution of sub-1 GHz spectrum.
- [redacted]
- [redacted]
- On the basis of the prior sections, Section 6 explains why we think Ofcom's assessment of its different options for intervention is misleading and comes to the wrong conclusion.
- Section 7 explains why we believe Ofcom's proposal to reserve 2.6 GHz spectrum for low-power services will result in an inefficient outcome, and also goes against the principle of service and technology neutrality.
- Section 8 comments on various aspects of the revised coverage obligation to the extent this is possible given the lack of a detailed specification of what is being proposed
- Finally, Section 9 answers the specific consultation questions raised in summary form drawing on the above.

2 Ofcom's Competition Assessment of future mobile markets does not support its conclusions

The revised competition assessment set out in the Consultation underpins Ofcom's justification for its proposed intervention and is also an assessment required under the Direction.[2]

Its analysis rests on the following arguments:

- The circumstances associated with the mobile market necessitate a bespoke and new approach to assessing competition and how it can be sustained in a proportionate manner;
- The outcome of the Auction must ensure four national wholesalers;
- Each of these four national wholesalers must be "credible", as assessed "in the round" across the dimensions of capacity (where "credibility" requires 10-15% of available spectrum) quality of coverage, high peak data rates and "early access" to LTE
- Without intervention, there is a material risk that a fourth national wholesaler will not have access to sufficient spectrum to be credible and there is a lesser risk that other national wholesalers may not be credible. Therefore different intervention options are assessed in terms of their efficacy in ensuring that each of four national wholesalers will be credible in the round.

In our view, this approach is flawed. This is because it fails to use established and well understood approaches to assessing competition (as opposed to individual competitiveness) with no good reason and because it replaces such approaches with one which is not transparent and is not consistent. This is contrary to Ofcom's general duty to be transparent, proportionate, consistent and targeted.[3]

This new competition assessment represents a fundamental change to Ofcom's approach in the March 2011 Consultation.[4] In its prior assessment, Ofcom's approach was to determine the minimum spectrum which an operator required to be credible. In the current Consultation, Ofcom instead considers whether the actual and potential holdings of individual existing UK operators are sufficient for each operator to be credible. Everything Everywhere considers that neither approach properly fulfils Ofcom's requirement to undertake a competition analysis under the Direction. As Everything Everywhere pointed out in its June 2011 Response, Ofcom's March 2011 assessment was not robust and failed to take into account the degree of competitiveness between operators (i.e. assessing the degree of competition in the market rather than relying on the number of "credible" competitors). Ofcom's current competition analysis attempts to remedy this by undertaking a detailed analysis of the competitiveness of individual operators but continues to fail to assess competition between operators under different scenarios.

As such, Ofcom's revised approach does not provide adequate justification for its proposed wide-ranging policy interventions. The rest of this section addresses the difficulties which Ofcom's approach raises. It covers the following:

- Section 2.1 argues Ofcom has not demonstrated the need for developing a completely new competitive assessment framework or sufficiently explained why it is departing from well understood and well established existing approaches to assessing competition in an antitrust or regulatory setting. In addition, it suggests Ofcom's approach does not properly or fully address the questions which the Direction sets it.
- Section 2.2 addresses the issue of whether Ofcom has successfully established that four national wholesalers is the correct number to ensure competition; in addition, this section addresses whether it is correct to look at individual competitors, as distinct from the competitive operation of the market as a whole.

[2] The Wireless Telegraphy Act 2006 (Directions to OFCOM) Order 2010 No. 3024 (the "Direction"), Article 8.
[3] Section 3(3) of the Communications Act 2003
[4] Consultation on assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues

- Section 2.3 addresses what we consider to be deficiencies in the rationale for Ofcom's concept of credibility.
- Section 2.4 then looks at Ofcom's use of this rationale in arriving at judgments on the credibility of operators.

The final sub-section summarises our conclusions on the competition assessment.

2.1 Ofcom has not demonstrated the need for a bespoke competition assessment framework

As set out in paragraph 4.18 of the Consultation, the Direction requires Ofcom to undertake an assessment of the "likely future competition in markets for the provision of mobile electronic communication services" after the Auction and in light of that assessment to put in place "appropriate and proportionate measures … which will promote competition in those markets after the conclusion of the auction". Such an assessment therefore requires a clear framework for assessing the degree of competition and how it can be appropriately and proportionately promoted. It also needs to identify the appropriate baseline from which competition is being promoted in a clear and objective way, i.e. an ex ante assessment similar to other types of competition assessment (such as consideration of significant market power (SMP) or of a substantial lessening of competition (SLC) under a potential merger). Further, the Direction requires Ofcom to include a consideration of the potential for new entry (under Article 8(3) of the Direction).

Antitrust and regulatory precedent provides very clear frameworks which can be used to address these types of competition issues. These start with the process of defining the relevant market or markets and go on to assess the degree of competition which would exist in those markets under different scenarios. Both merger analysis and the consideration of whether operators have SMP (which includes a consideration of whether there is effective competition in a market) under the Electronic Communications Regulatory Framework involve an ex ante assessment. Such ex ante assessments should consider the structure of competition in the market including (but not limited to), an assessment of market shares, barriers to entry, the possibility of countervailing buyer power and whether there are relevant regulatory / legal constraints on market power.

The difference between these two frameworks (the merger framework and the electronic communications framework) arises in the test which is applied, not in the underlying discipline of market analysis. In a merger assessment, authorities are looking at whether there is a substantial lessening of competition, whereas in the regulatory setting the relevant test is whether one or more operators has significant market power (equating to a forward looking position of dominance), either individually or jointly. The key difference is therefore not in how competition is assessed, but rather in how the results of that assessment are used and the policy objectives which are being pursued.

This is analogous to Ofcom's responsibilities as they are defined in the Direction. Ofcom's prime task under the Direction is to consider how to promote competition in the most effective and proportionate manner i.e. to assess the degree of competition which exists with and without different interventions. The Direction also places on Ofcom a requirement to undertake a forward looking assessment of the degree of competition which is likely to result following the auction. These differences in objectives should not impact on the framework for analysis but rather should be taken into account when making judgments on the appropriate intervention. A priori, there is therefore no good reason for not using the standard framework of competition analysis to undertake the competition assessment required by the Direction. Such a framework would first consider the relevant market or markets in which the competition to be assessed takes place. Within those defined markets, the degree of competition would then be assessed on the basis of a range of criteria (including market shares and what the Consultation terms the "tools of merger assessment", but also considering the market structures which result). This would then identify

where competition may be insufficient or deficient and appropriate interventions could be constructed to promote competition.[5]

In contrast, the approach used in the Consultation skims over such an assessment and, in particular, does not attempt any rigorous market definition. By way of explanation, Ofcom states at paragraph 4.48, that it uses the "tools of merger analysis" but considers that the overall framework of merger analysis cannot be used because there is a greater degree of uncertainty around the outcome post the auction in terms of consolidation and because the timescales over which Ofcom is assessing competition are different to those typically considered in merger analysis.[6] Neither of these reasons provides a convincing explanation of why the standard framework for assessing competition should not be applied in detail (even if using a specific and bespoke test to assess the results of such an assessment).

The first reason for adopting a different approach cited by Ofcom is the range of possible outcomes from the auction, relative to a merger. That the competition analysis requires Ofcom to consider a more complicated set of possible outcomes than simply whether two firms become one is undoubtedly true. However, this makes it all the more important that Ofcom undertakes this analysis rigorously and within a specific framework. Competition is a process of rivalry between firms[7] and assessing the degree of competition therefore involves considering the interactions which exist between firms across a market or markets. The basic framework of market/market structure and competition can therefore still be applied, even if the range of outcomes for market structure encompasses more than a simple merger situation (comparing competition before and after the merger of two firms in a relevant market). The range of uncertainty with which Ofcom is faced means it must assess a wider range of possible market structures and outcomes, not that it should assess none.

The effect of not addressing the range of possible market outcomes is that it is impossible to draw firm conclusions from Ofcom's subsequent analysis; while Ofcom may infer that a particular competitor may face challenges to its existence from holding an inadequate spectrum portfolio, it cannot draw general conclusions about the overall market's competitiveness. This is a fundamental problem, as it makes judgments about the proportionality of Ofcom's proposed interventions impossible.

The second reason Ofcom gives for needing a bespoke framework (and not being able to use the standard merger assessment framework) is that the timescales over which it is making its assessment are different. Ofcom provides no reasons to explain why this is relevant to its selection of its analytical framework and it is far from clear why this makes the difference Ofcom claims – however, while Ofcom's reasoning is not clear to us, it may be that it relates to the fact that the relevant timescales lead to inevitable uncertainty. This would essentially be the same as Ofcom's first reason for not using a standard framework discussed in the previous paragraph and is subject to the same difficulties.

Ofcom has not fully justified the necessity for the approach which it takes. Departing from the normal disciplines of market definition and assessment of competition of the market as a whole means, in our view, that it does not properly fulfil the requirement of the Direction.

[5] If the main concern centres around whether the loss of a fourth national wholesaler reduces competition in a material way this could have been addressed by undertaking a standard merger analysis under three separate scenarios: effectively where H3G merges with a 900 MHz operator, with Everything Everywhere or with a third industry party (such as one of the main MVNOs or fixed operators). This type of analysis would be no more burdensome than Ofcom's existing assessment of credibility under multiple possible scenarios.

[6] The same point is also made at paragraph 2.42 of Annex 6 of the Consultation.

[7] The OFT, for example, has described competition as "a process of rivalry between firms seeking to win customers' business" – see "Completing competition assessments in Impact Assessments: guideline for policy makers" published August 2007 (available at http://www.oft.gov.uk/shared_oft/reports/comp_policy/oft876.pdf).

2.2 Ofcom's bespoke competition assessment does not adequately address competitive structure

The overall framework conceived by Ofcom is set out in both Section 4 and annex 6 of the Consultation, and is summarised at paragraph 4.57. As Ofcom describes it, this is a four step process:

- Step 1 is to consider what auction outcomes would give rise to "competition concerns" in the light of whether the resulting auction portfolios for individual competitors would fulfil certain "technical and market conditions";
- Step 2 considers the likelihood of those outcomes arising in the absence of any intervention; while
- Step 3 combines the analysis of the previous two steps to weight the "competition concerns" and
- Step 4 identifies what intervention would be an appropriate and proportionate remedy to the concerns which are considered most likely and most detrimental.

The actual competition analysis is therefore focused in step 1 which considers whether certain outcomes raise competition concerns. For the reasons set out in sub-section 2.1, Ofcom's approach to the assessment process is unusual and not justified adequately. This section argues that it also misses important elements, failing to assess the overall degree of competition in the relevant markets (for example, not taking account of sub national operators and existing providers of national wholesaler services other than the main mobile network operators) and failing to consider the potential for new entry. The remaining steps (Steps 2, 3 and 4) simply assess the importance, likelihood and response to those concerns and therefore cannot address the deficiencies of Step 1.

A key problem with this framework is that it does not clearly set out what questions are being asked: the step to consider what might give rise to a competition concern simply raises the question of how will such a competition concern be assessed or considered to arise. A concrete assessment of competition in the relevant markets would mean that Ofcom would need to consider the competitive constraints provided by all potential market participants. Ofcom's framework assesses the individual competitiveness of each actual and potential operator using its "traffic light" analysis. What is unclear is how this individual competitiveness is then related to whether there is sufficient or effective competition between all relevant operators. Paragraph 4.49 lists a number of factors which need to be considered when assessing whether there is effective competition but how these factors link to the framework then set out in paragraph 4.57 is not explained in the Consultation.[8]

The Consultation also fails to provide an adequate justification for the conclusion that four national wholesalers are required for effective competition. Everything Everywhere's June 2011 Response to Ofcom's earlier Consultation set out Everything Everywhere's view that Ofcom did not have a robust basis for intervention which ensured four national wholesalers post the auction, as it had not established any baseline from which competition required promoting or against which to assess if any particular degree of competition was inadequate. The current Consultation reaches the same conclusion with use of different or additional reasoning which Everything Everywhere continues to believe is not convincing or robust. Ofcom itself only reaches the conclusion that an increase in concentration will lead to competitive detriment relatively tentatively[9]. That (justified) doubt does not however appear to be reflected in the assessment of credibility, where the requirement for four credible national wholesalers is the principal concern of the analysis.

[8] There is a significant and material difference between the concepts of an individual operator's competitiveness and the degree or effectiveness of competition between competitors See for example a 2005 speech by Amelia Fletcher (Chief Economist at the OFT) on the distinction between impacts on competitors and impacts on competition of particular types of conduct; available at http://www.oft.gov.uk/shared_oft/speeches/spe0205.pdf

[9] Paragraphs 4.50 and 4.53

The approach in the Consultation to assessing competitive effects divides an abstract consideration of the number of players (Ofcom's assessment of the current competitiveness of the mobile markets and the "credible" impact of concentration[10]) from the assessment of the individual competitiveness of each player (Ofcom's assessment of credibility of individual operators undertaken through the "traffic light analysis").

