



CONSULTATION COVERSHEET

BASIC DETAILS

Consultation title: DSA response to draft the Position Paper on Fixed Point-to-Point Links and Point-to-MultiPoint Systems
To (TRA contact): The General Director, TRA
Name of respondent: Martha Suárez
Representing (self or organisation/s): Dynamic Spectrum Alliance
Address (if not received by email): _____

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☐ Name/contact details/job title
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Name Martha Suárez

Signature _____

Q1. Do you agree with the TRA's proposal to revise the list of permitted frequency bands by prohibiting new assignments in 6.425–7.125 GHz and 39.5–40.5 GHz, while allowing existing assignments to continue? Please explain and provide justifications.

The DSA recommends that TRA consider maintaining the possibility of new fixed service assignments in the 6.425–7.125 GHz band. International experience demonstrates that the upper 6 GHz band can sustain a mixed-use environment, where fixed links and licence-exempt systems effectively coexist under coordinated spectrum management and appropriate technical safeguards. Protecting incumbent services remains essential, and ITU's World Radiocommunications Conference Footnote 5.457E in Resolution 220 (WRC-23) of the Radio Regulation clarifies that IMT identification of the band "*does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations*".

The same footnote recognizes that the frequency bands are also used for the implementation of wireless access systems (WAS), including radio local area networks (RLANs).

Wi-Fi is an indispensable component of broadband connectivity, playing a critical role in boosting GDP growth by providing affordable broadband access and helping bridge the digital divide. It maximizes the utility of available backhaul infrastructure and supports a wide range of digital services that benefit citizens and fuel economic development. Because Wi-Fi enables multiple users to share a single broadband Internet connection, it enhances affordability and increases Internet penetration and digital participation.

Globally, over 19.5 billion Wi-Fi devices are in use with an annual shipment of 3.8 billion units,¹ highlighting its widespread adoption and the ongoing evolution through advancements like Wi-Fi 6E, Wi-Fi 7, and soon Wi-Fi 8. These new technologies expand Wi-Fi's ability to drive social and economic progress. Unlocking the full 6 GHz band including the upper 6 GHz band from 6.425 to 7.125 GHz is essential. Examining precedents such as Bahrain's regulatory approach reveals the necessity of allocating sufficient spectrum to support the latest Wi-Fi generations. Industry anticipates a need for at least fifteen 80 MHz channels or seven 160 MHz channels to fully utilize Wi-Fi 7 and future Wi-Fi 8 protocols, with increasing demand expected for wider 320 MHz channels in the years ahead.

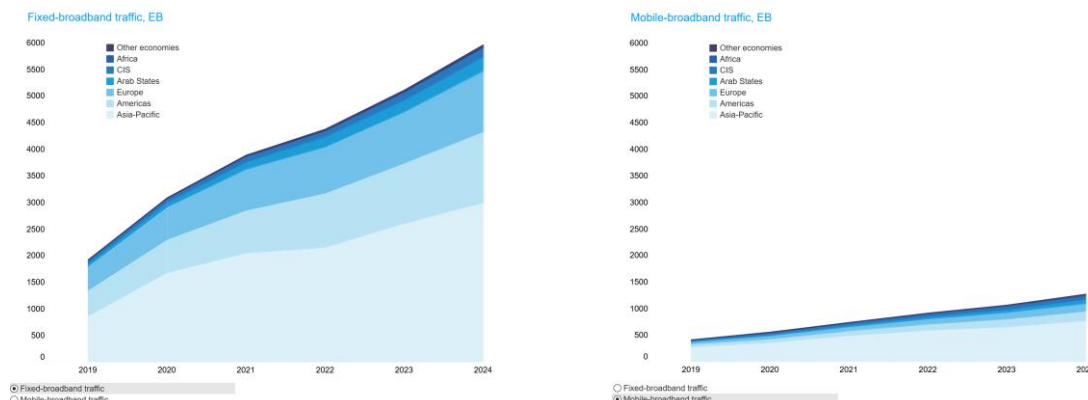
Wi-Fi carries a vast majority of Internet traffic²; Global data from 2019 to 2024 reveals a pronounced and steady rise in fixed-broadband traffic, with Asia-Pacific leading this expansion, followed closely by the Americas and Europe. Over the five-year period, total traffic volumes have tripled, climbing from under 2,000 exabytes in 2019 to over 6,000 exabytes in 2024. This surge reflects growing reliance on high-capacity networks for services such as streaming, cloud computing, and business connectivity. Mobile-broadband traffic, while smaller in overall scale, mirrors this upward momentum—rising from under 500 exabytes in 2019 to over 1,500 exabytes in 2024, again led primarily by Asia-Pacific. These trends clearly signal the urgent need to prepare for exponential data demand. For Bahrain, this underscores the priority to accelerate fiber infrastructure deployment, optimize spectrum allocation—especially in mid-band and 6 GHz bands—and foster ongoing innovation in both fixed and mobile broadband, supporting Bahrain's vision of digital leadership and readiness for future connectivity needs.

