Comments to the Public Hearing on ‘Opportunities and market needs related to frequency bands that can be used to provide wireless broadband services’ held by NMHH on the 16th of September 2025

6th October 2025

Introduction

Hewlett Packard Enterprise (HPE) welcomes the opportunity to submit its written comments to the Public Hearing on 'Opportunities and market needs related to frequency bands that can be used to provide wireless broadband services' held by NMHH on the 16th of September 2025.

HPE is a global technology leader focused on developing intelligent solutions that allow customers to capture, analyse and act upon data seamlessly from edge to cloud. Our edge-to-cloud vision is founded upon the GreenLake hybrid cloud platform which allows users to operate and securely manage data between their public and private clouds, on-premises infrastructure and edge solutions. Our Aruba Networking division is a global leader in Enterprise Network and Mobility Solutions and the world's second largest provider of Enterprise Class Wireless Access Points. With the acquisition in June 2023 of Italy-based company Athonet, a leading provider of Private 5G network solutions we further extended our managed connectivity, Secure Access Service Edge (SASE), and edge compute portfolios which enables us to address the private networking needs of both enterprises and telecom network operators even better. In July 2025, HPE completed the acquisition of Juniper Networks, Inc., a leader in AI-native networks. The combination positions HPE to strengthen the AI and hybrid cloud market by creating an industry-leading cloud-native and AI-driven IT portfolio, including a full, modern networking stack. Through Juniper's suite of AI-native networking solutions, software, and services, including the Mist AI and Cloud platform, organizations can deliver exceptional, secure user and application experiences from the edge to the data centre to the cloud.

As a leading edge-to-cloud infrastructure provider, HPE fully supports the establishment of a new Connected Collaborative Computing Network (3C Network) to drive forward Europe's end-to-end infrastructure and platforms for telco cloud and edge to leverage new technologies such as AI. Working with our vast network of over 20,000 European channel partners, we support the enablement of the European local ecosystem to drive innovation and strengthen deep tech skills within Europe.

As one of the founders of Silicon Valley in 1939, HPE has led society's digital transformation since the very beginning. Present in Europe since 1959, when HP opened its first manufacturing site outside of California, in Böblingen, Germany, we work with European businesses and organisations to capture, analyse, and act upon data to accelerate business growth and modernise public administrations. HPE is deeply vested in the EU's ambitious digital and green transformations, from SMEs to the public sector, underpinned by strong privacy rules, targeted R&I investment, support for science, and a multistakeholder approach that sustains Europe's openness to innovation and responds to market needs.

HPE is present in all European countries, operating several centres of excellence to advance the development of AI, HPC, 5G and data analytics in the region and manufacturing cutting-edge liquid cooled supercomputers and servers for data driven organizations from out of our facility in Kutna Hora, Czechia. Currently, HPE employs about 15,000 people in Europe.

HPE's comments to the Public Hearing

HPE appreciates having been given the opportunity to express our views on the Upper 6 GHz band and the 3.8-4.2 GHz band during the Public Hearing on the 16th of September 2025. In this document we reiterate the arguments in written form that we presented verbally during the hearing.

The Upper 6 GHz band

HPE commends NMHH for its intention to promote the efficient management of the scarce resource that is radio spectrum. This is particularly true for mid-band spectrum such as the 6 GHz band. HPE considers the upper 6 GHz band to be crucial for addressing wireless connectivity needs in the enterprise networking domain, and we are of the opinion that the best and most efficient use of the 6 GHz band will be made by authorizing licence-exempt WAS/RLAN operation in the full band (5945-7125 MHz). As we can observe in countries that have opened the entire 6 GHz band for Wi-Fi, there is a strong demand from users to be able to use the entire 6 GHz band. The demand for mobile services, in contrast, continues to be muted, as statistics published by European regulators such as BNetzA[1] in Germany and Ofcom UK[2] demonstrate. During recent years, mobile traffic growth has slowed considerably and as mobile markets saturate, it is expected to stabilize at levels well below those anticipated several years ago, as highlighted by independent industry experts[3]. The latest figures published by the ITU[4] show that in 2024, fixed traffic growth in Europe was higher than mobile traffic growth.