A competition assessment should take account of actual market structures under different scenarios and the degree of overall competition which arises from the relative competitiveness of each market participant.[11] Splitting the analysis into first a consideration of the required number of players to be competitive and then second looking at the individual strength of individual existing players (essentially in isolation, not in the context of the relevant market structure) is artificial and distorts the resulting analysis. Ofcom concludes that there is a possible issue in relation to a reduction from four to three competitors, but then assumes that this is in fact the case without further analysis when considering the position of individual market participants. In effect, this approach is one which protects the position of individual competitors rather than competition. This is not the role of competition policy or an appropriate way to promote competition:

"it is important not to lose sight of the fact that the primary purpose of [competition law] is to prevent distortion of competition – and in particular to safeguard the interests of consumers – rather than to protect the position of particular competitors."[12]

Everything Everywhere's June 2011 response was focused on the need to promote competition, not competitors. The answer to consultation question 5.4 in that response clearly identifies the need to distinguish between assessing competition and assessing the number of competitors.

By taking the approach it has and by not clearly defining the approach to assessing competition as opposed to competitiveness, the Consultation therefore does not provide a clear or objective method for establishing whether a particular market outcome is competitive. The Consultation is considering whether an operator retains 'credibility' absent intervention, by being able to win required spectrum. The implication of assessing competition (not individual competitiveness) is that the correct counter factual is whether, absent intervention, the market is still competitive. In comparison, a full merger analysis would be concerned with whether competition itself was harmed by a particular transaction (whether it leads to a substantial lessening of competition). A market review is concerned with whether there are one of more operators who have SMP and, if so, what the proportionate and appropriate remedies are to deal with whatever degree of SMP is found to exist. In each of these cases there is a specific test based on the degree of competition – whereas the approach in the Consultation simply raises the question of whether four competitors is competitive

Ofcom's approach also means it has not properly taken into account the following points:

- The potential for new entry (as required under Article 8(3) of the Direction): in relation to new entry Ofcom has simply asserted that "entry as a national wholesaler is subject to high entry barriers, including infrastructure costs and the limited availability of spectrum". While this may be the case, Ofcom makes no attempt to analyse or support this contention – which means that it ignores ways in which entry barriers could be offset and the scope for additional spectrum becoming available in future. As such the framework used by Ofcom makes no proper assessment of the potential for new entry.
- The extent to which competition from other types of new operators would constrain national wholesalers. Ofcom's competition assessment implicitly assumes that competition occurs

[10] Annex 6 paragraphs 2.60-2.64

[11] As Everything Everywhere set out in its June 2011 Response, especially in its answer to consultation question 5.4.

[12] Opinion of AG Jacobs Case C7/97 Oscar Bronner GmbH & Co KG v Mediaprint Zeitungs under Zeitschriftenverlang GmbH & Co KG, at paragraph 58. A 2006 OECD Policy Brief summarises the position stating "There is broad agreement among competition agencies from OECD countries that the purpose of competition policy is to protect competition, not competitors" (available at http://www.oecd.org/dataoecd/10/27/37082099.pdf)

across all services (and with the same geographic scope) currently offered by existing operators and any which may be offered through LTE. Competitive constraints on national wholesalers from other types of provider are ignored. For example, Ofcom has extensive discussion of the potential benefits of sub-national operators and is proposing to reserve spectrum exclusively for such operators. While Everything Everywhere does not consider that Ofcom has made a convincing case for this, if Ofcom is planning on ensuring the entry of this type of operator, consistency would require assessing what the competitive constraint this type of operator would impose on national wholesalers and in which markets.

- The extent to which competition from other types of existing operators would constrain national wholesalers. An example is the constraint provided by operators using other spectrum bands. In the years after the combined award, it currently seems likely that additional spectrum will become available suitable for high bandwidth data services (especially spectrum released from public sector use) which is not considered in the Consultation.[13] Even more immediate is the potential competitive constraint offered by an existing operator with existing suitable spectrum licences, namely UK Broadband. UK Broadband has already announced the roll-out of an LTE network and already has a commercial LTE network, according to its website. It also states it provides wireless nationwide data connectivity.[14] Commentators are already stating that UK Broadband's network competes with the potential new LTE networks of what the Consultation terms "national wholesalers".[15] Omitting considering the competitive constraint provided by such an operator is therefore an important missing element of Ofcom's competition analysis.
- In concluding that there would be a significant increase in concentration were there only to be three national wholesalers, Ofcom quotes a number of HHI estimates. The calculation of such concentration indices inherently requires the definition of a market as HHIs are calculated using market shares. The market which Ofcom appears to have implicitly assumed in calculating its HHIs is a voice national wholesale market.[16] Ofcom's approach raises two key concerns. First, use of HHI thresholds is the start, not the end, of the analysis. An increase in HHIs which suggests an increase in concentration is a trigger for further and deeper analysis on the competitive market structure and whether this increase in concentration is an actual concern. The Consultation in contrast presents the fact its HHI calculations lead to increases above the merger guidelines thresholds as meaningful in itself. Further, and just as fundamentally, alternative market definitions could lead to the reverse outcome. The HHI actually decreases if a data subscribers market is defined and H3G is assumed to exit with the other existing national wholesalers taking equal numbers of its customers.

The approach which Ofcom has taken therefore means a range of important factors are not properly taken into account: the sum of the competitiveness of individual operators does not fully and properly describe the competitiveness in the relevant markets.

Even if Ofcom's approach of ignoring the competitive structure (compared to the position of individual competitors) is set aside, other aspects of the approach adopted in the Consultation raise concerns. These are addressed in sub-section 2.3 and 2.4.

2.3 Ofcom's bespoke competition assessment rests on a notion of credibility which is unclear and flawed

[13] For example, there are suggestions that additional capacity will be available relatively soon (2013/14) through spectrum released by the MoD (see http://www.mod.uk/DefenceInternet/AboutDefence/WhatWeDo/ScienceandTechnology/Spectrum/). Potential releases of additional spectrum in the 3.4GHz band are also well within the relevant timeframes of the competition assessment.

[14] See for example http://www.ukbroadband.com/4g-networks/our-4g-network.

[15] See for example "Rival Groups plan roll-out of 4G services" FT 13 March 2012. Available at http://www.ft.com/cms/s/0/8711efd6-5d60-11e1-869d-00144feabdc0.html#axzz1p5LN8sVs

[16] In which only national operators can compete, which means that the comments in the bullets above around the potential competitive constraint for other types of operators are also relevant here.

The competition analysis in the Consultation rests on the key concept of a "credible competitor" whose meaning is open to interpretation and which is not clearly defined. This notion is not used in any standard competition analysis, so its definition cannot be identified through precedent. The term was first introduced in the March 2011 Consultation, where it had a relatively clear meaning. The logic in that analysis was that a competitor was credible when it had access to at least a minimum required spectrum portfolio. That simply raised the question of what that required minimum amount of spectrum was, on which issue different respondents were able to give their views.

The Consultation moves away from this approach which makes the concept of a "credible competitor" more ill defined. As a clear meaning cannot be derived from the economic literature, the definition of "credible" is more related to commercial notions, which are inherently subjective. The Consultation does not define what is meant by a credible competitor, despite its central importance to the analysis, or explain where the cut off is where a firm becomes sufficiently weak to no longer be credible. It is not therefore in our view a reasonable notion on which to build a robust competition assessment.

The closest the Consultation comes to defining this key term is in paragraphs 2.32 to 2.34 of Annex 6. In essence these paragraphs assert that a competitor is not credible once it has sufficient disadvantages. No objective criteria or explanation is given on how to judge when the disadvantages become serious enough to make a competitor lose credibility. "Credible competitor" seems to mean "sustainable competitor," which is different to being a strong competitor. On top of this unclear analysis of credibility, Ofcom overlays a further concept of a "lesser" competition concern, where an operator is not sufficiently disadvantaged that it is not credible, but is still at a competitive disadvantage. How this interrelates with the core concept of credibility is not clear. Both concern different degrees of competitive disadvantage along the same dimensions, but the dividing lines between the two types of concerns are very blurred.

Essentially Ofcom's definition of credibility is reached through identifying what it means for an operator not to be credible.[17] The analysis comparing the strengths and weaknesses of different spectrum portfolios for each individual operator as set out in paragraphs 4.107-4.143 and Section 4 of Annex 6 (the "traffic light analysis") is where the notion of a credible competitor is directly applied.

Under this analysis, competition concerns arise when an individual competitor is disadvantaged against the technical criteria of being able to deliver capacity and average data rates in the short and longer term, having an early route to LTE and having access to the highest peak data rates with early LTE. Ofcom then considers all of these factors "in the round" for each operator to assess whether that operator has a competitiveness issue under different spectrum scenarios. To be credible an operator is apparently not considered to need to be strong along each of these dimensions. However, the Consultation makes clear that a judgment needs to be made about the extent to which different factors can be balanced against each other and when an operator is sufficiently weak on one dimension, such that other off-setting benefits are not enough to maintain credibility. Turning to the specific competitive dimensions on which an operator's credibility is assessed, there is no clarity on how the judgment has been made as to when an operator ceases to be credible. The criteria given are significantly hedged about by qualifications and are expressed in terms which express a high degree of uncertainty. This can be seen in paragraph 3.2, for example, which describes the criteria in the following terms:[18]

"A national wholesaler is likely to need sufficient spectrum in order to serve enough customers with sufficiently high average data rates. We consider that there is some risk that a national wholesaler

[17] As discussed above in the introduction to section 2, this is a fundamental difference to the March 2011 Consultation where Ofcom set out the minimum spectrum portfolio which it considered made an operator credible.

[18] The same basic dimensions are listed at other places in other parts of the document, using slightly different wording. See especially paragraphs 4.64 and 4.112.

would not have enough capacity to be credible if it held less than 10 to15% of total spectrum holdings.

A national wholesaler is also likely to need enough sufficiently low frequency spectrum in order to deliver good coverage in most locations cost effectively. There is a material risk that a national wholesaler would not be credible if it did not hold enough sub 2.1GHz spectrum.

It is not clear to what extent consumers will value highest peak data rates and therefore the extent to which national wholesalers need to hold spectrum suitable for delivering highest peak data rates in order to be credible.

It is also unclear the extent to which consumers are likely to value the features that LTE can deliver over and above HSPA, and therefore the extent to which holding spectrum suitable for early deployment of LTE is important to act as a credible national wholesaler. However, longer term, no route to LTE might be a problem in terms of credibility." (Emphasis added)

As is clear from sub-section 2.2 above, Everything Everywhere does not accept that this set of criteria provides an appropriate and sufficient basis for assessing competition and the relative competitiveness of different market structures. Notwithstanding this wider concern with the approach taken in the Consultation, these criteria are, even within their own terms, problematic. The following paragraphs examine each criterion in turn.

2.3.1 Capacity

In relation to the first of these criteria, our first concern relates to the conclusion that a "credible" operator requires around 10-15% of available spectrum, based on international comparisons. Everything Everywhere considers that it is unclear the extent to which international comparisons of this type are valid or robust. The underlying point here is that a competitive market structure would require individual competitors to have sufficient spectrum to reach minimum efficient scale. This level of operation is an interaction between the spectrum available to an operator, its network and the number of subscribers / volume of services the spectrum and network in combination support. It can readily be seen that this will be market specific. In fact, it is likely that the scale required to retain future competitiveness will also be operator specific, taking into account the need to provide sufficient capacity for a particular size of customer base and historic investment.

Consequently, having sufficient spare capacity to allow a competitive constraint to be exercised on other operators in the market will depend on the specific circumstances and the Consultation does not explain why international comparisons should be the relevant benchmark here. While such comparisons could reasonably be used to inform such a judgment of what the relevant UK minimum efficient scale is (and what that implies for spectrum holdings), they should not be the only piece of evidence relied upon. Ofcom itself recognises some of the difficulties in using such international comparisons to determine the minimum amount of spectrum required for capacity reasons (at paragraph 3.63 of Annex 6). However, these concerns do not feed into the conclusion in paragraph 3.69 of that same annex, which states there is "some risk" that an operator will not have sufficient capacity if it has less than 10-15% of total spectrum holdings. The only supporting evidence for this figure, other than the international comparisons, is two quotations from analysts.[19]

Having sufficient capacity to provide service to a particular number of customers is also dependent on a range of other inputs. There is some interaction between the amount of network investment and the amount of spectrum deployed to provide capacity, as is at least partially acknowledged in the Consultation. Just as important is the interaction between capacity and the amount of backhaul required. The number, type and location of sites (which is to a significant extent determined by the composition of spectrum holdings) will also determine the cost of the relevant

[19] At paragraphs 3.64-3.66 of annex 6.

backhaul to link those sites to a core network. Increasing data demand means greater backhaul capacity is required. It therefore cannot be as simple as suggesting that a certain share of the overall spectrum available will inevitably make an operator credible or not credible. The implications for other costs also needs to be taken into account.

