



BTG Response to consultation RSPG “Long term vision for the upper 6GHz band” Issued 8 July 2024.

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Introduction

BTG is a user interest association in the area of ICT and Telecommunications in the Netherlands. BTG represents the interests of Dutch enterprises and organizations dependant on communications services since 1986. Amongst others, BTG organizes network meetings for sharing knowledge and experiences. BTG counts 180 members from business and governmental organizations and represents these organizations nationally and internationally. BTG is member of the INTUG. BTG interconnects organizations and is actively lobbying between governments, suppliers and members in the area of ICT and Telecommunications. BTG has recognized, and fully supports the strategic value of digital infrastructures for the development of the digital society. Within the BTG association, expert groups are in place where members are sharing interests, knowledge and experience.

Figure 1 provides an overview of BTG’s interest groups, demonstrating the breadth of BTG’s involvement.



Figure 1. Overview of BTG Expert Groups

The BTG response

This response to the EU Radio Spectrum Policy Group questionnaire on the Long term vision for the upper 6GHz band has been drafted in close concert with the BTG members, from the perspective of the ICT user, the demand side of the market. BTG membership covers the demand and the supply sides of the market. In this consultation response, in case there is a conflict of interest, the demand side opinion has been expressed.. In case there is a conflict of interest, the demand side opinion has been expressed in this response.

This BTG response is not on behalf of the telecom network operators in the Netherlands.



BTG Response to the RSPG Questions

Questions directed to the MFCN and the WAS/RLAN stakeholders

I) Explain the demand for MFCN or WAS/RLAN in the upper 6GHz band before and beyond 2030

Answer:

For end-user organizations the digital transformation is running fast. Multiple new applications are introduced, building on cloud and other new ICT infrastructures. We recognize the growing need for digital connectivity, both fixed and even more so wireless. The dependency on this digital infrastructures, as part of the transformation, is also increasing. The criticality of digital services for many business processes has been growing to become business critical (interruption of digital services results in major financial losses) or mission critical (lives are at stake in case of failure in digital solutions). User organizations are searching for digital solutions that match their needs. That can be fixed or mobile services delivered by MFCN (mobile fixed communications network) operators, or WAS/RLAN (wireless access services and radio local area networks) services via networks built on user organization premises, or enterprise specific services realized via on-premise private (broadband) networks. The data volume related to the digital transformation is growing exponentially which means that the capacity need for networks is also increasing. To facilitate the wireless capacity growth, additional frequency spectrum is required. In the enterprise user environment we foresee growth on all three areas of wireless communications:

- on public mobile networks (using licensed spectrum);
- on local area wireless networks (using unlicensed spectrum);
- and on private broadband networks (using licensed spectrum).

For end user organizations the availability of a rich eco system of mobile devices, -network components and -applications is a prerequisite for the success of the digital transformation. Global standardization is key for a rich eco system with a good price - value ratio.

In the 6GHz band we see a differentiation between Europe and the rest of the world in the usage or anticipated location of the 6GHz band. The success of WiFi as low cost mass data capacity indoor on premise on local area wireless solution is based on the global standardization and the fact that unlicensed spectrum has been made available for everybody. This also means that everyone can build a RLAN network regardless of any existing local RLAN network, potentially resulting in mutual interferences. The next generation RLAN needs additional spectrum to facilitate the projected data growth. It is not expected that the data communications growth will decrease in the coming decade.

Mobile Network Operators (MNO's) are building 4G and 5G broadband networks using licensed frequency spectrum. Licensed spectrum implies that spectrum usage is protected for the operator with reduced interference risks. After 5G the 6G generation will be introduced that will require new spectrum. For large area coverage the 6 GHz band is not very suitable but for providing local capacity this band is a good option for capacity growth in addition to the 3.5GHz and 26 GHz bands which in Europe are allocated to 5G.

For mission- and business critical mobile communications we see the need for harmonized, licensed spectrum to enable private mobile broadband networks. Current spectrum allocations for private local broadband networks in EU countries unfortunately is still insufficient but also not really harmonized, which is detrimental to the necessary equipment eco system. This spectrum need is complementary to the need for licensed spectrum for MFCN and unlicensed spectrum for RLAN solutions.



From the end user perspective it is BTG's opinion that for all three segments sufficient dedicated spectrum is required, licensed and unlicensed.

II) Provide information about the sustainability of the above explained demand, especially the:

- 1) Environmental impact assessment
- 2) Social economic impact

Answer:

On sustainability and environmental impact:

BTG recognizes the need to develop spectrum allocation methodologies on equal footing for all three segments: public mobile networks, wireless LAN and private broadband networks. Specific requirements on energy efficiency and circularity should be identical for all network types and technologies. Specific to spectrum allocations, this also implies that for wireless networks large, contiguous spectrum blocks should be allocated.