In its consultation document, NMHH states that it supports the band sharing concept being developed by the Radio Spectrum Policy Group (RSPG) and that a decision on the mode of assignment can only be taken after the technical conditions for shared use have been developed.

HPE supports the concept of spectrum sharing whenever sharing provides tangible benefits to the user(s). Wi-Fi is designed to share; more than 21 billion Wi-Fi devices[5] operating in millions of Wi-Fi-based networks share a relatively small amount of spectrum to deliver 80-90% of all data traffic. Furthermore, the spectrum that Wi-Fi operates in is concurrently used by various incumbent services such as fixed links and fixed satellite services.

In our view, any spectrum sharing approach should take into account current and future demand. Considering that true mobile traffic (not including Fixed Wireless Access provided by cellular networks) continues accounting for a low single-digit percentage of overall traffic, the options for splitting the upper 6 GHz band between MFCN and Wi-Fi that are being proposed by the RSPG appear highly unbalanced.

[1] Bundesnetzagentur Jahresbericht Telekommunikation 2024
[2] Ofcom Connected Nations 2024
[3] William Webb: The End of Telecoms History
[4] https://public.tableau.com/app/profile/ituint/viz/ITUFactsandFigures2024/Internettraffic01
[5] https://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-celebrates-25-years-of-wi-fi-innovation-and-impact

In its Draft Opinion, the RSPG states "a clear preference for a segmentation solution in the context of a prioritised band split between MFCN and WAS/RLAN". Each application would have non-prioritised access to the portion of the band assigned to the other application, if it does not cause harmful interference to the other application. The size of each portion and the prioritization mechanism and rules would remain to be defined.

Considering that in Europe, more than 80% of total data traffic is transferred over Wi-Fi and less than 10% over mobile networks (most of that on 4G and including FWA), none of the options provides the amount of spectrum for WAS/RLAN that will be needed to achieve the objectives of Hungary's and Europe's broadband plans.

Enterprise demand for WAS/RLAN

Wi-Fi 6E and Wi-Fi 7 today, and Wi-Fi 8 from 2028 onwards, address a large variety of use cases, from supporting extremely high data rates for immersive virtual reality (VR) and augmented reality (AR) to the Internet of Things (IoT), telemedicine, and real-time industrial automation requiring ultra-low latency.

Smart building infrastructures and next-generation satellite-terrestrial integration will also require additional spectrum resources for WAS/RLAN.

The upper 6 GHz band provides a significant amount of contiguous spectrum that can be utilized for high-capacity and high-reliability services. This band is the only new mid-band to support the deployment of high-performance indoor wireless broadband connectivity in Europe by enabling the use of multiple wide and very wide channels.

For enterprises, Wi-Fi connectivity is at least as important as it is for consumers. Enterprise connectivity is much more than connecting smartphones, notebook PCs, and tablets wirelessly when at the office, working from home or on the go. WAS/RLAN enterprise networks are widely deployed in education, healthcare, hospitality, retail, logistics, manufacturing, transportation, events, public services and many more use cases. The fast adoption of Wi-Fi 6E and now Wi-Fi 7 has primarily been driven by enterprises upgrading their networks to capitalize on the advantages brought about by Wi-Fi 6 technology and the availability of the 6 GHz band. Unsurprisingly, the adoption rate has been highest in countries that opened the full 5925-7125 MHz band for licence-exempt use.

The latest generations of WAS/RLAN, i.e., Wi-Fi 7 and specifically Wi-Fi 8, were and are being designed for ultra-high reliability to support mission-critical applications in quasi-deterministic networks which benefits consumers but most of all enterprise users.