What is more, the concept of minimum efficient scale requires an absolute amount of spectrum which is required to deliver sufficient capacity to serve enough customers to recover sufficient revenue to earn a reasonable return. It is not a relative issue. Spectrum holding asymmetries of a sufficient degree (either in terms of overall capacity or in terms of access to certain important bands, such as sub 1GHz) could be important to the relative competitiveness of different operators and hence the overall competitiveness of a particular market structure.[20] This is a different issue to the idea of whether an operator is credible on a standalone basis, which requires an assessment of the absolute concept of minimum efficient scale.

Even if international comparisons were appropriate here, Everything Everywhere considers that Ofcom's conclusion that 10-15% of available spectrum is required is not an appropriate conclusion to draw from international experience. The analysis of national wholesalers' share of paired mobile spectrum in countries with four operators illustrated in Figure 9.5 of Annex 9 seems pivotal to Ofcom's suggestion that an operator need 10-15% of spectrum to be credible. However – if taken at face value – the analysis does not support a notion that no operator has less than 10-15% of spectrum. Two of the nine countries show holdings of less than 10%. The analysis in Annex 9 concludes that "it is unusual for a national wholesaler in these countries to have less than 10% of the available spectrum." It is not clear to us that two out of nine is unusual. Equally, we note that the '15%' of the 10-15% seems to have been added when bringing the "evidence" from Annex 9 into the design of an intervention. The 15% is not mentioned in Annex 9 and in fact only two of the nine countries presented show the smallest spectrum holding to be 15% or more, namely Sweden and Germany. A consistent use of the term 'unusual', would therefore also suggest that it is unusual for the fourth national wholesaler to hold 15% of spectrum. Ofcom's setting of the appropriate range as being between 10% and 15% seems arbitrary.

In addition, we do not agree that the international benchmarks show anything useful in this regard. As Ofcom shows in Figure 9.1 listing auction measures in European countries, all auctions have had some form of caps. It is therefore not clear that the spectrum distributions in Figure 9.5, shows anything other than the result of those caps restraining some operators in the amount of spectrum they could acquire. In other words the distributions shown in Figure 9.5 are the results of regulator interventions in spectrum auctions more than an indication of appropriate levels of competition.

Our second concern with capacity as a criterion is that considering the amount of spectrum relative to the overall amount of mobile spectrum available ignores the issues of the capacity which each operator requires in order to support a particular size of customer base. In effect Ofcom appears to be assuming either that each operator should be considered as having the same market share, or alternatively the assumption could be that having 10-15% of available spectrum capacity is required in order to reach minimum efficient scale - although the Consultation does not make either of these assumptions explicitly.[21] Under either approach, it is unclear what the basis for Ofcom's assumption is and why this amount of spectrum capacity is required for credibility. On any reasonable definition of competitive credibility, operators require a certain amount of spectrum to have sufficient capacity per customer to compete against other operators. If Ofcom is, in effect, arguing that H3G as the fourth national wholesaler (or even Vodafone or O2) is below minimum efficient scale, it has provided no justification, evidence or reasoning for that position.

[20] Ofcom does consider this issue in terms of overall spectrum holdings and this leads to the overall safeguard cap which is dealing with a different perceived issue.

[21] The relevant minimum efficient scale could also depend on a range of other factors which influence overall costs which is also not taken into account.

Such an assessment would need to take account of the different network assets required at different frequencies to provide a sufficient amount of capacity (importantly including the different backhaul costs required for different numbers of sites) and what was required to make a reasonable return from these assets.

As Everything Everywhere argued in its June 2011 response, the relative amounts of spectrum currently held by individual operators, and under a range of reasonably likely outcomes from the Auction, do not provide an extreme position in relation to the amount of spectrum per customer. A competitive market does not require equal market shares or symmetric operators (as acknowledged in the Consultation). Therefore, operators should be able to achieve sufficient spectrum such that the relative spectrum to customer ratio allows individual operators to compete effectively (and, of course, also that operators have an appropriate mix of available spectrum importantly including sufficient spectrum to ensure competitive levels of coverage). Ofcom's benchmark of 10-15% of total spectrum available is irrelevant to this consideration.[22]

2.3.2 Average data rate in the short and medium term

Turning to the second of the criteria, again international comparisons are used. The analysis of total spectrum holdings in European countries with four national wholesalers mentioned above is constrained to look only at countries in which 800 MHz have been awarded. This leaves a small sample of five countries. Figure 9.7 shows national wholesalers share of sub-1 GHz in these countries and concludes that "With the exception of Sweden where all four wholesalers hold significant shares of sub-1 GHz spectrum, there is one wholesaler that has no (or very little) sub-1 GHz compared to its competitors". In Everything Everywhere's view, this is only one, rather extreme, interpretation of the facts that ignores:

- The third operator holds a significant share of sub-1 GHz spectrum in all five countries considered. There is no country which has allowed sub-1 GHz spectrum to be concentrated between two operators (or for two operators to each hold as much as 2x27.4 MHz of the total 2x65 MHz[23] available with the release of 800 MHz).
- Any operator without access to sub-1 GHz has been allowed preferential access to at least 2x5 MHz, as noted in paragraph 9.8 and A9.26.

The more appropriate inference from Figure 9.7 would be "All countries considered have three operators who hold at least 2x15 MHz of sub-1 GHz spectrum; a fourth operator who did not hold any was offered preferential access to sub-1 GHZ spectrum."

Moreover, Ofcom concludes that a competitor is not able to be credible, if it solely holds 2.6 GHz spectrum and that those with no sub-1GHz spectrum will be at a competitive disadvantage (paragraph 3.129-130 of Annex 6). However, it is unclear how this qualitative conclusion is then being taken into account. Use of alternative solutions, such as small cell solutions, is asserted as meaning that a competitor with 1800 MHz or 2.1 GHz spectrum can provide "sufficient quality of coverage to be credible".[24] Ofcom's conclusions, however, are not based on sound technical grounds. The figures which Ofcom cites at paragraph 3.122 on the extent to which consumers use mobile broadband in different locations lead Ofcom to the conclusion that, while in the home use is important, so is use at other locations. While it is clearly the case that mobile broadband is used across a range of locations, Ofcom's own figures show that in home use is crucial with over half of consumers saying that they use mobile broadband only or mainly at home. In home use is clearly important to the vast majority of consumers who use it only, mainly and equally at home. Only 14% of consumers' use is mainly or only outside the home.

[22] See section 4.4 of Everything Everywhere's June 2011 response.
[23] 2x35 MHz of 900 MHz as well as 2x30 MHz of 800 MHz.
[24] Paragraph 3.139 of annex 6.

Further, Ofcom's conclusion that coverage in other locations "may also be important"[25] misses the crucial point – a significant percentage of mobile data use is "deep indoors" and this will affect the majority of users at some point (and especially many higher value and business customers). Small cell solutions can only ever be a partial solution to this issue. Everything Everywhere continues to believe, as set out in its June 2011 response, that access to sub-1 GHz spectrum is important to provide future data services. Access to such spectrum will provide a significant advantage and any operators without such access would need to find ways to address this issue.[26] This is acknowledged in rationale for Ofcom's proposed indoor coverage obligation on an 800 MHz licence, which refers to 80-95% of data use being indoors.[27] This would be consistent with sub-1 GHz spectrum being important to provide sufficient coverage.

In summary, the approach in the Consultation of treating this criterion as one of four underplays the importance of access to this important spectrum band. Providing competitive coverage levels must be a central component of any assessment of relative competitiveness of operators and the overall competitiveness of a particular set of spectrum holdings. Ofcom's approach of trading this off against other criteria is therefore not appropriate.

2.3.3 Peak data rates and early access to LTE

The final two criteria concern the importance of peak data rates and early access to LTE. It is worth noting that Ofcom's conclusions in relation to these criteria are far more tentative. The Consultation notes the fact that demand for the relevant services is uncertain and therefore the importance of these criteria for credibility is equally unclear. The use of two credibility criteria which relate to LTE also in itself further distorts the overall analysis and provides undue weight on these more tentative potential competitive differentiators.

Further, the extent to which LTE provides an additional benefit over HSPA+ for operators (in terms of ability to raise additional revenue from the enhanced service so provided) is a matter of commercial judgment on which different operators can and do take different views. The Consultation does not take sufficient account of the disbenefits of early entry to LTE. Devices and network equipment will be more expensive initially until scale economies can be reached at a global scale and, as with any new technology, there are likely to be initial teething issues (such as reduced battery life).[28] The ability to introduce LTE early will also not cause all data network traffic to migrate immediately to the LTE network - later adopters will be able to take advantage of the additional capacity advantages of LTE more quickly, given the wider availability of LTE devices that is likely to be the case by then. In this context it is also worth noting that one of the reasons for LTE900 being launched later is that the 900 MHz band is already being refarmed for HSPA and HSPA+ use.

The notion of a credible competitor has only been defined, to the extent that it is defined, in relation to individual existing operators or, at least notionally, a single potential new entrant. There is no positive definition of what Ofcom considers would be effective competition in the Consultation (as opposed to a simple negative definition of what renders an operator not credible). This means that the assessment of the potential interventions are not judged against a robust test of what would a competitive mobile sector look like and what is required to ensure it. To the extent that there is any robust test in the Consultation, it is effectively as simple and circular as "four credible competitors".

[25] Paragraph 3.122 of Annex 6.
[26] See especially section 3 of Everything Everywhere's June 2011 response. Having to utilise such solutions creates perceptions which are also a competitive disadvantage.
[27] Paragraph 5.55
[28] Further, in comparing LTE and HSPA+ Ofcom does not always appear to compare like with like. For example, paragraph 3.193 of Annex 6 appears to compare a current release of LTE with an outdated version of HSPA.

2.4 Ofcom's assessment of credibility is unclear and flawed

The analysis which underpins Ofcom's policy interventions is the "traffic light analysis" described and undertaken in detail in Section 4 of Annex 6 of the Consultation. This is the implementation of the credibility criteria discussed in sub-section 2.3 above, applying these criteria to each individual operator. There are a number of problems with the way these criteria are assessed and used which, even if the criteria themselves were robust, would undermine the usefulness of this analytical tool.

First, in describing and setting up the relevant criteria, Ofcom quite properly points to a number of future uncertainties around the extent to which these criteria will be relevant to the development of competition. These are particularly important in relation to the final two criteria, i.e. those that relate to LTE. For example, paragraphs 3.209 to 3.217 assess the significance of a temporary advantage associated with an early route to LTE. This section is full of qualifying words such as "possible" and "might". It also notes that an LTE first mover might face disadvantages, as well as advantages, and that customer inertia and low switching barriers could minimise the benefits of being a first mover. The various criteria are summarised in Table 3.3 in annex 6, where the first two criteria are expressed in positive terms as a potential risk to credibility, whereas the final two LTE criteria are summarised as being "unclear". This summary in itself is a simplified and more concrete version of the detailed conclusions on the individual criteria. For example, paragraph 3.69 of Annex 6 concludes that there is "some risk" that a national wholesaler without sufficient spectrum (10-15% of overall spectrum) would not be credible. This caveatted judgment, when captured in Table 3.3, has evolved into the view that sufficient capacity has the status of "being necessary".

At each stage of the analysis, this sequence is apparent - the nuances and uncertainty seem to disappear. In taking the conclusions forward into the traffic light analysis, Ofcom simplifies the analysis down to a simple red/amber/green analysis, which is not a sufficiently granular approach to take account of the real uncertainties described in the preceding text.

Ofcom apparently recognises this issue at paragraphs 4.14-4.18 of annex 6, noting that the traffic light approach "masks some of the more subtle differences between capabilities". However, the Consultation is not clear on exactly how the different uncertainties around each of the criteria is in practice taken into account, relying on the statement that the assessment is in the round. The relative weights ascribed to different criteria and the competitive concerns which arise from them are entirely implicit. It may be the case that it is not possible to express such weights in purely quantitative terms, but Ofcom could and should be more explicit in the qualitative tradeoffs it has made in balancing different concerns. This is brought into stark relief when the comparison is made between Ofcom's assessments of its lesser concerns compared to its main concern, about the need for four credible national wholesalers. For example, the lack of sub 1-GHz spectrum in the discussion of the criteria is considered a material disadvantage, as described above. In the "in the round" assessment summarised in Table 5.16, the possibility that this concern materialises with respect to Everything Everywhere is assessed as low to medium, on the basis that Everything Everywhere's other spectrum holdings counteract this impact. This does not seem consistent with the idea that sub-1 GHz spectrum is material and important. Furthermore, when the same issue is considered in terms of the lesser concern of whether lack of sub-1 GHz spectrum would make a competitor weaker (but not to the extent that that competitor was not credible) the overall assessment downgrades this criteria even further to "low".

