TELEFÓNICA UK LIMITED RESPONSE TO:

"Fixed Wireless Spectrum Strategy: Consultation on proposed next steps to enable future uses of fixed wireless links"

February 2018

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 Fixed Wireless Spectrum Strategy[1].

2. Telefónica provides it's responses to Ofcom's specific consultation questions below.

II. RESPONSES TO QUESTIONS

Question 1: Do you agree that we have identified the key drivers likely to have a significant impact on the spectrum demand for fixed wireless links? If not, please provide further detail and evidence to support your answer.
Do you have other comments to make/points to raise with us on these issues?

3. Yes, we agree that the key drivers have been identified. In particular, the need to enable mesh architectures to operate at 60 GHz closer to the edge of the network.

Question 2: Do you agree with our conclusions on spectrum implications and our proposed strategy/next steps for each band?
Are there any other considerations of significance that you feel we should have included or do you have other comments to make/points to raise with us on these issues?
Please provide as much detail as possible to support your answer.

4. Yes, we agree with Ofcom's conclusions relating to each band and agree that the 60 GHz ("V" band, 57-64 GHz) should be earmarked for multipoint/mesh technologies on a license exempt basis.

Question 3: Do you agree with the items we've identified for further consideration? Are there any other significant areas that you believe should be included? If so, please include all necessary evidence to support your view.

[1] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/108594/Fixed-Wireless-Spectrum-Strategy.pdf

5. We have no specific comments related to the 1350-1375 MHz or the W and D bands. We agree that unused bands at 52 GHz and 55 GHz should be looked at to see if they too can be included for multipoint/mesh technologies.

Question 4: Do you agree with our proposal to change the authorisation regime in the 64 – 66 GHz band to licence exempt to create a common authorisation approach across the 57 – 66 GHz band for fixed outdoor installation use and that this would be a benefit to UK citizens and consumers?

6. Yes, we agree.

Question 5: a) Do you agree with the proposed new technical conditions in Table 6 to facilitate equipment intended for fixed outdoor installation in the 57 – 66 GHz band? Please provide evidenced views /alternatives if you disagree with our proposal. Do you consider any additional conditions should be mandated as part of a licence exemption to manage the interference environment?

b) Do you agree with our assessment that the proposed changes in technical conditions will have minimal impact on existing use and are appropriate to manage the future outdoor interference environment?

c) Are there likely to be any fixed outdoor installation use cases that will require operation at eirp levels above 55 dBm? If so, please provide evidence of how the coexistence with the different outdoor users could be ensured?

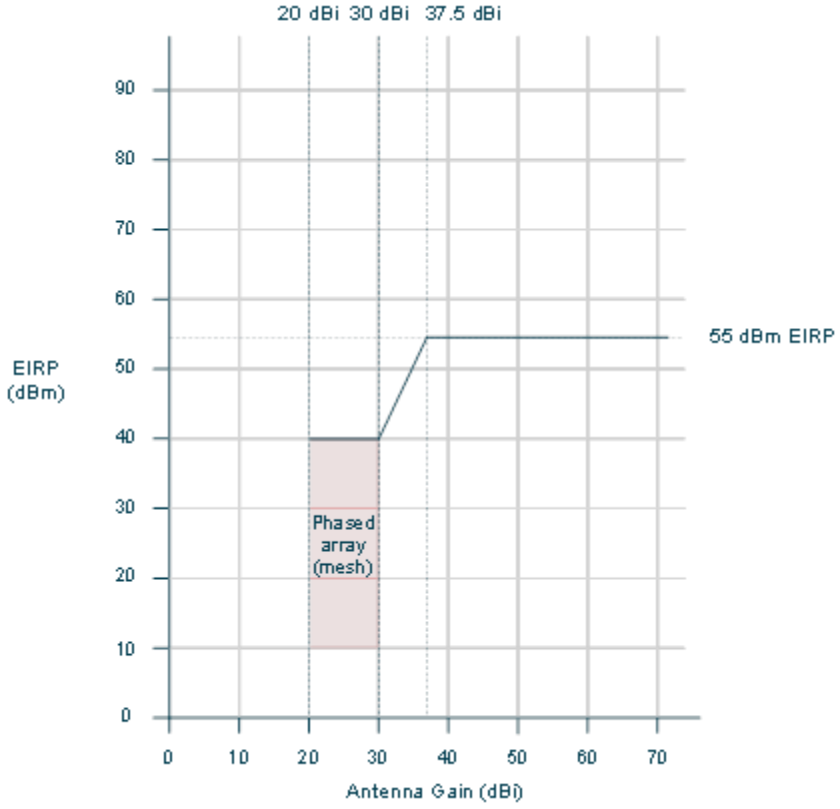
7. We agree with the new technical condition applied to 'Transmit eirp ≤ 40 dBm'.

