

Your response

The undersigned companies, representing an important cross-section of the world's leading silicon vendors, system manufacturers, and application providers, welcome the opportunity to comment on Ofcom's proposed Plan of Work 2024/25 (the "Plan").

In the Plan, Ofcom notes that 73% of homes can now get gigabit-capable broadband, an increase of 5 percentage points compared to the previous year. We support Ofcom's commitment to promoting affordable (see paragraph 1.7) fast and reliable broadband connections and services for everyone, everywhere (see paragraph 2.5).

Wi-Fi is the distribution mechanism of choice for broadband connectivity indoors, and it is widely used to connect a wide variety of devices, including desktop and laptop computers, mobile phones, tablets, television sets, gaming consoles, cameras, monitors, speakers, and sensors. Indeed, adequate spectrum for Wi-Fi is crucial to leverage the deployed fibre infrastructure, as it has become indispensable for connecting people and devices everywhere. Professional activities, 90% of which are conducted indoors, heavily depend on the availability of sufficient Wi-Fi spectrum, be it in corporate offices, home offices, SMEs, schools, universities, hospitals, public institutions etc.

We, therefore, commend Ofcom's commitment to innovative spectrum management and to lead on the international stage. We support Ofcom's Plan to Work on a hybrid use of the upper 6 GHz band, and we will welcome any opportunity to feed our views into the process. We believe that the UK input contributions to ECC PT1#77 regarding hybrid sharing are a solid starting point for the debate, including the national one. We also support the Ofcom strategic roadmap for higher data rate Broadband connectivity, where the agency has indicated a preference for indoor coverage to be provided by indoor networks in the future.

We would also like to share some insights on the Plan, which may point to potential synergies among the activities planned for 2024/25.

The International Broadband Scorecard published by Ofcom on fixed and mobile data consumption in the UK and Europe clearly shows that mobile networks carry just 4.3% of the traffic in the UK and that the mobile traffic carried by 5G is still a minority compared to 4G/3G/2G. It should also be noted that mobile data consumption is not uniformly distributed; in fact, it is a very small minority of mobile customers that account for a large share of total data usage on mobile networks, and even 'power users' with unlimited packages typically use less data than the maximum data allowed in ISPs' most generous limited packages¹.

When investigating the potential of hybrid sharing, it is critical that the resulting quality-of-service (QoS) reductions are appropriately shared between Wi-Fi and IMT. The investigation should also factor in the share of indoor traffic of overall data traffic and the overwhelming role of Wi-Fi in providing this indoor connectivity. We also believe that, in order to achieve the aim/aspiration of indoor networks providing future indoor connectivity, regulators will need to make enough spectrum available for Wi-Fi use in the upper 6 GHz band. This allocation is essential to ensure high data rates and meet the low-latency requirements necessary for optimal functionality of future VR/MR/AR and other real-time services in indoor environments.

It is also important to have more clarity on what Ofcom (and other CEPT administrations) consider MNOs will need the upper 6 GHz band for going forward. For example, would the band be a short-term capacity solution or spectrum that should be used for densification in the future? It is indeed important that potential mobile use of the 6 GHz band is not considered in isolation but as part of

¹ Ofcom - Statement: Net Neutrality Review (<https://www.ofcom.org.uk/consultations-and-statements/category-1/net-neutrality-review>)

Ofcom's broader mobile strategy, which also calls for spectrum in the 26 GHz and 40 GHz bands (and potentially the 1.4 GHz band) to be used for IMT services.

Ofcom should also bear in mind that WRC-27 will consider the identification of an additional 1,750 MHz of spectrum between 4.4 GHz and 8.4 GHz for IMT use in ITU Region 1 (and an additional 550 MHz in the 14-15 GHz band globally).

Further, it is important that the work on hybrid sharing takes into consideration the different stages of implementation of the two technologies in the 6 GHz band. Ideally, the work will proceed at pace in order to enable the UK to benefit from full Wi-Fi 6E and Wi-Fi 7 connectivity without delays. Given the increasing congestion in the existing Wi-Fi spectrum, access to the upper 6 GHz band has become critical to future Wi-Fi operations by consumers, governments, and businesses. Moreover, making the band available for licence-exempt use now would also permit MNOs to utilise the spectrum via the 5G NR-U protocol and immediately address some of their capacity issues.

A successful hybrid sharing framework will also need to provide sufficient certainty to encourage investment in deployments. The framework should ensure that existing 6 GHz Wi-Fi enterprise networks will not be interfered with by 6 GHz IMT base stations deployed in the same area and that enterprises will not be unduly restricted in the specification and deployment of new 6 GHz Wi-Fi networks.

Amongst the several possible scenarios, a clean indoor-outdoor separation between the two technologies is worth investigating. In particular, in order for indoor-outdoor separation to work, it is important that the two technologies leverage power levels that are compatible with each other. As 6 GHz IMT would only have to cover very small areas outdoors and not be used indoors, high-power transmissions would not be needed. High-power IMT is not required to provide adequate coverage to outdoor mobile users and would cause a significant reduction of Wi-Fi connectivity indoors.

We also believe that when designing outdoor macro cellular networks with the intent to maximise indoor connectivity it should be limited to spectrum bands capable of providing adequate penetration through building materials. The 6 GHz band is not one of these bands. It would be far more sensible and energy and spectrally efficient to focus resources on providing seamless handover between outdoor IMT networks and indoor Wi-Fi networks. If IMT networks have 75% to 80% of their users indoors, then handing over a reasonable portion of their indoor traffic to existing indoor Wi-Fi networks would release sufficient capacity at no cost to the MNOs. This would help solve some of the short-term capacity issues operators have indicated they may face in the next 5-10 years.

In light of the above, the undersigned companies observe that Ofcom has the opportunity to take a leadership role in Europe by moving at pace to develop a hybrid sharing framework and to allow licence-exempt use of the upper 6 GHz band as a priority in its Plan of Work for 2024/25.