

*everything
everywhere™*

*Notice of proposed
variation of Everything
Everywhere's 1800 MHz
licences to allow use of
LTE and WiMAX
technologies*

*Everything Everywhere's response to
Ofcom*

Non-Confidential

08 May 2012



T-Mobile

Table of contents

1	Introduction	5
2	Legal framework.....	6
2.1	The applicable EU and UK legal framework	6
2.2	Relevant statutory duties.....	7
2.3	Process for considering a licence variation request	8
2.4	Relevance of the T-Mobile/Orange merger decision	9
2.5	Conclusion.....	12
3	Factual background	13
3.1	Clear need for additional capacity to meet the growth in mobile broadband usage	13
3.2	18
3.3	Availability of other spectrum for LTE	24
3.4	Conclusion.....	28
4	Benefits to consumers	30
4.1	LTE will add to the substantial economic value derived from mobile services	30
4.2	Increased capacity from use of 1800 MHz for LTE.....	31
4.3	Improved data rates	32
4.4	Lower latency will support bandwidth heavy services	35
4.5	Ability to prioritise traffic will improve quality of service.....	35
4.6	Productive efficiencies	36
4.7	Incentivising innovation and investment	36
4.8	Consumer detriment if LTE is delayed	39
4.9	Conclusion.....	40
5	No material risk of distortion to competition	41
5.1	Relevant markets.....	41
5.2	UK continues to be among the most competitive markets in the EU.....	45
5.3	Competition will be reduced if Everything Everywhere cannot launch LTE	46
5.4	Any risk of a distortion of competition is addressed by the EU Commitments.....	47
5.5	Limited competitive advantages will result from an early launch of LTE.....	47
5.6	Potential competitive advantage will not endure beyond the Interim Period	51
5.7	Conclusion.....	52
6	Ofcom's assessment assuming material risk of distortion of competition.....	54
6.1	Assessment of potential measures to address any temporary distortion to competition.....	55
6.2	Delaying liberalisation.....	55
6.3	Regulated wholesale access.....	56
6.4	Redistributing rights of use for 1800 MHz spectrum.....	57
6.5	Assessment of potential measures to address any enduring distortion to competition	57

6.6	Any enduring distortion which arises could be addressed by the market review process	58
6.7	Conclusion.....	58
7	Comments on Technical Licence Conditions	59

Figures

Figure 1: Everything Everywhere's PAYM customer base with smartphones	14
Figure 2: [REDACTED]	15
Figure 3: [REDACTED]	19
Figure 4: [REDACTED]	21
Figure 5: [REDACTED]	28
Figure 6: [REDACTED]	33
Figure 7: Peak download rates for HSPA vs. LTE (2x2 MIMO in same bandwidth).....	34
Figure 8: UK mobile operator 3G launch dates	37
Figure 9: Deployment of LTE in Sweden	37
Figure 10: 4G network capabilities compared to predecessor wireless broadband technologies.....	38
Figure 11: Monthly line rental for new mobile contract connections	49

Tables

Table 1: Penetration levels of different population groups by device type	13
Table 2: Mobile benchmark data for European market (3 month average ending January 2012)	14
Table 3: Spectrum holdings available for UMTS for each operator in 2011	18
Table 4: [REDACTED]	19
Table 5: [REDACTED]	20
Table 6: Deployment strategies and target markets for LTE.....	26
Table 7: Anticipated timing of LTE network launches in different frequency bands.....	28
Table 8: Peak Downlink Comparison of data rates between HSPA+ and LTE	34

Executive summary

Ofcom has proposed to vary Everything Everywhere's 1800 MHz licences to permit the deployment and use of 1800 MHz licences for LTE and WIMAX technologies as soon as possible, concluding that it would be in the interests of consumers and citizens for it do so. Everything Everywhere strongly agrees with this view and considers that it would be consistent with Ofcom's statutory duties to agree to Everything Everywhere's request.

Everything Everywhere plans to launch LTE services [REDACTED], subject to receiving the necessary authorisation from Ofcom to do so. This will result in considerable benefits for citizens and consumers. These benefits will be evident both in the short term, in terms of the improved quality of a number of aspects of Everything Everywhere's mobile services available to early adopters of LTE, but also in the longer term as a result of the further investment in LTE technology in the UK and innovation across the mobile value chain which will be stimulated by Everything Everywhere's launch of LTE services.

There is clear demand from consumers in the UK for LTE services to be introduced as soon as possible. LTE technology, which represents an incremental upgrade from existing 3G technology, offers increased mobile broadband capacity, faster data download speeds and improvements in service due to lower latency and improvements in the ability to prioritise traffic. There is also a growing need for mobile operators to invest to upgrade the capacity of their networks to meet the explosive growth in demand for mobile data services which has been witnessed in recent years. Investing in LTE technology provides an important route by which operators can expand the capacity of their networks, thereby avoiding congestion issues which would have a detrimental effect on the consumer experience. This is also evidenced by the rapid deployment of LTE elsewhere in the world – 34 countries have already launch LTE services.

It is, however, important to bear in mind that while LTE is expected to ultimately provide significant enhancements over and above existing 3G technology, including the HSPA and HSPA+ standards, the full capabilities of LTE will not be realised for a number of years. The performance gap between LTE and 3G will expand over time as new releases of LTE, particularly LTE-Advanced, and devices supporting additional upgrades, become commercially available.

As such, while LTE services will provide material benefits to consumers following Everything Everywhere's launch, any competitive advantage which Everything Everywhere will obtain as a result will not be unmatched or enduring and there will, therefore, be no distortion of competition. Indeed, the extent of any such advantage will be limited by a number of factors. These include the

[REDACTED], as well as the limited choice of tested, LTE1800 compatible handsets. A limited competitive advantage of this nature is entirely consistent with the normal evolution of competitive mobile markets, and there are a number of steps which competitors will be able to take in the short term to reduce the extent of any such advantage, including upgrading their own 3G networks. Any such steps taken in response to Everything Everywhere's launch can only increase the resultant consumer benefits.

Moreover, any competitive advantage gained by Everything Everywhere would not endure beyond the point at which competitors are able to launch their own LTE services [REDACTED]. At the latest, this will be shortly after the completion of the 800 MHz and 2.6 GHz spectrum auction, which is expected to be in early 2013. Everything Everywhere believes that Ofcom has taken a highly conservative approach to assessing the likely duration of any such advantage, which should be revised in light of the considerations set out in this response (see in particular section 3.3 below). Furthermore, as the UK is required to make the amendment to Everything Everywhere's licences by 31 December 2012 pursuant to Decision 243/2012/EU, the correct counter-factual against which to assess any harm to competition is a launch on 1 January 2013. It is not credible

to suggest that the launch of LTE [REDACTED] earlier than this could give rise to any material or enduring harm to competition.

In any event, Ofcom correctly concludes that there is no material risk of a distortion of competition as a result of Everything Everywhere's LTE launch. This is consistent with the view taken by the European Commission in its assessment of the T-Mobile / Orange merger that any competition concerns associated with Everything Everywhere being the only operator with a clear path to launching full coverage LTE at the best possible speeds ahead of the spectrum auction were addressed, in their entirety, by the commitments given by France Telecom and Deutsche Telekom, including in particular the commitment to divest 2x15 MHz of 1800 MHz spectrum. Given the limited and temporary nature of any possible competitive advantage Everything Everywhere considers that it would be wholly inappropriate, and unnecessary, for Ofcom to intervene by imposing any regulatory measures. Any such measure would be disproportionate and would risk significant detriment to consumers by further delaying the roll-out of LTE in the UK.

Everything Everywhere therefore wholly supports Ofcom's intended declared intention to vary Everything Everywhere's licences for LTE as soon as possible, which will be to the benefit of consumers and citizens throughout the UK. A failure to do so would not only be inconsistent with Ofcom's legal duties, but would also be of significant detriment to consumers and the wider UK economy.

1 Introduction

This is Everything Everywhere's response to Ofcom's Notice of a proposed variation to Everything Everywhere's 1800 MHz licences to allow LTE and WiMAX. Everything Everywhere strongly supports Ofcom's proposal to vary Everything Everywhere's 1800 MHz wireless telegraphy licences (the "Proposed Variation") and we welcome the opportunity to comment on Ofcom's analysis and reasoning.

Everything Everywhere's response is structured as follows:

- Section 2 sets out our comments on the applicable legal framework;
- Section 3 [REDACTED]
- Section 4 sets out the benefits which consumers will experience as a result of Everything Everywhere's LTE launch;
- Section 5 sets out further evidence in support of Ofcom's conclusion that the Proposed Variation will not give rise to a material risk of a distortion of competition;
- Section 6 sets out our views on why the remedies hypothetically available to Ofcom are inappropriate and wholly disproportionate in the circumstances of this case; and
- Section 7 sets out our comments concerning the technical licence conditions

2 Legal framework

Everything Everywhere agrees with Ofcom's analysis of the applicable legal framework. Based on this analysis:

- the Proposed Variation is consistent with Ofcom's statutory powers and duties; and
- Ofcom has complied with the relevant procedural requirements and may proceed to vary the licences in accordance with its notice.

2.1 The applicable EU and UK legal framework

The European Commission's Radio Spectrum Committee Decision 2009/766/EC (as amended by Decision 2011/251/EU)¹ requires Ofcom to designate and make available the 900 MHz and 1800 MHz spectrum bands for LTE by 31 December 2011. Use of this spectrum for LTE can only take place after implementation of the necessary licence amendments in accordance with the Authorisation Directive.² Under Decision 243/2012/EU, Ofcom is required to carry out the authorisation process by no later than 31 December 2012, under conditions that allow consumers easy access to wireless broadband services.³ Everything Everywhere is seeking a variation of its 1800 MHz licences as soon as possible and in any event prior to the proposed launch of LTE services [REDACTED].

As Ofcom has noted, licensees have been able to apply for licence variations from 31 December 2011 authorising them to operate LTE in the 1800 MHz band.⁴ It is clear that Ofcom may grant such a variation prior to 31 December 2012, as Decision 243/2012/EU contemplates that rights of use of spectrum should be awarded quickly and that there should be easy access to wireless broadband for all.⁵ Decision 243/2012/EU also requires Ofcom to carry out the authorisation process to allow UMTS to be used in the 900 and 1800 MHz bands by 31 December 2012. The licence amendment process for UMTS900 was completed following requests from Telefónica and Vodafone in January 2011.⁶

An application for a licence variation must be considered in accordance with the requirements of the Authorisation Directive and the Framework Directive as implemented by the Wireless Telegraphy Act 2006 (the "2006 Act") and the Communications Act 2003 (the "2003 Act"). Article 14 of the Authorisation Directive provides that a wireless telegraphy licence may only be amended in objectively justified cases and in a proportionate manner.⁷ Unlike the position in relation to 900 MHz spectrum, there is no specific obligation on Ofcom to undertake a competition assessment prior to granting a licence variation in relation to 1800 MHz spectrum.⁸

¹ Commission Implementing Decision of 18 April 2011 amending Decision 2009/766/EC on the harmonisation of the 900 MHz and 1800 MHz frequency bands for terrestrial services capable of providing pan-European electronic communications services in the Community.

² Telefonica O2 v Office of Communications [2010] CAT 25.

³ Article 6(2) of Decision 243/2012/EC of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme.

⁴ Ofcom, "Securing long term benefits from scarce spectrum resources - A strategy for UHF bands IV and V", 29 March 2012, para 3.26.

⁵ See Recital 19.

⁶ Ofcom, "Statement on variation of 900 MHz and 1800 MHz Wireless Telegraphy Act licences", 6 January 2011.

⁷ This is reflected in the 2006 Act which provides that Ofcom may not vary a wireless telegraphy licence unless the proposed variation is objectively justifiable (Schedule 1, paragraph 6A of the 2006 Act).

⁸ Under Directive 87/372/EEC as amended by Directive 2009/114/EC (the "Amended GSM Directive"), Member States were required in making the 900 MHz band available for GSM and UMTS systems to examine whether the existing assignment of the 900 MHz band is likely to distort competition in the mobile markets concerned. This reflected the fact that mobile operators which had not been assigned spectrum in the 900 MHz band "could be put at a disadvantage in terms of cost and efficiency in comparison with operators that will be able to provide 3G services in that band" (see Recital (6) Amended GSM Directive). The Amended GSM Directive does not apply to the 1800 MHz band. Article 5 of Decision 243/2012/EC, which requires Member States to take account of competition issues in certain circumstances, is not applicable until 1 July 2015 (see Article 14).

As such, the Proposed Variation is clearly consistent with, and indeed will very shortly be required by, EU law.

2.2 Relevant statutory duties

In taking action under Article 14 of the Authorisation Directive, Ofcom is required to take utmost account of the policy objectives set out in Article 8 of the Framework Directive.

Article 8(1) of the Framework Directive requires Ofcom, in carrying out the regulatory tasks in the Authorisation Directive, particularly those designed to ensure effective competition, to take utmost account of the desirability of making regulations technologically neutral. There is, therefore, an implicit presumption in the Directives that a measure which enhances technology neutrality will be consistent with the objective of ensuring effective competition.

In carrying out the regulatory tasks specified in the Authorisation Directive, Ofcom is required to take all reasonable measures aimed at achieving certain objectives including those set out in Articles 8(2) and (3) of the Framework Directive.

Article 8(2) refers to the promotion of competition in the provision of electronic communications networks and services. Article 8(2) explicitly notes that there are a number of ways in which regulators may promote competition which include (among other things):

- ensuring that users derive maximum benefit in terms of choice, price and quality;
- ensuring that there is no distortion or restriction of competition in the electronic communications sector; and
- encouraging efficient use and ensuring the effective management of radio frequencies.

Article 8(3) requires Ofcom to contribute to the development of the internal market by (among other things) co-operating with other national regulatory authorities and with the Commission to ensure the development of consistent regulatory practice and the consistent application of the Directives. This would cover implementation of Decision 2011/251/EU and Decision 243/2012/EU, which are both measures aimed at enhancing the internal market for wireless electronic communications services and equipment by encouraging greater consistency in the licensing of spectrum.

In pursuit of these policy objectives, Article 8(5) of the Framework Directive requires Ofcom to apply objective, transparent, non-discriminatory and proportionate regulatory principles by (among other things):

- ensuring that in similar circumstances there is no discrimination in the treatment of undertakings providing electronic communications networks and services;
- safeguarding competition to the benefit of consumers and promoting, where appropriate, infrastructure-based competition; and
- promoting efficient investment and innovation in new and enhanced infrastructure.

These duties are reflected in sections 3 and 4 of the 2003 Act and section 3 of the 2006 Act.

Under the 2003 Act, Ofcom's primary duty is to further the interests of citizens and consumers in respect of choice, price, quality of service and value for money, where appropriate by promoting competition. In carrying out its functions, Ofcom is required to secure the optimal use of spectrum as well as the availability of a wide range of electronic communications services and to have regard to a number of factors including:

- the desirability of promoting competition in relevant markets;
- the desirability of encouraging investment and innovation in relevant markets; and
- the desirability of encouraging the availability and use of high speed data transfer services throughout the United Kingdom.

Similarly under the 2006 Act, in carrying out its radio spectrum functions, Ofcom must have regard, in particular, to the availability of and demand for spectrum as well as the desirability of promoting:

- the efficient management and use of spectrum;
- the economic and other benefits that may arise from the use of wireless telegraphy;
- the development of innovative services; and
- competition in the provision of electronic communications services.

In the event of a conflict between these duties, Ofcom is under a duty to secure that the conflict is resolved in the manner Ofcom thinks best in the circumstances.⁹ In balancing these objectives, it is clear that Ofcom's duty is to safeguard competition for the benefit of citizens and consumers – not competitors. The benefits of competition may arise from greater choice, quality and availability of high speed data services, innovation, investment and spectral efficiency. It is up to Ofcom to determine whether such benefits outweigh a potential distortion or restriction of competition.¹⁰

In relation to the Proposed Variation, Everything Everywhere considers that the Proposed Variation is consistent with Ofcom's statutory duties as it will:

- benefit consumers by improving the quality, choice and availability of high speed mobile broadband services and devices;
- promote investment and innovation in new and enhanced mobile networks;
- encourage the more efficient use of spectrum in the 1800 MHz band;
- promote competition in mobile communications services;
- provide greater consistency in the licensing of the 1800 MHz band in a manner which contributes to the development of the internal market.

In granting the Proposed Variation, Ofcom would be acting consistently with the approach it adopted in varying the 900 MHz wireless telegraphy licences held by Vodafone and Telefónica in order to permit the use of UMTS900. Ofcom varied the existing 900 MHz licences to allow UMTS use on 6 January 2011, in accordance with a direction made by the Secretary of State on 20 December 2010 (which came into force on 30 December 2010). Clearly there was no delay on that occasion. Failure to grant the Proposed Variation without delay would, in Everything Everywhere's view, constitute unjustifiable discrimination in treatment of undertakings providing electronic communications networks and services, contrary to Article 8(5)(b) of the Framework Directive.

2.3 Process for considering a licence variation request

Article 14 of the Authorisation Directive provides that, except where proposed amendments are minor and have been agreed with the holder of the licence, notice shall be given in an appropriate manner of the intention to make such amendments and interested parties, including users and consumers, shall be allowed a sufficient period of time to express their views on the proposed amendments, which shall be no less than four weeks except in exceptional circumstances.

Ofcom published a notice setting out its intention to amend Everything Everywhere's 1800 MHz spectrum licences to allow use of LTE and WiMAX technologies on 13 March 2012 (the "Ofcom Notice").¹¹ The Ofcom Notice sets out the proposed amendments to Everything Everywhere's licences, as well as the grounds on which Ofcom proposes to make the changes.¹² The approach is the same as that taken previously by Ofcom in relation to the variation of 900 and 1800 MHz wireless telegraphy licences.¹³ Responses were initially requested by 17 April 2012. At the request of interested parties, Ofcom has extended the closing date for responses to 8 May 2012. As such,

⁹ Section 3(6) of the 2006 Act; sections 3(7) and (8) of the 2003 Act.

¹⁰ It is clearly established as a matter of EU competition law, that there are circumstances in which a measure which restricts competition may still have sufficient benefits to consumers that it will be permitted.

¹¹ Ofcom, "Notice of proposed variation of Everything Everywhere's 1800 MHz spectrum licences to allow use of LTE and WiMAX technologies", 13 March 2012.

¹² Ofcom Notice, Annex 5.

¹³ See, for example, Ofcom, "Notice of proposed variation of 900 MHz and 1800 MHz Wireless Telegraphy Act licences", 28 October 2010.

Everything Everywhere considers that Ofcom has complied with Article 14 of the Authorisation Directive.¹⁴

Section 7 of the 2003 Act imposed an obligation on Ofcom to carry out an impact assessment where Ofcom are proposing to do anything for the purposes of, or in connection with, the carrying out of their functions and it appears to them that the proposal is important. A proposal will be important where its implementation would be likely:

- to have a significant impact on persons carrying on businesses in the markets for any of the services, facilities, apparatus or directories in relation to which Ofcom have functions; or
- to have a significant impact on the general public in the UK or in part of the UK.

