

December 27, 2024

RSPG Secretariat
Office L-51 05/DCS,
Commission européenne
1049 Bruxelles
BELGIQUE

E-mail: CNECT-RSPG@ec.europa.eu

Re: DSA Comments to the European Commission (EC) Radio Spectrum Policy Group (RSPG) draft report on “6G Strategic Vision”

The Dynamic Spectrum Alliance (DSA)¹ respectfully submits the following comments to the European Commission (EC) Radio Spectrum Policy Group (RSPG) draft report on “6G Strategic Vision”². DSA commends RSPG for seeking a proactive position “for supporting the development and deployment of 6G in Europe.”³

DSA agrees with the view provided by an operator that, “6G will come more as an evolution than a revolution.”⁴ The adoption of 5G Standalone (5G SA) systems in Europe has been much slower than anticipated. As noted in the draft report, “the adoption of 5G SA is occurring slowly and unevenly among European MNOs.”⁵ As a consequence, adoption of two of the three main 5G use case scenarios -- massive Machine Type Communications (mMTC) and Ultra-Reliable Low-Latency Communications (URLLC) -- has also been slower than anticipated.

A critical factor cited for European MNOs for upgrading from 5G non-stand-alone (NSA), built on a paid-for 4G network architecture, to 5G SA “lies in business models, notably regarding network monetization and the ROI, which directly impacts operators’ investment plans.”⁶ 6G is likely to be built on top of a 5G SA core network architecture. Realistically, MNO’s that have deployed 5G SA will want the differentiated services offered to be

¹ The Dynamic Spectrum Alliance is a global, cross-industry alliance focused on increasing dynamic access to unused radio frequencies. The membership spans multinational companies, small- and medium-sized enterprises, academic, research, and other organizations from around the world, all working to create innovative solutions that will increase the utilization of available spectrum to the benefit of consumers and businesses alike. A full list of the DSA members is available on the DSA’s website at www.dynamicspectrumalliance.org/members/.

² RSPG-24-030 Final: 6G Strategic Vision: [73cd8110-0c48-41a5-96e6-ab7332ae0ec6_en](#) (Draft Report)

³ See Draft Report at 2.

⁴ See Draft Report at 35.

⁵ See Draft Report at 6.

⁶ See Draft Report at 5.

sufficiently profitable before taking on a significant new investment. Given the 2030 timeline, MNOs that have been operating 5G Non-Standalone (NSA) on their 4G core network will likely have to make the jump directly to 6G.

A wild card that might impact investment decisions is the potential consolidation within the European telecom sector being discussed in certain circles. If this idea moves forward, over the next few years capital that could finance 6G infrastructure and equipment might be deployed for other purposes such as purchasing MNOs in other Member States.

Under such circumstances, it is by no means certain that an evolutionary 6G introduced in 2030 will garner investment by MNOs and interest by individual consumers and enterprise users. On the other hand, if the 6G rollout happens closer to 2035, the market will more likely be primed and ready to adopt the technology broadly. For this reason, the DSA believes it is premature for RSPG to include the 6425-7125 MHz band in its preliminary list of spectrum bands that will be considered as suitable candidates.⁷ Although the Draft Report cites, ‘...even if WRC-23 identified 6425-7125 MHz for IMT, the upper 6 GHz band is subject to another RSPG Opinion’⁸, it is included in the list. RSPG should wait until it issues its Opinion on its long-term vision for the upper 6 GHz band next year before deciding whether to include the band in its list of frequency bands to consider for 6G. By including the band now, it may appear to some that the group within RSPG developing this Draft Report is putting its thumb on the scale regarding the RSPG Opinion on the upper 6 GHz band. The recommendation in the Draghi report is clear, “Include the release of additional WiFi-dedicated bands into the spectrum guidelines, to allocate enough spectrum to 5G and 6G, while preserving the viability of private WiFi in the long term”.⁹

The DSA appreciates that RSPG is considering inter-service spectrum sharing as it develops a 6G roadmap. This should include inter-service sharing between indoor WAS/RLAN, which is an application of the mobile service, and incumbent services operating in the 7125-7250 MHz. Further, RSPG needs to understand how the combination of AI (as applied to spectrum management), edge computing, Wi-Fi offload, and network densification will impact the highly speculative estimates for new 6G spectrum per carrier provided by equipment manufacturers and operators.

Specific Comments on ‘Drivers and enablers for 6G’

- RSPG needs to be clear in this section that a “6G ecosystem” will be broader than just the IMT-2030 standard. For example, Wi-Fi offloading is integral to 5G and is expected to play a similar role in 6G. Additionally, some satellite operators will choose to integrate their services with terrestrial mobile networks using a 3GPP standard, while others will choose not to.

⁷ *Id.*

⁸ See Draft Report at 11.