In fixed-broadband services, the global average stands at 337 GB per subscription per month. Notably, the Americas lead with 491 GB, followed by Europe (425 GB) and the Arab States (372 GB). This positions our region above the global average, signaling strong adoption and usage of high-capacity fixed networks. On the mobile side, the global average is 21 GB per subscription per month. The Americas again lead with 27 GB, while the Arab States record 16 GB, slightly below Europe and Asia-Pacific. This robust fixed-broadband usage demonstrates how Bahrain is leveraging advanced broadband infrastructure to support the growing demand for streaming, cloud applications, and digital

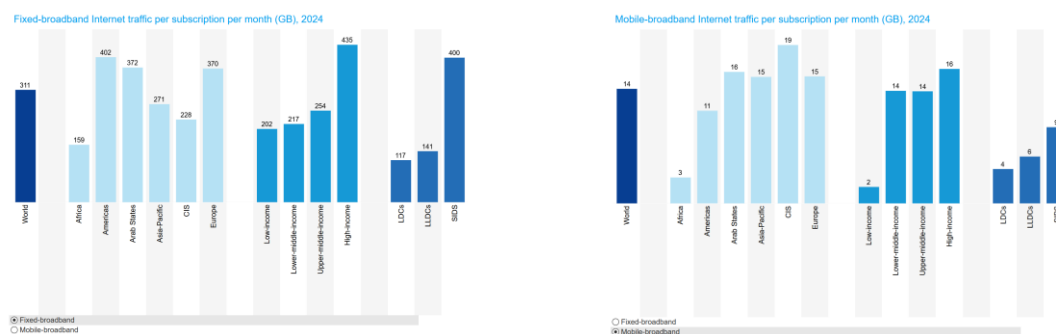
¹ <https://www.wi-fi.org/beacon/the-beacon/wi-fi-by-the-numbers-technology-momentum-in-2023>.

² <https://www.itu.int/itu-d/reports/statistics/2024/11/10/ff24-internet-traffic/>

services. By maintaining and enhancing this momentum, Bahrain is well positioned to drive innovation and bridge emerging connectivity needs for both residential and business users.



Year-over-Year Growth of Broadband Traffic



Internet traffic per subscription per month (GB)

Regulatory bodies such as UK Ofcom forecast Wi-Fi demand in residential environments to increase six to ten times by 2030, with public venues potentially requiring up to 15 times more capacity.³ However, with access limited only to the lower 6 GHz band, the available channels and capacity will be insufficient, providing gigabit coverage for only 50-60 % of residential spaces.⁴ To meet ambitious digital infrastructure goals, such as those articulated in the EU's Gigabit Infrastructure Act and Digital Decade Programme, access to both the lower and upper 6 GHz bands is vital to enable wider channel bandwidths and reliable, whole-building gigabit coverage.

For Bahrain, these insights highlight the critical importance of enabling license-exempt Wi-Fi access across the entire 6.425–7.125 GHz band. Doing so will support rapidly growing broadband demand, accelerate digital inclusion, and drive socio-economic growth, while fostering an innovative digital ecosystem capable of adopting the latest Wi-Fi technologies.

Q2 Do you agree with the TRA's proposed updates to Annexes 1 and 2? Please explain and provide justifications.

The DSA agrees in principle with the TRA's proposed updates to Annexes 1 and 2, recognizing that these revisions modernize Bahrain's regulatory framework for fixed point-to-point and point-to-

³ See UK Ofcom Improving Spectrum Access for Wi-Fi, July 2020, section 3.24.

⁴ <https://plumconsulting.co.uk/wi-fi-spectrum-requirements/>

multipoint systems. Aligning channel arrangements, technical parameters, and minimum path-length requirements with recent ITU-R recommendations and global best practices will enhance spectrum efficiency, simplify coordination, and enable deployment of higher-capacity fixed links.

However, it is equally important that Bahrain does not preclude opportunities for additional fixed-service deployments where justified by demand. International experience demonstrates that the upper 6 GHz band can sustain a mixed-use environment, where fixed links and licence-exempt systems effectively coexist under coordinated spectrum management and appropriate technical safeguards.

Instead of a blanket prohibition on new fixed assignments, the DSA recommends a more balanced approach—allowing carefully managed fixed-service deployments alongside expanding licence-exempt access. This approach preserves regulatory agility, supports Bahrain’s ability to adapt to changing connectivity needs, and dovetails with emerging shared-access mechanisms like Automated Frequency Coordination (AFC) that robustly protect incumbent fixed services while enabling efficient licence-exempt operations.

Maintaining regulatory flexibility will enable Bahrain to fully capture the benefits of both fixed-service and Wi-Fi deployments throughout the upper 6 GHz band, advancing long-term spectrum efficiency and connectivity goals. It is also critical that the technical conditions and coordination mechanisms specified in Annexes 1 and 2 remain compatible with future licence-exempt and shared-access frameworks. Ensuring forward-compatibility will allow Bahrain to realize the full socio-economic value of the global 6 GHz ecosystem, while safeguarding existing fixed-service operations.

Q3 Do you agree with the addition of Annex 3 listing IMT bands within the Fixed Service allocation and specifying frequency ranges where new assignments are prohibited? Please explain and provide justifications.