8. We do not fully agree with the license condition applied to 'Transmit eirp 40 dBm < eirp ≤ 55 dBm'. Specifically, we do not agree with the requirement for a 'Maximum output power of 10 dBm'. We believe the higher EIRP requirement (above 40 dBm) should align to the FCC condition (FCC Part 15.255 (extended)) up to at least 55 dBm EIRP. Thus it should be possible to transmit at 55 dBm EIRP with an antenna gain of 37.5 dBi. The benefit is to enable the deployment of a CPE with a phased array antenna (maximum gain ~38 dBi) operating at 55 dBm EIRP giving it a link range of ~1 km.

9. Simple reasoning suggests the risk of allowing EIRP to grow to 55 dBm at an antenna gain of 37.5 dBi is minimal. Antenna beam width at 37.5 dBi will be approximately 3 degrees, which represents 0.8% of the horizontal azimuth. Therefore there is less than a 1% chance of a CPE causing interference in the direction of another device. Assuming the interfered device also has a similar

antenna gain then it too has less than a 1% chance of pointing back towards the interferer. Therefore the random chance that a CPE impacts a nearby device is 0.01 x 0.01 = 0.0001 (i.e. 0.01% or less). That combined with the fact that the 60 GHz radio systems will have SON algorithms to automatically minimise interference (i.e. Listen Before Talk and channel selection within the 9000 MHz spectrum block) there is minimal risk of overall system degradation.

10. Our proposal is depicted in the following diagram.



11. If Ofcom are minded to consider increasing the maximum EIRP above 55 dBm then we suggest again that it aligns to the FCC regulations, which allow transmissions up to 82 dBm EIRP. Alignment of requirements will allow vendors to create one product for both the US and UK markets, which will deliver economies of scale.

Question 6: a) What are the use cases and technical parameters envisaged for the 66 - 71 GHz band? Are they likely to be similar to those in the 57 – 66 GHz band? If so, what are your views on extending the same or similar technical conditions as described above for the

57 - 66 GHz band (both existing wideband data transmission (SRD) and new fixed outdoor technical conditions) to the 66 – 71 GHz band to facilitate both fixed and mobile use cases.

b) Please provide your view on whether the technical parameters of wideband data transmission (SRD) as shown in Figure 4 are suitable to facilitate mobile/portable equipment including use outdoor? If you do not consider they are suitable, what alternative technical parameters do you think should be considered?
Please provide as much detail to your answer as possible and your considerations on the co-existence aspects.

12. We see no issue in extending the 60 GHz license conditions into the 66-71 GHz band.

Question 7: Do you agree that there is a continued need for future low capacity fixed link applications?
If so, please provide information to support your view and what alternatives you would consider appropriate should the upper 1.4 GHz band no longer be available.
Please provide clear evidence to support the reasons for your views.

13. No comment.

Question 8: Do you consider there is merit in considering making the bands 52 GHz and 55 GHz available under alternative authorisation approach(es)such as block assignment? If so, what would you consider to be the best approach(es)? Please provide detailed views to support your response.

14. Given the 52 GHz and 55 GHz bands are currently unutilised under Ofcom's frequency assignment methodology, we see merit in making these bands accessible under license exempt conditions, similar to those being proposed for the 60 GHz band.

Question 9: Do you think we should review our authorisation approach to any other band used for fixed wireless links?

15. No comment.

Question 10: a) How do you envisage W band and D band will be used for mobile backhaul provision and the likely timescales? Please provide as much detail as possible on deployment scenarios and whether this would include indoor use. Are there any other types of applications (other than mobile backhaul) that could be suited for these bands?

b) What are your views on the most appropriate authorisation approach for the W and D bands? Please provide as much detail and technical evidence as possible in your answer.

16. No comment.

Question 11: Which capacity enhancing technique(s) are you using or planning to use? Please provide detail / evidence and clearly explain why and how each technique is planned to be used and if you consider there are any other aspects that should be considered.

17. No comment.