The way in which the "in the round" assessment has been undertaken and the relative weighting of the different concerns is therefore, at the very least, exceedingly opaque. To the extent that the weighting of the different factors is revealed, this is implicitly through Ofcom's assessment of the potential intervention options (i.e. Table 8.8 in Annex 6). The interaction between this weighting and the grouping of different options (according to Ofcom's view of the degree to which they are

intrusive) makes the weighting even less obvious. This is also relevant to Ofcom's assessment of the different intervention options discussed further in Section 6 below.

Second, and related to the previous point, there is no clear explanation in the Consultation about the link between an operator being credible and the traffic light analysis. That is, while stating that the assessment is in the round, the Consultation does not set out clearly how the different cells in the traffic light matrices are interpreted. It is not explained how different red and green cells are considered to balance each other, nor what outcome would be considered credible or not credible, i.e. how many cells need to be red or amber for a particular national wholesaler, for it to be considered no longer credible. It is therefore not clear what function the "visual representation"[29] of the traffic light analysis is in fact playing. At paragraph 4.100, the Consultation explains that Ofcom considers a national wholesaler can be credible "even if it is disadvantaged in some areas relative to others", so long as the disadvantages are "not too large or are compensated by advantages in other dimensions". This concept of advantages and disadvantages balancing each other is therefore key in assessing the overall credibility of different national wholesalers. As set out in paragraphs 4.117 Ofcom then states that the "in the round" assessment takes into account the importance of the different dimensions. However, in the actual implementation of the traffic light analysis, it is far from clear how this theory has in fact been applied.

Taking Everything Everywhere as an example, Ofcom concludes that Everything Everywhere requires no additional spectrum, due to its large advantages.[30] However, it is not clear how Ofcom has weighted the lack of sub-1 GHz spectrum (which is one of the "weightier" dimensions) and how the advantages of Everything Everywhere's share of spectrum, large existing site portfolio and access to LTE are considered to off-set any sub-1 GHz disadvantage. In terms of how competition actually works in the relevant markets, Ofcom had provided no theoretical or empirical reason for these advantages outweighing the disadvantages.[31] Therefore it is unclear how Ofcom has in fact undertaken its assessment in the round and to some extent it appears that the visual representation aspect of the traffic light analysis has predominated in a way which has no sound basis.

Third, and again building on the previous point, there appears to be little reason for the middle column in the traffic light matrices, other than to develop the "visual representation" aspect of these tables. As explained in Section 3 and in Everything Everywhere's June 2011 response, sub-1 GHz spectrum is important and represents a quantifiable difference in quality for operators. The same cannot be said of the difference between spectrum upwards from 1800 MHz. The 2.1 GHz band appears to have been effectively excluded from the analysis, as being devoted to existing UMTS services for the foreseeable future and therefore the middle column is effectively a veiled way of differentiating Everything Everywhere on the basis of its 1800 MHz holdings. Assessing the dimensions of credibility which Ofcom has set up does not in fact require a differentiation of spectrum other than between above and below 1 GHz. The analytical benefit of creating a "sub-2 GHz" category is therefore not clear. The spectrum frequency columns in this table are effectively providing a proxy for ability to provide coverage (whereas the rows cover the dimensions of capacity and maximum throughput). If it were considered that an operator could not provide credible coverage using 2.6 GHz spectrum alone (i.e. a new entrant without access to other bands and assuming it did not win any 800 MHz spectrum), then this would be the only justification for using a table of the dimensions Ofcom does use. However, the Consultation does not consider

[29] Paragraph 4.15 of Annex 6
[30] Paragraph 4.124
[31] It should be noted in relation to these advantages as well that the ability to deploy LTE is not only of lesser importance as a criteria according to the Consultation but also reliant on Ofcom making its decision to liberalise the 1800 MHz band for LTE. Furthermore, the importance of the "large existing number of sites" is unclear. This is not a factor which is mentioned in the discussion of the criteria and these sites have been invested in over time (incurring a cost) in order to compensate against the competitive disadvantage of not having access to sub-1 GHz spectrum. Furthermore, through the network sharing arrangements of MBNL, H3G will also have access to a large number of 3G sites

this situation separately and argues that the new entrant position can be rolled up with that of H3G as a "fourth national wholesaler" and therefore there is no justification or need for dividing up supra 1 GHz spectrum in the way Ofcom does in the Consultation.

Fourth, another problem with two of the criteria being concerned with whether a national wholesaler has early access to LTE is that this is not technology neutral, as required under Section 4 of the Communications Act 2003.[32] This difficulty with Ofcom's approach arises from the lack of a proper market definition. The mobile markets, whose competitiveness should be considered, involve purchase of voice and data services. It is the ability to provide such voice and data services taking account of different quality / cost trade offs (and whether there are any particular quality aspects which are required to be competitive) which should be considered in this context. The relevant technology which is used to provide such services is not, in itself, relevant. Indeed, the requirement for Ofcom to be technology neutral means that the relevant technology should definitely not be taken into account. LTE is therefore only relevant if there is a relevant data market in which national wholesalers compete which can only be serviced through the LTE technology. Ofcom has evidently not shown this to be the case. Assuming that no such data market exists, it is conceivable that HSPA+ may cost more to provide the same service but this is not relevant to the consideration of credibility. Operators are able to make a technology / spectrum trade off which is a commercial decision for each individual operator to make.[33] Ultimately Ofcom should be concerned with the ability of operators to compete to provide certain qualities of voice and data services. The technology which is used to provide that level of service is a commercial matter with which a technology neutral regulator should not be concerned.[34]

Finally (as mentioned in the previous sub-section), the approach in the Consultation uses two separate criteria in relation to LTE, which distorts the resulting analysis by overly stressing the importance of these final two criteria. The ability to offer highest peak data rates and having access to an early route to LTE are essentially the same criterion. Splitting them in this way therefore distorts the picture, giving greater weight than is in fact warranted to this single factor.

2.5 Conclusion on competition assessment

Ofcom is proposing significant interventions to protect a fourth national wholesaler's position in the auction which will create significant costs and additional auction complexity. The justification for these complex interventions rests on the competition assessment. However, Everything Everywhere considers that the competition assessment is not sufficient to provide such justification. As such it is a weak and inadequate foundation for the auction edifice which Ofcom is proposing. Nor does this assessment properly and appropriately fulfil the requirements of Article 8 of the Direction.

In summary:

- the bespoke approach to assessing competition is neither necessary nor justified;
- in declining to use more established approaches to assessing competition Ofcom has failed to justify its conclusion that it should ensure four credible national wholesalers (upon which much of the rest of its proposals rests) and by not defining the markets in which it is promoting competition there is significant uncertainty around how Ofcom reaches its competition

[32] The "fourth Community requirement" as set out in Communication Act 2003 section 4(6)

[33] This is similar to the argument which Ofcom has suggested previously to Everything Everywhere that the mere fact that rolling out the same coverage at higher frequencies involves higher network costs is not a competitive disadvantage: as individual operators can each make a choice between higher cost spectrum (sub 1 GHz) or higher network costs.

[34] To the extent that LTE is more spectrally efficient, Ofcom does have a duty to promote the efficient use of spectrum. However, this is not relevant here as long as there is an opportunity for LTE to be deployed by some operators. The relevant considerations here relate to competition and technology neutrality. In this particular context, therefore, Ofcom's statutory duties mean it should not be favouring any particular technology.

conclusions or their impact – Ofcom is relying on tools such as HHIs which require a market definition;

- the notion of "credibility" is novel and not clearly defined; and
- Ofcom assessment of credibility is unclear and flawed, for example not clearly identifying how the various strengths and weaknesses of different operators are in fact traded off against each other.

3 The importance of sub-1 GHz

In this Consultation Ofcom has taken a new approach by effectively suggesting that capacity can make up for coverage. Ofcom has made some major modifications to the modelling approach, portrayed as sensitivity analysis, which have systematically biased the results to suggest a conclusion that there are limited unique benefits of sub-1 GHz spectrum. This approach has led to Ofcom's proposal not to intervene to ensure that sub-1 GHz spectrum is distributed between operators to avoid propagating historical advantage or disadvantage into the future. In this section we will explain why Ofcom cannot rely on the approach taken in this Consultation due to the flawed basis of the technical analysis. Sub-1 GHz spectrum remains important for competitive performance, and Ofcom should recognise that all operators have a need and should have a fair chance to access this resource, which is currently concentrated in the hands of two players.

We outline our concerns that Ofcom has systematically downplayed the importance of sub-1 GHz spectrum in order to get to a conclusion that it does not need to give Everything Everywhere preferential access to 800 MHz, [redacted]

3.1 Conclusion

As described above, the analysis presented in this Consultation does not enable meaningful conclusions to be drawn, due to the strong bias in Ofcom's modelling approach with the effect of diluting the apparent impact of the significant advantages of low-band spectrum. Overall the Ofcom analysis does not portray a balanced view of the benefits provided by sub-1 GHz spectrum, and the use of 'uncertainty' has been used to cloud the significant differences in performance that are realistically likely to be expected.

[redacted]

4 [Redacted]

5 [Redacted]

6 Ofcom's proposed interventions to support competition

As explained in Section 2 we do not accept Ofcom's competition analysis. It has essentially brushed away the most controversial but nonetheless most important issue, namely access to sub-1 GHz, as explained in Section 2. [Redacted] we think Ofcom has underestimated the cost of its preferred intervention [redacted].

Against this background and, laying aside our objection to Ofcom's competition analysis for now, this section looks at Ofcom's assessment of the different Options for intervention given its concerns about competition and the uncertainty around the relative magnitude of the various concerns.

Ofcom designs seven different Options for intervention mixing up different mechanisms for intervention and different weightings to the different competition concerns in a seemingly non-systematic way.[35] As we understand it, Ofcom then divides its assessment of the different Options into three steps:[36]

- a comparison of the effectiveness of the different options in addressing the identified competition concerns;
- analysis of which is the 'least onerous' but still effective option; and as a sub-question of that
    - whether the least onerous option produces adverse, disproportionate effects.

We comment on Ofcom's comparison of effectiveness and analysis of 'least onerous' taking into account disproportionate effects in turn below. For ease of reference, we have reproduced Ofcom's summary comparison table below.

Figure 1: Ofcom's comparison of Options for interventions (Figure 8.8 in Annex 6)

[35] For example, Ofcom motivates Option 3 as using tight caps to promote four national wholesalers who would all be credible. It then defines another four Options using a competition constraint to address various relative weighting attached to different concerns. However, it does not develop a similar range of options for caps. It would appear that Ofcom is somewhat pre-disposed to using competition constraints rather than spectrum caps.

[36] Annex 6 p. 205 ff.

Figure 8.8: Comparison of effectiveness of options

	Effectiveness of Option in addressing competition concerns compared to Option 1 (no measures)						
	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Importance of concern
Concern that fewer than four credible national wholesalers							
1. Fourth national wholesaler not credible because insufficient share of spectrum & no sub-1 GHz spectrum & no spectrum for early route to LTE or high peak data rates with early LTE	Low	High	High	High	High	High	High
2. Everything Everywhere not credible because no sub-1 GHz spectrum	Medium	High	Low (may worsen)	High	Low (may worsen)	High	Low to Medium
3. Telefónica/Vodafone not credible because no spectrum for early route to LTE, high peak data rates with early LTE or greater capacity	Low	High	Low (may worsen)	Low (may worsen)	High	High	Low to Medium
Concern that even if at least four credible national wholesalers one or more wholesalers is at a disadvantage in competing across a wide range of services and customers							
4. Weaker competition because one or more competitors does not have sub-1GHz spectrum	Medium	High	Medium	High	Medium	High	Low
5. Weaker competition because one or more competitors does not have early route to LTE	Low	Medium to High	Low to Medium	Low (may worsen)	High	High	Low
6. Weaker competition because one or more competitors does not have 2x15 or 2x20 contiguous block for LTE	Low	Medium to High	Low	Low	Low	Low	Low
7. Weaker competition because one or more competitors does not have enough spectrum for capacity and average data rates	Low to Medium	Medium to High	Medium to High	Medium	Medium to High	Medium to High	Low
8. Weaker competition because one competitor has a very large share of spectrum	Medium to High	High	Medium to High	Medium to High	Medium to High	Medium to High	Low
Restrictiveness of option	Low	High	Low to Medium	Medium	Medium	High	

Source: Ofcom, Annex 6, p.208

6.1 Effectiveness

Ofcom has stated that it has two sets of concerns:

- 1) a concern that if there were fewer than four credible wholesalers this would be detrimental to competition and consumers; this includes a concern that some of the existing national wholesalers (excluding H3G) may not be credible; and
- 2) concerns that even if there were four credible national wholesalers, one or more would be at a disadvantage in competing across all market segments.

