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By email only

Question 2: Ofcom is supporting the following three priority bands for IMT identification in the RRs:

24.25 – 27.5 GHz

40.5-43.5 GHz (as part of a wider global 37-43.5 GHz tuning range)

66 – 71 GHz

If you don't agree with any of these bands, or think we should be promoting other bands, please provide justification for your views

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Three welcomes Ofcom's decision to support the identification of 24.25 – 27.5 GHz[1], 40.5 - 43.5 GHz and 66 – 71 GHz as priority bands for 5G services. We agree that the frequency ranges above 24 GHz offer a significant opportunity for supporting future 5G services, particularly through the deployment of mmWave technology. However, there is one notable omission amongst the bands Ofcom suggests it will promote as pioneer 5G bands, namely, **26.5 – 29.5 GHz**[2]:

The 28 GHz band

Whilst we recognise that the European Commission and the Radio Spectrum Policy Group (RSPG) have identified 26 GHz as the pioneer mmWave band for 5G in Europe, we see no reason to limit the UK's ambitions to that band. It is essential that Ofcom examines the adjacent 28 GHz spectrum band and the case for its harmonisation at a European level.

The WRC-19 position, supported by Ofcom, is out of step with international developments, where the 28 GHz band has already been adopted as a primary 5G band in other regions. Canada, the US, Japan, South Korea and Hong Kong have each identified all, or significant portions, of the 28GHz band for future 5G spectrum. In comparison, Europe and the UK are currently prioritising 26 GHz as the first mmWave band for 5G. This divergence makes it more difficult to achieve global economies of scale and to ensure cost effective production of 5G devices.

28 GHz can complement 5G use in the 26 GHz band – they need not be seen as alternatives. In December 2017, the 3rd-Generation Partnership Project (3GPP) standardised the first 5G New Radio specifications in Release 15. The initial list of standardised spectrum bands not only includes 28GHz spectrum (the n257 band), but significantly, also treats 26GHz and 28GHz as a single 5GHz band.

The 28 GHz band can also be aggregated through Carrier Aggregation with both n77 (3300-4200 MHz) and n78 (3300-3800 MHz) bands. We note that the n78 band is a pioneer band for 5G services in Europe. Whilst discussions regarding the top end of the wider n77 band are continuing, in our view, the top end of that band (3800-4200 MHz) is also a key candidate for 5G mobile and FWA services in the UK and abroad. These benefits should not be ignored.

The GSMA has also recognised the suitability of both 26 GHz and 28 GHz bands for 5G services, and the flexibility they could offer, if used together.[3] They state:

[1] 24.25 – 27.5 GHz, or 3GPP band n258, is commonly referred to as the "26GHz band".
[2] 26.5 – 29.5 GHz, or 3GPP band n257, is commonly referred to as the "28GHz band".
[3] https://www.gsma.com/spectrum/wp-content/uploads/2018/09/26-and-28-GHz-for-5G-v2.pdf

"26 GHz is one of the bands WRC-19's Agenda Item 1.13 is looking at. For regulators and governments, it is a great opportunity to lay the groundwork for successful 5G rollouts. At the same time, the global marketplace is driving the need for additional frequencies to meet 5G demands, such as the 28 GHz band. The GSMA recognises and supports actions by governments and operators in many countries to test and allocate the 28 GHz band for 5G under an existing mobile allocation in the ITU's Radio Regulations."[4]

Frustratingly, as long as 28 GHz is excluded from the WRC agenda, no formal technical assessments at the ITU to test, for example, that there is low risk of harmful interference in the band, can be undertaken. To ignore 28 GHz disregards actual industry developments towards future 5G services in the band, and calls into question the usefulness and relevance of the WRC programme to future band planning.

28 GHz use in the UK

We call on Ofcom to provide clarity around the future of the 28 GHz band within the UK. Failure to do so will potentially leave the UK out of step with international developments, and reduce UK operators' ability to provide services which would deliver significant consumer benefits.

28 GHz is licenced in the UK on a geographical basis, although there has been consolidation of the various licences so that two operators, Arqiva and Three/UKB essentially hold national licences in the 28 GHz band. Further, it is notable that three out of the four UK MNOs (Vodafone, Telefonica and UKB/Three) already have 28 GHz mmWave spectrum in the UK.

Ofcom should urgently assess the possibilities of co-existence of localised deployments of 5G mobile and FWA services using 28 GHz mmWave spectrum with existing incumbent services.

With the large bandwidths available, 5G FWA services will be able to provide speeds that can truly compete with cable and Fibre to the Premises (FTTP). 5G FWA services would reduce the UK's dependence on the Openreach network and provide effective competition to the BT and Virgin network duopoly in fixed, which is one of Ofcom's key regulatory objectives.

[4] https://www.gsma.com/spectrum/26-ghz-28-ghz/

Question 32: What changes to the Radio Regulations have you identified that would benefit from action at a WRC and why? Do you have any proposals regarding UK positions for future WRC agenda items or suggestions for other agenda items, needing changes to the Radio Regulations, that you would wish to see addressed by a future WRC?

For the reasons outlined in our response to Question 2, we urge Ofcom to reconsider its regulatory approach to 5G services in the 28 GHz band. Time is of the essence in relation to 28 GHz - devices supporting mmWave spectrum in the band will be available from 2019 to support 5G requirements in specific geographies (e.g. the US).

At the very least, at WRC-19 Ofcom must propose identification of the 28 GHz band for 5G services as an Agenda Item for WRC-23.

We would also like to comment on Question 9 of the Consultation.

Question 9: What are your views on the establishment of regulatory provisions, in Article 22, that cover non-GSO operation between 37.5 and 51.4 GHz?

When determining the coordination strategy for the high frequency spectrum bands, e.g. 37.5 - 51.4 GHz, we urge Ofcom, and in turn the WRC, to be mindful of the priority 5G bands earmarked for use in this space. The agreed coordination procedures must have sufficient flexibility to accommodate the style of any 5G roll out, which is likely to be organic in its growth.

We are, of course, happy to discuss any aspect of this response in person, should that be helpful.

Yours sincerely

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