Everything Everywhere does not accept that the Proposed Variation will have a significant impact on other mobile network operators. The proposal will, however, have a significant positive impact on the general public, as consumers will benefit from improved quality, choice and availability of high speed mobile broadband services and from being able to access a range of devices previously unavailable to consumers in the UK. The impact assessment is required to set out how, in Ofcom's opinion, the proposed licence variation secures or furthers their general duties (as set out in section 3 of the 2003 Act). The assessment may take such form and relate to such matters as Ofcom considers appropriate. While Ofcom is required to provide interested parties with an opportunity to make representations on the impact assessment, such period may run contemporaneously with the period required under Article 14 of the Authorisation Directive.

Everything Everywhere considers that, in light of Ofcom's statutory objectives, in conducting an impact assessment, Ofcom is required to consider whether benefits arising from greater choice and quality, innovation, investment and spectral efficiency may outweigh a potential risk of distortion or restriction of competition. In considering whether there is in fact a "distortion or restriction of competition", it is not sufficient for Ofcom to consider only whether there is a competitive advantage conferred on Everything Everywhere. Instead, Ofcom should consider whether any such advantage is sufficiently material, unmatched and enduring to have the effect of distorting or restricting competition. In the absence of a material, enduring and unmatched advantage, there will be no lasting impact on competition. Indeed, this is nothing more than the normal process of competition. In such circumstances, regulatory intervention would be likely to be disproportionate, costly and risk unintended consequences.

These are the principles which were applied by Ofcom in the context of its advice to Government on the liberalisation of 900 and 1800 MHz spectrum for UMTS.¹⁵ This approach applies equally to the liberalisation of 1800 MHz spectrum for LTE. Given the principle of regulatory non-discrimination in Article 8(5)(b) of the Framework Directive, the same analytical approach should be adopted in this case.

2.4 Relevance of the T-Mobile/Orange merger decision

In considering the impact of the Proposed Variation, Ofcom is required to take account of relevant facts. These include the merger analysis conducted by the European Commission in respect of the T-Mobile / Orange joint venture (in relation to which Ofcom acted in an advisory capacity) and the commitments provided by Deutsche Telekom and France Telecom to the European Commission (the "EU Commitments").

The EU Commitments were specifically designed to address any competition concerns arising from Everything Everywhere's position as the only operator with a clear path to providing full

¹⁴ As noted by Ofcom, the 2006 Act set out in Schedule 1 a process for the variation of wireless telegraphy licences. In the case where a variation is proposed by the licensee, there is no obligation on Ofcom under the 2006 Act to consult on the proposal (Ofcom Notice, para 3.14).

¹⁵ Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900 MHz and 1800 MHz spectrum for UMTS", 25 October 2010.

coverage LTE services at the best possible speeds ahead of the award of 800 MHz and 2.6 GHz spectrum. In this regard, the EU Commitments require Everything Everywhere to divest 2x15 MHz of 1800 MHz spectrum within a prescribed divestment period, to a single purchaser. 2x10 MHz of spectrum will be made available by no later than 30 September 2013, and a further 2x5 MHz will be available by no later than 30 September 2015.

The EU Commitments are legally binding and the divestment is, therefore, certain to happen. In the event that Everything Everywhere does not carry out a private sale of the spectrum within the prescribed period, the EU Commitments provide that the spectrum must be relinquished and sold through the Ofcom auction. If the auction does not take place by a specified time, the parties will be required to surrender their licences to Ofcom in any event. Failure to comply with the divestment obligation could expose Everything Everywhere's shareholders to fines of up to 10% of their worldwide turnover. As such, Everything Everywhere strongly agrees with the Commission's conclusion that "even in the absence of a private sale, it is certain that the Divestment will take place."¹⁶ Given that the divestment is certain, it is a fact which must be taken into account by Ofcom.

2.4.1 Failure to vary would be disproportionate and a double jeopardy

In light of the EU Commitments and the Commission's decision to approve the T-Mobile / Orange merger, a decision by Ofcom not to vary Everything Everywhere's 1800 MHz licences for LTE would be disproportionate and clearly represent a double jeopardy.

The Commission clearly assessed the merger on the basis that Everything Everywhere could become the first UK mobile operator to launch LTE services using a 2x20 MHz carrier, and that there may be a period until the completion of the 800 MHz and 2.6 GHz spectrum auction when, as a result of its holding of 1800 MHz spectrum, Everything Everywhere would be the only operator able to provide LTE services at the best possible speeds to customers. The parties therefore offered to divest 2x15 MHz of 1800 MHz spectrum in order to address the Commission's (and Ofcom's) competition concerns relating to the concentration of the parties' 1800 MHz spectrum.

The Commission concluded that the EU Commitments were sufficient to "clearly solve the Commission's prima facie serious doubts related to the excessive concentration on spectrum in the 1800 MHz band as a result of the creation of the [joint venture]".¹⁷ Any potential adverse impact which may have arisen as a result of Everything Everywhere's holding of 1800 MHz spectrum, and its ability to roll-out LTE services ahead of other operators, has therefore already been addressed through the EU Commitments.

Ofcom was heavily involved in the consideration and construction of the spectrum remedies imposed in relation to the merger clearance. Its views were relied upon by the Commission,

[REDACTED] The advice provided by Ofcom is referred to in the decision, and the European Commission's press release explicitly stated that the Commission "cooperated closely with both the OFT and the UK's telecommunications regulator Ofcom throughout the investigation".¹⁸

Whilst the OFT asked for a referral of the merger, it eventually withdrew its request for referral pursuant to Article 9 of the EU Merger Regulation with the explicit statement that in light of the remedies offered by the parties the joint venture would "not now have an adverse impact on competition within the UK" since the final EU Commitments would "fully address the OFT's

¹⁶ Case No. COMP/M.5650 - T-Mobile/Orange, para 218.

¹⁷ Case No. COMP/M.5650 - T-Mobile/Orange, para 232.

¹⁸ European Commission press release IP/10/208, "Commission approves proposed merger between UK subsidiaries of France Telecom and Deutsche Telekom, subject to conditions", 1 March 2010.

outstanding competition concerns".¹⁹ The OFT also noted that it worked in close consultation with Ofcom.

Therefore a failure by Ofcom to agree to Everything Everywhere's request on the grounds of purely hypothetical competition concerns arising from the fact that Everything Everywhere will, for a limited period, be the only operator able to offer LTE services in the UK [REDACTED] [REDACTED] would represent a clear double jeopardy. Everything Everywhere's position in relation to 1800 MHz spectrum holdings, and its ability to launch LTE, was assessed by the Commission in the merger decision and a structural remedy was imposed which restored a suitable competitive balance.

As a result of these remedies, [REDACTED]

[REDACTED] As set out in section 5 below, there is no risk of any competitive harm to the market as a result. To impose a further remedy now, which would prevent Everything Everywhere from launching LTE [REDACTED], would be to impose a further remedy to deal with the same underlying issue and would be directly contrary to the advice given by Ofcom to the European Commission in the context of the merger inquiry.

2.4.2 No obligation under the EU Commitments in respect of LTE wholesale access

The EU Commitments were also designed to address the concern that the merger may put at risk the position of 3 as a competitive force in the UK mobile market. In this regard, the EU Commitments required the joint venture to materially complete the existing consolidation plan of the 3G radio access networks of T-Mobile and 3 within a specified period, to cancel certain termination rights under the existing 3G network sharing agreement between T-Mobile and 3, and to extend the duration of the existing 2G national roaming agreement between Orange and 3. These aspects of the EU Commitments were effected by way of a new agreement with 3.

We note that Telefónica has in response to Ofcom's second consultation on the coexistence of new services in the 800 MHz band with digital terrestrial television ("DTT") stated that:

"Ofcom's current proposals are that there are at least two if not more MNOs that will be operational with 4G in the market come Q1 2014. They would be:

a. Everything Everywhere with LTE1800

b. The holder of the divestment LTE1800; and / or

c. Hutchison, by virtue of a wholesale obligation placed on EE under the Merger Decision. Hutchison may also be (b)."²⁰

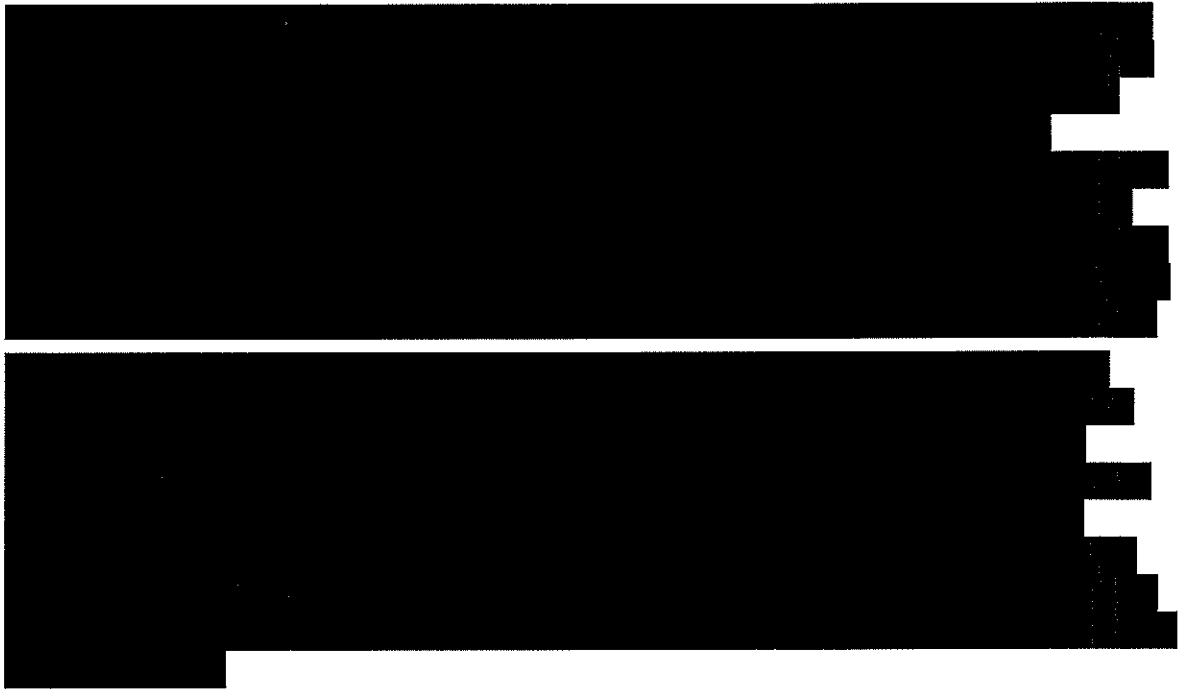
Telefónica has asserted that Ofcom not referring to Everything Everywhere's wholesale arrangements in the Ofcom Notice is a "procedural failure" with regard to Ofcom's Proposed Variation. This argument is factually incorrect and legally without merit.

The argument is factually incorrect as the EU Commitments, which were accepted by the European Commission, do not contain a wholesale obligation on Everything Everywhere in respect of LTE. There is no reference to the provision of LTE wholesale access roaming to 3 in the European Commission's decision. As no obligation was placed on Everything Everywhere by the

¹⁹ OFT press release 23/10, "OFT satisfied with Orange / T-Mobile competition remedies", 1 March 2010.

²⁰ Telefónica UK's response to Second consultation on coexistence of new services in the 800 MHz band with digital terrestrial television, paras 18-19.

EU Commitments, there can be no suggestion that Ofcom should have disclosed such an obligation.²¹



2.5 Conclusion

In conclusion, Everything Everywhere strongly believes that the Proposed Variation is consistent with Ofcom's statutory duties and will, in any event, shortly be required by EU law. In balancing the relevant statutory objectives, it is clear that Ofcom's duty is to safeguard competition for the benefit of consumers – not competitors. As set out in section 4 below, Everything Everywhere believes that in this case clear benefits will arise as a result of the greater choice, quality and availability of high speed data services, as well as the innovation, investment and spectral efficiency which LTE will enable. Such benefits outweigh any potential (hypothetical) risk of a distortion or restriction of competition.

In assessing whether a transitory competitive advantage may distort or restrict competition, Ofcom must be consistent with its previous approach in relation to UMTS900 and consider whether any such advantage is material, enduring and unmatchable. The spectrum divestment required under the EU Commitments is legally binding and certain and is, therefore, a fact which Ofcom is required to take into account in conducting its analysis. For the reasons set out in section 5 below, Everything Everywhere strongly believes that the Proposed Variation will not restrict or distort competition but will in fact enhance competition.

²¹ Everything Everywhere notes that a report in the Financial Times on 9 April 2012 suggests that Everything Everywhere is required to provide access to the 4G enabled network to 3 "under the orders of the competition authorities". This report is not correct.

²² The Ofcom guidelines on consultations states that Ofcom respects the confidentiality of its sources and Ofcom's guidelines on carrying out impact assessments states that in presenting Ofcom's impact assessment Ofcom will generally show how it has taken account of the information obtained from stakeholders, subject to the need to preserve any requirements of confidentiality.

3 Factual background

In this section, we provide further background to and details of our LTE launch plans. As Ofcom is aware, the UK has seen a significant increase in demand for mobile data services in recent years, both increasing the importance of good quality data services to customers and placing increasing demands on mobile networks.

Mobile operators, including Everything Everywhere, are continuing to invest in new sites, equipment and technologies to enhance the quality and capacity of their networks in order to meet this sustained expansion in demand. As part of this investment to meet consumer demands, Everything Everywhere is planning to deploy LTE in order to provide additional capacity and better quality services to its customers. This will represent a material change in the quality of the mobile services available to consumers in the UK. The benefits to UK consumers are considered further in section 4 of this response.

3.1 Clear need for additional capacity to meet the growth in mobile broadband usage

There is a clear and widely acknowledged need for additional network capacity to meet the explosive growth in the use of mobile data services. Figures published by Ofcom show that mobile data volumes increased by approximately 70% between Q4 2009 and Q4 2010.²³ This rapid growth in mobile data traffic has been driven in large part by rising smartphone penetration.²⁴ Ofcom data shows that smartphone sales nearly tripled between Q1 2009 and Q1 2011.²⁵ Following a sharp increase in ownership in 2011²⁶, smartphone penetration reportedly surpassed 50% of the UK population by early 2012.²⁷

Table 1: Penetration levels of different population groups by device type

Device	2011 total units UK: millions	Penetration % UK pop	Penetration % 3G connections	Penetration % devices	Penetration % mobile connections
Smartphone	32.4	52%	85%	30%	40%
Tablet	3.62	6%	10%	3%	4%
Laptop	3.9	6%	10%	4%	5%
USB modem	5	8%	13%	5%	6%
3G phone	61.36	99%	161%	58%	76%
Total	106.28	171%	280%	100 %	131%

Source: Real Wireless: Techniques for increasing the capacity of wireless broadband networks: UK, 2012-2030

Growth in smartphone penetration is expected to continue. Smartphone sales accounted for 85% of Everything Everywhere's new customer contracts in Q2 2011²⁸, and nearly 90% of Telefónica UK's sales and upgrades in Q3 2011.²⁹ As illustrated by Figure 1 below, Everything Everywhere

²³ Ofcom, "Second consultation on assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues", 12 January 2012 (the "Ofcom Second Consultation"), Annex 6, para 3.17; see also Ofcom, Communications Market Report 2011, 4 August 2011, p. 264

²⁴ Ofcom Second Consultation, Annex 6, paras 3.18-3.19; Real Wireless, "Report for Ofcom - 4G Capacity Gains", 27 January 2011; Ofcom Notice, para 5.4.

²⁵ Ofcom, "Communications Market Report 2011", 4 August 2011, p. 263.

²⁶ Ofcom, "The Consumer Experience 2011", 6 December 2011, p. 19.

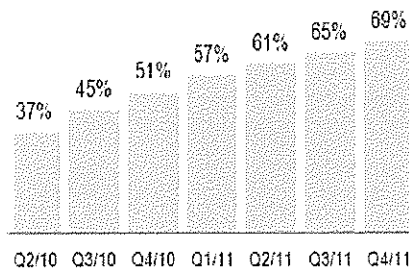
²⁷ comScore, MobiLens service, 22 March 2012; comScore, "2012 Mobile Future in Focus", February 2012; Google, "Mobile Internet and Smartphone Adoption", January 2012; Kantar WorldPanel ComTech, "The smartest way to communicate: over half of the GB population owns a smartphone", 20 February 2012.

²⁸ See <http://everythingeverywhere.com/2011/07/27/everything-everywhere-announces-q2-and-h1-2011-financial-results/>.

²⁹ See http://www.telefonica.com/en/europe/html/about_telefonica_europe/telefonica_uk.shtml.

has seen the percentage of its Pay Monthly ("PAYM") customer base with smartphones nearly double between Q2 2010 and Q4 2011.

Figure 1: Everything Everywhere's PAYM customer base with smartphones



Source: Everything Everywhere FY 2011 / Q4 2011 Preliminary Results, 21 February 2012

Rapidly rising smartphone take-up increases the importance of good quality data services.³⁰ Customer feedback shows that as customers switch to smartphones, use of data goes up over time as customers do more and more with their phones. In addition to browsing the web and emailing, customers are increasingly shopping or comparing prices online³¹ and downloading content using their smartphones. Music, video³² and application³³ downloads continue to grow strongly. Recent data published by comScore suggests that UK mobile subscribers are more likely to access the internet, social networking sites, games or applications on their mobile phones than mobile subscribers in other major European markets.

Table 2: Mobile benchmark data for European market (3 month average ending January 2012)

Activity	EU5	France	Germany	Italy	Spain	UK
	Penetration (%) of mobile subscribers					
Used smartphone	45.2%	41.4%	38.2%	44.4%	52.5%	52.6%
Used application (excluding pre-installed)	39.2%	35.2%	34.7%	34.8%	43.0%	49.8%
Used browser	39.2%	37.7%	32.2%	35.1%	42.0%	50.6%
Played games	28.1%	16.5%	25.9%	32.3%	31.3%	35.4%
Sent text message	84.5%	86.5%	80.2%	82.1%	81.8%	91.8%
Listened to music	27.5%	24.1%	27.3%	24.7%	36.2%	27.4%
Access social networking site or blog	26.4%	23.8%	19.9%	23.3%	28.9%	38.0%

Source: comScore MobiLens

In addition, as Ofcom has noted, video is set to become a more predominant form of mobile traffic over the coming years, as the increasing penetration of video capable mobile devices, including smartphones and tablet PCs, make video a key part of content providers' future distribution strategies.