We note that the second set of concerns seems to overlap quite significantly with the first set. For example, if concerns number 1 and 2 are addressed then concern number 4 would be too. Likewise if concerns number 1 and 3 are addressed then concern number 5 would presumably fall away.

On this basis, Ofcom's assessment of the different Options would seem somewhat inconsistent and biased against Everything Everywhere. It ranks Option 4 as "Low (may worsen)" against concern number 2 (Everything Everywhere is not credible because it does not have any sub-1 GHz spectrum), whilst at the same time ranking Option 4 as "Medium" against concern number 4 (weaker competition because one or more competitors does not have sub-1 GHz spectrum).

Surely if Option 4 is not effective in addressing concern number 2 (Everything Everywhere's access to sub-1 GHz spectrum), it would not be effective in addressing concern number 4 (avoiding the risk of weaker competition due to lack of sub-1 GHz) either? It would appear that in this instance the scoring for concern number 4 is akin to the average of the "High" score against concern number 1 and the "Low (may worsen)" score against concern number 2, when it would have been more appropriate to take the lower score against 1 or 2 and apply to 4. This is repeated in the scoring of Option 6. In contrast, the "Low to medium" and "Low" scoring of Option 4 against concern number 5 and 6 (which are more relevant to Vodafone and O2) does indeed take the lower of the scores against concern number 1 and 3 as opposed to the average, which would have produced a "Medium". This is repeated in the scoring of Option 5.

Moving beyond the seemingly inconsistent scoring Ofcom notes that Options 3 to 7 are effective. This seems to be based on the notion that any of the Options could address the concern number 1, i.e. that a fourth national wholesale is not credible because it does not have sufficient spectrum and because it does not have the right mix of spectrum.

However, surprisingly Ofcom does not dwell on the relative effectiveness of Options 3 to 7, or on the fact that Options 4, 5 and 6 may make some competition concerns worse! Looking at Figure 8.8 in paragraph 8.164, it is obvious that in Ofcom's own assessment, Options 3 and Option 7 are by far the most effective Options, and much more effective than Option 4.

"[Option 3]... is effective at addressing most of the competition concerns [...]. In particular, it is highly likely to result in at least four credible wholesalers."[37]

Whilst Options 3 and 7 both score equally high on the concern that there may be fewer than four credible national wholesalers, Option 3 scores higher than Option 7 on the concerns that even if there were four wholesalers one or more may be at a disadvantage. The following ranking would seem reasonable on the basis of Ofcom's assessment of the different forms of intervention: Option 3, Option 7, Option 5 and Option 6, and then Option 4.

In other words, Option 3 has the advantage of being agnostic to the uncertainty about which competition concern is more pressing, an uncertainty that Ofcom is cognisant of in exercising its judgment. These competition concerns are summarised in the last column of Figure 8.8 giving the notion of specific weights attached to each when in fact:

- 1) Ofcom's 'traffic light' analysis in Section 4 and Annex 6 in general,[38] go to great length to explain that the relative weighting of the concerns is uncertain; and
- 2) the reason Ofcom consults on all of seven different Options for intervention is that it is uncertain about which competition concerns are more pressing.

Everything Everywhere believes that it is highly relevant that Option 3 produces a higher score than Ofcom's preferred Option 4 on all concerns and that this fact should not be glossed over by grouping Options 3 to 7. This means, according to Ofcom's framework that **Option 3 is more effective than Option 4 regardless of which competition concern is considered more pressing**.

6.2 'Least onerous' Option for intervention and risk of adverse effects

Without explaining why the Options are not ranked in terms of effectiveness, Ofcom groups Options 4 to 7 and proceeds to an assessment of the "magnitude of restrictions imposed by options to assess which option is the least onerous required to achieve our policy aim."[39]

This analysis is conducted over 1.5 pages[40] of the total 230 pages of the Revised Competition Assessment with another ¾ of a page looking at possible adverse effects, which we would suggest

[37] Annex 6, paragraph 8.40
[38] For example para 8.168, 8.172
[39] Page 209, heading for paragraphs 8.168 ff.
[40] Pages 209 -210

is somewhat light given the importance of this aspect [redacted] and by Ofcom's duties to have regard to principles under which regulatory activities should inter alia be proportionate and targeted only at cases where action is needed[41].

Because Ofcom has left four options on the table to choose from at this stage, Ofcom then suggests that there is a dichotomy between two different responses to the uncertainty around which competition concerns are more pressing that it could take:

- "attempt to mitigate as many risks as possible; or
- favour approaches that address the key competition risks but involve making fewer and more limited regulatory judgments."[42]

However, this is a false dilemma created by Ofcom's grouping of Options 4 to 7 creating the impression that it is a straight choice of which Option is the least onerous rather than admitting that the first step of the analysis produces a quite obvious ranking of the Options in terms of effectiveness.

Moreover, it is important to remember that Ofcom has set the boundaries for its own subsequent analysis in the design of the Options. In the way Ofcom has constructed its analysis, it is suggested that these are quite discrete Options when in fact we believe it would be highly relevant to instead question whether and how Option 3 could be made less intrusive whilst still maintaining its effectiveness. For example, variants of the sub-1 GHz cap that are less restrictive are possible, e.g. 2x22.5 MHz, which indeed Ofcom included as an option in its March 2011 Consultation. Despite being listed as a general possibility,[43] a specific cap on 800 MHz is considered only at 2x10 MHz in a variant to Option 5, not in Option 3. We do not see any consideration of an 800 MHz cap as a **subset** of a sub-1 GHz cap. For example, an attractive variant of Option 3 could have an overall sub-1 GHz of 2x22.5 MHz with a 2x15 MHz cap on 800 MHz. This would allow four wholesalers good access to sub-1 GHz spectrum without prescribing the relative quantities in advance of the auction. We understand that there may be a concern about asymmetric sub-1 GHz holdings in the short term if Everything Everywhere was able to win 2x20 MHz of 800 MHz. However, for example a cap of 2x15 MHz on 800 MHz within an overall sub-1 GHz cap of 2x20 MHz or 2x22.5 would be a better way of addressing this rather than effectively limiting Everything Everywhere to maximum 2x15 MHz of 800 MHz through an overall cap.[44]

Finally and importantly, aside from being cursory, we believe that Ofcom's assessment of the "least onerous" Option including the risk of adverse, disproportionate effects is distorted on the following grounds:

- The costs of Option 4 (and possibly Options 5 and 6 too) are underestimated because Ofcom has not considered sufficiently [redacted]. Whilst the March 2011 Consultation showed a conceptual, but incomplete proposal,[45] this Consultation now admits that some of the concepts presented in the March 2011 Consultation do not work and it presents details on new aspects, [redacted]. The introduction of spectrum floors to the CCA is a novel approach that has not been tested. This may produce unintended and unforeseen consequences and the stakes in this auction are simply too high to allow that risk. [Redacted]
- The costs of Option 3 are exaggerated, notwithstanding our point above that Option could be made 'less onerous' by design whilst still maintaining its effectiveness. This is for two reasons:

[41] S3(3)(a) of the Communications Act 2003.
[42] Annex 6 paragraph 8.d169
[43] Annex 6, paragraph 6.6
[44] We explained in our June 2011 response how a tight overall cap could be seen as 'a double jeopardy' given that any concerns related to Everything Everywhere's overall holdings have been addressed through the 1800 MHz divestment remedy.
[45] For example it was not clear how the pricing rule would be exercised in the presence of a competition constraint nor how the notion of different reserve prices for Minimum Spectrum Portfolios were going to work through the clock rounds.

- Ofcom states that the combination of tight caps and relatively high reserve prices would lead to a risk of unsold spectrum, even if there were other parties who valued it higher than the reserve.[46] Ofcom suggests that this would be costly because of the inevitable delay caused by Ofcom having to organise a second assignment process. However, this cost could be entirely removed by Ofcom including provisions for a simple 'Follow-up process' in the auction regulations. There are several examples of countries that have successfully organised quick follow-up auctions in the event of unsold spectrum for example the 2.6GHz auction in Norway or Spain's multi-band auction 2011.
- Ofcom has completely ignored the scope for the secondary market to rectify any inefficiency that the primary allocation may have caused - if there were great differences in valuations between auction winners and other potential buyers who could not bid in the auction, they should be incentivised to trade subsequently.

6.3 Conclusion

Ofcom's reasons for discounting Option 3 and preferring Option 4 are not robust because:

- The competition concerns relied on overlap and on this basis, the scoring seems somewhat inconsistent.
- Ofcom collates a number of Options as equally effective when they are clearly not.
- This creates a misleading impression that the choice of intervention boils down to which Option is "least onerous", including any adverse, disproportionate effect.
- The discussion of which Option is "least onerous" is of course rigidly framed by Ofcom's design of the Options under consideration. However, even within the rigidly defined Options, Ofcom's assessment of the potential adverse effects is rather cursory and does not measure the cost of each Option correctly. [Redacted]

Therefore we think an intervention along the lines of Option 3 is much preferred. In fact Ofcom's own analysis supports this. We think there is great merit in considering tweaks to the cap whereby Option 3 could be made 'less onerous' (using Ofcom's terminology), perhaps with a slightly looser sub-1 GHz cap of 2x22.5 MHz and an additional cap on 800 MHz under that. We would question whether the overall cap needs to be quite as tight as 2x80 MHz - as also noted in our June 2011 response, the relative scarcity of high frequency spectrum is much less acute with a large amount of 2.6 GHz spectrum coming into the market. Adding to this there is the possibility of more high frequency spectrum coming into the market, for example the MoD is set to release harmonised spectrum at 2.3 GHz in 2013/14.[47] [Redacted]

[46] Annex 6, paragraph 8.36
[47] See http://www.mod.uk/DefenceInternet/AboutDefence/WhatWeDo/ScienceandTechnology/Spectrum/

7 No evidence to support reservation of 2.6 GHz for low-power use

Ofcom has proposed to either:

- Option A: reserve 2x10 MHz of 2.6 GHz spectrum for concurrent, low power use; or
- Option B: aggregate bids for concurrent, low power licences and let them compete jointly against bids for standard power licences;

with a stated preference for Option A, i.e. reserving spectrum with a further option to reserve more spectrum in non-urban areas.

Everything Everywhere is strongly opposed to any reservation of spectrum for low-power use. We can accept as an absolute highest level of intervention, the aggregation of bids for concurrent, low-power licences to compete jointly against bids for standard power licences. We made this position clear in our June 2011 Response and our position has not changed as Ofcom has not presented any new analysis in support of what would be a very significant regulatory intervention.

In this section, we explain the reasons for our objection as follows:

- Restricting licences to low power use is not technology neutral.
- Ofcom has not done a proper assessment of the costs of intervention – and if it did, we expect it would find that the costs outweigh the benefits.
- The suggested benefits are based on an undefined and unproven business model. If it proves unsustainable the restrictive licence terms would prevent the secondary market from channelling the licence into more efficient standard power use.
- The technical viability of managing interference between a large number of concurrent licensees who actively use their spectrum is not clear.

We go through each of these points in turn below before summarising our conclusion.

7.1 The intervention is not technology neutral

In the UK as well as at a European level, it is generally recognised that spectrum licences should be issued on a technology and service neutral basis. This should allow the market, rather than the spectrum manager, to determine the most efficient use of a given licence. It also reflects the legislative requirement in, for example, Article 8(1) of the Framework Directive, which obliges Ofcom to take the utmost account of the desirability of making regulations technologically neutral (see also Section 4(6) of the Communications Act). In the present case, restricting licences within a band that is harmonised for uses including standard power deployment for a macro cellular network is not consistent with this obligation.

7.2 The cost of intervention is very likely to outweigh benefits

We are particularly disappointed that Ofcom has not presented any evidence on the likely benefits of such a reservation in support of its proposed intervention. We understood Ofcom's March 2011 Consultation to leave its preference open, and we would have expected Ofcom to use the intervening period to analyse further the costs and benefits of this option.

Instead Ofcom states in paragraph 4.236 that

"[i]t is very difficult to assess whether the benefits of new entry are likely to outweigh the opportunity costs in this case. We consider that it is possible that they could do so."

Ofcom goes on to refer to the total value of mobile services in the form of annual retail revenues and suggests that because this is a very large number (£15.1 billion), an

"innovative service which substantially improved consumer outcomes in this market [...] could be worth tens or hundreds of millions in consumer value."

