Dynamic Spectrum Alliance response

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.

Question 1: What interest do you have in deploying outdoor or standard power Wi-Fi or other licence-exempt RLANs in the Lower 6 GHz band? Please provide details of the types of expected deployments.

The DSA supports Ofcom authorizing standard power indoor and outdoor licence-exempt RLAN devices in the 5925–6425 MHz band. The DSA believes this is essential to ensuring robust, affordable, and high-performance broadband access, especially in high-density public environments and enterprise-grade deployments. DSA members such as HPE, Cisco Systems, and Tarana Wireless currently deploy indoor / outdoor Wi-Fi or other licence-exempt RLANs under control of an Automated Frequency Coordination (AFC) system in countries where such operations are authorized and intend to do so in the UK when permitted. The DSA refers Ofcom to the individual comments provided by these companies regarding the details of the types of expected deployments.

1. **Widespread Demand for Standard Power Deployments**

   Standard power Wi-Fi is indispensable for both indoor and outdoor applications, especially where:

   - Large venues (e.g. universities, stadiums, transport hubs) require extended coverage and fewer APs for cost-effective deployment.
   - Enterprises, logistics centres, warehouses, and manufacturing facilities demand strong, reliable connectivity in complex environments.
   - Municipal Wi-Fi and smart city initiatives benefit from extended coverage and reduced infrastructure costs using standard power APs.

2. **Encouraging Coexistence with Incumbents**

   The DSA supports the use of AFC systems to ensure that standard power RLANs can coexist safely with incumbent users, such as fixed links, without causing harmful interference. Leveraging lessons from the US and Canada, we encourage Ofcom to allow:

   - Outdoor and Indoor use of standard power APs with connectorized antennas and weatherproof casing, as needed for industrial or specialized deployments.
   - Consideration of indoor standard power devices under AFC with Building Entry Loss (BEL) factored into interference assessments.

3. **Alignment with Global Trends**

   Countries such as the United States and Canada have opened the full 6 GHz band for licence-exempt use, including portions of the band for standard power operations under control of an

AFC system. Harmonizing UK policy with this model fosters equipment interoperability, economies of scale, and innovation in emerging use cases such as:

- Private broadband connectivity alternatives using Wi-Fi 6E and Wi-Fi 7
- Advanced IoT deployments in ports, agricultural sectors, and smart factories
- Bridging the digital divide in rural or underserved communities

The DSA sees significant value and growing demand for standard power RLAN deployments in the UK in the Lower 6 GHz band. We urge Ofcom to enable this capability by adopting a license-exempt framework, supported by AFC systems aligned with international best practices, and to permit indoor and outdoor deployments with the flexibility necessary to meet widespread demands.

Question 2: Are you interested in providing or developing AFC databases for use in the Lower 6 GHz band in the UK?

Even though the DSA is not an AFC system provider, the organization continues to be engaged worldwide in supporting countries interested in developing and implementing AFC systems. In addition to education and advocacy efforts, several DSA members have also been involved in the development of AFC technologies, ensuring efficient spectrum-sharing mechanisms that protect incumbent services while unlocking the potential of standard power devices. Three DSA members founded the Open AFC Software Group ('Open AFC'), a dedicated open-source community for the design, development, testing and potentially certification of AFC software for unlicensed services (e.g., Wi-Fi) in the 6 GHz band. Open source AFC documents are available on GitHub (Open AFC Project · GitHub). The DSA also works closely with other AFC system providers such as Federated Wireless and Qualcomm in developing educational and training materials.

Given our members' expertise and real-world experience in the creation, certification, implementation and utilization of AFC systems in several countries, we ask that Ofcom consider us to be a resource.

Question 3: Do you have any views on the operational considerations of setting up and running AFC databases?

The DSA emphasizes that accurate information regarding the current use of the band by incumbents is one of the most critical factors for the success of any dynamic spectrum access system. Accurate, complete, and up-to-date incumbent data forms the backbone of dynamic spectrum sharing systems, ensuring that protection of incumbents is reliably maintained while allowing efficient spectrum utilization by new entrants.