. Because video requires significantly more

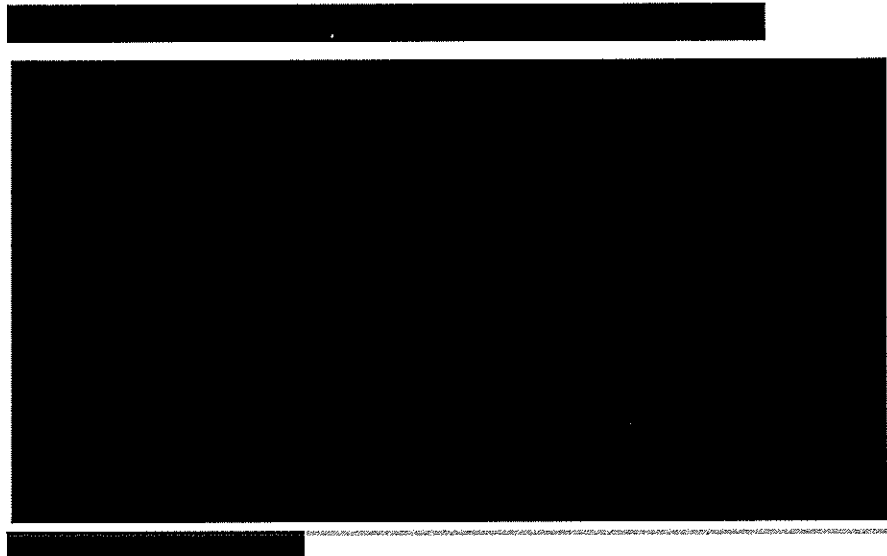
³⁰ Ofcom Second Consultation, Annex 6, para 3.20.

³¹ It has been reported that in the UK, smartphone visitors to retail sites were up 163% year on year for the three months to March 2011 (see <http://blog.affiliatewindow.com/wp-content/uploads/2011/10/A4u-M-Commerce-Report-2011.pdf>). Data published by the International Advertising Bureau UK shows that 24% of UK mobile phone owners have bought a product or service via their device (see <http://www.iabuk.net/about/press/archive/mobile-advertising-spend-more-than-doubles-to-203-million>).

³² Ofcom, "Securing long term benefits from scarce spectrum resources - A strategy for UHF bands IV and V", 29 March 2012, para 3.4.

³³ Application downloads were expected to more than double in 2011, from 8.2 billion to 17.7 billion downloads (see <http://www.gartner.com/it/page.jsp?id=1529214>).

capacity than other types of mobile services it is expected to be a major driver for the future growth in demand for mobile data capacity.³⁴



3.1.1 Demand for mobile data continues to grow

It is generally accepted that the recent growth in mobile broadband usage is set to continue. Ofcom has recently published a study by Real Wireless, which under a "mid-level" growth scenario shows an 80-fold increase in demand for mobile broadband capacity from 2012-2030 equivalent to a long term compound annual growth rate ("CAGR") of about 28%, with a 300-fold increase (or a long term CAGR of 37%) under a "high-growth" scenario.³⁵ The most recent edition of the Visual Network Index by Cisco suggested that global mobile data traffic will increase 18-fold between 2011 and 2016, corresponding to a CAGR of 78%.³⁶

This rapid increase in data use inevitably puts a strain on mobile networks, particularly at peak times and in urban areas.

Capacity has a significant impact on the performance of the services which operators are able to offer to their customers. As networks reach capacity limits, operators are faced with difficult choices - for example:

- to constrain traffic demand by introducing / reducing monthly data allowances and fair use policies;³⁸
- to allow congestion to occur, causing the quality of the received service to degrade (e.g. delays during browsing or frozen frames while video streaming) and creating customer dissatisfaction; and/or
- to invest in additional network infrastructure to increase capacity (e.g. by further sectorisation, cell splits, deployment of smaller cells and/or deployment of new technologies).

³⁴ Ofcom, "Securing long term benefits from scarce spectrum resources - A strategy for UHF bands IV and V", 29 March 2012, para 3.4.

³⁵ Real Wireless, "Techniques for increasing the capacity of wireless broadband networks: UK, 2012-2030", March 2012.

³⁶ Cisco, "Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2011-2016", February 2012

³⁷

³⁸ Ofcom, "Communications Market Report 2011", 4 August 2011, p. 264.

3.1.2 Investment strategies of UK mobile operators

In advance of the spectrum auction, operators have two clear strategies for investing in additional network capacity. One option is to deploy a new technology, such as LTE, which is spectrally more efficient. Another option is to deploy more cells. Of course these are not distinct alternatives and operators may find that they will have to do both.

As Ofcom has noted, UK mobile operators are continuing to invest in improving their networks.³⁹ However, as data revenues are not increasing as fast as data volumes⁴⁰ and there continues to be strong price competition in the retail market⁴¹, mobile operators are seeking to expand capacity in the most cost efficient manner possible. As Ofcom has noted, building more sites is typically a higher cost option for mobile operators.⁴² In addition, site numbers can be constrained by the need for planning permission for new sites. The more cost efficient option is generally to upgrade existing mobile networks to a more efficient technology, such as HSPA+ or LTE, which provides a clear long term benefit to consumers by relieving network congestion and improving the experience of using mobile broadband. Encouraging efficient investment in capacity is clearly consistent with Ofcom's statutory duties. As noted in a recent report prepared by Real Wireless for Ofcom:

"the need for significantly more capacity than available today is apparent, and the costs of delivering that capacity must be low enough to maximise the net benefits to society and also to support a case for ongoing investment by the industry".⁴³

In the 2100 MHz band, all operators have upgraded their 3G networks with HSPA and, more recently, HSPA+.⁴⁴ In February 2012, 3 announced that it would introduce a new dual carrier HSPA+ technology called DC-HSPA+⁴⁵ which offers a peak download speed of 42Mbps using the combination of two 2x5 MHz carriers in the 2100 MHz band.⁴⁶

Other networks are expected to follow suit, as there are already about 100 dual-carrier commercial devices available in the market.⁴⁷ Indeed, Everything Everywhere plans for the deployment of DC-HSPA+ on its 3G network later this year.

The recent variation of the 900 MHz wireless telegraphy licences in January 2011⁴⁸ has given Telefónica and Vodafone an additional means of improving the capacity of their 3G networks, as well as their coverage, at relatively low cost. By deploying UMTS900 Telefónica and Vodafone are able to combine the enhanced capacity of HSPA/HSPA+ with the superior coverage performance of the 900 MHz band - namely excellent and cost effective outdoor coverage, as well as enhanced

³⁹ Notwithstanding the dramatic increase in use, both average and peak data rates have continued to improve over time due to network investment by mobile operators. See, for example, Ofcom, "Communications Market Report 2011", 4 August 2011, p.264). Ofcom has also published data showing increased consumer satisfaction with the speed of mobile broadband service over time. See Ofcom, "The Consumer Experience 2011", 6 December 2011, p.73.

⁴⁰ Ofcom, "Communications Market Report 2011", 4 August 2011, p.265.

⁴¹ Ofcom, "The Consumer Experience 2011", 6 December 2011, p. 80.

⁴² Ofcom, "Securing long term benefits from scarce spectrum resources - A strategy for UHF bands IV and V", 29 March 2012, paras 1.10 and 3.39.

⁴³ Real Wireless, "Techniques for increasing the capacity of wireless broadband networks: UK, 2012-2030", March 2012, p. 10.

⁴⁴ Real Wireless, "The timing of the consumer and operator features available from HSPA and LTE", January 2012, p. 40.

⁴⁵ These include USB dongles, embedded modules, feature phones, smartphones and tablets. See Qualcomm, "HSPA+ Advanced - Taking HSPA+ to the Next Level", 9 February 2012.

⁴⁶ See <http://blog.three.co.uk/2012/02/29/leading-edge-3g-service/>.

⁴⁷ Dual Carrier High Speed Downlink Packet Access or Dual Carrier HSPA+. According to the GSA, the rapid evolution of network capabilities to 42 Mbps dual cell HSPA+ technology (DC-HSPA+) is another clear trend, as operators invest in improvements to network performance, capacity and efficiencies, to maintain or enhance user experience. As at February 2012, 62 commercial DC-HSPA+ networks have been launched i.e. 49 more than a year ago. Another 26 DC-HSPA+ networks are understood to be in deployment or planned. DC-HSPA+ systems combine 64QAM modulation and double the bandwidth by using dual carriers (2x5 MHz = 10 MHz). This capability was introduced by 3GPP in the Release 8 specifications, and enables a theoretical peak downlink data throughput capability of 42 Mbps. See http://www.gsacom.com/news/gsa_346.php4.

⁴⁸ Ofcom, "Statement on variation of 900 MHz and 1800 MHz Wireless Telegraphy Act Licences", 6 January 2011.

indoor coverage and the ability to serve deep indoor locations.⁴⁹ Research suggests that indoor coverage is increasingly important for mobile broadband users, with the proportion of data traffic being originated indoors expected to increase from current benchmarks of 60-80% to 90% within the next five years.⁵⁰ As recent research published by Ofcom shows, improved indoor coverage (particularly in the home) is critical to addressing the most common issues which customers experience when using the mobile internet.⁵¹

It should be noted, however, that it would have been possible for Telefónica and Vodafone to pursue a launch of LTE services in the 900 MHz band as an alternative to launching UMTS900. As with the 1800 MHz band, Ofcom was required to designate and make available the 900 MHz band for LTE by 31 December 2011.⁵² There are currently a limited number of LTE900 devices available, and a decision by a major operator such as either Telefónica or Vodafone to commit to launching LTE900 services would have provided a significant stimulus to the further development of the LTE900 ecosystem. Telefónica and Vodafone therefore made a commercial decision to deploy UMTS900, rather than to pursue a launch of LTE900 prior to the auction of the 800 MHz and 2.6 GHz spectrum. Of course, Vodafone and Telefónica are able, in parallel with their deployment of HSPA/HSPA+ technology using UMTS900, to work with vendors to stimulate the LTE900 ecosystem to enable a launch of LTE900 in the future.

Following Ofcom's decision to vary its licence, Telefónica launched UMTS900 services using a 2x5 MHz carrier in key cities including London, Leeds, Birmingham and Manchester in early 2011⁵³ [REDACTED]

[REDACTED] Telefónica's customer experience testing has shown that, on average, Telefónica customers on UMTS900 compatible devices received data 30% faster than before the new spectrum was allocated for 3G use.⁵⁴ Network capacity in the areas where UMTS900 has been rolled out has increased by 50%.⁵⁵ Given the broad availability of UMTS900 compatible devices⁵⁶, Telefónica has been able rapidly to take advantage of the capacity added.

Vodafone is understood to be in the process of launching UMTS900 services, initially focusing on coverage in cities, [REDACTED].⁵⁷ Using a 2x5 MHz carrier, Vodafone will achieve a 33% increase in capacity based on current HSPA technology. Vodafone and Telefónica both

⁴⁹ Ofcom has previously found that UMTS900 networks can provide higher quality mobile broadband services, including the extent and quality of coverage compared those which Everything Everywhere is able to provide with its UMTS 2100 MHz network. In particular, 900 MHz spectrum offers significant advantages in providing in-building coverage, and offers a cost advantage when used to provide outdoor coverage in more rural areas. See Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900 MHz and 1800 MHz spectrum for UMTS", 25 October 2010, p.7.

⁵⁰ Barclays Capital, 2010; Ofcom, "Communications Market Report 2011", 4 August 2011, p. 323; Anaysys Mason, December 2010.

⁵¹ bdrcc continental, "Ofcom UHF Strategy Research - Summary Report", February 2012, p. 22 and figure 30. bdrcc confidential's research shows that consumers are significantly more likely to experience problems when using mobile internet in the home. Of those surveyed, 59% of the respondents stated that they only or mainly used mobile broadband in the home.

⁵² Decision 2009/766/EC on the harmonisation of the 900 MHz and 1800 MHz frequency bands for terrestrial services capable of providing pan-European electronic communications services in the Community, as amended by Commission Implementing Decision 2011/251/EU of 18 April 2011.

⁵³ "O2 first to switch on new superfast 3G 900 MHz network", 18 March 2011, at <http://mediacentre.o2.co.uk/Press-Releases/O2-first-to-switch-on-new-superfast-3G-900MHz-network-2f8.aspx>.

⁵⁴ "O2 first to switch on new superfast 3G 900MHz network", 18 March 2011.

⁵⁵ "O2 first to switch on new superfast 3G 900MHz network", 18 March 2011.

⁵⁶ See Ofcom Second Consultation, para 4.98. The number of devices supporting HSPA in the 900 MHz band has grown to 663, including Apple iPhone 4, and 4S, iPad 2, Samsung Galaxy S, Blackberry Playbook, Nokia N8, HTC HD7. There were 182 HSPA+ 900 MHz devices as at Spring 2011. See Real Wireless, "The timing of the consumer and operator features available from HSPA and LTE", January 2012, p.39. 3 has submitted evidence to the Culture, Media and Sport Select Committee that "[t]he GSM suppliers association reports that there are currently 618 devices available that are compatible with HSPA+ in the 900MHz spectrum". See House of Commons, Culture, Media and Sport Committee, "Spectrum", Eighth Report of Session 2010-12, Report, together with formal minutes, oral and written evidence, 25 October 2011, at page EV 119.

⁵⁷ Financial Times, 2 May 2011.

have the option to refarm more of their 2x17.5 MHz of spectrum in the 900 MHz band for UMTS and hence to achieve further capacity (as well as coverage) gains.

By contrast, Everything Everywhere is constrained in the extent to which it can upgrade its network using UMTS/HSPA standards. As Ofcom has noted, there is no UMTS user equipment available for use in the 1800 MHz frequency band and no prospect of this changing in the near term.⁵⁸ As set out in Table 3 below, Everything Everywhere has less spectrum suitable for UMTS/HSPA available on a hertz per customer basis than Vodafone or 3. As such, Everything Everywhere remains constrained compared to its competitors [REDACTED].

Table 3: Spectrum holdings available for UMTS for each operator in 2011

	900 MHz Paired MHz	2100 MHz Paired MHz	Total Paired MHz	Total customers (incl MVNOs) (m)	Hz / customer
3	0	14.8	14.8	6.1	2.42
Vodafone	5	14.6	19.6	19.0	1.03
Telefónica	5	10	15.0	25.1	0.60
EE	0	20	20.0	30.4	0.66
Total	10.0	59.7	69.7	80.6	0.86

Source: Everything Everywhere; Ofcom Notice; Analysys Mason⁵⁹

In order to address the capacity issues which it is facing, Everything Everywhere is planning to launch LTE services in the 1800 MHz band. However, as set out further in section 4 of this response, there are material coverage advantages associated with the use of sub-1 GHz spectrum.⁶⁰ [REDACTED]

[REDACTED]. On this basis, Ofcom has recently reaffirmed its view that Vodafone and Telefónica have a potential advantage until such time as LTE800 can be deployed to constrain UMTS900.⁶¹

⁵⁸ Ofcom Notice, para 4.7; Real Wireless, "The timing of the consumer and operator features available from HSPA and LTE", January 2012, p.39.

⁵⁹ Customer numbers (for end 2011) are taken from Analysys Mason, "Telecoms Market Matrix - Western Europe", 30 March 2012.

⁶⁰ Ofcom Second Consultation, paras 4.79 and 4.80, Annex 6, sections 3 and 4.

⁶¹ Ofcom Second Consultation, Annex 10, para A 10.24.

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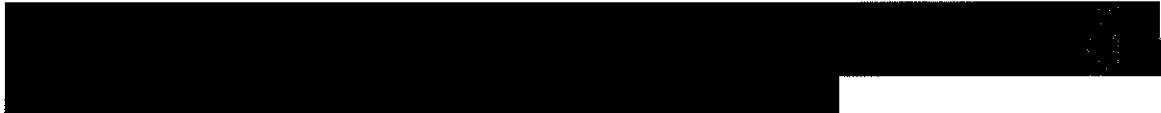
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[REDACTED]



3.3 Availability of other spectrum for LTE

Everything Everywhere agrees with Ofcom's observation that there is a significant amount of additional spectrum suitable for the provision of mobile services, including LTE, which will be become available in 2013. This includes the spectrum to be divested by Everything Everywhere and the spectrum to be auctioned by Ofcom



3.3.1 Divestment of Everything Everywhere spectrum

As a result of the EU Commitments, Everything Everywhere is required to divest 2x15 MHz of 1800 MHz spectrum within a prescribed divestment period. 2x10 MHz of spectrum will be made available by 30 September 2013, and a further 2x5 MHz will be available by 30 September 2015. The EU Commitments are legally binding (see section 2.4.1 above) and, as such, Everything Everywhere's priority is to comply with their terms. Preparations for the divestment are well advanced and Everything Everywhere has recently appointed Morgan Stanley to assist on the sale process.

As set out above, planning for the clearance process is also well underway and clearance is expected to be completed in accordance with the terms of the EU Commitments. As Ofcom is aware, compliance with the EU Commitments is subject to review by a monitoring trustee, who provides regular reports to the European Commission. The monitoring trustee has not raised concerns regarding Everything Everywhere's ability to meet the spectrum divestment and clearance obligations.

3.3.2 Spectrum to be auctioned

The forthcoming Ofcom auction of spectrum in the 800 MHz and 2.6 GHz bands will provide an opportunity for Vodafone, Telefónica and 3 to acquire substantial amounts of spectrum in bands which are suitable for deployment of LTE technology (either alone or in combination with other frequency bands).⁷⁴ The amount of spectrum becoming available at 800 MHz and 2.6 GHz is at least twice the amount that Everything Everywhere will hold at 1800 MHz following the divestment required under the EU Commitments (see section 3.3.1 above).⁷⁵

Everything Everywhere agrees with Ofcom's assessment that a wide range of LTE user equipment (including smartphones) capable of using these bands will be available for use by 2013.⁷⁶ Research published by Ofcom states that there is significant vendor support for LTE devices in the 800 MHz and 2.6 GHz bands.⁷⁷ Commercially available device types include smartphones, tablets, dongles, chipsets and routers. The number of devices is increasing rapidly, although still less than

⁷³ Ofcom Notice, para 4.19.

⁷⁴ As Ofcom is aware, the auction also represents a critical opportunity for Everything Everywhere to acquire sub-1 GHz spectrum in order to address the coverage issues (particularly in deep indoor locations) outlined above.

⁷⁵ Ofcom Notice, para 4.23.

⁷⁶ Ofcom Notice, para 4.22.

⁷⁷ Real Wireless, "The timing of the consumer and operator features available from HSPA and LTE", January 2012, pp.38-50.

that available for HSPA. The research published by Ofcom states that as at January 2012 there were:

- 52 LTE devices supported in the 2600 MHz band;
- 42 LTE devices supported in the 800 MHz band; and
- 41 LTE devices supported in the 1800 MHz band.

There is expected to be significant growth in handset availability in all of these bands over a three year period between 2012 and 2015. [REDACTED]

There is no suggestion that the 1800 MHz band will have any advantage in this respect. [REDACTED]

[REDACTED] Early launch of LTE1800 networks in major markets such as the UK is, therefore, critical to ensure that LTE1800 is supported by all of the major device manufacturers (see section 4.7 below).