It is important to search for alternative ways for the allocation of radio spectrum. Spectrum allocation is the responsibility of each EU member state at the moment. The common way for allocating radio spectrum for public mobile networks by member states is via spectrum auctions, resulting in large financial sums. In the past years each member state has defined its own national conditions that have to be complied to by the operators. The result is a fragmented and sub-optimal division of radio spectrum. The mobile operators are spending their Euro's on spectrum instead on their future networks including energy efficiency and circularity improvements. Member states should give a higher priority to longer term investments in energy efficiency and circularity than to the short term financial results of spectrum auctions.

To stimulate both energy efficiency and circularity of the products/components used for building public or private mobile networks, it may be worthwhile to consider energy consumption categories and introduce financial incentives, for example by reducing the applicable VAT percentage depending on the energy category or cost reductions for the appropriate disposal of replaced equipment. This could be considered in addition to improved harmonized technical standards, improving energy consumption and circularity, for such products.

Over the last several years the traffic handled by public mobile networks has significantly increased, with growth rates exceeding 50% per annum. This is created by the sheer possibility to e.g., use audio and video streaming on mobile devices due to technology improvements and cost reductions. This increase is combatted by the public mobile operators by adding network capacity and introducing 5G. However, it remains to be seen if the improved efficiency of the 5G technology indeed cancels out the increase in energy consumption due to the ever-increasing traffic loads. BTG suggests that in addition to energy efficiency measures, also the increase of traffic volume should be addressed by improvements in codecs, communication channel protocols and possibly by defining guidelines on how applications should efficiently use those mobile communication channels. It is not uncommon to see mobile applications being developed based on wired LAN connectivity instead of taking into account the possibilities and limitations of a mobile channel, leading to significant overhead and inefficiencies in the transport of data. Furthermore, from an architectural perspective, there may be benefit of using local intelligence rather than transferring raw data to a centralized (cloud) intelligence when implementing applications.



On social economics

The impact of wireless communications on the developments in the society is extraordinary. With more than 8 billion mobile devices worldwide connected to mobile broadband networks and about 20 billion devices connected to radio LAN networks the volumes of data traffic are enormous. This connectivity brings social- and economic development to large groups of the world population. In Europe, the EU has developed specific programs to encourage social- and economic development and prosperity to Europe's citizens. Digitization, the Internet and mobile connectivity are the prerequisites for this development. However, the vulnerability and dependency on digital infrastructures also brings a responsibility to the EU and member state governments in a world with changing geopolitical relationships. The European end users have independence and freedom.

III) Provide information about:

- 1) the possible role of the upper 6GHz for MFCN or WAS/RLAN
- 2) use cases, expected deployments (e.g. number of BS for MFCN) and timeframe

Answer:

The cellular broadband (focus on licensed spectrum) and Radio LAN technology (focus on unlicensed spectrum) standards are evolving towards similar functionalities. The broadband (public and private) networks are generally more related to wide area outdoor coverage and Radio LAN more related to indoor coverage solutions.

BTG recognizes that national regulators are focussing with public mobile networks only on outdoor coverage. Coverage requirements for broadband networks defined by regulators are normally only defined for outdoor usage. BTG is of the opinion that also public networks have an indoor coverage need, given that some 70-80% of mobile network usage and capacity demand is from indoor users. MFCN operators tend not to be very supportive for multi-operator indoor solutions. National regulators should put more effort in stimulating MFCN operators to support indoor coverage, if necessary with additional regulation. Regulators could improve this by assigning dedicated spectrum for indoor usage.

Based on the above, BTG's view on the upper 700 MHz of the 6GHz band is that it should partially be allocated to unlicensed usage and partly to licensed usage, in both cases technology independent. To optimize the equipment ecosystem / device availability, it would be advisable to align with the spectrum allocation in a larger part of the world. A favourable allocation would then be to allocate 6425 – 6875 MHz to unlicensed usage, aligned with the so-called UNII-6 and UNII-6 bands in the USA, and 6875 – 7125 MHz to licensed usage, aligned with the UNII-8 frequency band. We note that this aligns with the ITU WRC 2023 7025 – 7125 MHz IMT allocation for this band and extends this to enable further usage for mission critical services.

Such allocation, with 450 MHz to unlicensed and 250 MHz to licensed usage, would enable market parties to choose between using 5G, WiFi, possibly DECT-2020 and other technologies, either in unlicensed or licensed frequency bands, based on the optimum fit for their use cases, whether they are outdoor, indoor or as a mix. Within the licensed spectrum part, both MFCN but also private wireless broadband low-medium power local networks should be eligible to licensing. For mission critical, low-medium power local networks, the protection offered by licensed spectrum is of key importance. Hence, both local private networks and MFCN should be eligible to licensing in this frequency band.



IV) Provide information about standardization and technology impact

Answer:

BTG's view, as mentioned above, indicates that in the unlicensed part of the upper 6GHz band both 5G/6G and WiFi technologies and possibly others may be used. A subject for further standardization might be to investigate how co-existence between these technologies within the same or adjacent spectrum block may be possible. This particularly in view of the increasing demand for frequency sharing. Such compatibility could result in maximized market choice for solutions while optimizing spectrum efficiency.