The DSA's experience in engaging with industry and regulators to advance more dynamic spectrum access systems globally, including use of TV White Spaces databases, the CBRS Spectrum Access System, and AFC systems, has shown that the integrity, completeness, and regular updating of incumbent data are essential for minimizing interference risks. Inaccurate or outdated information can lead to inadvertent interference with protected services, undermining trust in the system and slowing the adoption of more dynamic sharing models.

The effectiveness of AFC will depend fundamentally on the accuracy and completeness of the underlying incumbent data.

Question 4: Do you have any views on how we should manage the approval process for AFC databases and, in particular, whether we should rely on parts of the FCC process rather than requiring the whole process to be re-run in the UK?

As Ofcom notes, the FCC process for approving prospective AFC operators involved a public consultation, lab testing, and a public trial. The FCC approval process turned out to be a thorough but lengthy process. The DSA agrees with Ofcom's sentiment that there is no need for it to reinvent the wheel on those aspects of AFC operator approval where the FCC process overlaps with Ofcom's requirements. Such an approach will support Ofcom's objective to limit the amount of additional work that will need to be done by industry to adapt to an AFC approach in the UK.

In general, the DSA supports a lighter-touch approval process for AFC operators that have already been certified by the US, Canadian, or other competent national regulatory authorities. These entities have undergone rigorous evaluation and demonstrated compliance capability, ensuring that their AFC systems align with established spectrum-sharing protocols.

1. **Leveraging Existing Certifications**

   - Ofcom could streamline AFC approval by recognizing operator certifications from the US, Canada and other trusted regulators. These prospective UK AFC operators would not have to start the approval process from first principles.
   - This would expedite AFC deployment in the UK, avoiding unnecessary duplication of evaluations that have already been thoroughly vetted.

2. **Ensuring Accurate Incumbent Data**

   - A critical focus should be the ability of AFC providers to access and retrieve incumbent operations data from Ofcom's database.
   - Ofcom should ensure that its database contains complete, accurate, and regularly updated information to facilitate up-to-date interference protection for incumbents.
   - Lab testing should be used exclusively to validate UK AFC operations using current data provided by fixed service operators in the band.

3. **Periodic Queries for Spectrum Updates**

   - The DSA is not opposed to a daily interval for re-checking frequency availability.
   - The FCC model, requiring fixed link operators to maintain updated license files, provides a useful precedent for ensuring spectrum integrity.

By implementing a lighter-touch AFC approval process, Ofcom can accelerate spectrum availability, protect incumbents, and promote dynamic spectrum access ensuring that UK businesses and consumers benefit from efficient and scalable wireless connectivity.

Question 5: Please provide any other comments on our proposals for extending access to standard power Wi-Fi and outdoor use, including the overall approach, any details on technical parameters and the running of the AFC databases in this band.

The DSA supports Ofcom's proposal to enable standard power Wi-Fi in the 5925–6425 MHz band, including both indoor and outdoor use, managed through AFC systems. Under Ofcom's proposal, outdoor use or indoor operations above 24 dBm e.i.r.p. will need to be under control of an AFC system.

LPI client devices should also be allowed to serve as client devices to indoor standard power devices and vice versa.

Question 6: Do you have any comments on our proposal to use a "phased" approach, or on the alternative to wait for European harmonisation?

The DSA endorses a two-phase approach and the UK's vision to introduce LPI devices into the 6425-7125 MHz band as early as possible under the same rules as for the 5925-6425 MHz band. Additionally, the DSA urges Ofcom to consider authorizing Very Low Power (VLP) devices in the Upper 6 GHz band, as most VLP use is expected to be indoors.

We appreciate Ofcom's efforts to harness the capability of Wi-Fi to share spectrum with incumbent users of the 6 GHz band while supporting further studies to potentially introduce mobile communication systems in parts of the upper 6 GHz band on a shared basis. It might be years until mobile operators are positioned to consider making the large-scale investments necessary to make use of the upper 6 GHz band.

The DSA supports Ofcom's plan to open the full 6 GHz band for licence-exempt LPI use "as early as feasible, ideally before the end of 2025". We agree that UK consumers, businesses, and the economy should not have to wait for European harmonization to benefit from advanced Wi-Fi.