3.3.3 Timing of LTE services in various frequency bands

Ofcom has suggested that if it were to authorise the use of LTE in the 1800 MHz band, there may be a 15 month period (the "Interim Period") between the time when Everything Everywhere could use the 1800 MHz band to launch LTE services and the earliest time when other mobile operators could launch LTE services. Everything Everywhere believes that this is a highly conservative approach [REDACTED]

[REDACTED]⁷⁸

⁷⁸ Ofcom notes that the definition of the Interim Period is likely to overstate the period during which Everything Everywhere is likely to be the only operator able to offer and LTE service given that the 800 MHz and 2.6 GHz bands will become gradually available across the UK during 2013.

Table 6: Deployment strategies and target markets for LTE

Country	Operator	Deployment strategy	Initial Target Market
Austria	A1	Aims to cover one quarter of Austria's population by the end of 2013	Major metropolitan areas
Denmark	TeliaSonera	Expects to provide coverage to 75% of the population of Denmark but end of 2011	Major metropolitan areas
Finland	Sonera	Provided services in cities of Helsinki and Turku. Further network expansion expected	Major metropolitan areas
Germany	Vodafone	Plans to provide 1,500 municipalities with LTE services by end of May 2011	Rural areas targeted first to meet obligations in auction
Japan	NTT DoCoMo	5,000 LTE base stations in operation by FY2011 and 15,000 by FY2012. Aims to provide LTE coverage to 25% of customers by 2015	Major metropolitan areas
Norway	Netcom	Expects to provide 89% of the population with LTE services by 2012	Cities, towns and popular holiday resorts
Sweden	Telia	By the end of 2011, expects to provide LTE coverage in a total of 228 Swedish cities, vacation areas and ski resorts	Major metropolitan areas and business users
United States	MetroPCS	Looking to introduce services to a selected number of metropolitan areas during 2011	Major metropolitan areas
United States	Verizon	It aims to provide LTE coverage to two thirds of the US by June 2012 and nationwide LTE coverage by end of 2013	Aiming to deploy LTE quickly in major metropolitan regions and rural areas

Source: IHS Global Insight

The 800 MHz and 2.6 GHz bands will become available across the UK during 2013

In relation to the 2.6 GHz band, Ofcom has stated that key areas such as London will be prioritised for the radar mitigation programme.⁷⁹ In any event, the restrictions as currently envisaged to protect radars (even before they have been modified) appear localised in a radius around each radar site.⁸⁰

We expect that Telefónica, which has carried out extensive trialling of LTE2600 in central London without impacting on radar services, would be able to launch commercial service in London mirroring and building on its trial immediately after the auction.

With regard to the 800 MHz band, LTE deployment in the entire band is likely to depend on the clearance of channels 61 and 62 from part of the band (790 to 806 MHz), rather than digital switchover ("DSO"). This is in order for any necessary DTT receiver filters to be deployed for the protection of channels 60 and below without causing the loss of services broadcast in channels 61 and 62. We understand that the clearance process for channels 61 and 62 runs throughout 2013, providing scope for a phased deployment of LTE services before the end of 2013. We understand that the clearance of channels 61 and 62 in Northern Ireland is being combined with DSO, meaning

⁷⁹ Ofcom has noted that "there are air traffic control radars across the UK, often close to major conurbations, and we estimate that the interim coordination obligations could initially affect as much as 43% of the UK land mass. A regional upgrade of the radars is planned, focusing on key areas such as London first." See Ofcom, "Consultation and information on technical licence conditions for 800 MHz and 2.6 GHz spectrum and related matters", 2 June 2011.

⁸⁰ Ofcom, "Technical Licence Conditions for the 2.6 GHz band Co-ordination Procedures for Radar", Stakeholder Event, 20 January 2012. See http://stakeholders.ofcom.org.uk/binaries/consultations/award-800mhz/annexes/RADAR_Event_Presentation.pdf.

that the 800 MHz band could be available for LTE launch in Belfast and the rest of Northern Ireland immediately after the auction. Once the first set of DTT transmitters have been modified in Q1/Q2 2013⁸¹, LTE800 deployment in urban areas of England and Wales such as Birmingham, Leeds, Sheffield, Bradford, Liverpool, Manchester, Bristol and Cardiff should be possible, while Glasgow and Edinburgh could follow in Q2/Q3 2013. The areas that are likely to face restrictions until the end of 2013 are those affected by the Oxford, Tacolneston and Waltham DTT transmitters in the South East and Central England.

As such, Ofcom's approach significantly overstates the period during which Everything Everywhere will be the only operator able to offer LTE services. [REDACTED]

[REDACTED]

[REDACTED]

In addition, LTE has already been launched in the UK by UK Broadband, using the 3.5 GHz band.⁸² UK Broadband's LTE launch initially covers only the London Borough of Southwark, but UK Broadband has recently announced that is also planning to deploy LTE services in Swindon.⁸³

Table 7 summarises Ofcom's predictions as to when LTE will be launched in various spectrum bands and our observations on these predictions:

⁸¹ South Wales relays, Mendip, Winter Hill, Rumster Forest, Selkirk, Carmel, Huntshaw Cross. See <http://stakeholders.ofcom.org.uk/binaries/consultations/combined-award/annexes/workshop.pdf>, p.6.

⁸² See <http://www.ukbroadband.com/about-us/press-releases/press-release-1>.

⁸³ See <http://www.ukbroadband.com/node/89>.

Table 7: Anticipated timing of LTE network launches in different frequency bands

Frequency band	Ofcom's predictions regarding launch dates	Everything Everywhere's comments on Ofcom predictions
1800 MHz - Everything Everywhere	End Q3 2012	[REDACTED]
800 MHz	End Q4 2013	Earlier launch will be possible on a regional basis, including, for example, Belfast from Q1 2013; some English and Welsh cities, including Birmingham and Leeds, from Q2 2013, and other cities from Q3 2013
900 MHz	2014 or later	Vodafone and Telefónica will focus on launch of HSPA services to enhance coverage and capacity. There are dongles for LTE900 available and it is possible for them to work with vendors to stimulate the LTE900 ecosystem further in parallel.
1800 MHz - Divested spectrum	Q4 2013	2x10 MHz will be cleared and available for use from beginning of Q4 2013
2100 MHz	2014 or later	Operators will focus on launch of HSPA services in this band to enhance network capacity and quality. We understand there is an LTE2100 ecosystem developing stimulated by demand from Japanese operators.
2.6 GHz	End Q4 2013	Earlier launch will be possible away from radar sites, for example in Central London, from Q1/Q2 2013
3.5 GHz	-	Services already launched in London by UK Broadband. Swindon to follow.

Source: Ofcom, Everything Everywhere

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3.4 Conclusion

Everything Everywhere is currently at a significant competitive disadvantage to Telefónica and Vodafone as it is unable to make use of its 1800 MHz spectrum to meet the rapidly growing demand for mobile broadband services. [REDACTED]

[REDACTED]

[REDACTED]

These benefits are set out in further detail in section 4 below. It does, however, follow that the extent of any potential competitive advantage is limited, as other operators will have a variety of options to launch similar (if not superior) LTE networks much earlier than anticipated by Ofcom. As such, there is no basis on which Ofcom could reasonably conclude that the early launch of LTE would distort competition. This is set out in further detail in section 5 of this response.

4 Benefits to consumers

Consumers and citizens in the UK value mobile broadband services highly and are making ever increasing use of mobile devices to access content, services and applications (see section 3.1.1 above). LTE will not provide a new service from a consumer perspective. It will, however, significantly enhance the mobile broadband experience by enabling end users to access content, services and applications more reliably and with greater speed and responsiveness. As consumers and business users are able to make more and better use of their mobile devices, this will spur innovation across the mobile value chain and beyond, which will in turn drive growth in the wider economy.

4.1 LTE will add to the substantial economic value derived from mobile services

The increased capacity and download speeds offered by LTE will add significantly to the substantial economic value derived from mobile services. As noted by Ofcom, the market for mobile services in the UK is large with revenues of £15.1 billion in 2010. The great majority of adults and many children in the UK use mobile services, with Ofcom reporting 1.3 active mobile connections per head of population and one active 3G connection for every two people. Indeed, homes are more likely to have a mobile than a fixed line, with 94% of households having access to at least one mobile phone. Mobile services are also important to UK business which accounts for £6.6 billion of mobile revenues.⁸⁴

Everything Everywhere notes that the Europe Economics report for Ofcom estimated a total consumer surplus of £19 billion from the consumption of mobile services in the UK, plus a further £2.8 billion of producer benefits. Ofcom has indicated that, adjusting for inflation and the growth in mobile connections since 2006, this implies a consumer surplus of more than £24 billion today.⁸⁵ With prices having fallen since 2007⁸⁶ and with no evidence of consumers' willingness to pay having declined, it is plausible that that consumer surplus may in fact now be more than this adjusted figure. Everything Everywhere strongly believes that the provision of additional mobile capacity, which enhances quality of service, through the use of LTE will increase this consumer surplus. Based on the magnitude of the consumer surplus, even moderate improvements in quality of service due to the adoption of LTE would have a significant impact in aggregate.⁸⁷

A recent report compiled by Capital Economics for Everything Everywhere estimates that the introduction of LTE in the UK will increase consumer and producer surpluses by something in the order of £0.9-1.4 billion annually, for existing users alone.⁸⁸

Everything Everywhere considers that the key consumer benefits from the introduction of LTE in 1800 MHz will be:

- an increase in mobile broadband capacity, allowing larger numbers of customers to receive a given quality of service;
- faster data speeds, improving the quality of activities such as streaming video and web surfing on mobile devices;

⁸⁴ Ofcom, "Communications Market Report 2011", 4 August 2011, Figure 5.1 and page 298; Ofcom, "The Consumer Experience 2011", 6 December 2011, page 17.

⁸⁵ Ofcom, "Securing long term benefits from scarce spectrum resources - A strategy for UHF bands IV and V", 29 March 2012, para 3.14.2. Capital Economics has also recently updated the Europe Economics' figures, up-rated to take account of inflation and the growth in the volume of mobile calls, and has estimated that the combined value of consumer and producer surpluses could be around £40 billion today. See Capital Economics, "Mobile Broadband and the UK Economy", 30 April 2012.

⁸⁶ Ofcom, "Communications Market Report 2011", 4 August 2011, figure 5.49.

⁸⁷ Ofcom, "Securing long term benefits from scarce spectrum resources - A strategy for UHF bands IV and V", 29 March 2012, para 3.14.3.

⁸⁸ Capital Economics, "Mobile Broadband and the UK Economy", 30 April 2012.

- improvements in service due to lower latency, a key feature that improves the responsiveness of real-time services such as gaming, video, cloud-based services and business applications;
- improvements in service through the ability to prioritise traffic;
- cost savings through the flatter network structure of LTE compared to UMTS; and
- increased innovation and investment.

4.2 Increased capacity from use of 1800 MHz for LTE

Ofcom has defined capacity in a mobile network as the network's ability to supply a given traffic demand at a specified level of quality.⁸⁹ As such, increasing the capacity of the network allows more customers to receive a better quality mobile broadband service. In particular, in the context of mobile broadband, for a given number of customers, the greater the capacity, the higher the data rates which those customers will tend to receive. Conversely, where capacity is constrained at a location, the quality of the received service will degrade and customers will experience a range of problems, such as delays during browsing, frozen frames while video streaming or unresponsive applications. Capacity constraints are a real issue for operators, particularly given the difficulties involved in forecasting mobile data traffic where a small number of extreme (and highly mobile) users are responsible for a significant proportion of mobile data traffic.⁹⁰

Research published by Ofcom shows that consumers value capacity and the enhanced quality of service which it enables.⁹¹ Recent research commissioned by Ofcom shows that, while coverage remains the highest priority of customers, additional mobile broadband capacity is valued by consumers who are particularly concerned by slow download speeds and data caps.⁹² The research shows a significant proportion of customers (29%) would stop using mobile internet services if service quality deteriorated and web pages took longer to download.⁹³ Press reports on London's "mobile capacity crunch" and statements by the London mayor, Boris Johnson, suggest that mobile broadband capacity is valued by citizens and consumers.⁹⁴

The capacity of a network and its ability to deliver higher data rates to consumers is affected by the cell spectral efficiency of the technology deployed. LTE has been designed specifically to enable each mobile site to provide more data capacity using the same amount of spectrum.⁹⁵ The key features of LTE which enable this increase to be achieved include:

- improved air interface multiplexing technologies that increase the amount of capacity which can be supported in each mobile channel;
- Multiple Input Multiple Output ("MIMO") antenna technology which allows different antenna combinations to be used to improve spectral efficiency; and
- in future the joint processing of mobile signals from different sites to better distribute capacity demand between sites and reduce interference between them.

As such, LTE will deliver significant benefits in terms of additional capacity, as well as improved quality of service, relative to 2G and 3G networks.

⁸⁹ Ofcom Second Consultation, para 4.69 and Annex 6, para 3.14.

⁹⁰ The consultancy firm, Arieso, has established that 1% of subscribers generate 50% of mobile data. See Arieso, "Extreme data users create \$400 million dilemma for mobile industry", 27 February 2012, and "Arieso reveals latest trends in smartphone data use", 6 January 2012.

⁹¹ Ofcom, Second Consultation, Annex 6, para 3.15 - 3.16; bdrcc continental, "Ofcom UHF Strategy Research - Summary Report", February 2012.

⁹² bdrcc continental, "Ofcom UHF Strategy Research - Summary Report", February 2012.

⁹³ bdrcc continental, "Ofcom UHF Strategy Research - Summary Report", February 2012, p.32.

⁹⁴ Mobile Magazine, "London faces mobile capacity crisis", 13 October 2011; Broadband Traffic Management, "A Year Before the Olympics - London is Running Out of Mobile Capacity", 14 October 2011; Computer Weekly, "Government deploys Wi-Fi for Olympics as mobile networks face capacity crunch", 28 September 2011.

⁹⁵ Ofcom Second Consultation, Annex 6, para 3.178; Real Wireless, "The timing of the consumer and operator features available from HSPA and LTE", January 2012, p. 8.

The 1800 MHz frequency band is currently only used for 2G services, as there is no UMTS1800 user equipment available (see section 3.1.2).⁹⁶ Based on published literature on spectrum efficiency of EDGE in a modern 2G network compared to spectrum efficiency of LTE, [REDACTED]

LTE will also offer capacity improvements by comparison with existing 3G networks. A study by Real Wireless for Ofcom estimates that in early deployments, LTE will provide around 20% more capacity for the same spectrum compared to high end HSPA networks. Data published by Ofcom shows that the spectral efficiency of HSPA is 0.54 bits per second per Hz per cell ("bps/Hz"). This will improve to 1.28 bps/Hz for HSPA+. By contrast, currently available LTE technology will offer 1.5 bps/Hz.⁹⁸

The efficiency of LTE equipment will improve further over time as new equipment become available [REDACTED]

[REDACTED] LTE Release 10, which is also referred to as LTE-Advanced, was frozen by 3GPP in March 2011 but is not expected to be available for commercial use until 2014, and will therefore become available to all UK mobile operators at the same time.⁹⁹ Data published by Ofcom suggests that LTE-Advanced will offer efficiency rates of 2.4 bps/Hz, further boosting the capacity of mobile broadband networks, and will provide between a three and ten times increase in mobile capacity for macro cells with three sector antennas by 2030.¹⁰⁰ It is, however, important to note that operators are not required to adopt LTE releases in sequence. As such, it is anticipated that an operator launching LTE services in 2014 will have the option to deploy LTE-Advanced on launch.

4.3 Improved data rates

The higher cell spectral efficiency of LTE enables consumers to use mobile data services with a much higher degree of reliability than current data networks and at higher typical data rates.



⁹⁶ Ofcom Notice, para 4.7; Real Wireless, "The timing of the consumer and operator features available from HSPA and LTE", January 2012, p.39.
⁹⁷ See, for example, Real Wireless, "4G Capacity Gains", January 2011, Figure 1-5, comparing the 2005 figure for the combined "2G+3G+4G" profile as the GSM/EDGE spectrum efficiency and the 2012 figure for the "4G" profile as the LTE spectrum efficiency.
⁹⁸ This refers to LTE Releases 8 and 9. See Ofcom Second Consultation, Annex 6, Table 3.2; Real Wireless, "The timing of the consumer and operator features available from HSPA and LTE", January 2012, p.28.
⁹⁹ See, for example, <http://www.qualcomm.com/media/documents/lte-advanced-global-4g-solution>.
¹⁰⁰ Ofcom, "Securing long term benefits from scarce spectrum resources - A strategy for UHF bands IV and V", 29 March 2012, para 3.38; Real Wireless, "Techniques for increasing the capacity of wireless broadband networks: UK, 2012-2030", March 2012. LTE Advanced is regarded by the ITU as the true 4G.
¹⁰¹ Typical download speeds for HSPA+ 21 are of 3-4 Mbps and for HSPA+ 42 typical download speeds are 5-6 Mbps based on drive test data.
¹⁰² Ofcom, Second Consultation, Annex 6, para 3.155.

[REDACTED]

[REDACTED]

LTE will also bring about significant increases in peak data rates. While customers are unlikely to experience the highest peak data rates in practice, high peak data rates can improve the overall capacity of the network by minimising the resources required to serve users with very good signal conditions, delivering their data in a shorter period of time.¹⁰³

The average and peak data rates offered by LTE are to a large extent a product of the carrier size in which LTE is deployed and hence these will increase further in the future once additional spectrum becomes available and as LTE technology develops. Telefónica has been running an LTE network trial in London since December 2011 using 2x20 MHz of spectrum in the 2.6 GHz band. This trial, involving 1000 users, has reportedly produced speeds of between 20-50Mbps on a regular basis.¹⁰⁴ The trial has seen peak speeds of up to 150Mbps, enabling 40MB file downloads in a matter of seconds. These sorts of download speeds will revolutionise services such as cloud-based solutions for businesses.

[REDACTED]

[REDACTED]

As shown by Table 8 (which was included in the evidence submitted by 3 to the House of Commons, Culture, Media and Sport Committee¹⁰⁵) and Figure 7 below, the peak download speeds using a 2x10 MHz (or 2x5 MHz) carrier represent a more modest increase over those currently proposed under HSPA+ technology when using the same bandwidth and antenna technology. This reflects the fact that many of the advanced features aimed at progressing LTE technology towards LTE-Advanced have also been proposed for HSPA in Release 11 and beyond. Peak data rates achieved by these new releases are enabling HSPA to keep pace with LTE deployments, within a very similar timeframe, in the short to medium term. This is also demonstrated by the comparison of actual speeds of HSPA vs. LTE as measured in the US where

¹⁰³ Ofcom Second Consultation, Annex 6, para 3.55.

¹⁰⁴ See <http://www.mobileeurope.co.uk/news/news-analysis/9272-o2-announces-a-few-lte-trial-results>.

