Enabling spectrum sharing in the upper 6 GHz band

TalkTalk response to February 2022 consultation

April 2022

NON-CONFIDENTIAL

Overview

1.1 TalkTalk welcomes the opportunity to respond to Ofcom's consultation "Enabling spectrum sharing in the upper 6 GHz band", published on 28 February 2022.

Adding the upper 6GHz band to the Shared Access framework

1.2 We support Ofcom's proposal to add the 6425-7070 MHz band ('the upper 6 GHz band') to the Shared Access framework. This is a pragmatic interim step to maximise efficient use of spectrum and support innovation while work continues to assess the potential use of the band for licence-exempt Wi-Fi or for licensed 5G mobile networks.

1.3 TalkTalk considers that the best use of the band in the long-term will be for licence-exempt Wi-Fi. We agree with Ofcom that making Shared Access licences available in the interim does not preclude repurposing the band for licence-exempt use in the future.

1.4 Responses to Ofcom's consultation questions are included below.

Working towards making the upper 6 GHz band available for licence-exempt Wi-Fi

1.5 UK consumers and citizens depend on the timely availability of sufficient licence-exempt spectrum to enable them to reliably use Wi-Fi for their work, education, and leisure.

1.6 As the custodian of spectrum in the UK, Ofcom is to be commended for the work it has undertaken that has led to the allocation of the upper 5GHz and the lower 6GHz band for Wi-Fi (and other unlicensed wireless technologies that meet the technical parameters in the relevant Interface Requirements).

1.7 We recognise that decisions on spectrum allocation depend, to a certain extent, on expectations of future demand. As the UK transitions from copper to full fibre broadband, Wi-Fi technology will transition from Wi-Fi 5 to Wi-Fi 6 and in 2024/2025 to Wi-Fi 7. Full fibre together with Wi-Fi 7 will be used to deliver not only faster speeds, but also more reliable connections that can be used simultaneously to support greater numbers of devices. Bandwidth demand will grow as new use cases evolve in step with this increased broadband capability.

1.8 One of the defining characteristics of Wi-Fi 7 is the use of 320MHz wide channels (vs. 160MHz for Wi-Fi 6 and 80MHz for Wi-Fi 5). For consumer Wi-Fi it is generally accepted that three or more non-overlapping channels are required to provide sufficient separation from neighbour networks, and this has led to the allocation, in many territories, of the combined lower 6GHz and upper 6GHz (together, 5925 – 7125 MHz) for licence-exempt Wi-Fi.

1.9 In recognition of this, chipset vendors, and manufacturers of support components (antennae, amplifiers, filters) have created Wi-Fi 6E devices and prototype Wi-Fi 7 devices that are designed to make use of the full 6GHz band in territories (such as the USA, South Korea and others) where the whole band is available, and to only use the lower 6GHz band (5925 – 6425 MHz) where only that portion is available.

1.10 Accordingly, we believe that the best use of the upper 6GHz band, for UK consumers and citizens, is an allocation for low power licence-exempt use. Licence-exemption can be done on a technology neutral basis, as has been the case for the 5GHz band which can be used by Wi-Fi or any wireless technology that meets the relevant Interface Requirements.

Responses to Ofcom's consultation questions

1. Do you agree with our proposals to add the 6425-7070 MHz band to the Shared Access framework?

Yes.

2. Do you have any comments on potential uses for this licence?

We anticipate that we will make use of the new shared licence to test Wi-Fi equipment that makes use of the upper 6 GHz band.

3. Do you have any comments on our proposed licence conditions, licence fee or minimum separation distance?

No comments.

4. Do you have any comments on our technical analysis?

We broadly support the technical analysis. However, given the anticipated use of 320MHz-wide channels we believe that a maximum EIRP of 30dBm would be more appropriate than the 24dBm proposed. We do not consider that this would have a material impact on other users of the band given that the Power Spectral Density (PSD) would be lower than the proposed maximum mean EIRP density of 12.6mW/MHz in any 1 MHz band. The 5GHz band 5470 – 5725 MHz permits a maximum EIRP of 30dBm and by aligning the whole 6GHz band with this, a better match in 5GHz and 6GHz coverage may be achieved.