1. **Why Full 6 GHz Access Matters**
   - The lower 6 GHz band (480 MHz) is not enough to meet growing connectivity demands, especially for enterprise and campus environments.
   - Countries like the U.S., Canada, Brazil, and South Korea have already embraced full-band Wi-Fi, and the UK should follow suit.

2. **The importance of Early Action**
   - Moving forward now will boost innovation, encourage investment, and expand high-performance connectivity
   - Future consultations might change access to upper 6 GHz, but providing clear guidance now ensures certainty for businesses and manufacturers.

3. **Managing Spectrum Changes**
   - If Wi-Fi access in upper 6 GHz is reduced later, Ofcom should identify alternative mid-band frequencies to maintain access.
   - Access points (APs) can be updated by ISPs and enterprises, allowing networks to adapt over time.
   - Client devices should be authorized across the full band, making compliance simpler and more efficient.

The DSA recommends that Ofcom implement the first phase of the plan as soon as feasible, ensuring that the UK stays competitive, innovative, and connected.

Question 7: Do you have any comments on the above suggestion to manage any "legacy" Wi-Fi devices, or alternative suggestions?

In paragraph 5.42, Ofcom defines the first generation of Wi-Fi legacy devices as those LPI devices deployed after it authorizes the upper 6 GHz for such devices but before the rules for a new shared use mechanism is defined.

Given the relatively short Wi-Fi product life cycle and mobile network operators discussed timeline for use of the upper 6 GHz band, the DSA agrees with Ofcom that there will be little if any overlap between the first generation of so-called legacy Wi-Fi equipment and mobile services.

More generally, the DSA is of the view that licence-exempt client devices should be permitted to operate across the entire 6 GHz band and that future efforts to manage so-called legacy Wi-Fi should be through the access point.

Question 8: Do you have a view on the amount of spectrum that should be prioritised for Wi-Fi under the prioritised spectrum split option? Please provide evidence for your view.

The DSA supports making the full 1200 MHz of the 6 GHz band (5925–7125 MHz) available for licence-exempt use. This is essential to meet growing connectivity demands, support innovation, and align the UK with leading global markets.

DSA is optimistic that working with stakeholders, Ofcom can develop a mechanism or mechanisms to more dynamically share the band in phase 2, rather than pursue a band segmentation approach.

Wi-Fi technologies already have global ecosystem readiness for the entire 6 GHz band. Over 5,000 devices announced or made available between 2021-2024 support Wi-Fi 6E or Wi-Fi 7, and this ecosystem continues to grow rapidly.[1] In contrast, 6 GHz for IMT lacks standardised equipment. IMT user devices, or mobile network deployments (apart from FWA) are not expected to become widely commercially viable until well into the 2030s.

Prematurely allocating part of the band to IMT would fragment what is currently a widely adopted band for Wi-Fi, eroding the economies of scale and interoperability that have made Wi-Fi successful. Fragmentation increases device complexity, delays innovation, and raises compliance costs—particularly harmful for consumers, SMEs, and emerging markets.

Question 9: Do you have any comments on our plan for a "phase 1" when Wi-Fi will be introduced?

The DSA supports Ofcom's commitment to enabling Wi-Fi in the 6 GHz band through a phased approach. However, DSA urges Ofcom to adopt a more ambitious and future-proof Phase 1, which includes opening the full 1200 MHz (5925–7125 MHz) for Wi-Fi under a license-exempt framework.

1. **Importance of Full 1200 MHz for Wi-Fi**

- The global digital ecosystem is rapidly evolving, and modern applications (especially AR/VR, high-definition streaming, cloud computing, and immersive collaboration tools) demand multi-gigabit, low-latency connections. These requirements can only be met by enabling

[1] See publication at Wi-Fi Now: Intel Wi-Fi 6E/7 device model tracking is based on public information compiled from vendor/retailer web-sites, press releases, and third-party reviews. Intel provides this assessment for informational purposes only. Intel cannot guarantee its accuracy, and it is subject to change without notice.

channel bandwidths of 160 MHz and 320 MHz, which are fully supported in the Wi-Fi 6E and Wi-Fi 7 standards, but only if the full 6 GHz band is available.

