**Dynamic Spectrum Alliance Limited**
http://www.dynamicspectrumalliance.org

November 3, 2025

Body of European Regulators for Electronic Communications (BEREC)
Zigfrida Annas Meierovica boulevard No 14
LV-1050 Riga,

**Re: DSA response to Consultation on Draft BEREC Work Programme 2026**

Dear Sir/Madam

The Dynamic Spectrum Alliance[1] (DSA) welcomes the opportunity to provide comments on the Draft BEREC Work Programme 2026 (the Draft Programme). The DSA supports BEREC's strategic priorities promoting universal and high-quality connectivity, fostering competition-driven and open digital ecosystems, empowering end-users, and advancing environmentally sustainable, secure, and resilient communications infrastructures. We also commend BEREC's continued focus on strengthening its institutional capacity and ensuring the coherent, evidence-based implementation of European connectivity objectives under the European Electronic Communications Code (EECC) and the Digital Decade policy framework.

In this context, the DSA emphasizes the critical importance of efficient and innovative spectrum management as a foundation for achieving these priorities. Dynamic and shared spectrum access models can unlock underutilized frequencies, expand broadband availability, and lower deployment costs, thereby accelerating Europe's progress toward universal gigabit connectivity. By fostering a regulatory environment that encourages both licensed and licence-exempt spectrum use, BEREC can help ensure that connectivity is not only high-quality and resilient, but also inclusive, affordable, and sustainable. The DSA and its global membership stand ready to contribute technical expertise and international best practices to support BEREC in advancing these objectives.

Sincerely,

Dr. Martha Suárez
President
Dynamic Spectrum Alliance

[1] The DSA is a global, cross-industry, not for profit organization advocating for laws, regulations, and economic best practices that will lead to more efficient utilization of spectrum, fostering innovation and affordable connectivity for all. Our membership spans multinationals, small-and medium-sized enterprises, as well as academic, research and other organizations from around the world all working to create innovative solutions that will benefit consumers and businesses alike by making spectrum abundant through dynamic spectrum sharing. A full list of DSA members is available on the DSA's website at: https://www.dynamicspectrumalliance.org/members.

## 1. Full Connectivity across Europe

Achieving full connectivity in Europe's digital future requires more than just broad network availability; it demands delivering connectivity that meets the evolving and diverse needs of end users. Beyond simply deploying very high-capacity networks (VHCNs), success hinges on ensuring these networks provide consistent, reliable, and high-quality experiences everywhere, especially indoors, where the majority of digital interactions take place.

Critical quality metrics such as low latency, minimal jitter, strong resilience to disruptions, and balanced uplink/downlink performance are indispensable for applications like telecommuting, e-health, immersive media, and Internet of Things (IoT) services. Hybrid network architectures that synergise fibre, advanced mobile infrastructure, and licence-exempt technologies like RLAN (e.g., Wi-Fi 6, 7 and beyond) are vital tools to overcome indoor coverage gaps and elevate user experience.

The DSA strongly encourages BEREC to implement and promote comprehensive, harmonised key performance indicators (KPIs) that measure not just coverage and peak speeds but also critical real-world experience parameters. These KPIs should include latency measurements during high-traffic periods, throughput stability, jitter, uplink capacity, and robustness under diverse indoor scenarios. Transparent reporting and adherence to such KPIs will incentivise investments into seamless connectivity infrastructures and empower policymakers, industry stakeholders, and consumers alike to track genuine digital inclusion progress across European homes and workplaces.

## 2. Enabling Consumer Choice and Transparent Indoor Connectivity

Empowering end users means providing them with meaningful choice, clear information, and transparency regarding how connectivity is delivered and consumed across their homes, workplaces, and public environments. While network backbone and access infrastructure investments are indispensable, effective and user-friendly indoor connectivity relies heavily on in-building technologies such as mesh Wi-Fi systems, powerline communication technologies and private 5G networks.

Mesh Wi-Fi solutions enhance coverage and user experience by creating interconnected wireless nodes that provide seamless roaming, automated network management, and robust security features. They are particularly effective in complex indoor environments by overcoming physical obstacles and ensuring consistent connection quality across multiple rooms or floors.

Powerline communication leverages existing electrical wiring to extend network reach with relatively high bandwidth and coverage, providing an easy-to-deploy option for environments where Wi-Fi alone may struggle. Affordable and scalable, powerline adapters complement wireless solutions and enable connectivity even in locations where wireless signals face interference or attenuation.

Private 5G networks bring enterprise-grade performance and reliability through dedicated spectrum use, supporting customised quality of service (QoS), comprehensive security, and wide-area seamless coverage. They are ideal for large campuses, industrial sites, and mission-critical applications, delivering low latency and high throughput where it matters most.

Technology neutrality is critical to ensure consumers have access to a diverse ecosystem of interoperable and cost-effective solutions that best meet their individual connectivity needs. KPIs should capture not only network speed and coverage but also ease of setup, interoperability between different indoor technologies, support for seamless handovers, equipment affordability, and availability in the market.

By providing clear, standardised information and performance metrics about end-to-end connectivity quality, regulators and providers can empower consumers to make informed decisions, fostering healthy

competition, spurring innovation, and helping to bridge the digital divide across Europe.