However, this is pure assertion; it is not analysis, nor evidence. We note that the cost of reserving this spectrum to potentially inefficient use, whereby a lower than necessary capacity constraint is imposed on the networks of national wholesalers, could equally be very costly with reference to the same annual turnover figure. Ofcom notes that 2x10 MHz of the 2.6 GHz band is equivalent to 4% of total paired mobile spectrum. Using a similarly spurious methodology, one could argue that the corresponding loss of capacity on the networks of the national wholesalers would amount to £600 million[48] or 4% of the £20.6 billion consumer surplus that Ofcom quotes in para. 4.52, i.e. £800+ million.

Ofcom has conducted cost benefit analyses of other regulatory interventions before and should know what a reasonably robust methodology would entail but for the avoidance of doubt, we outline below what we believe should be considered as a very first step.

Table 1: Suggested elements of an analysis of benefits of concurrent, low power use vs. the cost

Benefits	Vs.	Cost
Consumer demand and willingness to pay for services as may be provided by low power licensees. This would include consideration of the likely scale of take up so that the total potential consumer surplus could be evaluated. The assessment of consumer surplus needs to consider a relevant counterfactual, which in this case would not be zero (i.e. consumers are denied a service which they value). In this case the counterfactual would be the consumption of an alternative service, which is the close substitute as may be provided by national wholesalers or other communications service providers. Producer surplus less what is competed away in the auction.		Total consumer demand and willingness to pay for services provided by standard power licensees, i.e. most likely the consumer surplus derived from a scenario around mass market take up of LTE mobile services. The relevant counterfactual to measure the loss in consumer surplus against, which again is not zero but may be some form of degradation of services due to a capacity constraint that could potentially push prices up. Any producer surplus that would not be competed away in the auction.

We believe that such an important regulatory intervention can only be justified on the basis of a proper impact assessment conducted on the basis of a solid methodology. Ofcom has to be able to demonstrate with a certain level of confidence that the potential benefits of a reservation for concurrent, low power use outweigh the costs of that guarantee when it would appear that the costs of that reservation in terms of denied usage are higher than the benefits low power use could produce.

Finally, if the conclusion of the cost benefit analysis suggested that the potential benefits of low power licences outweigh the costs of denying standard power uses, Ofcom would have to demonstrate why, through the internalisation of those benefits in their bids, low power licences would not simply outbid standard power bidders in the auction. In Ofcom terminology, this would be a situation where the intrinsic value (in aggregate) of bidders for concurrent low power licences was higher than the intrinsic value of standard power bidders.

We do not believe it is possible that the benefits of low power licences could outweigh the costs of denying standard power use and still see low power users have lower intrinsic value (in aggregate) than standard power bidders. Any such difference would arise if there were some benefits to competition that the low power bidders would not internalise. However, the provision of mobile services in the UK is highly competitive and Ofcom has proposed a number of other measures to

[48] i.e. 4% of £15.1 billion

ensure a competitive wholesale market after the auction. Hence by definition, it is not possible that there are significant competition benefits unaccounted for in low power bids. If low power bidders have lower intrinsic value of the spectrum (in aggregate) than standard power uses, it would be inefficient to allocate spectrum to them in these circumstances.

As Ofcom notes, there is no evidence that low power bidders would be the victim of strategic bidding and not win even if they had higher intrinsic value. We would go further and say it is near impossible. First, as noted above, because the downstream market is already highly competitive, there is no value to bid solely to bar further market entry. Secondly, even if existing operators did have an incentive to do so, it is simply implausible that they would be able to come up with any sort of mechanism by which they could conspire to jointly outbid low power bidders. Looking at other European auctions of 2.6 GHz spectrum, it is highly likely that the existing four MNOs, and possibly other bidders, will compete fiercely for paired 2.6 GHz spectrum (on the basis of high intrinsic values) and there is no incentive or method by which they could collude or tacitly agree to bid in a way to keep new entrants out.

7.3 An unproven business model and the risk of sterilising spectrum

Ofcom licensed the DECT guard band at 1800 MHz in a similar fashion. This resulted in 12 concurrent, low power licences being awarded which are usable for GSM voice services. We are aware that Cable & Wireless markets a 'Fixed Mobile Convergence' service on the basis of this licence and has attracted two corporate customers. We have not seen much innovation from the other 11 licensees. BT, another vocal proponent of reserving 2.6 GHz for low power use, also won a licence, which we believe they do not use. As noted in our June 2011 Response, it would appear the DECT guard band spectrum is not widely used and has not given rise to any sustainable and scalable, new business models for mobile voice. Ofcom has not put forward any arguments as to why this business model might be more sustainable for data services. Importantly, Ofcom has not taken account of the significant risk that there may be less than 10 bidders for reserved spectrum. If Ofcom reserved spectrum for low power use and there were less than 10 bidders, or only a few of the licensees went on to use the spectrum productively, Ofcom would have sterilised a block of 2x10 MHz with no clear route back to more valuable standard power use.

Given the limited use of the DECT guard band licences and the possible alternative use of this spectrum for standard power GSM, UMTS or LTE services,[49] it seems quite clear that the DECT guard band award has given rise to an inefficient allocation of spectrum. This position is unfortunately now locked down due to the restrictive technical licence terms, meaning the secondary market cannot rectify this inefficiency. Ofcom is now in grave danger of repeating this mistake for the 2.6 GHz band.

7.4 Technical constraints

As explained in our June 2011 Response, we also do not believe that the technical viability of concurrent, low power licences is clear. We are aware that a code for coexistence has been agreed for the DECT Guard band licensees. However, the ability to agree a code is not the same as this being workable in practice and due to the low level of use we believe the DECT guard band code has never been tested in practice and proved a workable solution to prevent interference.

7.5 Conclusion

Ofcom has not provided any impact assessment with analysis or evidence to support that the benefits of reserving 2x10 MHz of 2.6 GHz outweigh the costs. It has simply noted that they may

[49] At 1781.7-1785.0 MHz paired with 1876.7-1880.0 MHz, the former DECT guard band is part of the 1800 MHz harmonised for GSM, UMTS and LTE.

possibly do. In doing so Ofcom has failed to have proper regard to its duty to carry out an impact assessment and/or has failed to adequately carry out such analysis.[50] We think that it is highly unlikely to be case that the benefits of low power reservation outweigh its costs on the basis of the experience with the DECT guard band licences and the demonstrable value that can be created by licensing this spectrum for exclusive standard power use. Any benefit to competition through low power licences is likely to be minimal or non-existent and should be seen in light of possible loss of consumer surplus through the creation of artificial capacity constraints for standard power use. It is highly implausible that MNOs would or could bid strategically to bar entry by low power bidders - individual MNOs do not have an incentive to do so unilaterally and there is no mechanism through which they can do so jointly. Therefore, to the extent that low power users could exploit this spectrum more profitably and bring greater benefits to consumers, they should be willing to out-bid standard power use. We believe that reserving 2x10 MHz of 2.6 GHz spectrum represents a very significant risk of producing an inefficient allocation, which we are strongly opposed to. We can however accept Ofcom's proposed alternative, namely to aggregate the bids of individual low power bidders.

[50] S7 of the Communications Act 2003.

8 Coverage obligation

We understand that there is a political desire to see a more extensive coverage obligation and we have some sympathy with this view. It is important that British consumers and businesses get access to the benefits of mobile broadband services soon and that such access is widely available. A coverage obligation will by definition come at a cost in terms of auction proceeds foregone. The decision to impose a coverage obligation, and at what level, is therefore ultimately a political decision because it involves a public spending decision (if not directly). As such, we have no objection in principle to increasing the coverage obligation if the Government believes this is a good use of public funds, provided that the coverage obligation is practical, proportionate and properly specified in order to avoid imposing unnecessary risk on licensees. We conclude in this section that, under certain conditions (meaning the detailed parameters defining the compliance), a 98% indoor data coverage obligation could be met without excessive cost to the public purse, [redacted] to deliver the 2 Mbits/s mobile broadband service level [redacted].

This section comments on a number of aspects in relation to the proposed coverage obligation in turn:

- the policy objective behind the coverage obligation and whether the use of “window ledge Customer Premises Equipment” would support that objective;
- the lack of a detailed definition of the proposed obligation meaning it is difficult to comment on the proposals;
- the geographical reach of the coverage obligation, where we present an alternative proposal to the two options Ofcom has put forward;
- the deadline for the coverage obligation and maintaining technology and band neutrality;
- that there should only be one coverage obligation; and
- [redacted]

8.1 Policy objectives – fixed vs. mobile broadband

Ofcom has proposed that the specified service subject to the coverage obligation should be 2Mbps minimum data rate **indoors**. We agree with Ofcom that indoor coverage is hugely important to the customer experience and we also agree that indoor coverage will become more important in the future for mobile data services.

Ofcom has analysed the impact on the cost of the provision of an indoor obligation through a "hybrid option", where some customers would be served with traditional macro cells but where this is too expensive customers could be offered a "window ledge CPE" to boost indoor coverage. We note that while such customer premises equipment (CPEs) would give individual users coverage at home, they would not provide a **mobile** data service, meaning a service that allows users data access to their smart phones, tablets etc. when on the move. We would therefore suggest that Ofcom should be clear about the policy objective it is trying to achieve before engaging in pragmatic discussions about how to deliver that policy most cost effectively. Is the policy aim to deliver fixed broadband (using a wireless technology) or is it to provide mobile broadband? We would suggest the former is already addressed by BDUK’s work and that it is more reasonable to consider mobile broadband in relation to spectrum licensing. [Redacted]

8.2 Definition of the coverage obligation and measurement of compliance

Although the consultation document discusses a number of aspects of the definition of the proposed coverage obligation, the proposal lacks detail. The details are very important for potential bidders to understand the practical implications of accepting the coverage obligations in terms of cost and feasibility. It is particularly important in the case of an indoor obligation, where as Ofcom acknowledges consumers' experience of indoor reception could depend on a number of aspects such as the thickness of the walls and whether there is double glazing. We note also the

wide range of parameters that Ofcom has put forward for building penetration loss in its technical analysis in this Consultation without adopting a specific position. If the obligation could be met partially through CPEs, it would need to be specified exactly how: e.g. does the licensee or the user pay for such CPE, does the licensee have to provide a window ledge CPE in response to any request (whether or not the CPE is actually needed or indeed used) or would that depend on a survey, can each user request a CPE for multiple locations etc.?

The detailed specification of the coverage obligation is also an important prerequisite for a meaningful discussion about the geographical extent of the coverage obligation. Changing one critical parameter in the verification methodology could change the resultant population coverage by several percentage points. Hence we cannot provide exhaustive comments on the proposed coverage obligation at this stage and we reserve the right to comment further when a complete proposal is presented. It is disappointing to see a proposal lacking so much detail almost a year after Ofcom first consulted on this issue.

One such critical, but missing, aspect of the proposed coverage obligation is the loading that is to be assumed in the network for the purpose of measuring compliance. In the consultation document, Ofcom refers to the work being undertaken by a working group on how to measure the revised 3G coverage obligation, and suggests that it "will take into account the outcome of these discussions in deciding how we should monitor compliance with any coverage obligations [...] included in 800 MHz..."[51] This working group has agreed that the relevant loading factor for the cell under consideration is 20%.[52] However, Ofcom has also published a study of the cost drivers of a coverage obligation on 800 MHz with this Consultation.[53] This study has used a network loading assumption of 85%.[54] Whether a network loading of 20% or 85% is assumed for the compliance measurement has a significant impact on the practicality and cost of meeting this obligation.

Other factors such as the assumed signal to noise plus interference ratio (SINR) and the building penetration loss are very important factors for stakeholders to be able to comment on the proposals. The building penetration loss factor in particular has clearly been subject of debate since Ofcom's March 2011 proposals and the technical analysis put forward in this Consultation show a wide range of possible values as we comment on in Section 2.

We want to stress that Ofcom needs to start the work on how compliance with the coverage obligation will be measured without any delay. This needs to be presented in the Information Memorandum at the very latest, as it is an important factor for bidders' assessment of the value of a block with a coverage obligation attached. Experience shows that this can be time consuming to work through.

Everything Everywhere believes that, under certain conditions (meaning the detailed parameters defining the compliance), a 98% indoor data coverage obligation could be met without excessive cost to the public purse, [redacted] to deliver the 2 Mbits/s mobile broadband service level [redacted]. It is important to note however that more stringent compliance conditions will increase rapidly the cost and practical challenges to deliver the obligation.

[Redacted]

Our comments in the remainder of this section are predicated on Ofcom adopting reasonable assumptions for the detailed specification of the coverage obligation.