⁹ European Commission, The future of European competitiveness: Report by Mario Draghi - Part B | In-depth analysis and recommendations, September 2004, at 75, (‘Draghi report’) [ec1409c1-d4b4-4882-8bdd-3519f86bbb92_en](https://ec.europa.eu/economy_finance/1409c1d4b448828bdd3519f86bbb92_en).

Specific Comments on ‘Spectrum sharing solutions’

- DSA has long supported inter-service and intra-service spectrum sharing through application of automated spectrum management systems. The spectrum management system is an embodiment of the technical and operational rules established by a National Regulatory Agency for a new entrant to share access to a band with incumbent operations. Unfortunately, there is no one size that fits all when it comes to spectrum management systems. As the Draft Report notes, issues regarding spectrum sharing have to be addressed on a case-by-case basis, band-by-band.¹⁰
- While some current automated spectrum management solutions rely on machine learning (e.g., the Spectrum Access System for CBRs), we agree with the Draft Report’s view that AI will be beneficial for enabling interservice spectrum sharing.¹¹

Specific Comments on ‘Input from Research and Development’

- The DSA agrees with assessment that with respect to the “Launch readiness for 6G in 2030 for mass market for services and equipment”, future studies are required to predict capacity needs for 6G use cases and usage scenarios for the 2030s, as there remains considerable uncertainty.¹² Such concerns are warranted given mobile industry unfulfilled predictions regarding 5G use cases and capacity needs, in years prior to 2020.
- 5G spectrum needs assessment developed years in advance of the 5G roll out, grossly overestimated spectrum needs, and created a shaky foundation for which to base spectrum policy. Regardless, these inflated estimates drove internal European spectrum policy debates leading to regional positions for IMT identification at WRC-15, WRC-19, and WRC-23 at expenses of other services and applications. Ideally, in this case, RSPG will wait till there is some more certainty with respect to IMT spectrum needs and options, before acting on the 6 GHz band.
- An important insight that RSPG should feature more prominently is that *“Technology developments aiming at efficiency enhancement can reduce the actual capacity demands. Especially the role of edge computing and increasing processing power in end devices will reduce the amount of data that needs to be transferred”*.¹³
- Further, the application of AI to spectrum management, likely through various spectrum sharing mechanisms, will allow for more efficient use of the spectrum for 6G service and is bound to reduce spectrum needs. AI’s application to spectrum management is in a relatively early stage. The delay in the introduction of 6G services will provide sufficient time for AI to be fully integrated into the next generation

¹⁰ See Draft Report at 19.

¹¹ See Draft Report at 20.

¹² See Draft Report at 30.

¹³ Id.

of terrestrial communications, rather than be appended to it, which is realistically what will happen for systems deployed in 2030.

- The DSA agrees with the observations that *“The convergence of non-3GPP and 3GPP networks presents a compelling opportunity to weight the strengths of different technologies and by combining the best of their characteristics, will potentially create a unified network that delivers a superior user experience”*.¹⁴ The draft report focuses more on the 3GPP network technologies than non-3GPP technologies. The 3GPP’s vision is for non-IMT technologies to adopt their standards. Some technologies will choose to adopt 3GPP standards, and for sound reasons, others will not. Hopefully, the RSPG’s vision for interservice sharing will not require all the technologies to adopt 3GPP standards.
- Finally, there is a clear argument for the important role unlicensed Wi-Fi will play in 6G. The offloading of 6G mobile data traffic onto Wi-Fi networks, particularly in high-density indoor environments, should reduce the need for new spectrum for 6G, especially indoors.

*“Recognizing the future strain on spectrum resources from various systems, the high proportion of data traffic consumed indoors and taking into consideration that indoor building penetration losses increase with the use of higher frequency, significantly diminishing spectral efficiency, it is essential for 6G to explore further mechanisms that reduce the outdoor macro network’s reliance on spectrum for indoor traffic.”*¹⁵

There is agreement that most data consumed by enterprise users and individual consumers occurs indoors. Setting aside environmental sustainability concerns, while the power of macrocells can be increased (to a point) to overcome significant building entry loss for energy efficient buildings in the mid-band and high-band frequencies, the challenge is the power required for the user equipment to uplink with the base station.

Specific Comments on ‘Input from equipment manufacturers and operators’

- The DSA’s observation is that 6G appears to be driven presumably by European equipment manufacturers rather than the European mobile network operators.
- Again, the DSA wants to highlight the operators view that “6G will come as an evolution than a revolution”.

¹⁶

Specific Comments on ‘Spectrum for launching 6G in EU and paving its initial development’

¹⁴ See Draft Report at 33.

¹⁵ See Draft Report at 32-33.

¹⁶ At 9.2 page 35

The DSA strongly believes that at this time it is pre-mature for the RSPG to consider the 6425-7125 MHz band for 6G services and urges RSPG to remove it from the spectrum bands lists in the Draft Report as being under consideration.¹⁷

Respectfully submitted,



Dr. Martha SUAREZ
President
Dynamic Spectrum Alliance

¹⁷ See Draft Report at 36.