- Limiting Phase 1 to only the lower portion (5925–6425 MHz) fragments the spectrum and constrains innovation.

2. Efficient Use of Spectrum

- The license-exempt use, which is managed by mechanisms such as AFC for outdoor and standard power devices, offers a non-interfering and dynamic access model that makes more efficient use of the spectrum without compromising protection of existing services.
- The DSA advocates for balanced spectrum sharing policies that protect incumbents but avoid unnecessarily limiting opportunities for innovation. The combination of low power, VLP, and SP (AFC-managed) use cases can collectively address indoor, outdoor, consumer, and enterprise needs only if sufficient spectrum is available from the outset.

3. Practical Benefits for UK Users

By authorizing the full 1200 MHz in Phase 1, Ofcom can:

- Enable UK universities, transport hubs, public venues, and businesses to deploy next-generation Wi-Fi with higher capacity and reliability
- Support education, healthcare, and smart city applications
- Reduce network congestion and backhaul dependence
- Ensure that UK consumers and enterprises benefit from the same innovation pipeline as users in fully enabled 6 GHz markets

Question 10: One variation on "phase 1" would be to only authorise Wi-Fi in client devices to "seed" the market. Would you have any views on this, or suggestions for other variations?

The DSA supports Ofcom's stated preference to move directly to full access point authorisation during Phase 1, as there is immediate and growing demand for comprehensive Wi-Fi operations in the Upper 6 GHz band. There is no need for Ofcom to pursue the variation on 'phase 1' described.

Question 11: Do you have any comments on our plan for a "phase 2" when mobile will be introduced?

The DSA emphasizes the need to preserve sufficient spectrum for license-exempt technologies, including Wi-Fi, throughout any future transition.

The DSA's observation is that globally, the push for use of the Upper 6 GHz band has been and continues to be driven by the handful of mobile network infrastructure providers rather than mobile network operators. In general, MNO's are focused on other priorities, which include generating a good financial return on their existing 5G investments or rolling out 5G standalone systems.

For example, in Brazil, although the regulator has announced a spectrum auction for the upper 6 GHz band for 2026, the MNO's have requested any auction be delayed until 2030. Auction conditions usually include build out requirements to ensure that licensees do not warehouse spectrum, but put it to use. Given the auction timeline requested by the MNO's, the widespread deployment of mobile systems in the upper 6 GHz band remains uncertain in the short to medium term.

The DSA believes that Ofcom will have several years to work with stakeholders to develop a mechanism or mechanisms allowing sharing between mobile, Wi-Fi, and other incumbents in the Upper 6 GHz band.

Question 12: Do you have a view on the amount of spectrum that should be prioritised for mobile under the prioritised spectrum split option? Please provide evidence for your view.

No comment.

Question 13: Do you have any evidence or views about the geographical extent of mobile networks' likely deployment in Upper 6 GHz?

Most DSA members participate in both the private 5G and Wi-Fi ecosystems. To date, several European countries have set aside portions of the 3700 - 4200 MHz band for local licensing, allowing enterprises to deploy their own private 5G networks. A European Commission Decision (20)01 regarding harmonized spectrum in the 3800-4200 MHz band for private 5G networks is expected later this year.

In principle, if demand presents itself in the future, the Upper 6 GHz band could provide additional local capacity for private 5G networks. In the UK, most data are consumed indoors. Within enterprises, operators seeking to utilize the 6 GHz band would have the options of using Wi-Fi, private 5G, or both.

Despite claims by mobile ecosystem participants, wide area 5G (or future 6G) networks in the upper 6 GHz band are not practical. As the consultation document notes in paragraph 2.9, the ability of the mobile signals to penetrate buildings is expected to be worse than in the 3.4-3.8 GHz band. According to Ofcom, mobile network operators have indicated they that they would like to increase base station power to greater than 80 dBm/100 MHz EIRP to allow them to match the indoor downlink coverage they get from current macro site deployments in 3.5 GHz.