¹⁰⁵ See House of Commons, Culture, Media and Sport Committee, "Spectrum", Eighth Report of Session 2010-12, Supplementary written evidence submitted by Hutchison 3G UK Ltd (Three).

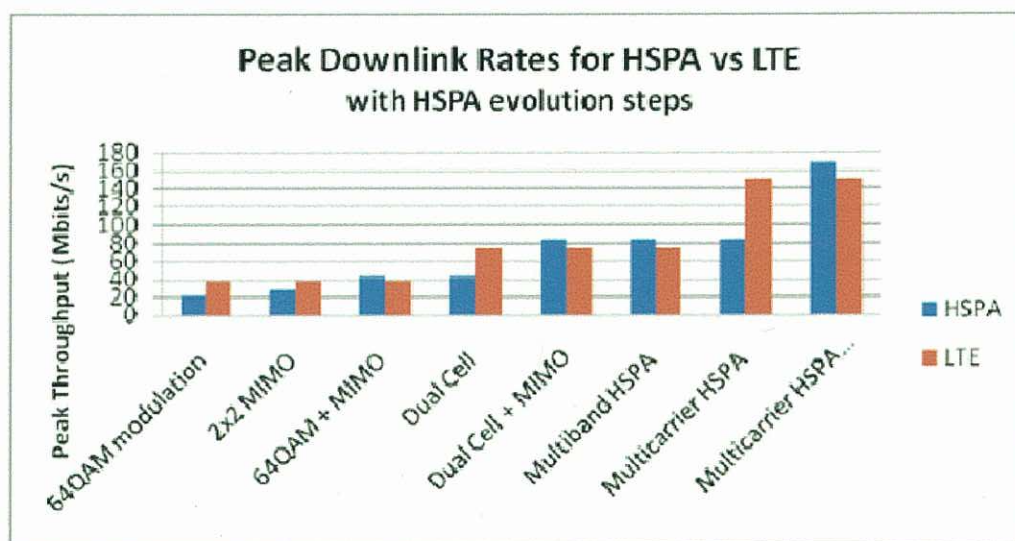
we understand LTE is deployed in smaller carriers in the 700 MHz band. These show that LTE is faster, but that HSPA compares favourably.¹⁰⁶

Table 8: Peak Downlink Comparison of data rates between HSPA+ and LTE

Technology	MIMO usage	Carrier size (MHz)	Peak downlink data rates (Mbit/s)
HSPA+	Single stream	5	21
LTE	Single stream	5	22
HSPA+	MIMO (2 X 2)	5	42
LTE	MIMO (2 x 2)	5	43
HSPA+	Single stream	10	42
LTE	Single stream	10	43
HSPA+	MIMO (2 x 2)	10	84
LTE	MIMO (2 x 2)	10	86

Source: Analysys Mason.

Figure 7: Peak download rates for HSPA vs. LTE (2x2 MIMO in same bandwidth)



Source: Everything Everywhere's response to Ofcom consultation, "Assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues", 3 June 2011

The Telefónica trial is, however, indicative of the additional longer term consumer benefits of LTE

LTE will offer further improvements in download speeds in the longer term, as new devices become available to support higher order MIMO antenna technology, which requires the handset to have four antennas, and networks are upgraded to take advantage of this. In addition, LTE-Advanced will allow multiple blocks of spectrum in the same or potentially different spectrum bands to be aggregated and used to serve a single user. Ofcom has published research which shows that where all of these technology enhancements are implemented (i.e. full implementation of MIMO and the use of five 2x20 MHz carriers), peak data rates may in future reach 3,000 Mbps.¹⁰⁷ It is unclear whether such speeds will be achieved in the UK in the long term. They are, however, indicative of the potential benefits of LTE.

¹⁰⁶ See for example

http://www.pcworld.com/article/253808/3g_and_4g_wireless_speed_showdown_which_networks_are_fastest.html.

¹⁰⁷ Ofcom, Second Consultation, Annex 6, Table 3.1.

4.4 Lower latency will support bandwidth heavy services

Latency, together with data throughput, will affect the overall responsiveness of a mobile network from a customer perspective.¹⁰⁸ While some data applications directly benefit from the higher data rates, for many applications high data rates do not translate to improved user experience unless the latency is low. The consumer benefit of low latency is that connections react sooner to inputs, improving the customer experience of interactive tasks, such as gaming, video, cloud-based services and business applications.¹⁰⁹

Compared to existing 2G services in the 1800 MHz band, LTE will significantly reduce the latency of mobile data connections, which will enhance the responsiveness of the network, thereby improving the reliability of video and online gaming services in particular, as well as the mobile browsing experience in general. As outlined above, video is expected to be a major driver for the future growth in demand for mobile data capacity as a result of the mass-market penetration of video capable mobile devices (including smartphones and tablet PCs), together with video services (such as the BBC iPlayer, SkyGo, YouTube and FaceTime). Games for mobile devices will increasingly include an online element, as they have for consoles and PCs. LTE will reduce latency to near-fixed line levels, significantly improving playability.

LTE will also reduce latency by comparison with 3G networks. Data published by Ofcom suggests that the U-plane latency of HSPA+ networks is approximately 100ms Round Trip Time ("RTT").¹¹⁰

[REDACTED] Telefónica has reported latency rates of 7ms using a 2x20 MHz carrier on its LTE trial.¹¹¹

4.5 Ability to prioritise traffic will improve quality of service

LTE includes specific features which allow the network operator to tag data with quality of service information ("QoS") to allow different traffic types to be prioritised differently. These tools allow delay sensitive traffic (like voice) to be prioritised over delay tolerant traffic like file transfer. Such tools are becoming increasingly important as operators move to a multi-service offering (including video communications, video streaming and interactive games) at the same time as both the number of mobile broadband subscribers and the traffic volume per subscriber is rapidly increasing. These services have different performance requirements, for example, in terms of required bit rates and packet delays. Solving these performance issues through over-provisioning is inefficient. The QoS feature in LTE will in future provide a cost effective means of improving the performance of services delivered to customers.

Whilst QoS management is also possible on UMTS networks, QoS is fundamentally more important in LTE than it is in UMTS for a simple reason - voice. Within UMTS networks, voice and data are treated separately, with voice carried over an end-to-end 'circuit' for the duration of the call. These voice circuits take priority over data applications. By contrast, in LTE networks voice services will, in due course (when a native Voice over LTE ("VoLTE") product becomes available), become 'just another' data application. However VoLTE must still have the same 'quality' that customers have come to expect from traditional mobile telephony. This requires an advanced

¹⁰⁸ There are a number of different measures of latency. User plane (or 'U-plane') latency is the delay seen by an application in exchanging data with a server. In broad terms, it measures the time it takes for a single packet of data to travel from the handset to the server and back again (also known as Round Trip Time or RTT) (see Ofcom Second Consultation, Annex 6, para 3.181). Control plane (or 'C-plane') latency, also known as call setup latency, is the time it takes for a handset to transition to a state where it can send/receive data.

¹⁰⁹ Real Wireless, "The timing of the consumer and operator features available from HSPA and LTE", January 2012, pp. 29-30.

¹¹⁰ Ofcom Second Consultation, Annex 6, Table 3.2.

¹¹¹ See <http://www.mobileeurope.co.uk/news/news-analysis/9272-o2-announces-a-few-lte-trial-results>.

QoS framework and LTE has therefore been designed with much more sophisticated and flexible QoS management capabilities (as compared to UMTS).¹¹²

4.6 Productive efficiencies

LTE is expected to be more cost effective than HSPA in the longer term due to its increased spectral efficiencies and flatter network structure.¹¹³ The 3G radio access network structure includes both base stations and a radio network controller ("RNC"), which co-ordinates radio resources across multiple base stations and manages handover. In LTE, the RNC functionality has been integrated into the base station to create a flatter network architecture with fewer nodes. Reducing the number of nodes in the path of user traffic improves latency, as well as helping to reduce costs.¹¹⁴

4.7 Incentivising innovation and investment

Everything Everywhere strongly believes that the early introduction of LTE in the UK is pro-competitive and will provide a strong incentive for other mobile operators to continue to invest in upgrading their networks.¹¹⁵ Everything Everywhere's LTE launch will not only spur further investments in HSPA+ by all mobile network operators, but will also help to promote further investments in LTE by other mobile operators in 2013 (or earlier). This ensures there is no further delay in the direct benefit to consumers, and it is also beneficial for the UK economy in terms of jobs and growth.

As Ofcom has noted competitors may have advantages in different aspects of service. Such differentiation between rivals is a feature of many competitive markets and consumers can benefit where rivals seek to exploit their advantages compared to competitors and engage in various ways to mitigate their areas of disadvantage, some of which may be creative or open up new possibilities for consumers.¹¹⁶

The history of 3G was one of slow roll-out of networks, with licences granted in 2000 and the first services being offered by 3 in March 2003 and other operators following 12-24 months later (see Figure 8 below).

¹¹² In LTE, QoS is integrated end-to-end, whereas in UMTS QoS treats radio, backhaul and core as distinct domains. UMTS standards also include QoS, but in general it is less complete, its implementation is cumbersome and inflexible, and vendor support is patchy. It is not possible to define very granular policies for which traffic will be prioritised. LTE's more comprehensive, end-to-end QoS can be used to offer more sophisticated data services based on very granular policies for the treatment of different data streams. For example, the network can dynamically recognise that a specific application is being used and give it the resources and priority needed to deliver a good customer experience, depending on who the subscriber is and what proposition he has purchased.

¹¹³ Deloitte, "The Impact of 4G technology on Commercial Interactions, Economic Growth and US Competitiveness", August 2011, p. 9.

¹¹⁴ Real Wireless, "The timing of the consumer and operator features available from HSPA and LTE", January 2012, p.7.

¹¹⁵ It has been estimated that an investment of around £5.5 billion will be made by mobile operators (including Everything Everywhere) to deploy LTE on a national basis, supporting 125,000 jobs in the UK and stimulating £8 billion of purchases in the upstream supply chain. See Capital Economics, "Mobile Broadband and the UK Economy", 30 April 2012. As noted above, mobile operators are also expected to continue to invest in upgrading their existing 3G networks.

¹¹⁶ Ofcom Second Consultation, para 4.39.

Figure 8: UK mobile operator 3G launch dates



Source: Public announcements

3G networks were built out over time and, indeed, this process continues. At the time of the launch of 3G networks, GSM offered only 9.6 kbps and GPRS 115 kbps. By contrast, the peak rate for 3G networks was 2 Mbps.¹¹⁷ Although 3 launched 3G almost a year before any other operators, it has not enjoyed a first mover advantage. Instead, the UK has seen successive waves of network investment, first with UMTS, then HSPA, then with different versions of HSPA+ (see section 3.1.2). These network upgrades have been done by different operators at different times, indicating that this is part of the normal competitive process in the mobile market.

Experience from other jurisdictions also shows that even when all mobile operators are authorised to launch LTE services at the same time, in practice there will typically be a "first mover" who launches before its rivals. For example, as shown in Figure 9 below, in Sweden, where mobile operators were licensed to use the 2.6 GHz band for LTE in 2008, TeliaSonera launched LTE services in December 2009, a full eleven months before its rivals, Tele2 and Telenor Sweden (who launched using a shared 4G network in November 2010). A fourth operator, Hi3G Access Sweden (3), deployed LTE on its network in December 2011 in the 800 MHz band, following the award of the 800 MHz spectrum in March 2011.

Figure 9: Deployment of LTE in Sweden



Source: Public announcements

A similar pattern can be observed in Denmark where all four mobile network operators have had access to 2.6 GHz spectrum since June 2010 but as of now only two of four have launched LTE services.

There has been no suggestion that the staggered launch of these services is in any way a "distortion" or "restriction" of competition.

The launch of LTE networks will also spur innovation in new handsets and mobile services. As Ofcom has noted, HSPA will have significant advantages over LTE because of the larger range of compatible devices.¹¹⁸

As noted in a recent research paper by IDATE, uncertainty regarding the frequency bands which will be adopted for LTE in national markets has "a significant impact on the growth of the LTE device ecosystem".¹¹⁹ Research published by Ofcom has shown

¹¹⁷ See <http://news.bbc.co.uk/1/hi/business/3580373.stm>.

¹¹⁸ Ofcom Second Consultation, para 4.98.

¹¹⁹ IDATE, "White Paper: LTE 2012 - Markets & Trends, Facts & Figures", February 2012, p.26.

that the 1800 MHz band has moved significantly up the LTE development priority list for many vendors as a result of pressure from operators such as Deutsche Telekom, Orange and Telstra.¹²⁰ It is, therefore, critical that LTE1800 networks are launched in major markets, such as the UK, early in order to ensure that device manufacturers are incentivised to support LTE1800 (as well as LTE800 and LTE2600).

While LTE does not constitute a new service, the technology will facilitate a material change in the functionality of data services and the ability to support a wide range of new mobile services applications and types of use. This is particularly the case given the way in which the improved capabilities of LTE can be coupled with cloud infrastructure and advances in areas such as displays, microsensors, processors and chip manufacturing. Cloud computing is an important complement to mobile broadband. Cloud-based services allow handheld devices to be more compact and efficient while making them significantly more useful and powerful.¹²¹ However, applications, storage and computing power can only be largely resident in the cloud if connectivity is robust, reliable and secure.¹²² By delivering improvements in these areas, LTE will encourage new offerings and capabilities that build on and exceed what has been possible with 3G. As set out in Figure 10, particular areas of potential include payments and transactions, navigation, video, cloud-based services, location-based services, and augmented reality-based applications.

Figure 10: 4G network capabilities compared to predecessor wireless broadband technologies

	2.5 - EDGE	3G - UMTS / HSPA	4G - LTE / WiMax
Device Type	• Basic handset	• Smartphone/tablet • Air card • Some sensors, appliances, etc.	• All personal electronics: phone, TV, tablet, camera, automobile • Widespread sensors, machines, kitchen, appliances, etc.
Device computing and storage	• Limited physical memory	• High-powered CPU • Limited access to cloud storage	• Input/output client with cloud computing and multi-device access
Communications media	• Voice, SMS, instant messaging	• Over-the-top applications • Social networking	• Video calls • Collaboration via cloud
Applications	• Carrier walled garden with basic UI • Limited M2M	• Phone functionalities • Downloadable apps • MP3 player, camera, etc.	• Monitoring, automation, and smart systems • HDTV streaming and conferencing
Application examples			
Security and monitoring	• Emergency response	• Vehicle security • RFID identification	• Streaming video surveillance • Vehicle tracking
Transportation	• Basic voice	• Automatic crash notification • Public transportation navigation	• Smart traffic flow-infrastructure • Real-time vehicle monitoring and control
Location-based services	• Maps and basic GPS navigation • 911 functionality	• Localized, personalized recommendations near location • Mobile check-in	• High definition, location-based video advertisements • Augmented reality for field technicians
Video / music / gaming	• Ringtone downloads	• Video streaming onto smartphone or tablet	• Multi-device mobile HDTV streaming from cloud-based content locker
Education	• Collection and transmission of student data	• eBooks • Game-based learning	• Immersive gaming • Enhanced immersive interaction education

Source: Deloitte, 2011

LTE is also expected to be an important enabler in the transportation industry. Seamless handover between base stations is a challenge when, for example, trains pass between cells in just a few seconds. LTE's low latency and high throughput are an advantage. In addition, packet-switching

¹²⁰ Real Wireless, "The timing of the consumer and operators features available from HSPA and LTE", January 2012, p.48.

¹²¹ It has been estimated that cloud computing has the potential to deliver sizeable improvements in computing efficiency, and could improve labour productivity by an average of 2.1 per cent, as well as reducing the amount of investment tied up in underutilised IT capacity. See CEBR, "The Cloud Dividend: Part One. The economic benefits of cloud computing to business and the wider EMEA economy - France, Germany, Italy, Spain and the UK", 2010.

¹²² Deloitte, "The Impact of 4G technology on Commercial Interactions, Economic Growth and US Competitiveness", August 2011, p. 9; Open Digital Policy Organisation, "Estimating the cost to UK businesses of slow mobile broadband", 4 October 2011.

occurs in milliseconds, whereas circuit-switched cellular technologies lose precious seconds re-establishing connections between one cell and the next.¹²³

The early deployment of LTE will help to ensure the UK's mobile infrastructure is better able to support the future mobile data needs of businesses, improving efficiency and the ability to communicate, transact, adapt and innovate. This could in turn translate into increased productivity and the formation of new businesses and employment opportunities, which are major contributors to growth in GDP. It has been estimated that the eventual boost from LTE to national GDP could be equivalent to £75 billion - or 0.5% of GDP - over a decade.¹²⁴

LTE could also deliver significant benefits from a citizen perspective by improving high speed broadband availability to remote areas, including potentially providing access to mobile superfast broadband to at least 10 million people who may not be able to receive fixed-line superfast broadband by the end of the decade¹²⁵, and in enabling the delivery of next generation emergency services applications (see Figure 10 above).

4.8 Consumer detriment if LTE is delayed

LTE1800 networks are already deployed and in operation in a number of European markets. Handsets and other devices for LTE1800 are now becoming available and increasing in number.¹²⁶ The only thing preventing consumers with such devices from enjoying the benefits of LTE in the UK is the regulatory restriction that limits the technologies that can be deployed in the 1800 MHz band.

From a consumer benefit perspective, it is imperative that decisions are taken quickly allowing this spectrum to be liberalised for LTE use. While demand for LTE services will grow over time, the improved capacity, data rates, latency and quality of service offered by LTE on launch will provide very significant benefits to early adopters, which they would not otherwise receive. Delaying liberalisation will make this group of early adopters significantly worse off because they would have to wait longer to enjoy the benefits of these services, with significant knock-on effects on innovation and investment in the UK.

It has been estimated that the cost to UK businesses of the delay in rolling-out LTE networks in the UK is in the region of £61 million per month, or £732 million per year.¹²⁷ This is based on an estimate of the number of business hours which could be saved from faster mobile data downloads once LTE technology is introduced. Besides the cost associated with slower download speeds, the report notes there are also likely to be indirect costs as without fast and reliable internet access, UK businesses will be wary about adopting new business tools such as cloud-based office and productivity software, meaning that certain tasks will continue to be performed in the office when they could more efficiently be carried out from remote locations (it was reported in July 2011 that just one in ten firms had embraced cloud computing).¹²⁸

Furthermore, there may be knock-on effects if UK businesses start to lose ground to other nations if they are not able to deploy the mobile technology and working practices required to compete effectively. For example, it may put UK application developers at a disadvantage as they are unable to test their services over the most advanced networks. This could potentially lead to a loss of capital for new investment, impacting on future infrastructure, and ultimately economic growth.¹²⁹ Research recently carried out by YouGov found that 82% of British adults expressing an opinion believe adopting new technology such as 4G networks is vital for Britain to remain

¹²³ Informa, "The connected train: opportunity review of passenger services", Industry Outlook 2012, p.102.

¹²⁴ Capital Economics, "Mobile Broadband and the UK Economy", 30 April 2012.

