TELEFÓNICA UK LIMITED RESPONSE TO:

"Improving consumer access to mobile services at 3.6 to 3.8 GHz"

NON-CONFIDENTIAL VERSION

December 2016

Telefónica UK Limited
260 Bath Road
Slough
Berkshire
SL1 4DX
T +44 (0)113 272 2000
www.telefonica.com

I. INTRODUCTION

1. Telefónica UK Limited ("Telefónica") welcomes the opportunity to respond to Ofcom's consultation on improving consumer access to mobile services at 3.6 to 3.8GHz[1].

2. Telefónica is supportive of appropriate actions, such as the timely release of spectrum, which can facilitate long term growth in consumer and citizen benefits from the increasing demand for mobile services.

3. As we have stated previously in our responses to various spectrum related consultations, we urge Ofcom to take full account of the extensive uptake of mobile broadband and phenomenal growth of mobile data traffic, when making decisions concerning the allocation of spectrum suitable for mobile services. It is our expectation that this trend will continue well beyond 2020 and thus a sufficiently long term view is needed.

4. Ofcom must address the strategic challenges facing the UK regarding the growing demand for mobile data and the spectrum used to deliver it, with a strong focus on healthy and sustainable competition and the consumer and economic benefits that it can bring.

5. Telefónica has seen significant traffic growth, especially in large cities, driven by the demand for mobile data services and customers increasing use LTE. Our experience is consistent with evidence from around the world which shows significantly higher usage of mobile data on LTE, when compared to 3G. Increased Smartphone adoption and use of data hungry applications such as video are playing an important role in this growth.

6. Ofcom's Mobile Data Strategy[2] outlined an approach to ensuring that sufficient spectrum is available to meet this evidential growing demand for mobile data from consumers and businesses. It identified bands for potential mobile broadband use which included the 3.6 to 3.8GHz band. Telefónica supports efforts to ensure that this band is made available for mobile

[1] https://www.ofcom.org.uk/__data/assets/pdf_file/0035/91997/3-6-3-8ghz-consultation.pdf

[2] http://stakeholders.ofcom.org.uk/binaries/consultations/mobile-data-strategy/statement/statement.pdf

services in a timely manner in order to support such demand and to facilitate the development of the next generation of mobile services.

II. GENERAL COMMENTS

7. Spectrum is an essential input to enable mobile operators to deliver high quality services to its customers. The type and amount of spectrum held by an operator can have an important impact on the extent to which they are able to compete with each other effectively and meet consumer demand.

8. In the UK today there is a gross asymmetry in mobile spectrum holdings. Following BT's acquisition of EE, the already significant asymmetry further increased, to the extent that the combined BT/EE group now has the largest spectrum holdings of any UK mobile network operator, with 45% of currently 'usable' mobile spectrum. This gives BT/EE an unreplicable advantage when compared to Telefónica who have just 15% of useable spectrum.

9. Whilst some asymmetry can result in good outcomes and maintain efficiency, today's exceptional asymmetry clearly points to the fact that the current assignment of spectrum between UK mobile operators is inefficient and the situation represents a threat to competition as well as posing a risk of consumer harm.

10. [✂]

11. [✂]

12. As Ofcom identified in its recent proposals on competition issues for the forthcoming auction of spectrum in the 2.3 and 3.4 GHz bands, the UK faces a short-term competition issue over allocation of usable spectrum. However, it also follows that in addition, the UK could face a medium or even long term issue. 2.3GHz spectrum will only be enough to alleviate capacity issues in the short-term for one or two operators. Following that, the same concerns apply to the 3.4GHz band, which will likely be the only source of newly available spectrum between 2019-2020, prior to the release of 700 MHz and potential release of 3.6 to 3.8GHz which Ofcom is now considering in this consultation.