While the power limits of a base station can conceivably be increased to levels even beyond those approved at WRC-23, the high average building entry loss in the upper 6 GHz band makes uplink connections impractical. Given the average building entry loss of more than 20 dB (3GPP TR 38.901), the transmit power of a mobile phone operating inside a building will need to be relatively high to create a sufficiently strong uplink signal to establish a stable connection with the base station. It is energy-inefficient to transmit from indoors to outdoors in the upper 6 GHz band.

Question 14: Do you have any comments on our proposed phased approach to authorisation of both Wi-Fi and mobile in the Upper 6 GHz band?

The DSA supports Ofcom's recognition of the immediate benefits of enabling low power Wi-Fi in the Upper 6 GHz band under Phase 1, and we urge implementation as early as possible, unleashing the full 1200 MHz of spectrum.

The DSA emphasizes the importance of including VLP operations in the Upper 6 GHz band. VLP devices enable new types of portable, client-to-client, and personal area networking applications, indoors and outdoors. This will greatly expand the types of services, such as augmented and virtual reality (AR/VR), IoT, wearable devices, and other emerging technologies that require high throughput and low latency over short distances. Without authorizing VLP from the outset, the full consumer and economic

benefits of the 6 GHz band will not be realized. Therefore, we urge Ofcom to reconsider and include VLP operation in Phase 1 authorization for the Upper 6 GHz band.

The DSA continues to endorse Ofcom's proposal to allow outdoor and standard-power Wi-Fi in the Lower 6 GHz band, operating under AFC system. We believe AFC provides a reliable and scalable mechanism to facilitate spectrum sharing while protecting incumbent users from harmful interference.

Question 15: Do you have any comments on our proposal to not include very low power portable devices in the Upper 6 GHz band at this stage, but to keep this under review?

The DSA encourages Ofcom to reconsider its current proposal to not include VLP device operations in the Upper 6 GHz band during Phase 1. The DSA believes that authorising VLP operations, both indoors and outdoors, with technical rules aligned with those adopted in the 5925–6425 MHz band, will advance UK innovation.

While we support Ofcom's intent to proceed with LPI authorisation as a priority, we urge the regulator to maintain momentum and move forward on VLP authorisation without delay. This approach would ensure the UK remains competitive and aligned with global spectrum trends, particularly as other administrations consider or have adopted similar frameworks for VLP devices.

Question 16: Do you have any comments on our proposal to authorise the use of low-power indoor Wi-Fi access points and client devices to use 6425–7125 MHz?

The DSA supports Ofcom's proposal to authorize LPI Wi-Fi operation in the 6425–7125 MHz band. Authorizing LPI in this band is an essential step toward unlocking the full benefits of next-generation Wi-Fi technologies, including Wi-Fi 6E and future iterations like Wi-Fi 7, which rely on access to wider, contiguous spectrum.

LPI access provides a critical foundation for high-performance wireless connectivity in homes, offices, schools, healthcare, and public venues, supporting high-throughput, low-latency applications. Ofcom's proposed technical parameters strike an appropriate balance by ensuring effective coexistence with incumbent users while fostering innovation and economic growth through spectrum sharing.

We encourage Ofcom to move swiftly with the implementation of LPI access and to maintain its commitment to license-exempt frameworks that drive affordable, inclusive, and high-capacity broadband services.

Question 17: Do you have any comments on the proposed technical conditions?

The technical rules for LPI device operations in the Upper 6 GHz band should be consistent to those for LPI device operations in the lower 6 GHz band.

Question 18: Do you have any comments on the proposed VNS draft?

No comment.

Question 19: Do you have any suggestions for an appropriate mechanism for enhanced sensing, or comments on the proposed solution above?

Sensing is a well-known and proven mechanism for spectrum sharing and it has been successfully implemented in several bands around the world. The effectiveness and appropriateness of sensing-based solutions depend heavily on several factors, including the spectrum occupancy characteristics, the propagation environment, assumptions made, and the technical operating parameters of the involved systems. One consistent challenge with any sensing implementation where there are only private sector stakeholders is negotiating the sensing threshold value. For these reasons, the DSA encourages Ofcom in phase 2 to consider other spectrum sharing mechanisms such as databases, location aware mechanisms, EIRP reduction, or a combination of all the above.