## 3. Driving Sustainable and Energy-Efficient Digital Infrastructures

Sustainability is a foundational dimension of connectivity quality and future-proof digital infrastructure. Indoor networks such as Wi-Fi and private 5G present more energy-efficient solutions compared to solely relying on outdoor-to-indoor coverage, which involves significantly higher transmission power to penetrate building structures. Such outdoor reliance increases device power consumption, shortening battery life and accelerating electronic waste generation, a critical environmental concern.

BEREC's evaluations of hybrid networks should comprehensively include environmental impact metrics that assess overall network power consumption, device energy efficiency, and lifecycle sustainability across infrastructure and connected devices. These metrics should be integrated alongside traditional connectivity KPIs to foster greener network design and operation.

The deployment of seamless handover technologies, such as PassPoint (Hotspot 2.0) and OpenRoaming, plays a pivotal role in enabling efficient indoor connectivity. By allowing user devices to transition smoothly among public 5G, private 5G, and Wi-Fi networks without manual intervention, these technologies minimise redundant network scanning and excessive energy use. Moreover, they facilitate higher network utilisation efficiency and enhance user experience while reducing the overall carbon footprint of wireless communications.

Early industry adoption trends of PassPoint and OpenRoaming underscore their potential to support energy-efficient connectivity in venues ranging from smart cities to enterprise campuses and hospitality environments. They also enable advanced analytics that can optimise resource allocation for even greater sustainability benefits.

Sustainability-driven KPIs focusing on energy consumption per bit, network utilisation efficiency, device power profiles, and carbon emissions will empower regulators and network operators to target investments and innovations that align with the European Green Deal and the Digital Compass objectives for climate neutrality.

By encouraging technology-neutral, interoperable, and energy-conscious connectivity solutions, BEREC can lead efforts to build resilient, future-ready digital infrastructure that delivers superior connectivity quality while minimising environmental impact.

## 4. DSA Recommendations

To effectively achieve the ambitious objectives of enhancing indoor connectivity and supporting Europe's digital transformation, we encourage BEREC to undertake the following comprehensive actions:

- **Conduct In-Depth Analyses of Mobile and RLAN Network Dynamics**
  Undertake detailed studies addressing both the competitive and collaborative interactions between mobile networks and Radio Local Area Networks (RLAN), including Wi-Fi and other licence-exempt technologies. These analyses should quantify how hybrid network architectures can best enable seamless switching and coverage, optimise spectrum utilisation, and maximise overall network efficiency indoors. Understanding these dynamics will facilitate the development of balanced policies that promote innovation, competition, and consumer benefits.
- **Identify and Remove Barriers to Indoor Broadband Access**
  Systematically examine the technical, regulatory, and market barriers that constrain the

deployment, availability, and performance of indoor broadband networks. This work should consider infrastructure access issues, equipment interoperability challenges, deployment costs, and consumer adoption barriers. Particular focus should be devoted to addressing disparities between urban and rural indoor connectivity, ensuring inclusivity, and accelerating broadband availability across all European environments.

- **Develop Robust, User-Centric KPIs for Indoor Connectivity**
  Design, standardise, and adopt KPIs that comprehensively measure indoor connectivity quality from the end-user perspective. These KPIs should extend beyond conventional metrics such as coverage and peak throughput to encompass latency, jitter, uplink/downlink balance, network resilience, ease of device connectivity and handover, affordability, and equipment availability. Metrics should apply across diverse indoor environments—homes, offices, and public venues and support harmonised data collection to benchmark progress across Member States.

- **Integrate Sustainability and Technology Neutrality into KPI Frameworks**
  Ensure that KPIs incorporate environmental impact considerations, measuring energy efficiency, device power consumption, and carbon footprint alongside connectivity indicators. Promote technology-neutral policies that enable consumers to benefit from a diverse ecosystem of interoperable connectivity solutions—Wi-Fi, private and public 5G, and powerline communications allowing optimal selection based on performance, affordability, and sustainability.

- **Prepare a Comprehensive Analytical and Policy Report**
  Produce a detailed report synthesising findings from the preceding activities, including technical assessments, barrier analyses, KPI frameworks, and sustainability evaluations. This report should offer actionable recommendations to the European Commission and Member States, outlining policy and regulatory pathways to accelerate the widespread adoption of high-quality, sustainable indoor gigabit connectivity. It should also highlight best practices, potential pilot initiatives, and stakeholder engagement strategies to ensure effective implementation and continuous improvement.

## 5. Conclusion

Collectively, these actions will establish a robust evidence base and forward-looking policy framework that enables Europe to realise its ambitious vision of inclusive, reliable, secure, and environmentally sustainable digital connectivity. By promoting efficient spectrum utilisation and encouraging balanced investment in both licensed and licence-exempt technologies, while fostering innovation in hybrid and interoperable network models, these measures will strengthen Europe's digital resilience and enhance its global competitiveness.

This comprehensive approach will ensure that citizens, businesses, and public institutions benefit from seamless, gigabit-level connectivity both indoors and outdoors, while significantly reducing energy consumption and minimising the environmental footprint of communications networks.

The DSA stands ready to collaborate closely with BEREC to advance these shared objectives. We continue supporting license-exempt access to the entire 6 GHz band for WAS/RLANs, and remain committed to supporting evidence-based policymaking by sharing international best practices and contributing deep technical expertise. Together, we can drive the development of balanced, future-proof spectrum management frameworks that foster innovation, competition, and sustainability across Europe's vibrant digital ecosystem.