13. As a result, now more so than at any time before, decisions on the use of mobile spectrum and potential future mobile spectrum, must be assessed carefully to ensure that they do not exacerbate the current situation or further distort competition. Ofcom must promote competition and seek to ensure the optimal use of spectrum.

14. We focus the remainder of this document on our responses to Ofcom's specific consultation questions.

III. RESPONSES TO QUESTIONS

Question 1: Do you have any comments on the use of the 3.6 to 3.8 GHz band by existing services?

15. Telefónica supports the notion of spectrum sharing in principle. Given the right conditions, it can be used as an effective tool to maximise the efficient use of spectrum and support increasing demand. Such sharing may well be useful in some of the higher frequency bands.

16. Ofcom identifies the fact that there are currently only 35 fixed links operating across the UK in the 3.6 to 3.8GHz band and that this represents significantly lighter use than other fixed links bands, which often have thousands of links. Similarly, Ofcom highlights that satellite use of the 3.6 to 3.8GHz band is also relatively light when compared to other bands.

17. In other circumstances, such relatively light use of the 3.6 to 3.8GHz band might provide a good opportunity to explore opportunities for sharing. In this case, however, sharing is not appropriate for the following reasons:

    - 3.6 to 3.8GHz spectrum is identified alongside 3.4 to 3.6GHz as a prime candidate for 5G use. This may require operators to deploy large contiguous blocks of up to 100MHz; therefore full availability of the spectrum is required.

    - Sharing of this band would prevent mobile development in some key population centres, potentially meaning that a mobile operator would be unable to deploy 5G nationwide. This in turn could:

        - Restrict scope for competition in the provision of 5G services, as it may mean not enough spectrum for more than two operators in some parts of the country;

        - Mean that uncertainty over sharing would artificially inflate the value of substitute spectrum i.e. 3.4GHz spectrum and UK Broadband's spectrum; and

        - Lead to more fragmentation than is ideal for 5G, with no operator having a large contiguous block, and the UK's 5G offering falling short of other leading markets.

- The value of the incumbent uses anyway appears modest, and is likely to be much lower than the potential value for mobile use.

Question 2: Do you agree with our identification of a trend towards the use of mobile in the 3.6 to 3.8 GHz band?

18. Ofcom correctly identifies that the characteristics of the band, including bandwidth and international harmonisation, make it suitable for a range of mobile applications, including for increasing data capacity.

19. Furthermore, 3.6 to 3.8GHz is part of the wider band which the RSPG has identified as having potential for further study for 5G use and the emerging view is that it is likely to be a pioneer band for 5G deployment.

20. Timely and unhindered access to 3.6 to 3.8GHz spectrum will result in enhanced mobile communications and allow 5G solutions that will improve connectivity and support increased data demand. This makes it a potentially important band which could be relevant to the success of 5G in the UK and it should therefore be treated as a high priority band for mobile.

21. In this consultation, Ofcom refers to serving appropriate notice to existing users on the basis that it proceeds with option B – remove exiting use. Ofcom does not state how long the maximum notice period is that would be required, however our understanding is that this is 5 years.

22. There are however different options to make this band available, including retaining existing user's authorisations, or removing them and clearly each policy option will entail different timelines for availability and constraints on use. This means that there is still some significant uncertainty around the timing of availability of this spectrum.

23. We note that in its most recent proposals on competition issues for the forthcoming auction of spectrum in the 2.3 and 3.4 GHz bands, at 4.51 Ofcom states that the 3.6 to 3.8GHz band could be available within a similar timeframe as 3.4 GHz because it is already harmonised for mobile use in Europe and there is momentum in industry for the wider 3.4 to 3.8 GHz band for 5G.

24. However at 5.76 of the same consultation, Ofcom states that "…there is more uncertainty about whether the 3.6 to 3.8 GHz spectrum will be useable in the same timeframe as the 3.4 GHz and 700 MHz spectrum".