8.3 Geographical reach of the coverage obligation - alternative proposal

[51] Section 5, paragraph 5.82
[52] "Coverage obligation verification" note circulated by Ofcom to working group on 17 February 2012
[53] "Technical analysis of the cost of extending an 800 MHz mobile broadband coverage obligation for the United Kingdom", realwireless for Ofcom, January 2012
[54] Ibid p. 85

Ofcom suggest in its consultation document that an obligation to provide coverage to materially more than 95% of the UK population could be specified in one of two ways:

- Approach A: 98% UK population coverage
- Approach B: "coverage comparable to the 2G mobile voice coverage delivered by today's 2G mobile networks (in combination) plus the extended mobile voice coverage achieved as a result of the MIP, to the extent the MIP infrastructure is capable of supporting 4G network equipment";

and that Ofcom prefers Approach B.

We are strongly opposed to Approach B, which is too vague to be measurable in practice. The reach of the coverage obligation needs to be defined with an absolute reference. The terms '2G coverage' and 'mobile voice coverage delivered by today's 2G mobile networks (in combination)' are not clearly defined, for example:

- Is '2G coverage' indoor or outdoor coverage? The high coverage figures referred to seem to relate to outdoor coverage. The MNOs currently have slightly different approaches to what they define as outdoor coverage in terms of signal strength - there is no general agreement on what constitutes outdoor coverage.[55]
- What does today's 2G coverage mean? The geographical area covered by 2G networks (combined) is subject to change over time and it is not clear how Ofcom would be able to measure future compliance.

Hence Approach B could peg the geographical reach of the coverage obligation to something that is a moving target and not clearly defined - this is highly undesirable as it would impose unnecessary risk on the holder of the coverage obligation and thereby also make the obligation unnecessarily expensive for the Government.

Moreover, the formulation around 'combined 2G coverage' would seem to assume that the operator who holds the coverage obligation can get access to the sites of other operators so that cost of the coverage obligation would be restricted to the incremental cost of upgrading sites as opposed to erecting new sites. This is not the case - MNOs are unlikely to help, or be able to help, with the network roll out of competing operators. Importantly, many sites will not have the structural capability to take on additional equipment without significant strengthening or rebuild costs, in additional causing disruption of the operational service of the host competitor. Hence to the extent that 'current, combined 2G coverage' goes significantly beyond the coverage of individual 2G networks, Approach B is likely to prove quite expensive to implement.

In contrast, an obligation to provide coverage to where 98% of the UK population live according to the latest available census data is an objective and absolute reference, which - subject to the calculation parameters being specified - would enable prospective bidders to evaluate the cost of fulfilling the obligation with a good level of confidence.

However, we understand the desirability of getting mobile broadband services to current mobile voice not-spots as to be addressed by the MIP. It is likely that such areas would not be provided with mobile broadband services on a commercial basis either and we agree with Ofcom that there is a good case for making sure that MIP sites should form part of the coverage solution. The obligation on the 800 MHz licensee with the coverage obligation could be to provide coverage from the MIP sites, insofar as such an addition is anticipated at the MIP site development stage, to avoid the need to modify early in life the antennas, feeders, backhaul or physical structure of these MIP sites.

[55] For example, we note that BDUK in its recent work to define 'total not-spots' for the purpose of the Mobile Infrastructure Programme chose to define coverage with reference to a given outdoor signal strength of -86dBm. This measure is not used by any of the operators in practice.

An alternative proposed 'Approach C' (subject to a reasonable specification of the detailed parameters as discussed in Section 8.2 above) is therefore that the coverage obligation could specify coverage to where 98% of the UK population lives, including the MIP sites where technically feasible. For the avoidance of doubt, the coverage achieved through the MIP sites would count towards the overall 98%.

We believe it would be very costly to specify a separate target for coverage in each nation.

8.4 Timelines and technology

We support Ofcom's proposal that the deadline for meeting the coverage obligation should be the end of 2017. This is the earliest possible date by which it is practically achievable bearing in mind also that a more extensive obligation is now proposed, which will be harder to meet, and given the delays in 800 MHz availability due to the need to protect DTT until the end of 2013.

We support Ofcom's proposal that the obligation should be technology and band neutral, i.e. the licensee who has the coverage obligation should be able to deliver the specified service in whichever way is most cost effective. The policy concern is about citizens receiving a specified mobile broadband service, not which frequency band or radio access technology that is used to deliver it.

8.5 One coverage obligation

Ofcom has proposed that one of the spectrum licences to be awarded should be subject to a coverage obligation. Everything Everywhere is very supportive of this proposal.

The policy issue which this intervention aims to address is one of potential lack of service, not lack of choice. A coverage obligation is costly by definition as it is a public subsidy to push services into areas that are not profitable to serve. This is costly and it would be a waste of public funds to require duplication of such subsidised infrastructure in non-profitable areas.

Some respondents commented in response to the March 2011 Consultation that there could be competition problems if a small number of geographical areas only had network coverage from one licensee. However, this completely ignores the fact that the service to be provided under the obligation is a **mobile** service. Mobile services are not priced on a geographical basis for the simple reason that customers are not limited to buy and use the service in the area where they live. It is not sustainable for an operator who may be the only provider in a given village to charge higher prices there, as residents of that village would just sign up to a PAYG plan or a PAYM plan using a different address. The experience with the roll-out of both 2G and 3G networks suggests that competitive tension drives wide network roll out because coverage is an important plank of competition. There is no reason to suspect this will be any different with LTE. As long as competitive networks are rolled out in most geographical areas, geographically uniform pricing will ensure competitive offers in any location. Hence there is no competition problem and it is not necessary to have more than one coverage obligation and duplicate subsidised roll out in unprofitable areas.

We do not believe that it is necessary to mandate the licensee subject to the coverage obligation to a wholesale access obligation. We think it is more appropriate to leave an incentive for licensees to roll out competitive networks as extensively as possible. On a national basis, there are plenty examples of MVNO deals or national roaming agreed on a commercial basis. There is absolutely no suggestion of a risk of market failure and hence it would be disproportionate to intervene ex-ante. In the very unlikely situation that the problem should arise, Ofcom would have sufficient powers to regulate for wholesale access ex-post. This could potentially leave a question of restricted wholesale access in geographical locations where the licensee with the coverage obligation is the only wholesale provider. However, it is not practically feasible to determine which

individual site locations are unprofitable and hence only covered as a result of the coverage obligation.

8.6 [Redacted]

8.7 Conclusion

A coverage obligation is a political decision as it involves a public spending decision. We have sympathy with the political desire to see extensive roll out of mobile broadband services. As such we are not opposed to a coverage obligation that is more extensive than the 95% population coverage first proposed by Ofcom, provided this is practical, proportionate and properly specified. We think Ofcom's preferred Approach fails this test, and we propose an alternative specification on the basis of 98% UK population coverage including deployment on the MIP sites, where that was planned for at site build stage. We believe that the coverage obligation should be about mobile broadband and hence we think an indoor coverage obligation without the use of CPEs is most relevant. We urge Ofcom to prioritise its work to define how compliance with this target would be measured, in order that this can be published with the Information Memorandum at the very latest. The choice of the compliance parameters has a huge effect on the implementation cost, and can mean the difference between meeting the obligation as a true mobile broadband service without excessive cost to the public purse, and an impractical obligation with significant financial burden and questionable benefits. In between, there is a risk of blurring of the policy objectives regarding mobile and fixed service provision. We note that the policy objective can be achieved through one coverage obligation and that it would therefore be a waste of public funds to require all 800 MHz licensees to meet this obligation. [Redacted]

9 Answers to consultation questions

Question 4.1: Do you agree with our assessment of the competition concerns relating to national wholesale competition that could arise if the auction took place with no measures to promote competition? Please state your reasons for your views.

No, Everything Everywhere disagrees with Ofcom's assessment for the reasons we have explained in Section 2. We do not believe that Ofcom's competition analysis is robust and as explained in Section 3, we are also very concerned that Ofcom seems to have skewed its technical modelling in a way which justifies not intervening to ensure a better distribution of sub-1 GHz spectrum.

[Redacted]

Question 4.2: Do you agree that option 4 should be adopted to promote national wholesale competition? Please state the reasons for your views.

No, Everything Everywhere does not agree that Option 4 should be adopted to promote national wholesale competition. [Redacted] As explained in Section 6, we are also concerned that it seems Ofcom's assessment of different possible Options for intervention was prejudged in favour of Option 4.

In Section 6, we also explain why we think an intervention along the lines of Option 3 is much preferred and that in fact Ofcom's own analysis supports this. [Redacted] We would question whether the overall cap needs to be quite as tight as 2x80 MHz and we think the sub-1 GHz cap could be slightly looser at 2x22.5 MHz, potentially with a sub-cap on 800 MHz.

Question 4.3: Do you agree that the portfolios in group 2 (middle portfolios) of option 4 are likely to be most appropriate and proportionate implementation of this option?

Absolutely not. We do not believe that Ofcom's competition analysis provides sufficient justification for Ofcom's preferred intervention in Option 4. Hence if Ofcom were to progress with its intention to implement Option 4, despite the lack of justification and despite the incentive problems we have pointed out, it would need to take the least interventionist version of Option 4, i.e. Group 1 (small portfolios), in order to minimise the risk of regulatory failure.

Question 4.4: Do you believe that geographically split licences for a particular block of 2.6 GHz spectrum between standard power use and lower power use is likely to create significant additional benefits for consumers?

No. A geographical split would be very difficult to implement and as explained in Section 7, we are very concerned that restricting any 2.6 GHz licences to low power (even if only in certain geographical areas) when the business model for their use is unproven, risks sterilising valuable spectrum forever as there is no mechanism for the secondary market to convert these licences back to more efficient standard power use. In the unlikely event that somebody had a strong business case for a service based on establishing low power networks in rural areas, they should approach the standard 2.6 GHz licences with a view to agree this kind of spectrum sharing, for example through spectrum leasing. Ofcom's spectrum framework is sufficiently flexible to allow the market to develop these solutions. As there will be competition amongst national wholesalers, a potential low power user will be able to lease such spectrum access provided that a technical solution can be found and provided its business case allows it to pay for the spectrum lease in accordance with the opportunity costs of the standard power licensee.

Question 4.5: Please provide your views including the reasons for them on which options you believe should be taken in relation to promoting low power shared use of 2.6 GHz spectrum.

As explained in Section 7, Everything Everywhere is strongly opposed to any form of reservation of 2.6 GHz spectrum for low power use. This would be a very costly mistake in terms of the value foregone that could be created with standard power use. Despite the length of this consultation document, including a separate Annex of 250 pages on the competition assessment, the analysis of the cost and benefits of reserving spectrum for low power use is cursory. Ofcom has not made any attempts at quantifying the benefits of low power use - at the very least to understand the order of magnitude - and it has only considered the costs of denying standard power access in terms of the opportunity costs of the spectrum. Although this is a significant amount, it is only the tip of the iceberg in terms of the value through consumer welfare created by standard power users. As such we cannot accept that Ofcom has conducted a proper Impact Assessment of this very significant intervention. We are also concerned that licences restricted to low power use would not be technology and service neutral.

Question 5.1: Do you have any comments on the proposal to include a coverage obligation in at least one of the 800 MHz licences, and the proposed extent of such a coverage obligation?

The decision to impose a coverage obligation is a political decision as it involves public spending. We have sympathy with the political desire to make sure that mobile broadband services are widely available as soon as possible. Please refer to Section 8 where we explain our views in detail.

Question 5.2: Do you have any comments on which of the two approaches proposed for the specification of such an obligation would be preferable: Approach A, which would require the licensee to provide a 4G mobile data service to an area within which at least 98% of the UK population lives; or Approach B, which would require the licensee to provide the specified mobile data service with coverage comparable to the combined mobile voice coverage of today's 2G networks and in addition to provide the same service with coverage comparable to that of the additional mobile voice coverage achieved through the MIP, in those areas where MIP infrastructure is capable of supporting a 4G mobile data service?

It is difficult to discuss the geographical extent of a coverage obligation in the abstract as the geographical coverage depends on the precise technical specifications of what is being measured. In any case, the geographical extent of the coverage obligation needs to be much clearer defined than "current 2G coverage (combined)" in order to avoid costly uncertainty. As such we do not agree with Ofcom's preferred approach but, subject to an appropriate technical specification have suggested an alternative 'Approach C' whereby the obligation would be to cover an area in which 98% of the UK population lives according to the latest census results, including the provision of services from the MIP sites where feasible. Please refer to Section 8.

Question 5.3: Do you have any comments on our assessment that it is unlikely to be proportionate to impose such a coverage obligation on more than one licensee?

Yes, as explained in Section 8, we believe it would be an unnecessary waste of public funds to have more than one coverage obligation.

Question 5.4: Do you have any views on the costs and benefits of a wholesale access obligation on the licensee with the coverage obligation in respect to those areas beyond existing 2G mobile voice coverage?