¹²⁵ Capital Economics, "Mobile Broadband and the UK Economy", 30 April 2012.

¹²⁶ See <http://www.telecoms.com/30086/lte1800-lte-deployments-in-1800mhz-band/>.

¹²⁷ Open Digital Policy Organisation, "Estimating the cost to UK businesses of slow mobile broadband, 4 October 2011.

¹²⁸ See <http://www.virginmediabusiness.co.uk/News-and-events/Business-blog/2011/Embrace-the-cloud/>.

¹²⁹ Open Digital Policy Organisation, "Estimating the cost to UK businesses of slow mobile broadband, 4 October 2011.

competitive and protect jobs. Almost three quarters (74%) want to bring 4G to the country as soon as possible.¹³⁰

4.9 Conclusion

The introduction of LTE to the UK will provide significant benefits to consumers and to the wider UK economy. These benefits will be realised not only through the enhanced mobile broadband experience for consumers in terms of the increased capacity, download speeds and latency of LTE services, but also in the resulting productive efficiencies and the further investment and innovation that a new technology such as LTE can be expected to stimulate.



Notwithstanding this, the launch of LTE by Everything Everywhere will deliver substantial benefits to those consumers who adopt LTE during the Interim Period. Furthermore, Everything Everywhere strongly believes that the adoption of LTE as soon as possible is crucial to spur further investment in mobile networks and the development of the LTE ecosystem in the UK. A failure to liberalise now will only see the UK fall further behind other nations which are already enjoying the benefits of LTE, to the detriment of citizens and consumers.

¹³⁰ See <http://everythingeverywhere.com/2012/04/18/three-quarters-of-the-british-population-want-to-bring-4g-to-britain-as-soon-as-possible/>. Total sample size was 2033 adults. Additional research also showed that for those who wanted 4G to come to the UK as soon as possible, the primary reasons were (i) because they think it is important for the UK to catch up with other countries and stay competitive (66%); (ii) because they would like to access faster internet connections (58%); and (iii) because it is important for the economy and job creation (45%).

5 No material risk of distortion to competition

Everything Everywhere strongly agrees with Ofcom's provisional conclusion that there is no material risk of distortion of competition if Everything Everywhere is permitted to use the 1800 MHz band to deploy LTE services at the earliest opportunity.¹³¹ [REDACTED]

[REDACTED] While LTE services will provide material benefits to consumers during the Interim Period, the competitive advantage which Everything Everywhere will have [REDACTED] will not be material, unmatched or enduring and as such, there will be no distortion of competition.

By contrast, a decision not to permit Everything Everywhere to launch LTE services as soon as possible would result in a reduction in competition, to the detriment of consumers, and would be inconsistent with Ofcom's statutory duties. In any event, as the UK is required to make the amendment by 31 December 2012 pursuant to Decision 243/2012/EU, the correct counter-factual against which to assess any harm to competition is a launch on 1 January 2013. [REDACTED]

5.1 Relevant markets

In order to consider whether there is a risk of a distortion or restriction of competition, it is standard practice to define the relevant market(s) on which such effects may occur.¹³² The European Commission, in the context of the T-Mobile / Orange merger, defined relevant markets for:

- mobile telecommunication services to end customers; and
- wholesale access and call origination on public mobile telephone networks.

Everything Everywhere notes that there has been no material change in the UK mobile sector since this decision. These market definitions are therefore an appropriate basis on which to consider this particular case. Everything Everywhere has set out below the basis on which it considers that these markets continue to be the appropriate frame of reference. However, given that the conclusions of the analysis are the same on the basis of any reasonable alternative frame of reference, Everything Everywhere considers that in this case it is open to Ofcom to leave the precise market definition open and simply identify the potential bounds within which the relevant markets should lie.

5.1.1 Mobile communication services to end customers

There is well-established precedent that there is a single market for the provision of mobile communications services to end customers, which is not sub-divided by type of network technology, customer or service.¹³³ This precedent has previously been supported by Vodafone, Telefónica and 3 in cases before the European Commission and Ofcom.

¹³¹ Ofcom Notice, para 5.19.

¹³² While not binding in this case, Article 1(2) of Directive 87/372/EEC (as amended by Directive 2009/114/EC) provides that Member States shall, when implementing this Directive, examine whether the existing assignment of the 900 MHz band to the competing mobile operators in their territory is likely to distort competition in the mobile markets concerned. This is also the consistent practice of competition authorities in considering whether there a distortion or restriction of competition arises as a result of an agreement between undertakings under Article 101 TFEU.

¹³³ European Commission decisions: Case No. COMP/M.5650 - T-Mobile / Orange; Case No. COMP/M.3245 - Vodafone / Singlepoint; Case No. COMP/M.3530 - TeliaSonera/Orange; Case No. COMP/M.3916 - T-Mobile Austria / Tele.ring; Case No. COMP/M.4947 - Vodafone / Tele2 Italy / Tele2 Spain.

The market for the provision of retail mobile communications services includes services using 2G and 3G standards. No separate market has been found for any technical standard. From an end-user perspective, these technologies are interchangeable and a device may use more than one technology and provide access to both voice and data services. In the T-Mobile / Orange merger decision, the European Commission found that the borders between services offered over 2G networks and 3G networks are blurred, and that the larger part of the offers on the UK market generally include both data and voice services.¹³⁴ The Commission therefore concluded that there is a single market for the provision of mobile communication services to end customers.¹³⁵

The position is the same in relation to LTE. While LTE represents a material change in network performance, it is not as significant a step-change as the transition from 2G to 3G. LTE has been purposely designed to be backwards compatible with existing infrastructure and will co-exist with current technologies in the same way as 2G and 3G technologies currently co-exist.¹³⁶ From an end-user perspective, the handover of data sessions from LTE to 2G and 3G will be seamless. As such, the borders between services offered over 2G, 3G and LTE networks will be blurred and the larger part of the offers on the UK market will, in the light of high and rising smartphone penetration, continue to include both voice and data services. For this reason, the European Commission accepted in the T-Mobile / Orange merger decision that mobile services provided over LTE are part of the market for the provision of retail mobile communications services.¹³⁷

This continues to be the case. As Ofcom has noted, it is still the case that consumers typically purchase a cluster of voice and data services.¹³⁸ While Ofcom has left the relevant market definition open in the context of the forthcoming spectrum auction¹³⁹, Ofcom has previously cited the European Commission's assessment in the T-Mobile / Orange merger decision with approval, concluding that it is reasonable to assume that there is currently a single product market for mobile retail services in the UK.¹⁴⁰

As such, any narrowing of, or deviating from this usual retail market definition would need to be on the basis of strong additional analysis and evidence. While Everything Everywhere acknowledges that the analysis of particular competition issues may in future require the adoption of a different frame of reference, no robust case has been made that a narrower market definition would be justified or would change the outcome in this case. On the contrary, Everything Everywhere considers that the available evidence suggests that no LTE only market can reasonably be defined (as discussed below).

There is well-established precedent that the retail market for the provision of mobile communication services is national in scope.

¹³⁴ Ofcom has not formally assessed market definition for mobile services since Ofcom's market review of wholesale mobile access and call origination services in 2003 (which also considered the retail market). At that time, Ofcom considered there was a single mobile retail market because consumers typically buy a 'cluster' of services (including access, voice origination and data services) that are likely to face a common pricing constraint. See Ofcom, "Explanatory Statement and Notification – Mobile access and call origination services market: Identification and analysis of market and Determination on market power", 4 August 2003.

¹³⁵ Case No. COMP/M.5650 - T-Mobile / Orange. In the T-Mobile Austria / Tele.ring merger decision, the European Commission noted that the provision of multimedia services which are only available on 3G networks is closely connected to the provision of services that can also be provided over 2G networks. All these services are provided by the same operator to the same customer, and from the customer's point of view the services provided over 2G networks are the basic services. No customer would conclude a mobile telephone contract if the operator does not provide these basic services (see Case No. COMP/M.3916 - T-Mobile Austria / Tele.ring).

¹³⁶ Nigel Purdy, the Chief Technology Officer of Telefónica, has stated that its "strategy is to intelligently layer our network to give our customers connection to 2G, 3G, HSPA+, LTE and Wi-Fi, seamlessly, simply and at speed." See <http://mediacentre.o2.co.uk/Press-Releases/O2-first-to-switch-on-new-superfast-3G-900MHz-network-2f8.aspx>.

¹³⁷ Case No. COMP/M.5650 - T-Mobile / Orange.

¹³⁸ Ofcom, "Consultation on assessment of future mobile competition and proposals for award of 800MHz and 2.6GHz spectrum and related issues", 22 March 2011, para 5.16.

¹³⁹ Ofcom Second Consultation, Annex 6, para 2.27.

¹⁴⁰ Ofcom, "Consultation on assessment of future mobile competition and proposals for award of 800MHz and 2.6GHz spectrum and related issues", 22 March 2011, Annex 6, para 3.20.

5.1.2 No risk of market bifurcation on the basis of peak download speeds

Both Ofcom and the European Commission have previously acknowledged that it is possible that there may be a bifurcation of the market for mobile services in the future, with separate markets developing for high quality data services.

The European Commission concluded in the T-Mobile / Orange merger decision that contiguous spectrum of 2x20 MHz is required to achieve the highest peak download speeds available using LTE, and that, absent a spectrum divestment, there was a risk that Everything Everywhere might be able to launch a national 2x20 MHz LTE network "in the near future". The European Commission considered that this could result in a bifurcation of the market "in years to come", with Everything Everywhere being the only operator able to offer LTE technology at the best possible speeds.¹⁴¹ In order to address this concern and to remove the risk of market bifurcation, Everything Everywhere committed to a divestment of 2x15 MHz of 1800 MHz spectrum.

In March 2011, Ofcom noted that, while it is reasonable to assume that there is currently a single retail market for all mobile services, separate markets may potentially develop in the future. Ofcom suggested that it is possible that there may, in future, be a bifurcation between voice and data services. However, Ofcom also acknowledged that the growth in smartphones and the percentage of consumers using mobile internet suggests that in the future most consumers will value voice and data services combined. As such, it is by no means clear that such a bifurcation will occur. In the event of a bifurcation in the market, Ofcom suggested that three possible markets for higher quality data services which might potentially emerge:

- a high quality market associated with reliable indoor coverage for data services;
- a separate market associated with higher data speeds and better latency delivered with large contiguous spectrum blocks using LTE services, distinct from a market associated with lower data speeds (delivered by 2G and 3G); and/or
- a division of the retail market into services that had priority over other services (e.g. a highly reliable business service compared to a lower priority consumer service), which could be facilitated by the use of LTE technology.¹⁴²

It is clear that no such market bifurcation has taken place to date. As Ofcom noted, its assessment in March 2011 was forward looking, considering developments over a significant number of years, and was conducted prior to the launch of commercial retail services using LTE in the UK.¹⁴³ Since March 2011, smartphone penetration has accelerated and consumers continue to value combined voice and data packages. The relevant question in the context of this consultation is whether there is a separate market which could feasibly develop as a result of Everything Everywhere's launch of LTE services (especially in relation to the second of the three potential markets identified above). Everything Everywhere considers that the available evidence does not provide any reliable basis for so concluding. The extent to which consumers will value the features that LTE can deliver over and above HSPA and HSPA+ has not yet been tested¹⁴⁴ and, in any event, it is clear that any advantage which LTE can provide will be constrained by competition from HSPA and HSPA+ for at least a number of years. This is particularly the case during the Interim Period where there will be a limited range of LTE smartphones and LTE services will co-exist with current 2G and 3G technologies. As such, there is currently no basis on which to conclude that separate markets may develop in any timescale relevant to this case.¹⁴⁵

¹⁴¹ Case No. COMP M.5650 - T-Mobile / Orange, paras 117-121.

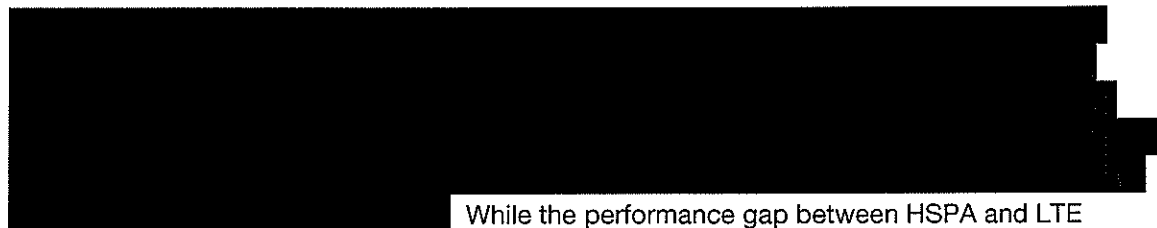
¹⁴² Ofcom, "Consultation on assessment of future mobile competition and proposals for the award of 800MHz and 2.6GHz spectrum and related issues", 22 March 2011, Annex 6, paras 3.27 to 3.30.

¹⁴³ As noted above, UK Broadband currently has recently launched LTE in the 3.5 GHz band, currently limited to the London Borough of Southwark, although whether this is available on a retail basis is unclear.

¹⁴⁴ Ofcom Second Consultation, Annex 6, para 3.177.

¹⁴⁵ Ofcom, "Consultation on assessment of future mobile competition and proposals for the award of 800MHz and 2.6GHz spectrum and related issues", 22 March 2011, Annex 6, Paragraph 3.31.

Experience from other jurisdictions in relation to pricing for LTE tariffs has been varied, with operators typically offering a number of plans with different peak download speeds.¹⁴⁶ This is consistent with a chain of substitution linking the services delivered using current generation networks with those delivered using LTE networks. Similarly international evidence suggests that it is very difficult to draw any conclusions about the likelihood of there being a "premium" associated with LTE services, as this depends in large part on the strategy of each operator. For example, operators with heavily congested 3G networks may be inclined to offer LTE services at reduced rates in order to incentivize customers to migrate. Indeed, there is evidence from some jurisdictions of operators offering LTE plans that cost the same as, or less than, their premium 3G services.¹⁴⁷ Operators' pricing strategies are also likely to change over time. For example, the price of TeliaSonera's "Total Mobile Broadband" package in Sweden, which includes LTE services, has decreased by about 20% since September 2010.¹⁴⁸ In Estonia, EMT initially chose to make LTE a premium service and priced it as such, but has since adjusted its plans to bring its prices for HSPA and LTE packages more in line.¹⁴⁹



While the performance gap between HSPA and LTE technology will grow over time, this will not occur until after the launch of LTE-Advanced in 2014.¹⁵⁰ By this time, there will be other well developed competing LTE networks in the market, so the development of the market is impossible to predict at this stage.

Everything Everywhere notes that Telefónica has previously argued that there is a single market for mobile services. Drawing a comparison between 4G and next generation fixed services, Telefónica argued there is a "chain of substitution existing between 3G services and at least to 2x10 MHz 4G services" and that, to the extent there is a risk of bifurcation, "it resides at the boundary between 2x10 MHz and 2x20 MHz services in all bands where such a carrier is supported".¹⁵¹



Everything Everywhere strongly supports Ofcom's view that a single mobile market will continue to exist where there is "a 'chain of substitution' between different service levels preventing separate markets for high quality data services developing".¹⁵² Given the way in which LTE services will develop and improve over time, particularly as new smartphones become available¹⁵³ this may suggest that there will continue to be a chain of substitution that links together different speeds of mobile broadband services at the retail level, regardless of the underlying technology used to deliver them.

¹⁴⁶ For example, Vodafone Germany was offering 4 packages, with peak downlink data rates of 3.6, 7.2, 21.6 and 50.0 Mbps, respectively.

¹⁴⁷ Economist Intelligence Unit, "Saving Mobile Broadband: 4G first movers: network and pricing strategies", 2011, p. 5.

¹⁴⁸ IDC, "Moving to the Next Generation? LTE Deployments in CEMA", April 2012.

¹⁴⁹ IDC, "Moving to the Next Generation? LTE Deployments in CEMA", April 2012.

¹⁵⁰ See, for example, <http://www.qualcomm.com/media/documents/lte-advanced-global-4g-solution>.

¹⁵¹ Telefónica UK's response to: Assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues, a consultation by Ofcom, paras 103-117.

¹⁵² Ofcom Second Consultation, Annex 6, para 2.29. As Ofcom notes, a chain of substitution may exist, for example, where a customer would not substitute from service A to service C to avoid a SSNIP, but would substitute to service B. This may suggest that service A and B are in the same market but that service A and C are in separate markets. However, if there are customers who would substitute from service B to service C then this may suggest that service B and C are in the same market. Because of a chain substitution between services A and B and services B and C, services A and C would be defined in the same market.

¹⁵³ Ofcom Second Consultation, Annex 6, paras 3.206 to 3.208.

5.1.3 Wholesale access and call origination on public mobile telephone networks

As set out in the Commission's decision in the T-Mobile / Orange merger, the wholesale access and call origination market is not sub-divided by type of network technology or service. There is well-established precedent that the market is national in scope.

5.2 UK continues to be among the most competitive markets in the EU

The UK retail market continues to be highly competitive. In the T-Mobile / Orange merger decision the European Commission took the view that the competitiveness of the retail market in the UK was high compared to other European countries:

"In the course of the market investigation the Commission verified that the UK retail mobile market is characterized by the strong presence of MVNOs and by a large number of efficient distribution channels. Compared to other European mobile markets, in the UK there is a significant level of switching between different mobile service providers, and there is pricing and service innovation. These factors point to the fact that the UK retail mobile market is very competitive."¹⁵⁴

In the context of its recent competition assessment¹⁵⁵, Ofcom concluded that the available evidence is "consistent with the mobile market being one in which competition has delivered a wide range of benefits for consumers".¹⁵⁶ This is reflected in the consistently high levels of consumer satisfaction with mobile phone services, with 93% either "very satisfied" or "satisfied" with the overall service according to Ofcom research.¹⁵⁷ This compares favourably with the results in other jurisdictions.¹⁵⁸

The Communications Market Report 2011 shows that average monthly revenue per mobile subscription has fallen steadily since 2007.¹⁵⁹ This has been driven in large part by substantial reductions in average PAYM revenues over that period, a trend which has occurred at the same time as demand for PAYM contracts has risen significantly, with subscriptions increasing from 26.8 million in 2007 to 39.5 million in 2010.¹⁶⁰ As noted by Ofcom, prices in the UK compare favourably with those in other European countries.¹⁶¹ This demonstrates the healthy competition between mobile operators looking to attract new PAYM customers.

The UK mobile market is also characterised by a high level of switching. According to Ofcom's 2011 Consumer Experience Report, 9% of customers switched provider in 2010/11, with a further 10% considering switching.¹⁶² Furthermore, 58% of those customers who switched found the process to be "very easy", with a further 32% considering it to be "fairly easy".¹⁶³ The European Commission considered that "the rate of switching is relatively high and attitudes towards switching are positive".¹⁶⁴

The effectiveness of competition in the UK is further demonstrated by the high penetration rates of mobile services and devices. There were over 81 million active mobile connections in the UK at the end of 2010, equivalent to 131 connections for every 100 people.¹⁶⁵ This is driven by multiple device ownership with, for example, many people having separate devices for home and work use.