25. At 4.102 of the auction consultation Ofcom states that "…because of these mitigations and uncertainties" i.e. one of the mitigations being the availability of 3.6 to 3.8GHz spectrum, it places lower weight on its competition concerns relating specifically to 3.4 GHz spectrum.

26. Ofcom considers the possibility that the timeframe for availability of 3.6-3.8 GHz is later than for 3.4 GHz (s4.55), and then goes on to consider possible competition measures options that take account of this possibility, however on the basis that these measures are not Ofcom's preferred option, we assume that Ofcom concludes, somewhat opaquely, that it does not consider the possibility that the 3.6 to 3.8GHz band will be available later than that of 3.4GHz.

27. Yet at 5.48 in the auction consultation, Ofcom states that if the 3.6-3.8 GHz spectrum were not available for mobile services in a similar timeframe to the 3.4 GHz spectrum, then they would be more concerned about a large degree of asymmetry in total mobile spectrum holdings immediately after the auction. This may mean the preferred competition measures are less effective at addressing competition concerns and strengthens the case for additional constraints on overall spectrum holdings.

28. However, in footnote 58 of the auction consultation, Ofcom states that in this context, if one MNO obtained all 150 MHz of 3.4 GHz spectrum in the auction, this may not raise competition concerns, provided the 3.6-3.8 GHz spectrum is made available in a timely way without material restrictions. Given the uncertainty around availability of the 3.6 to 3.8GHz spectrum before 2022 (taking into account the required 5 years notice period), this presumption appears risky.

29. Yet at 5.84 in the auction consultation Ofcom states that "…there is some risk that the 3.6-3.8 GHz spectrum will not be as useful as soon as other spectrum, and may therefore not mitigate a very asymmetric distribution resulting from this auction. If the usability of the 3.6-3.8 GHz spectrum were materially later than the 3.4 GHz spectrum…".

30. We are concerned that there is a clear inconsistency in Ofcom's reasoning. Ofcom's concluding position however is to base competition arguments on early availability of 3.6 to 3.8GHz spectrum, but yet it also admits (and there is clear evidence to support) there is significant uncertainty over such availability.

31. In fact, there is likely to be 2-4 year gap (2018-2020/22) where 3.4 GHz spectrum is available and 3.6 GHz spectrum is not. This is a medium-term problem that Ofcom needs to address with clarity.

Question 3: Do you agree with our high level proposal to make 116 MHz within the 3.6 to 3.8 GHz band available for mobile and 5G services, bearing in mind our statutory duties and the high level trends we have identified?

32. Yes. We agree with Ofcom's high level proposal to make the upper part of the 3.6 to 3.8GHz band available for future mobile services, including 5G. We agree that this will result in a more efficient use of the spectrum and provide greater benefits for UK citizens and consumers.

Question 4: Do you agree with our general approach regarding spectrum currently licensed to UK Broadband?

33. We support Ofcom's intention to consider reflecting the opportunity cost of mobile use in the fees that UK Broadband pays for their spectrum. As Ofcom highlights in the consultation, any fees imposed for rights of use, must reflect the need to ensure the optimal use of the resources.

34. Telefónica is concerned that considering the significant amount of spectrum that UK Broadband holds, it has not put a key national asset to efficient use. UK Broadband has shown little appetite to invest in using it for the benefit of UK consumers. We note that UK Broadband set out its intention to rollout to around 45% of the population when it applied to Ofcom for an indefinite extension to its 3.4GHz spectrum. However, UK Broadband appears to have only built a couple of hundred sites in London and have a very small customer base. We are concerned that despite its lack of investment and sub-optimal use of spectrum, UK Broadband could secure a windfall benefit as a result of the removal of co-ordination requirements with fixed and satellite users and LTE liberalisation.

35. We urge Ofcom to ensure that the right incentives are in place to achieve the optimal use of the spectrum and that any promises in relation to rollout are honoured. To achieve this, Ofcom should either revoke the licence and re-award it, or apply Annual Licence Fees at a level which reflects the true value of the spectrum.

