

GSA response to RSPG consultation on 6G Strategic Vision

GSA thanks the opportunity to comment on the RSPG Report on 6G Strategic Vision. GSA welcomes RSPG's proactive approach in shaping a European 6G vision and addressing spectrum challenges early. GSA emphasizes the importance of a harmonized European spectrum strategy to maintain global competitiveness in the race toward 6G. GSA supports the RSPG to finalize the 6G strategic vision and to *launch a 6G spectrum roadmap during its next working period (2026-2027) in order to identify which frequency band(s) should be made available for the launch of 6G* and the future development of 6G. A clear, long-term regulatory roadmap for 6G spectrum to benefit from ongoing EU research and encourage investments in infrastructure, and innovation by operators and equipment manufacturers.

6G will need a combination of various frequency ranges to meet coverage and enhanced capacity requirements as well serve new emerging use cases. GSA would like to stress that licensed spectrum is required for ensuring reliability, security, and quality of service in 6G, including critical communications such as autonomous systems, AI, and digital twins. GSA emphasizes that 6G will require higher capacity, ultra-low latency, and seamless global interoperability, which can only be achieved with adequate access to harmonized licensed spectrum.

Networks deployed in existing spectrum in the low and mid-bands will be upgraded to the latest technology, as per market needs, improving spectrum and energy efficiency, among other benefits. However, these bands are already addressing current spectrum needs. Therefore, existing harmonized spectrum should not be part of the 6G roadmap.

GSA estimates an additional 500-750 MHz of wide-area spectrum per network is needed to implement the anticipated 6G use cases (more details from [CEPT PTA\(23\)047](#)). A smaller amount of spectrum, but at least 200 MHz of the needed additional wide-area spectrum per network, would be needed for the initial 6G deployments (2x the typical bandwidth in the C-band. Wide-area spectrum will continue to be the focus in the 6G era, enabling the 6G use cases indoors, outdoors and on-the-move by cost-effective deployments re-using the C-band existing grid.

RSPG should facilitate full power macro base station deployments in the upper 6 GHz band (6425-7125 MHz) for 5G and future 6G, as well as to include spectrum within 7125-8400 MHz (further than 7125-7250 MHz) as part of the 6G roadmap. These 2 bands should be addressed in European 6G Roadmap.

GSA would like to highlight global trends after WRC-23, for example with recent auctions in Hong Kong, assignments from the UAE in 2025/2026 and limitation of Wi-Fi usage from the original 5925-7125 MHz to 5925-6425 MHz in Brazil and highlight the risk to place Europe at a strategic disadvantage.

While there are uncertainties on 7125-8400 MHz in Europe, the work towards ITU-R WRC-27 has just started. U.S is also analyzing the band under the National Spectrum Strategy and in particular, considering sharing with military/governmental users.

GSA would like to stress the need for European leadership in 6G, particularly as the U.S. and China insistently pursue 6G strategies. Opening new spectrum assets would assist Europe to re-gain global competitiveness. GSA also likes to emphasize the economic and societal benefits of early spectrum allocation, including enabling Europe to lead in sectors like smart cities, industrial automation, immersive applications and AI-driven applications.

To enable ubiquitous connectivity in the 6G timeframe, as well as not to increase the digital gap between urban and rural areas, Europe needs to also think about sub-1GHz spectrum (i.e. UHF, 470-694/8 MHz). GSA suggests that this band is added as a candidate band for 6G, noting the process achieved at WRC-23 and also the challenges with different usages across the European continent and that potential usage for mobile may be difficult before 2031, as per [DECISION \(EU\) 2017/ 899 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL](#)

GSA would urge the RSPG to promote similar timeframes for spectrum availability across EU member states to avoid spectrum fragmentation and ensure a single market for 6G technologies and would like to emphasize that such harmonization is essential for economies of scale, cross-border interoperability, and the competitiveness of European industries.

Any additional spectrum considerations for local usage (i.e. targeting vertical use cases) should be assessed once deployments in the recently harmonized 3.8-4.2 GHz range mature, noting that mmWave spectrum may also be used to address certain needs/use cases. Additionally, verticals can also be addressed by public networks. It is still too early to conclude that “*The spectrum need for local and vertical use will still increase*”.

Deployments in the mmWave are also expected to continue while device ecosystem mature. This spectrum will complement spectrum below 8400 MHz in certain high-density areas, such as fiber-like fixed wireless access, smart factories, stadiums, etc. However, GSA does not see the need to highlight mmWave in the 6G roadmap.

Sub-THz is interesting from a research perspective only and thus should not be part of the 6G roadmap at this stage.

Related to inter-service sharing with primary incumbents, collaboration across regulators, industry, and other stakeholders is critical to address potential interference and technical challenges. Inter-service sharing scenarios differ band by band. They should be considered on a case-by-case basis and solutions should apply globally. Therefore, an EU mandatory regulatory requirement in ETSI will not address the problem. Instead, RSPG should promote collaboration across member states and sectors across the regions to find solutions. Standardization bodies are well positioned to develop technical means for those solutions, noting that members of the standardization bodies have the expertise to develop the most appropriate ones.

Related to intra-service sharing within Mobile Service, cross-technology signaling is a complex topic and any solution should enable full macro mobile base station power capabilities and enable robust spectrum availability as a principle. Authorization regimes (e.g. licensed/license-exempted)

of these services may differ, which should also be taken into account. Therefore, an EU mandatory regulatory requirement in ETSI (as mentioned by RSPG) would not be appropriate.

GSA notes the RSPG engagement on an analysis on satellite usages including D2D (Direct to Device). Satellite direct to (3GPP mobile) device communication can potentially enable 100% geographical coverage. Interference challenges and in particular protection to terrestrial services should be carefully analyzed.

GSA is aligned with the RSPG's goals on environmental sustainability, indeed 6G networks will drive further energy-efficient deployments and green innovations in Europe.

Conclusions

GSA proposes a continued dialogue between the RSPG, GSA, and other stakeholders as well as offers technical expertise and research insights. GSA suggests the RSPG to facilitate full power macro base station deployments in the upper 6 GHz band (6425-7125 MHz) for 5G and initial 6G deployments, as well as to include spectrum within 7125-8400 MHz (further than 7125-7250 MHz) as part of the 6G roadmap. GSA also suggests including UHF to provide ubiquitous coverage and digital equality. GSA wish to reaffirm GSA's commitment to supporting the RSPG's vision for 6G and working collaboratively to ensure that Europe remains at the forefront of technological innovation and connectivity.