¹⁵⁴ Case No. COMP /M.5650 - T-Mobile/Orange, para 53.

¹⁵⁵ Ofcom Second Consultation, Annex 6.

¹⁵⁶ Ofcom Second Consultation, Annex 6, para 2.48.

¹⁵⁷ Ofcom, "Communications Market Report 2011", 4 August 2011, figure 5.94.

¹⁵⁸ Ofcom, "International Communications Report 2011", 14 December 2011, section 6.3.4.

¹⁵⁹ Ofcom, "Communications Market Report 2011", 4 August 2011, figure 5.49.

¹⁶⁰ Ofcom, "Communications Market Report 2011", 4 August 2011, figures 5.16 and 5.50.

¹⁶¹ Ofcom Second Consultation, Annex 6, paras 2.50 to 2.54.

¹⁶² Ofcom, "The Consumer Experience 2011", 6 December 2011, section 5.2.

¹⁶³ Ofcom, "The Consumer Experience 2011", 6 December 2011, section 5.3.

¹⁶⁴ Case No. COMP /M.5650 - T-Mobile/Orange, para 51.

¹⁶⁵ Ofcom, "The Communications Market Report 2011", 4 August 2011, figure 5.54; Ofcom, "The Consumer Experience 2011", 6 December 2011, section 3.2.6. 94% of households in the UK have access to at least one mobile phone, and 91% of adults use a mobile phone. See Ofcom, "The Consumer Experience 2011", 6 December 2011, section 3.2.7.

Real Wireless reported that the penetration of mobile broadband enabled devices (including smartphones, tablets, laptops, USB modems and 3G phones) reached 171% of the population in 2011 (see Table 1 in section 3.1 above).¹⁶⁶ The vast majority of these devices were smartphones and 3G phones. Ofcom figures show that at the end of 2010 there were 33.1 million 3G mobile connections, an increase of 6.2 million from the previous year.¹⁶⁷

According to Ofcom's International Communications Market Report 2011, penetration of mobile broadband dongles in the UK is in line with other large European countries.¹⁶⁸ A recent Eurostat report shows that more than half (52%) of enterprises in the UK were using mobile broadband by the end of 2011, a rise of 16% from 2010.¹⁶⁹ Mobile broadband prices in the UK are amongst the lowest in Europe.¹⁷⁰

5.3 Competition will be reduced if Everything Everywhere cannot launch LTE

In assessing the impact on competition of the Proposed Variation, it is necessary to take as a benchmark the competitive outcome which would, in fact, arise if liberalisation were not permitted (the "counter-factual" scenario).

In this regard, it is important to take into account, as Ofcom has previously accepted, that Telefónica and Vodafone currently have a competitive advantage over other mobile operators as a result of the deployment of UMTS900. This enables Telefónica and Vodafone to provide HSPA+ services with superior indoor coverage (particularly deep indoors) at lower cost than other operators.¹⁷¹ Indoor coverage is of high importance to consumers, with usage most likely to incur indoors (see section 3.1.2 above).

[REDACTED] Lack of good indoor coverage therefore has a serious impact on the experience of all customers.

[REDACTED] While femtocells can provide some additional coverage, they cannot feasibly be deployed on a widespread basis in order to eliminate the differences in quality in coverage between sub-1 GHz and 2100 MHz networks. As noted by Ofcom, this would require installation of 'open access' femtocells or similar systems in a significant proportion of indoor locations, including many homes.¹⁷³

Not allowing Everything Everywhere to launch LTE would therefore prevent competition which would otherwise emerge by maintaining a situation whereby two operators, by virtue of their

¹⁶⁶ Real Wireless, "Techniques for increasing the capacity of wireless broadband network: UK, 2012-2030", March 2012, Annexes A1-A6, Table 38.

¹⁶⁷ Ofcom, "Communications Market Report 2011", 4 August 2011, figure 5.55. Over 40% of mobile subscriptions were 3G enabled at the end of 2010 (figure 5.56).

¹⁶⁸ Ofcom, "International Communications Market Report 2011", 6 December 2011, figure 6.76.

¹⁶⁹ See http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/4-13122011-AP/EN/4-13122011-AP-EN.PDF. This compared to 47% mobile broadband usage by enterprises across the EU27 countries.

¹⁷⁰ Ofcom, "International Communications Market Report 2011", 6 December 2011, figure 2.12.

¹⁷¹ Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900MHz and 1800MHz spectrum for UMTS", 25 October 2010, section 5.

¹⁷² [REDACTED]

¹⁷³ Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900MHz and 1800MHz spectrum for UMTS", 25 October 2010, para 4.11.

spectrum holdings, continue to operate at a competitive advantage. It should be noted that these adverse competition effects from not liberalising would occur under any potential market definition.

In addition, Vodafone and Telefónica could both have sought the freedom to deploy LTE at 900 MHz (or indeed at 1800 MHz) which Everything Everywhere has sought at 1800 MHz. While equipment for LTE900 is currently limited, it does exist and Everything Everywhere believes LTE900 has been contemplated since 2009 in Sweden and is now operational. We understand that devices are available from both Huawei and Samsung. In any event, Vodafone and Telefónica in the UK are parts of large international telecoms groups that would have leverage to create the necessary ecosystem for LTE900. They have made a choice to pursue UMTS900 instead.¹⁷⁴

5.4 Any risk of a distortion of competition is addressed by the EU Commitments

In assessing any risk of distortion resulting from the Proposed Variation it is relevant that the European Commission has already accepted the EU Commitments provided by France Telecom and Deutsche Telekom which were specifically designed to address, in their entirety, the competition concerns arising from Everything Everywhere's position as the only operator with a clear path to providing full coverage LTE services with the best possible speeds ahead of the award of 800 MHz and 2.6 GHz spectrum.¹⁷⁵

In order to address these issues, Everything Everywhere is required to divest 2x15 MHz of spectrum in the 1800 MHz band. Under the EU Commitments, 2x10 MHz of spectrum must be made available by 30 September 2013, and a further 2x5 MHz by 30 September 2015. Ofcom was closely involved in the European Commission decision and provided technical advice to the European Commission on the adequacy of the remedy.

As set out in section 3.3.1 above, preparations for the divestment are well advanced and the spectrum is expected to be divested in accordance with the terms of the EU Commitments prior to the Ofcom spectrum auction. The purchaser of this spectrum will be able quickly to launch LTE service using either a 2x10 MHz (or possibly a 2x15 MHz carrier if Vodafone is the purchaser) in October 2013. This spectrum will be cleared of 2G traffic and as such will be suitable for rapid deployment of LTE. The purchaser will add significant weight to the UK demand for LTE1800 devices from 2013, which will further contribute to the development of the LTE1800 ecosystem.

Any competition concerns associated with Everything Everywhere's early launch of LTE services have therefore already been addressed by the EU Commitments. As Ofcom notes¹⁷⁶, the European Commission clearly assumed that Everything Everywhere would be able to offer LTE services in advance of the divestment spectrum being acquired. Any decision to the contrary would only be appropriate if there has been a material change in circumstances since the European Commission's decision which would affect the competitive analysis undertaken. However, as Ofcom notes, the assumptions underlying the Commission's assessment have not changed materially, and therefore remain valid.¹⁷⁷ In any event, as explained more fully below, Everything Everywhere considers that there is no material risk of a distortion of competition as a result of its early adoption of LTE technology.

5.5 Limited competitive advantages will result from an early launch of LTE

¹⁷⁴ As explained in Section 3.1.2 above, Vodafone and Telefonica can of course continue to pursue the development of the LTE900 ecosystem in parallel with their deployment of UMTS900, with a view to a launch of a future launch LTE services.

¹⁷⁵ Case No. COMP/M.5650 - T-Mobile / Orange. [REDACTED]

¹⁷⁶ Ofcom Notice, para 5.16.

¹⁷⁷ Ofcom Notice, para 4.16.

As explained in section 4 above, LTE technology has a number of technical advantages over HSPA technology, which will give rise to material consumer benefits. These advantages include, in particular, increased capacity, improved data rates, lower latency and the improved ability to prioritise traffic. Ofcom has suggested that it is possible that operators with spectrum available for LTE may be at an advantage when competing for certain segments of services or customers as compared with operators that do not have spectrum suitable for LTE services and high peak data rates.¹⁷⁸

However, the extent to which the technical advantages of LTE will translate into a competitive advantage for Everything Everywhere over other operators during the Interim Period¹⁷⁹ is tempered by a number of factors which are relevant to Ofcom's assessment of whether there is any material risk of a distortion to competition. These factors include:

- the short duration of the Interim Period, [REDACTED]
- the limited pool of consumers who are eligible to upgrade to a new contract in the period immediately following launch;
- the limited availability of LTE1800 compatible devices and smartphones, [REDACTED] in the short term;
- [REDACTED]
- the steps which other operators will be able to take to improve their existing 3G services in response to Everything Everywhere's launch of LTE; and
- the possibility of other providers launching LTE services through commercially negotiated wholesale access to Everything Everywhere's network [REDACTED]

5.5.1 The Interim Period will be less than 15 months

As noted above, as the UK is required to make the amendment to Everything Everywhere's licences to allow for LTE services by 31 December 2012 pursuant to Decision 243/2012/EU, the correct counter-factual against which to assess any harm to competition is a launch on 1 January 2013. [REDACTED]

Even taking Ofcom's approach, which considers the Interim Period between Everything Everywhere's launch of LTE1800 and the time when its competitors would be able to launch LTE services using the 800 MHz and 2.6 GHz bands is up to 15 months, Everything Everywhere considers that Ofcom's approach is likely to significantly overstate the length of the relevant period (as explained in section 3.3.3 above). [REDACTED]

¹⁷⁸ Ofcom Notice, para 5.12.

¹⁷⁹ [REDACTED]

¹⁸⁰ Ofcom Notice, para 4.30.



In any event, irrespective of whether the Interim Period is defined as 15 months or shorter, there is no material risk of a distortion of competition arising, either during or after the Interim Period.

5.5.2 Customer take-up of LTE smartphones will be limited during the Interim Period

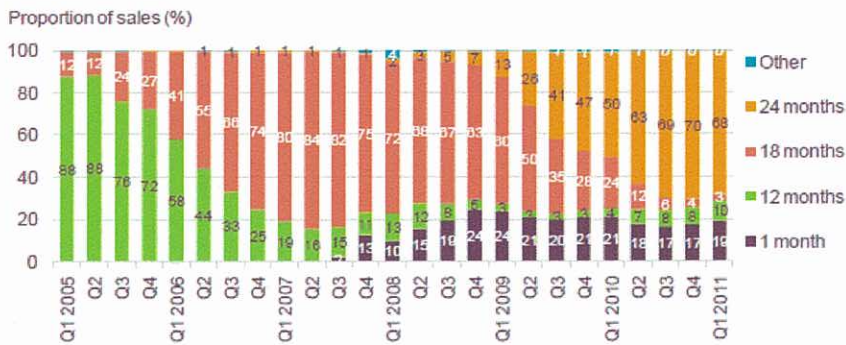
As Ofcom has noted, it is currently unclear the extent to which consumers are likely to value the features that LTE can deliver over HSPA in the short term, and therefore the extent to which holding spectrum suitable for an early launch of LTE will deliver significant competitor advantages.¹⁸¹ Everything Everywhere anticipates a steady, measured take-up of LTE smartphones by its customers in the 15-month period immediately following launch (see section 3.2.3 above).

A key limiting factor will be the range, [redacted], of LTE compatible devices which will be available when Everything Everywhere launches LTE services. [redacted]

[redacted] Given the importance of handsets to customer choice, HSPA will have a significant advantage over LTE for some time because of the larger range of compatible smartphones.¹⁸² [redacted]

The likelihood of a measured take-up of LTE is further reinforced by the fact that many customers are signed up to long-term (12 or 24 months) contracts and would, therefore, be unlikely to switch to LTE services immediately following launch. Figure 11 below shows that a large majority of UK customers sign-up to 24 month contracts. As such the number of LTE customers will increase gradually over time as customers' existing contracts expire.

Figure 11: Monthly line rental for new mobile contract connections



Source: Ofcom Communications Market Report 2011, figure 5.19



¹⁸¹ Ofcom Notice, para 5.11; Ofcom Second Consultation, para 4.98, Annex 6, para 3.220.

¹⁸² Ofcom Second Consultation, para 4.98.

[REDACTED]

Ofcom has noted that there may be some marketing advantages associated with launching a new technology early, with marketing campaigns in other countries focusing in particular on the higher speeds possible with LTE as compared to HSPA services.¹⁸³ [REDACTED]

[REDACTED] In addition, as noted in section 3.2.3 above, even those operators, such as TeliaSonera, which have been able to advertise peak download speeds of up to 80 Mbps have found it challenging to attract significant numbers of customers in the absence of a wide range of LTE-enabled tablets and smartphones.

[REDACTED]

For these reasons, Everything Everywhere believes that Ofcom has overstated the relevance of the Interim Period. Ofcom states that for the first 13-14 months of the Interim Period only Everything Everywhere would have a "clear path to full coverage services at maximum speed using LTE technology".¹⁸⁶ [REDACTED]

Given the limited customer take-up expected during the Interim Period, there is no reason to expect in the short term that there will be any sort of "tipping point" whereby LTE comes to be seen as a standard technology which is necessary for operators' ability competitively and cost-effectively to meet consumer demands. Indeed, it is expected that 2G and 3G networks and handsets will continue to be prevalent for a number of years to come (see Figure 4 above).

Furthermore, allowing Everything Everywhere to launch LTE will not create an asymmetric profit shock during the Interim Period. As explained above, Everything Everywhere currently operates at a disadvantage to Telefónica and Vodafone due to its lack of sub-1 GHz spectrum and will initially be deploying LTE in urban areas where its disadvantage is the most severe given the in-building coverage issues and the prevalence of use of mobile broadband in the home or office.

5.5.3 A temporary competitive advantage is consistent with normal competition

Everything Everywhere considers that its early launch of LTE services is consistent with the normal evolution of competition on mobile markets. It is well established that competitive markets do not require equal market shares or, in the context of mobile markets, equal spectrum holdings and, as

¹⁸³ Ofcom Second Consultation, Annex 6, paras 3.194 to 3.197.

¹⁸⁴ Technology savvy customers will realise that once outside the limited geographic coverage area, they will fall back to 3G services.

¹⁸⁵ Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900MHz and 1800MHz spectrum for UMTS", 25 October 2010, para 5.37.

¹⁸⁶ Ofcom Notice, para 4.30.

Ofcom has previously noted, in competitive markets it is not unusual for some operators to have temporary advantages over others at particular points in time (see section 4.7 above).¹⁸⁷ There is a long history both in the UK and internationally of new services / networks being launched by one operator, with other operators subsequently catching up by upgrading their own networks (see section 4.7 above). Such temporary advantages have not translated into enduring competitive advantages in the past. The Interim Period in this case is considerably shorter than the 2 to 4 year period during which Ofcom considered that Vodafone and Telefónica might enjoy a temporary competitive advantage following the liberalisation of 900 MHz for UMTS.¹⁸⁸

5.5.4 Operators can respond to Everything Everywhere's LTE launch by 3G upgrade

It is also relevant that a range of solutions will be available to other operators during the Interim Period to improve the quality of their own networks. Indeed, since the launch of LTE services by Everything Everywhere will provide other operators with further incentive to upgrade their existing 3G networks in the 900 and 2100 MHz bands, this will increase the consumer benefits flowing from Everything Everywhere's early adoption of LTE.

As noted above, Telefónica and Vodafone currently operate at a competitive advantage due to their ability to deploy UMTS900, particularly in terms of providing coverage to hard-to-serve locations indoors. Telefónica has already rolled-out UMTS900 services to a significant proportion of the country, [REDACTED]

[REDACTED] Both Telefónica and Vodafone will be able to roll out UMTS900 more widely during the Interim Period, [REDACTED]

Operators will also be able to implement upgrades to HSPA technology. 3 has already announced the deployment of DC-HSPA+ (42 Mbps peak speed) across a significant proportion of its network in the first half of 2012, with other operators¹⁸⁹ expected to follow suit (see section 3.1.2). This will reduce the gap between the data download rates available over HSPA networks, as compared with Everything Everywhere's LTE service.

5.5.5 Other operators may be able to launch LTE services during the Interim Period

Ofcom notes that the possibility of competitors having wholesale access to LTE services during the Interim Period is a relevant consideration when assessing any competitive advantages which could lead to a distortion of competition.¹⁹⁰ Ofcom does not refer to the UK Broadband service, although this is available on a wholesale basis. [REDACTED]

5.6 Potential competitive advantage will not endure beyond the Interim Period

To the extent Everything Everywhere benefits from a competitive advantage flowing from its early launch of LTE services, this will not persist beyond the Interim Period. In particular, Everything Everywhere's launch of LTE later this year will not result in a "customer lock-in" effect such that other operators are unable to compete effectively following the Interim Period.

¹⁸⁷ Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900MHz and 1800MHz spectrum for UMTS", 25 October 2010, para 5.38.

¹⁸⁸ Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900 MHz and 1800 MHz spectrum for UMTS", 25 October 2010, para 5.38.

¹⁸⁹ Including Everything Everywhere.

¹⁹⁰ Ofcom Notice, para 5.14.

[REDACTED] and these customers will not be locked-in to Everything Everywhere's network beyond the normal contract periods. As the evidence previously assessed by Ofcom shows, customers on the whole consider the switching process to be relatively easy.¹⁹¹ Furthermore, those customers who purchase LTE handsets during the Interim Period are more likely to be among the pool of "active" customers less likely to be affected by inertia. To the extent that there were any impediments to switching, these factors would also help to undermine any first mover advantage since other operators would be protected by their existing customers' inertia.¹⁹²

In any event, as noted by Ofcom in the Second Consultation, even if early adopters were completely locked-in, for a persistent first mover advantage to arise it would be necessary for many other potential LTE customers to be locked-in to Everything Everywhere's network.¹⁹³ This clearly is not the case. The pool of potential LTE customers will expand gradually over time as people upgrade from their existing 2G/3G handsets. Following the Interim Period these customers will have the choice of a number of operators offering LTE services. Furthermore, any marketing / reputational advantages associated with early adoption of LTE technology will not persist beyond the point at which all national wholesalers are in the position to offer LTE services.¹⁹⁴

In addition, other operators will have a variety of strategies to match this and to compete effectively, including in particular:

- By entering spectrum sharing agreements in order to combine spectrum into large channels in a given band (e.g. of 2x10 MHz) to provide LTE services. Indeed, this may well be possible during the Interim Period since, as Ofcom notes, Telefónica and Vodafone currently hold spectrum in the 1800 MHz band which could be combined through spectrum sharing to enable them to offer a competitive LTE1800 services.¹⁹⁵

[REDACTED]

- Following the spectrum auction, by rolling out LTE networks using 800 MHz and 2.6 GHz. Everything Everywhere anticipates that the launch of LTE services in the 800 MHz and 2.6 GHz bands will be possible before the end of 2013 on a regional basis, as evidenced by Telefónica's recent trials in London (see section 4.3 above) and by the gradual clearance of channels 61 and 62 from the 800 MHz band throughout 2013. Indeed, the launch of LTE services by Everything Everywhere will increase the incentives for other operators to accelerate investment in LTE.