Question 20: Do you agree with our proposal to restrict Wi-Fi from transmitting in the 6650-6675.2 MHz band to protect the radio astronomy service? Please provide any technical evidence to support your view.

The DSA does not agree with Ofcom's proposal to restrict Wi-Fi from transmitting in the 6650-6675.2 MHz band. LPI operations are limited to 24 dBm Combined with significant BEL (typically exceeding 20 dB at these frequencies) antenna patterns, etc., there will be greatly reduced signal strength outside of the buildings. Moreover, geographic separation from radio astronomy service terminals adds another protective factor.

Furthermore, if standard power operations were to be considered in the future in the 6650 – 6675.2 MHz band, the deployment of AFC systems could provide additional layers of protection. AFC systems can dynamically manage the use of spectrum based on real-time location and operational parameters, ensuring that emissions remain within acceptable limits, especially around sensitive RAS facilities.

Additional technical measures such as device geofencing, exclusion zones, or specific emission masks could also be considered in rare instances where even higher protection might be needed, based on site-specific analysis.

The DSA believes that the combination of low indoor transmit power, BEL, user distribution patterns and potential dynamic management tools such as AFC offers sufficient protection to the radio astronomy service, while still enabling the benefits of expanded Wi-Fi usage.

We encourage Ofcom to continue its balanced approach that supports coexistence between Wi-Fi and radio astronomy without unnecessarily restricting access to valuable spectrum resources.

Question 21: Do you agree with our assessment of Wi-Fi coexistence with existing users of the band? If not, please provide details.

For most existing users of the band, the DSA agrees with Ofcom's assessment of Wi-Fi coexistence. The DSA believes that low power indoor Wi-Fi use can coexist with radio astronomy operations in 6650-6675.2 MHz without further mitigations.

The DSA believes that a lot of work was put into the development of ECC Report 364 on sharing and compatibility studies related to WAS/RLAN in the frequency band 6425-7125 MHz, and we fully endorse its conclusions.

Question 22: Do you have any evidence about the costs to operators of moving fixed links in and around "high density" areas (such as urban centres) to other bands?

If Ofcom were to revoke the license of the affected fixed link operators, even with ample notice, the licensees would bear the direct costs. It is unclear from the text whether Ofcom's intent is to relocate the affected fixed links to other frequency bands allocated to the fixed service. If Ofcom intends to relocate the affected links, the costs to operators will in large part be determined by which entity or entities pay for the relocation. Additionally, there would likely also be indirect costs experienced by the customers of fixed link operators, such as the financial services industry identified in paragraph 2.31, if the affected fixed links are moved out of upper 6 GHz band.

Question 23: Do you have any comments on our initial assessment of our likely approach to coexistence between future mobile use and current users in the Upper 6 GHz band?

The DSA emphasizes that any future mobile use of the Upper 6 GHz band should be carefully managed to ensure the protection of existing incumbent services and users. At WRC-23, it has been reached a carefully negotiated compromise on identifying portions of the Upper 6 GHz band for IMT under specific technical operational parameters such as power limits on the IMT base station to ensure coexistence with incumbent services (e.g., FSS operations).

It is important to highlight that since WRC-23, some segments of the IMT industry have advocated for higher transmission power levels and wider bandwidths than those agreed at WRC-23. However, any national implementation should strictly respect the delicate balance achieved at WRC-23. Deviating from these agreed parameters risks introducing harmful interference to incumbent users, hurting international harmonization efforts, and undermining confidence in the WRC process.

Question 24: Do you have any other comments on our policy proposals or any of the issues raised in this document?

The DSA commends Ofcom for its continued leadership and progressive approach to spectrum management. We particularly appreciate Ofcom's commitment to transparency in the consultation process, providing detailed technical analyses, robust impact assessments, and clear explanations of the rationale behind proposals.

The DSA encourages Ofcom to maintain this leadership by continuing to prioritize a balanced and inclusive spectrum policy that ensures the availability of sufficient usable licence-exempt spectrum alongside licensed mobile services. The DSA looks forward to continued collaboration to ensure that the UK remains at the forefront of dynamic, efficient, and equitable spectrum use.