The DSA cannot support the addition of Annex 3 if it rigidly designates IMT bands within the Fixed Service allocation and prohibits new assignments in a manner that presumes exclusive IMT use—particularly in the 6.425–7.125 GHz band. Such an approach would prematurely constrain a band that international evidence shows is better suited to licence-exempt and shared-access uses, including Wi-Fi 6E/7 and future next-generation RLAN technologies.

Real-world regulatory experience—combined with extensive technical studies conducted by CEPT,⁵ the FCC,⁶ and ISED⁷—demonstrates that WAS/RLAN systems can safely coexist with fixed and satellite incumbents throughout the 6 GHz band when appropriate mitigation measures are applied. These studies consistently confirm that effective coexistence is achievable through the following mechanisms:

- **Indoor-Only Operation:** Restricting devices to indoor use ensures significant building attenuation, which limits emissions escaping into outdoor environments and protects incumbent systems. This coexistence technique, combined with an appropriate maximum e.i.r.p. limit, has proven to be both effective and efficient. (See ECC Reports 302, 316 and 364 and ECC Dec (20)01).
- **Transmit Power Control (TPC):** TPC ensures that devices operate only at the minimum power required for a reliable communication link, thereby reducing aggregate interference

⁵ [ECC Report 366: https://docdb.cept.org/document/28650](https://docdb.cept.org/document/28650)

⁶ <https://docs.fcc.gov/public/attachments/FCC-20-51A1.pdf>

⁷ <https://ised-isde.canada.ca/site/spectrum-management-telecommunications/en/spectrum-allocation/radio-local-area-network-rlan-6-ghz-band/decision-technical-and-policy-framework-licence-exempt-use-6-ghz-band>

potential and lowering the probability of harmful emissions toward incumbent systems.

- **Automated Frequency Coordination (AFC):** Enabling SP devices to access available channels safely, based on geolocation databases and real-time spectrum availability, AFC systems successfully operate on a commercial basis in countries such as the United States and Canada providing a model for Europe (currently under study within SE45).⁸

Given this extensive evidence base, these coexistence mechanisms should be fully leveraged to ensure that WAS/RLAN systems can access any non-prioritised portions of the upper 6 GHz band, should segmentation of the spectrum be considered necessary. This approach maximises spectrum efficiency, safeguards incumbent services, and aligns with global best practices for dynamic and technology-neutral spectrum management.

Accordingly, while the DSA recognises the value of Annex 3 as a tool for long-term planning, we strongly recommend that the TRA implement it in a manner that preserves regulatory flexibility, avoids pre-emptive IMT identification, and explicitly allows for licence-exempt and shared-access models in the 6.425–7.125 GHz band. This balanced approach would better align Bahrain with global best practices, ensure efficient spectrum utilisation, and enable innovation across both mobile and licence-exempt ecosystems.

Q4 Do you agree with the expansion of the performance parameters section, including the introduction of ITU-RR footnotes, ETSI standards, recognition of high-density fixed service bands, and the additions of Notes (3) and (4)? Please explain and provide justifications.

The expansion of the performance parameters section, including the introduction of ITU Radio Regulations footnotes, incorporation of ETSI standards, and recognition of high-density fixed service bands, is a positive development that enhances regulatory clarity and technical precision. These updates align Bahrain's framework with internationally recognized standards, which supports harmonized spectrum use and facilitates interoperability while protecting incumbent services.

The inclusion of Notes (3) and (4), which likely address specific technical conditions or operational constraints, further strengthens the framework by providing tailored guidance to manage coexistence and interference risks in increasingly dense deployment scenarios. This detailed, standards-based approach enables efficient and flexible spectrum use, fostering innovation and accommodating evolving fixed service technologies.

Overall, the DSA supports these enhancements as they contribute to a modern, transparent, and technically robust regulatory environment that balances incumbent protection with opportunities for new deployments, aligning Bahrain with global best practices and ensuring sustainable spectrum management for the future.

Q5 Do you have any other comments not considered specifically above that you wish to raise?

From the DSA perspective, it is important to emphasize the need for Bahrain's spectrum regulatory framework to remain flexible and technology-neutral to fully harness the socio-economic benefits of the 6 GHz band and other mid-band frequencies. Bahrain should prioritize enabling licence-exempt access and dynamic sharing mechanisms, such as Automated Frequency Coordination (AFC), to support emerging technologies like Wi-Fi 6E/7 alongside incumbent fixed and mobile services.

DSA encourages ongoing collaboration with international bodies and regulators to stay aligned with best practices and evolving coexistence studies, ensuring Bahrain's policies adapt to technological

⁸ https://eccwp.cept.org/WI_Detail.aspx?wiid=812

advancements. Additionally, transparency in licensing, clear technical rules, and stakeholder engagement will foster investor and industry confidence, promoting innovation and widespread deployment of high-capacity wireless connectivity that benefits consumers, businesses, and the public sector alike.

Finally, DSA stresses the importance of monitoring the impact of these regulations post-implementation and being open to iterative updates, supporting a balanced ecosystem that maximizes efficient spectrum use and future-proofs Bahrain's digital infrastructure.