5.7 Conclusion

In conclusion, Everything Everywhere strongly believes that there is no credible theory of harm, either in the Interim Period or in the longer term. Given [REDACTED], the limited duration of the Interim Period and the ability of other operators to effectively compete with Everything Everywhere during the Interim Period by means of

¹⁹¹ Ofcom Second Consultation, Annex 6, paras 5.91 to 5.96. See also section 5.5.2 above.

¹⁹² Ofcom Second Consultation, Annex 6, para 3.215.

¹⁹³ Ofcom Second Consultation, Annex 6, para 3.216.

¹⁹⁴ Ofcom Second Consultation, Annex 6, para 3.214. As Ofcom notes, H3G was the first operator to launch 3G services in the UK, yet there is no evidence to suggest that this allowed it to benefit from a persistent first mover advantage.

¹⁹⁵ Ofcom Notice, para 6.5.

their 3G services, there is no material risk of Everything Everywhere obtaining any unmatched or enduring competitive advantage through its early launch of LTE.

A failure to allow Everything Everywhere to launch LTE now would not only lead to considerable detriment to consumers, as set out in section 4, but would also lead to a distortion of competition by maintaining the current market situation whereby two operators continue to operate at a competitive advantage due to their sub-1 GHz spectrum holdings. As such, the appropriate and proportionate route for Ofcom to take would clearly be to vary Everything Everywhere's licences to allow LTE services to be launched as soon as possible.

Ofcom's assessment assuming material risk of distortion of competition

For the reasons set out above, Everything Everywhere agrees with Ofcom's view that liberalising Everything Everywhere's 1800 MHz spectrum would not give rise to a material risk of any distortion to competition and that no regulatory intervention is, therefore, required. In any event, as explained in sections 2.4.1 and 5.4 above, France Telecom and Deutsche Telekom have already given the EU Commitments to the European Commission, which are both legally binding and intended to address any competition concern which might arise from Everything Everywhere being the only operator with a clear path to offering full coverage LTE services with the best possible speeds in the 1800 MHz band. As such, it would not be reasonable or proportionate to impose further measures.

Nonetheless, for the sake of completeness, we have considered below each of the potential measures contemplated, and ultimately rejected, by Ofcom to address a hypothetical risk of a material distortion of competition. Ofcom has identified three broad measures:

- delay variation of the relevant licences until new spectrum is available for others to compete with the LTE services that Everything Everywhere (and the acquirer of the divestment spectrum) could offer;
- require Everything Everywhere (and/or the acquirer of the divestment spectrum) to offer regulated wholesale access to their LTE or WiMAX services provided using 1800 MHz; or
- redistribute the rights to use the 1800 MHz spectrum.

For a measure to be appropriate to address a material risk of distortion of competition, in accordance with Ofcom's general duties under the Communications Act 2003, it is necessary for Ofcom to show that the measure is objectively justifiable, proportionate, non-discriminatory and transparent. Moreover, in light of approach taken by Ofcom in assessing the liberalisation of 900 MHz for UMTS, the following framework is appropriate to assess potential remedies:

- the maximum potential benefit of the remedy, relative to early liberalisation, should be assessed (which is largely determined by the risk and magnitude of a material distortion of competition);
- the likely effectiveness of each remedy should then be assessed (i.e. the extent to which each could achieve the maximum potential benefit in principle, and the risk that the remedy would fail to achieve its objectives); and
- the potential costs of the remedy relative to liberalisation must then be considered to determine if the remedy is proportionate (i.e. both the direct costs of implementing the remedy and the indirect costs and the risk of unintended consequences).¹⁹⁶

Ofcom notes in relation to its consideration of potential remedies to address any enduring distortion to competition, that the magnitude of any first mover advantage is unlikely to be independent of the magnitude of the consumer benefits from early liberalisation.¹⁹⁷ The size of any such competitive advantage is inherently linked to the consumer benefits which will arise from allowing Everything Everywhere to roll out LTE services as soon as possible. This is equally applicable when considering any temporary distortion of competition during the Interim Period. As a result, the greater the potential maximum benefit of a remedy (i.e. the extent of any possible distortion of competition), the greater the likely cost to consumers of any delay to Everything Everywhere's launch of LTE services.

As explained more fully below, Everything Everywhere considers that each of the potential measures considered by Ofcom would be inappropriate and disproportionate to any hypothetical risk of distortion of competition. Everything Everywhere therefore strongly agrees with Ofcom's

¹⁹⁶ Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900 MHz and 1800 MHz spectrum for UMTS", 25 October 2010, paras 6.5 and 6.6.

¹⁹⁷ Ofcom Notice, para 6.28.

conclusion that the most appropriate and proportionate action would be for Ofcom to liberalise Everything Everywhere's licences as soon as possible without any further conditions.¹⁹⁸

6.1 Assessment of potential measures to address any temporary distortion to competition

As Ofcom notes, and as explained above, any competitive distortion resulting from liberalisation of Everything Everywhere's 1800 MHz spectrum would be limited, and would not endure beyond the Interim Period. Therefore any distortion of competition resulting from early liberalisation would be temporary in nature, and there would be no enduring costs to consumers. Furthermore, the length of the Interim Period will [REDACTED] following which other operators will be able to launch their own LTE services in order to match Everything Everywhere's limited regional roll-out of LTE services. As such any competitive advantage conferred on Everything Everywhere as a result of early liberalisation and any concomitant benefits of regulatory intervention, will be limited. Given the low risk, and temporary nature, of any possible distortion of competition, the maximum potential benefit of any measure imposed would, therefore, be low. Moreover, any measure designed to address such temporary distortion would be clearly unjustifiable as it would result in costs to consumers which outweigh the negligible benefits of the measure.

6.2 Delaying liberalisation

Delaying the Proposed Variation until new spectrum bands are available for other operators would result in LTE services not becoming available until after the spectrum auction. As Ofcom notes, this would make at least some consumers worse off, as they would have to wait longer to enjoy the benefits of LTE.¹⁹⁹

There are considerable consumer benefits which can be expected to flow from early adoption of LTE, as explained above more fully in section 4 above. The costs to consumers of delaying liberalisation, in terms of foregoing these benefits, would outweigh the limited benefit of ensuring that Everything Everywhere does not obtain a limited, temporary, short term competitive advantage during the Interim Period (which would be competed away in the medium term in any event). Furthermore, as Ofcom notes, delaying liberalisation would not lead to any consumer benefits during the Interim Period in terms of increasing the number of competitors with access to LTE.²⁰⁰ Since the UK is in any event required to authorise the use 1800 MHz for LTE by 31 December 2012 pursuant to Decision 243/2012/EU, any decision to delay liberalisation could only be until 1 January 2013. [REDACTED]

As such, it would be disproportionate to delay variation of the licences until new spectrum is available for others to compete with the LTE services that Everything Everywhere (and the acquirer of the divestment spectrum) could offer. Furthermore, a decision by Ofcom to delay liberalisation of the 1800 MHz band would be inconsistent with the approach taken by Ofcom in relation to liberalisation of the 900 MHz band for UMTS.²⁰¹ In Everything Everywhere's view this would constitute unjustifiable discrimination in the treatment of undertakings providing electronic communications networks and services, contrary to Article 8(5)(b) of the Framework Directive. In that context, Ofcom concluded that the impact of consumers of delaying liberalisation any further

¹⁹⁸ Ofcom Notice, para 6.32.

¹⁹⁹ Ofcom Notice, para 6.7.

²⁰⁰ Ofcom Notice, para 6.7.

²⁰¹ Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900 MHz and 1800 MHz spectrum for UMTS", 25 October 2010. Ofcom contemplated the possibility of delaying liberalisation of 900 MHz for UMTS until either: (a) an assessment of the prospects for competition in the longer term had been completed, and any measures intended to promote competition in the longer term (e.g. through the award of the 800 MHz and 2.6 GHz spectrum) had been at least decided upon if not implemented; or (b) some or all of the 800 MHz spectrum was actually available for competing mobile use (see para 6.27).

would have been materially detrimental due to the consumer benefits which would have been foregone in the intervening period.²⁰² As noted above, the period during which Ofcom considered Telefónica and Vodafone might benefit from a competitive advantage as a result of liberalisation of 900 MHz for UMTS was considerably longer than the Interim Period considered by Ofcom (i.e. 2 to 4 years, as compared to 15 months).²⁰³

6.3 Regulated wholesale access

[REDACTED] a regulated wholesale access condition is unnecessary and would, therefore, be disproportionate. Furthermore, a regulated wholesale access condition would be ineffective in achieving the maximum potential benefit from imposing remedies.

As any distortion of competition resulting from early liberalisation would only endure during the Interim Period, the consumer benefits resulting from a regulated access condition would be limited to the period between the date on which regulated access commenced, until the end of the Interim Period (i.e. the date when other operators could launch their own, standalone, LTE services). As Ofcom notes, it is likely to take a lengthy period of time (12 to 18 months) before a regulated wholesale access condition could be agreed between the parties and become effective. Given its nature, a regulated agreement could take significantly longer to conclude than a commercial agreement.

[REDACTED]

Therefore a regulated wholesale access measure would most likely have no benefit for consumers, in terms of increasing the number of operators able to offer LTE services, during the Interim Period. As such, the consumer benefits (if any) of the measure would be limited. If Everything Everywhere were forced to wait to launch its LTE network until the terms had been agreed and the regulated wholesale access condition could be implemented, this would result in a considerable delay to the launch, with the resulting loss of consumer benefits in the intervening period. This would delay launch beyond the Interim Period and hence its effect is not different from delaying liberalisation.

In addition, as Ofcom notes, there are a number of challenges associated with designing and implementing regulated wholesale access arrangements and there is a considerable risk of regulatory failure. Such a measure may also have a number of unintended consequences.²⁰⁴ In particular, if the terms were too generous to access seekers Everything Everywhere may be disincentivised from rolling out LTE services, or at least from rolling out such services as widely and at the speed which it would otherwise. This would reduce the potential benefits of LTE services to consumers. If the terms were too harsh on access seekers this would render the measure ineffective as access seekers may not be prepared to offer LTE services.²⁰⁵

Given the significant risks of regulatory failure associated with a regulated wholesale access condition, the limited consumer benefits (if any) which would be expected to result during the Interim Period in terms of increasing the number of operators offering LTE services, and the significant timing and complexity issues, Everything Everywhere considers that such a measure would be inappropriate and wholly disproportionate.

²⁰² The "significant" benefits to consumers noted by Ofcom included: (a) greater network capacity allowing more customers to be served and to enjoy higher mobile broadband speeds; (b) improved quality of coverage allowing customers to use mobile broadband in more locations with greater consistency; (c) improved in-building coverage; and (d) wider coverage of rural areas. See Ofcom, "Advice to Government on the consumer and competition issues relating to liberalisation of 900 MHz and 1800 MHz spectrum for UMTS", 25 October 2010, para 1.6.

²⁰³ See section 5.5.3 above.

²⁰⁴ Ofcom Notice, paras 6.9 to 6.15.

²⁰⁵ Ofcom Notice, para 6.14.

6.4 Redistributing rights of use for 1800 MHz spectrum

As noted in section 5.4 above, Everything Everywhere has already agreed to divest 2x15 MHz of 1800 MHz spectrum. The European Commission considered that this commitment was sufficient to address any competition concerns arising from Everything Everywhere's first mover advantage in relation to the roll out of LTE services. Ofcom was closely involved in the European Commission decision and provided technical advice to the European Commission on the adequacy of the remedy. There has been no material change of circumstances since the European Commission's decision, and therefore Ofcom does not have any grounds on which to revisit this issue in order to require an additional release of spectrum by Everything Everywhere.

In any event, as noted by Ofcom, a redistribution of rights of use for 1800 MHz spectrum would be a significant intervention which would raise material risks of disruption to existing services and, as a result, potential consumer losses.²⁰⁶ The time needed for the release of a material block of spectrum in a way that does not raise the risk of significant consumer detriment is considerable, and would be longer than the Interim Period. As explained above, Everything Everywhere is already in the process of clearing a significant amount of 1800 MHz spectrum [REDACTED] to comply with the EU Commitments. If Everything Everywhere were required to release additional 1800 MHz spectrum this would take a substantial time to complete without causing significant disruption to consumers. Therefore such a measure would be ineffective in terms of increasing the number of operators able to offer LTE services during the Interim Period.

Even if a redistribution of rights could be implemented without raising material risks of disruption to existing services, depending on the extent of any redistribution, such a measure would prevent Everything Everywhere from rolling out LTE services as planned. [REDACTED]

[REDACTED] If a redistribution of rights were to prevent Everything Everywhere from proceeding with its plans then it may not be able to roll out such services at the speed which it would otherwise. Therefore consumers could be deprived of the benefits of LTE services during the Interim Period. This would also place Everything Everywhere at an even more significant competitive disadvantage relative to Telefónica and O2.

Therefore Everything Everywhere considers that it would be inappropriate and wholly disproportionate to require a redistribution of the rights for the use of 1800 MHz spectrum. In practice it would delay launch and hence have the same effect as delaying liberalisation.

6.5 Assessment of potential measures to address any enduring distortion to competition

Even if there were a material risk of early liberalisation giving rise to a competitive advantage which would endure following the Interim Period (which, for the reasons explained above, Everything Everywhere refutes), Everything Everywhere considers the most appropriate and proportionate action would still be for Ofcom to liberalise Everything Everywhere's 1800 MHz spectrum for LTE in order to ensure consumers are able to enjoy the benefits of LTE as soon as possible.

As Ofcom notes, imposing regulatory wholesale access or redistributing the rights to use 1800 MHz would be unlikely to be effective in increasing competition during the Interim Period, and therefore would be unlikely to address any first mover advantage.²⁰⁷ Even if such measures could be effective in addressing any enduring first mover advantage, there would be significant risk of regulatory failure, and, as noted above, such measures may prevent Everything Everywhere rolling out LTE services in the manner currently intended, therefore depriving consumers of the benefits of LTE during the Interim Period.

²⁰⁶ Ofcom Notice, paras 6.16 to 6.19.

²⁰⁷ Ofcom Notice, para 6.31.

Whilst delaying liberalisation would remove any first mover advantage, Everything Everywhere considers that the costs to consumers of such a measure would outweigh any benefits. Moreover, it would discourage investment in HSPA+ and LTE by the industry as a whole through weakened competitive dynamics. The continuance of any first mover advantage beyond the Interim Period would imply that there were significant benefits to consumers of having LTE services during that period. Therefore there would consequently be considerable costs to consumers in delaying liberalisation. Furthermore, any first mover advantage would be tempered by the fact that other operators will be able to launch their own LTE services shortly after the spectrum auction, and the sale of the divestment spectrum to another operator by Everything Everywhere.

Therefore Everything Everywhere considers that, even if there were a material risk that early liberalisation would give rise to an enduring distortion, it would not be appropriate or proportionate for Ofcom to impose any measures to address such distortion (over and above the EU Commitments) as the maximum potential benefit to consumers of any such measure would not outweigh the considerable costs.

6.6 Any enduring distortion which arises could be addressed by the market review process

Furthermore, Ofcom has the appropriate tools at its disposal to address any competition concerns which may arise on mobile markets in the future. Under the EU Framework Directive²⁰⁸, as implemented in the UK by the 2003 Act, Ofcom may impose additional regulatory obligations on communications providers found to have significant market power on a relevant market. Given the inherent uncertainty involved in assessing future conditions of competition in mobile markets, it would be more appropriate for Ofcom to address any distortions of competition which might arise in the future through a market review process conducted at the time that such distortions could be witnessed on the relevant market. Such an approach would be more proportionate and consistent with an evidence-based approach, as it would significantly reduce the risk of regulatory failure and unintended consequences.

6.7 Conclusion

As set out in section 5, Everything Everywhere believes that there is no material risk of a distortion to competition arising as a result of its early launch of LTE. As such, there is clearly no need for Ofcom to impose any remedial measures. Even if there were a hypothetical risk of competition concerns, none of the potential remedies available to Ofcom would be appropriate, or proportionate. Any such remedies would also be unnecessary, given Ofcom's power to intervene in the future through its market review powers.

Everything Everywhere therefore strongly agrees with Ofcom's reasoned conclusion that it would be in the interests of consumers and citizens for Everything Everywhere's licences to be liberalised for LTE as soon as possible, without further conditions.

²⁰⁸ Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services.

Comments on Technical Licence Conditions

Everything Everywhere in general supports the Ofcom comments with respect to the technical conditions for use of WiMAX/LTE in the 1800MHz band in the UK. Ofcom should however seek to resolve the remaining uncertainty of WiMAX/LTE compatibility with permitted use in 1785-1805MHz in Northern Ireland and Emergency Service use of 1790-1798MHz on the UK mainland, as soon as possible.

We agree that a frequency separation of 200 KHz between LTE carrier channel edge and GSM carrier channel edge is desirable where base station deployment is uncoordinated, as is the case between neighbouring networks.

We agree that LTE/ WiMAX system interference into DECT should be similar to the interference created by GSM 1800.

We agree that mobile station OOB emissions will often in practice fall to significantly lower levels than those permitted by ETSI²⁰⁹ standardisation as frequency separation increases.

Everything Everywhere believes current coordination arrangements with respect to use permitted in 1785-1805MHz in Northern Ireland by Personal Broadband UK and GSM base stations should be sufficient to reasonably protect WiMAX/LTE systems from that permitted use. We are unable to comment on any impact into Personal Broadband UK systems due to insufficient information.

We are unable to comment on compatibility issues between WiMAX/LTE systems and those of the Emergency Services in 1790MHz-1798MHz due lack of information, except to note that we are not aware of any GSM compatibility issues.

Ofcom should seek to resolve the uncertainty with respect to the issues of permitted use in 1785-1805MHz in Northern Ireland and Emergency Service use of 1790-1798MHz on the UK mainland, as soon as possible.

We support the conclusion that coordination between UMTS/WiMAX/LTE and fixed links should not prove necessary as it has not in the past proved necessary for GSM.

Everything Everywhere supports the CEPT Report²¹⁰ conclusions with respect to the fact that interference from WiMAX/LTE devices into METSAT Earth stations operating in adjacent frequencies is unlikely to be a problem.

Everything Everywhere notes that the 2100MHz UMTS licence EIRP limit per carrier was recently revised to 35 dBW to facilitate advances in UMTS technology. We suggest that Ofcom keep the proposed licence EIRP limits for all technologies under review with a view to amendment in the light of technical change.

²⁰⁹ ETSI EN301 908-13

²¹⁰ CEPT Report 41 Section 9