In 2024, there were approximately 707,000 enterprises in Hungary, of which 99.9% were small and medium-sized enterprises (SMEs) with less than 250 employees[6]. Large enterprises account for 30% of the total of 3 million employees. In the EU overall, the vast majority (93.9%) of enterprises use a fixed broadband connection to access the internet. The share is even larger for medium and large enterprises, where almost all enterprises report connecting to the internet via fixed broadband[7]. Enterprise density correlates with population density, i.e., it is highest in dense and very dense urban areas[8]. The "large factory in rural areas" mentioned in the RSPG Draft Opinion is rather an exception.

Due to the shortage of licence-exempt mid-band spectrum available for WAS/RLAN, many enterprises have to artificially restrict the quality of the services they provide. To be able to provide services to as many users as possible, they are forced to limit channel widths to 20 MHz which severely reduces the attainable per-user data rates.

The 2.4 GHz band which is heavily occupied by an increasing number of IoT WAS/RLAN devices but also by other wireless systems such as Bluetooth and the notorious microwave ovens is not usable for providing broadband services.

Of the 455 MHz potentially available for licence-exempt WAS/RLAN in the 5 GHz band in Europe, only 100 MHz can be used without DFS restrictions. Depending on the WAS/RLAN's location, DFS can be triggered frequently, resulting in channel changes which in a managed WAS/RLAN enterprise network affect not only one Access Point (AP) but potentially the entire network. DFS trigger events are often observed near military bases and airports and along coastlines but also caused by meteorological radar. Currently, there are 154 meteorological radars operating in WAS/RLAN bands in Europe, each covering an area between 102,000 to 322,000 square kilometres[9]. Like the 2.4 GHz band, the 5 GHz band is highly occupied, with more and more IoT devices such as surveillance cameras and wireless doorbells using this band.

In the face of continuing strong growth of data traffic, 90% of which is indoors, it is obvious that enterprises need the full 6 GHz band to be able to serve more clients and to provide higher per-user data rates and lower latencies on their WAS/RLAN networks.

Is there a need for more mobile spectrum?

In the document accompanying NMHH's public hearing, it is stated that "Gigabit-speed networks meet growing data-transfer needs, with next-generation mobile networks playing a major role among wireless technologies". As a matter of fact, it is local wireless broadband networks such as Wi-Fi that enable gigabit connectivity, not mobile networks which unlike fibre and Wi-Fi are not capable of delivering gigabit speeds to multiple users concurrently

Various 5G field trials demonstrated that MFCN in the 6 GHz band cannot achieve a key target of the DDPP which is to enable all end-users who need or wish to use gigabit services to do so by 2030. "All Union end-users should be able to use gigabit services provided by networks at a fixed location deployed up to the network termination point". These trials also confirmed that MFCN indoor performance is very limited, especially in the uplink.

In contrast to that, the connectivity targets could be achieved in a meaningful way, even in densely populated areas, if the entire 6 GHz band was made available for use by WAS/RLAN.

[6] Sourcfe: Eurostat: Hungary - SME Fact Sheet 2025.pdf
[7] https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20240125-2
[8] Source: Eurostat
[9] Source: https://www.eumetnet.eu/wp-content/themes/aeron-child/observations-programme/current-activities/opera/database/OPERA_Database/index.html

We would like to stress once again, that no credible use case that would justify an allocation of spectrum in the Upper 6 GHz band to MFCN has been presented by the mobile industry. It rather appears that the Upper 6 GHz band, if MFCN was to be deployed at all, would be used for providing Fixed Wireless Access[10], which is a use case that has not been studied by the ECC and is not considered in the RSPG Draft Opinion.

