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27 Sep 2022

Response to the Ofcom discussion paper: Mobile networks and spectrum

Meeting future demand for mobile data

Dear OFCOM

We are pleased to provide our response to Ofcom's consultation on UK preparations for WRC-23, and specifically on Agenda Item 1.2 which addresses the IMT identification of the 6425-7025 MHz band in Region 1 (EMEA) and 7025-7125 MHz globally.

The substantial social and economic benefits of mobile communication networks are well documented, and many countries around the world strive to have the highest performing mobile network infrastructure to derive their nation's economic growth. The availability of the right amount of spectrum and at the right frequencies is essential towards this end.

From a technical perspective, it is important to distinguish between the capabilities of different frequency ranges in terms of the trade-off between coverage (favourable radio propagation) and capacity (available bandwidth). While low bands (sub 1 GHz) are important for relatively low-capacity very wide-area coverage, the availability of mid-bands (1-7 GHz) is critical for high-capacity wide-area mobility use cases, whereas high bands (i.e. above 24 GHz) are suited for very high data rates but with low coverage (e.g., short-range communications at hot-spots and not for country-wide contiguous coverage).

In this context, the 6425-7125 MHz band is the only remaining opportunity for additional wide/contiguous mid-bands for the foreseeable future to deliver IMT-2020 levels of performance by mobile networks to citizens and enterprises across wide areas such as cities, and to contribute to the UK's digital transformation in the 2025-2030 timeframe.

The use of the 6425-7125 MHz band by macro-cellular public mobile networks is essential to avoid capacity crunch and support 5G evolution in order to cost-effectively deliver the IMT-2020 user-experienced data rates across urban/suburban areas for mobile broadband, automotive use cases and towards sustainable and smart cities. Beyond cities, the band can address the digital divide, providing affordable high-speed fixed wireless access (FWA) broadband to small towns/villages, increase available capacity

along major transport routes and help address the connectivity needs of industrial use cases.

Without the 6425-7125 MHz band, mobile networks would need to be subjected to extreme densification well beyond today's macro-cell grids in cities, and this is not viable from an economic or environmental perspective.

It is important to ensure that mobile communication networks can evolve and expand their capabilities in the 2025-2030 timeframe and contribute to UK's digital transformation in a competitive world, by allocating the additional mid-band spectrum capacity needed to keep up with increasing traffic demand from users (estimated at 40% per annum by Ofcom own analysis).

We also note that 3GPP has now completed the technical specifications of IMT 5G NR base stations and user equipment for licensed use in the 6425-7125 MHz band (3GPP band n104). This will no doubt contribute to a healthy commercial ecosystem to meet the demand for IMT equipment and devices following potential IMT identification of the band at WRC-23.

In summary, the 6425-7125 MHz band can play the role of an extension band for 5G evolution, just like the 3400-3800 MHz band was the primary band for the initial introduction of 5G. To this end, we recommend that the UK supports the IMT identification of the upper 6 GHz band at WRC-23 and to take this opportunity to be a global leader in driving the harmonisation of the upper 6 GHz band internationally.