We do not believe this is necessary and agree with the reasons put forward by Ofcom, particularly in paragraph 5.74.

Question 5.5: Do you have any comments on the possibility that we may in certain limited circumstances consider granting concurrent licences as set out in paragraphs 5.88 to 5.93?

Assuming that the delivery of a given policy objective would lead to a financial loss (if not, we would expect the market to deliver the given service), Ofcom should clarify that the licensee would receive financial compensation for a later request to deliver a specific broadband policy goal. That is, the second bullet point in paragraph 5.90 listing circumstances under which Ofcom would consider granting concurrent licences should read, "the relevant licensee was unwilling or unable to provide services to deliver that Government policy **against appropriate financial compensation** and the licensee was unwilling to trade the spectrum to allow another to do so".

This was the essence of the analogous discussion in the March 2011 Consultation on whether to include a licence condition allowing partial revocation under given conditions.

Subject to this clarification, we do not think it will become necessary to grant concurrent licences and we believe this should be avoided. As stated in our June 2011 Response, if the financial compensation offered is appropriate in light of the cost of delivering the given policy objective, a licensee would of course provide the requested services.

Question 6.1: Do you agree with our revised proposals for the packaging of the 800 MHz band? Please state the reasons for your preference.

We are pleased that Ofcom has accepted the evidence provided in our June 2011 Response that the proposed coverage obligation "with a sustained downlink speed of not less than 2Mbps; with a 90% probability of indoor reception" can only be delivered with 2x10 MHz of 800 MHz. This has obvious implications for spectrum packaging in the 800 MHz.

We agree that, except for the package subject to the coverage obligation, the 800 MHz band should be packaged into lots of 2x5 MHz. In order to minimise complexity in the auction, it would be desirable if there could be two categories of 800 MHz lots: a category containing four lots of 2x5 MHz and another containing one lot of 2x10 MHz subject to the coverage obligation. However, this is of course subject to the proposals for dealing with any DTT/LTE800 coexistence issues and we reserve the right to comment further on the packaging of the 800 MHz band in light of Ofcom's final decision on coexistence.

[Redacted]

Question 6.2: Do you agree with our revised proposals for the packaging of the 2.6 GHz band? Please state the reasons for your views.

Yes. Everything Everywhere is pleased that Ofcom has changed its proposal to award the 2.6 GHz FDD band in lots of 2x5 MHz. As explained in our June 2011 Response, this has better scope for producing an efficient assignment. We also agree that it is better to award the 2.6 GHz TDD spectrum in lots of 5 MHz with the requirement that each licensee sets aside the lowest 5 MHz block as a guard band.

Question 7.1: Do you agree with our revised proposals for the number of eligibility points that should attach to each lot? Please state the reasons for your views.

We cannot comment on this aspect until we have sight of the proposed reserve prices.

Question 7.2: Do you have any comments on the proposed auction rules as explained in Section 7, Annex 11 and Annex 12? Please state the reasons for your views.

[Redacted]. We comment on some other aspects of the auction rules below.

- The Updated Activity Rules

Everything Everywhere is cautiously supportive of the updated activity rules. Our hesitation stems from the fact that although they are more consistent with allowing bidders to bid on their most profitable package during the auction, they are certainly more complex than prior rules. We note that they take Ofcom towards the revealed preference activity rule, which was first proposed for the 10-40 GHz auction and subsequently rejected despite its desirable incentive features because it was too complex.

- The Stopping Rule and Excess Demand

We are strongly opposed to Ofcom's proposed Option 4 and the MPPs as defined in that Option. However, if hypothetically Ofcom was to attempt to implement an auction with the MPPs we agree that the updated stopping rule would represent an improvement to the auction mechanism. [Redacted]

- Ofcom's Revised Pricing Rule

In the event that Vickrey prices are not in the core, Ofcom has contemplated two different methodologies for calculating base prices. The first is Vickrey nearest (used in the 10-40 GHz auction and proposed in the initial 2.6 GHz consultation) and the second is Linear Reference Pricing. Ofcom states that it supports Linear Reference Pricing for the combined award. Everything Everywhere agrees with Ofcom that Linear Reference pricing is appropriate. The reason is two-fold:

- First, because prices from the auction will be used to set annual spectrum fees, it makes sense that those fees can be reasonably discernable.
- Second, given Ofcom's revised stopping rule, linear reference pricing is attractive. Specifically, it is plausible that the Primary Rounds persist entirely to accommodate the competition constraint in only one band. If Vickrey prices are not in the Core, then linking base prices to the clock prices seems to have a "measure of fairness" (for lack of a better term) as those prices would be more consistent with the demand for the product that extended the primary rounds.

- Allowing Bidders to Express Spectrum Sharing Preferences

Certain stakeholders have expressed the view that bidders should be able to express a preference for spectrum that is adjacent to another bidder. In response to this, Ofcom has considered various mechanisms that could be used to allow bidders to express this preference. The only option that Ofcom did not reject for various reasons (such as competition) was to amend bidding during the Assignment round of the auction. Specifically, Ofcom proposed that were it to allow bidding for spectrum adjacent to that of another participant in the auction, it would be most appropriate to allow this in the Assignment stage. Ofcom then asked for comments on whether this would be appropriate.

Everything Everywhere would find it problematic to allow bidders to express preferences to obtain spectrum adjacent to another bidder during the assignment stage. The primary reason is that

allowing bidding for spectrum sharing would potentially harm the ability of some competitors in the auction to procure spectrum that would be most suitable for network sharing. Specifically, unlike spectrum sharing, network sharing is ideal when spectrum blocks are distanced between one another. By allowing bidders interested in spectrum sharing to bid for specific frequencies and to express preference for spectrum next to another bidder, the natural outcome could harm the efficiency of network sharing arrangements within the various spectrum bands.

The second reason why allowing bidders to express preferences for adjacency in the Assignment Stage should be rejected is that it is very likely unnecessary. In the Assignment Stage bidders active on spectrum after the primary rounds will be given a list of feasible assignments they can bid on. Given that the 800 MHz band will have at least two clocks, the assignments in this band will largely be determined in the Primary Rounds. In the 2.6 GHz band, bidders will know the amount of spectrum they have procured, and given the allowable assignments they can bid, on that list of assignments will provide insight into the amount of spectrum that competitors have won. This information alone would assist substantially in procuring spectrum adjacent to another particular bidder. Put simply, consider that bidders interested in spectrum sharing would naturally submit Assignment Stage bids showing preferences for the centre of the 2.6 GHz band. If two bidders do this separately, they are likely to gain assignments in the centre of the band and they would therefore be adjacent to one another. Consequently, the Assignment Stage, and the auction in general, already contains a mechanism that facilitates bidding for spectrum sharing. Therefore, there is no need for Ofcom to complicate the existing design to the detriment of bidders who may wish to network share and not spectrum share.

Question 8.1: Do you have any comments on the Additional Spectrum Methodology as one of several sources of information for estimating the full market value of spectrum?

Everything Everywhere does not see a great need for the Additional Spectrum Methodology. Ofcom has carried out a substantial amount of analysis to show that the concerns[56] it is supposed to address are very unlikely to be valid so we are surprised that Ofcom has put so much effort into developing and explaining this methodology. It would seem to us that Ofcom could have used its resources better on analysis and clarification that would reduce the uncertainty around ALFs for 900 and 1800 MHz licensees, [redacted].

Question 8.2: Do you have any comments on our updated thinking on estimating full market value for the purpose of revising ALF as set out in this section and Annex 13?

Everything Everywhere is very disappointed that Ofcom has not taken the opportunity to reduce the very significant uncertainty that now exists around the revised ALFs to be imposed on the existing 900 and 1800 MHz licensees. This uncertainty is greater for 1800 MHz than it is for 900 MHz, because it is very plausible that that there will be no direct benchmark for 1800 MHz in the auction whereas 900 MHz has a direct reference in 800 MHz. Ofcom has put forward pages and pages of analysis addressing the concerns put forward by the existing 900 MHz licensees. We find this difference of treatment unfair, bordering discrimination.

We put forward several issues in our June 2011 Response, which Ofcom has not addressed. As these are not related to the auction outcome, Ofcom cannot rely on the Government Direction[57] requiring them to take account of the auction for not having analysed these. In particular:

[56] The risk of an inefficient auction outcome as a result of bidders shading their bid for 800 MHz and 2.6 GHz spectrum in the auction in order to avoid pushing up the ALFs payable on their retained spectrum 900 and 1800 MHz spectrum.
[57] The Wireless Telegraphy Act 2006 (Directions to OFCOM) Order 2010

- How does Ofcom anticipate deriving ALFs for 1800 MHz if no 1800 MHz is awarded in the auction? In its March 2011 Consultation, Ofcom put forward a completely unfounded suggestion that the 1800 MHz would be calculated as the arithmetic average of 800 MHz and 2.6 GHz. We put forward an alternative suggestion in our June 2011 Response, which Ofcom has not related to at all in this Consultation. It is therefore unclear whether Ofcom's proposal of March 2011 still stands or whether Ofcom will consider an alternative methodology with a sounder rationale? We are very disappointed that Ofcom has not committed any time and resource to analyse this question and taken the opportunity to provide some more clarity.
- In its March 2011 Consultation, Ofcom set out a formula for converting the up front capital value determined by bids in the auction to annual payments. But which discount rate will it apply in the implementation of this formula? We explained in our June 2011 Response that we believe it is most relevant to apply the Government's social preference rate as set out in the Green Book.

Question A7.1: We would welcome comments on any aspect of the data, assumptions and modelling methodology we have used in our technical analysis, in particular our approach to serving users in a range of both easier and harder to serve locations.

Ofcom's model is based on a set of assumptions for customer locations for which there is no evidence. EE believes that a far higher proportion of consumers are located at penetration losses associated with the greater depths than the distribution described by Ofcom. This is reflected in median building penetration losses used by Everything Everywhere and its shareholding organisations.

The model results presented by Ofcom are nothing but an illustration of the implication of the set of assumptions for the user locations. Please refer to Section 3 for our full comments on Ofcom's indoor propagation modelling.

Further comments have been made in Section 3 on the high network loading values used in the modelling. In addition, Everything Everywhere believes that the overheads of LTE are too low at approximately 20%. It is expected by 3GPP for higher loads that the overhead rate would be 30%, relating to a 3 symbol overhead for PDCCH. This error will have the effect of making the data rates specified in this Consultation more difficult to achieve.

Question A7.2: We would welcome any additional information, in particular from current operators, on the choice of parameters making up our 'Min var and 'Max var' cases.

[Redacted]

We do not object to sensitivity analysis in principle but we are concerned that Ofcom is intending to make such important policy decisions without having a view of what is a likely and reasonable central view. Please refer to Section 3 for our detailed comments.

Question A8.1: Do you agree with our assessment of when Everything Everywhere, Vodafone and Telefónica are likely to be able to refarm their existing 2G spectrum? In particular, do you agree with our views on the importance of user devices and the likely availability and take-up of devices that use different technologies and bands? Please state the reasons for your views, including if appropriate your views on handset roadmaps and the practical constraints which apply to those roadmaps.

We agree with Ofcom's comments that Vodafone and O2 could refarm 2x10 MHz earlier than 2016, albeit at some cost to handle displaced 2G traffic. Further, we do not expect such a cost to be very significant to bring this date forward by 2-3 years to 2013/14. Ofcom's comment that

"Everything Everywhere could potentially move 2G traffic at 1800 MHz to UMTS2100, which would be easier due to the higher the take-up of UMTS2100 capable user devices" applies similarly to Vodafone and Telefonica. UMTS900 provides a competitive advantage in the provision of mobile broadband services for reaching the deeper indoor users served by GSM900, however it is not a strict prerequisite for the more rapid refarming of 900 MHz, as a significant (and growing) proportion of the users already have UMTS2100 capability. UMTS2100 is deployed sufficiently densely in the high traffic areas that the majority of traffic of users with a UMTS2100 device could be carried on UMTS2100. Indeed, with its existing significantly higher PAYM base as a proportion of total subscribers compared to Everything Everywhere and Telefonica, Vodafone's UMTS2100 device penetration is likely to be similarly higher, thus easing this transition. Telefonica has managed already to refarm 2x5 MHz of 900 MHz in some of the most challenging areas for serving traffic, so Vodafone, with a higher UMTS2100 base and a lower overall number of subscribers, should be able to match this comfortably in 2012 and be able to go further soon afterwards.

Ofcom's estimate for Everything Everywhere's timetable to be able to refarm 1800 MHz spectrum for LTE is a reasonable reflection of the complexity involved in the network integration of the Orange and T-Mobile 2G networks, and the adverse consequences this has on the flexibility to refarm.