In our opinion, FWA can be an option for providing broadband access to rural areas that are not served by high-capacity fixed networks. The Upper 6 GHz band, however, is not well suited for this purpose; hence, telecom equipment manufacturers have been promoting mmWave FWA[11]. Research affirms that existing MFCN base station locations can be leveraged for deploying 5G mmWave FWA to effectively provide high-speed data access to rural users[12]. HPE therefore commends NMHH for identifying it as a priority to enable 5G applications (such as FWA) in the 24.25–27.5 GHz frequency band,

The 3.8-4.2 GHz band

On the 3.8-4.2 GHz band the NMHH document says:

After adoption of the relevant international regulation, in addition to implementing the EU-level technical harmonisation rules, it will be necessary to define the domestic usage conditions for the band and the mode of assignment, i.e. the most appropriate authorisation regime. NMHH is considering several implementation options in the 3.8–4.2 GHz band:

- **a)** providing local/regional spectrum-use rights necessary for deploying local and/or regional WBB LMP networks exclusively to private networks/verticals, on a first-come, first-served basis, throughout the 3.8–4.2 GHz band;
- **b)** assigning spectrum-use rights necessary for deploying local and/or regional WBB LMP networks nationally throughout the 3.8–4.2 GHz band via a competitive procedure (e.g. the providers acquiring rights would be entitled to establish local/regional networks throughout the country, for example by providing services to users/verticals of local networks);
- **c)** using the two assignment modes described in points a) and b) together by segmenting the 3.8–4.2 GHz band; that is, in one part of the band, enabling deployment of local and regional WBB LMP networks based on national rights as a result of a competitive procedure, while in another part of the band, authorising local networks first-come, first-served (e.g. 300 MHz based on a national licence and 100 MHz based on first-come, first-served for local use).

In its Statement for comment, NMHH considers Option c) to be the most appropriate.

HPE’s position is to support Option a). The European Commission specifically designed this band for use by low and medium power local networks. If Options b) or c) were adopted, there would be a considerable risk that this spectrum will be acquired by the dominant mobile network operators MNOs to either use it for regional and nationwide networks or to monopolize the market for private mobile networks which would contradict the Commission’s objectives and reduce the opportunities for enterprises (both P5G users and vendors).

Summary and conclusion

Should RSPG recommend a split of the Upper 6 GHz band, our ask is that the lower 320 MHz of the band will be made available for WAS/RLAN use, under the same regulatory conditions as defined for the lower 6 GHz band[13]

WAS/RLAN enterprise networks should be granted access to the part of the Upper 6 GHz band prioritised for MFCN under conditions that provide security of tenure and allow reliable and predictable operation of WAS/RLAN networks across the entire band. We would welcome if the RSPG proposed a harmonised framework, but defining detailed regulatory conditions should be under the responsibility of national administrations.

National administrations should have the flexibility to authorize licence-exempt WAS/RLAN operation in the entire Upper 6 GHz band. should they wish to do so. HPE invites NMHH to seriously consider this option when defining the national regulation for Hungary.

Concluding our comments on the Upper 6 GHz band, we urge NMHH to ensure that the RSPG formulates its Final Opinion on the Long-term vision for the Upper 6 GHz band on the basis of facts and evidence alone.

Concerning the 3.8-4.2 GHz band, HPE strongly recommends that NMHH will provide local/regional spectrum use rights necessary for deploying local and/or regional WBB LMP networks exclusively to private networks/verticals, on a first come, first served basis, throughout the entire band.

[10] GSMA : The 6 GHz IMT Ecosystem Demand Drives Scale
GSMA : Mobile Evolution in 6 GHz
[11] Nokia: Busting the myths around mmWave Fixed Wireless Access (FWA)
Ericsson: Closing the digital divide with mmWave extended range for FWA
[12] https://ieeexplore.ieee.org/document/10571315
[13] As in COMMISSION IMPLEMENTING DECISION (EU) 2021/1067 of 17 June 2021 on the harmonised use of radio spectrum in the 5 945-6 425MHz frequency band for the implementation of wireless access systems including radio local area networks (WAS/RLANs)

HPE contact information

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