Question 5: Do you agree with our assumptions, methodology, and conclusions with regards to potential coexistence between mobile and existing fixed links and satellite earth stations? Please refer to annex 5 for further details.

36. Yes. Though desk-based interference modeling has its limitations and can often result in overly pessimistic predictions of harmful interference, it serves to provide an indication of possible impact.

37. Ofcom's initial coexistence analysis indicates that large separation distances between mobile and existing users in the 3.6 to 3.8 GHz band would be required to prevent undue interference to existing users and this raises questions around how mobile could share the band with existing users.

38. Even if the initial coexistence analysis proved to be ten times more pessimistic than in reality, the likely impact is still very significant and would render co-existence with mobile services unviable, resulting in vast amounts of consumers being unable to benefit from access to mobile services using the band.

39. The findings from the Transfinite studies are stark, with a denied area for the BT Tower in London being estimated to be about 500 km^2. Whilst we note that further high resolution analysis indicates that small cells can be deployed nearer to fixed links in dense urban areas if base stations are deployed below clutter, outside the line of sight, Ofcom notes that there is a still significant degree of diffraction loss due to buildings as well as a significant burden in terms of deployment optimisation at each individual site to ensure regulatory compliance with interference management criteria.

40. Furthermore, as Ofcom correctly identifies, such an approach would not be effective as macro antennas are usually deployed above clutter, thus making deployment unviable.

41. We agree with Ofcom's conclusion that coexistence between small cells and fixed links could be very challenging in densely populated areas and coexistence with macro cells would be even more problematic. As some of the fixed links are deployed in very dense populated areas in the South of England, denied areas would mean also denying mobile services using the band to an unacceptably large number of mobile users and so would neither represent an efficient use of spectrum nor a scenario which maximises the benefits for citizens and consumers.

Question 6: Do you have a view on any of the two options we identified?

42. As a result of the concerns we have highlighted in our response to question 1 and also question 5, we are of the strong view that Option A – retain existing use, is not viable and Ofcom must proceed with Option B – remove existing use.

Question 7: Do you have any quantitative evidence on the costs and benefits associated with the options? This include costs for existing users and/or consumers of existing services associated with potential changes, and benefits to UK consumers in gaining access to mobile services in this band.

43. Mobile services make a significant positive contribution to the economy and help to deliver many benefits to citizens and consumers. Analysys Mason's report for DCMS and BIS, cited in the Governments latest UK Spectrum Strategy, considered the value of spectrum use to the UK economy; it found that mobile services accounted for 58% (or £30.2bn) of the total value.

44. It has also been estimated that the rollout of 4G networks alone will provide a £75bn boost to the UK economy.[3] Whilst estimating the equivalent contribution in economic value that 5G

[33] Capital Economics Research

mobile services might bring is difficult at this stage, it is likely to be very high. It is clear that mobile services offer the greatest economic value both currently and for the foreseeable future and the benefits to UK consumers in gaining access to mobile services in this band are high.

Question 8: Do you have any other suggestions that would allow widespread 5G availability using the 3.6 to 3.8 GHz band across the UK while allowing certainty for at least some existing users to continue to provide the benefits currently provided by use of the 3.6 to 3.8 GHz band?

45. We have no other suggestions that would allow widespread 5G availability using the 3.6 to 3.8GHz band. We are of the view that Ofcom must proceed with option B – remove, in order to ensure the most efficient use of the spectrum and maximise the benefits for UK citizens and consumers.

Question 8: Do you have any further comments in relation to these proposals?

46. We have broader reservations about the lack of a joined up allocation and assignment policy in relation to the 3.4 GHz and 3.6 GHz bands that go beyond the competition issues we have highlighted in this response. We propose to provide further thoughts on this subject in our response to Ofcom's latest consultation on proposals for competition issues for the forthcoming auction of spectrum in the 2.3 and 3.4 GHz bands.