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Re: Draft Regulations on the Dynamic Spectrum Access and Opportunistic Spectrum Management in the Innovation Spectrum Frequency Ranges 3800-4200 MHz and 5925-6425 MHz

Dear Colleagues,

Wi-Fi Alliance commends the Independent Communications Authority of South Africa (“ICASA”) on its ongoing work in the area of spectrum management. The draft Regulations on the Dynamic Spectrum Access and Opportunistic Spectrum Management in the Innovation Spectrum Frequency Ranges 3800-4200 MHz and 5925-6425 MHz (“the *Draft Regulations*”) ^{1/} is a valuable tool to update the public of the areas in which ICASA expects to focus and to solicit feedback that will provide the ICASA with the information necessary to proceed.

Wi-Fi Alliance is a global, non-profit industry association of over 900 leading companies devoted to connecting everyone and everything everywhere. Since 1999, Wi-Fi Alliance has enabled worldwide adoption of Wi-Fi technology by certifying interoperability for thousands of Wi-Fi products each year. Today, Wi-Fi devices are the primary means by which South Africans connect to the Internet.^{2/} Importantly, Wi-Fi is the predominant technology for delivering internet connectivity, including most mobile wireless traffic.^{3/} It is also important to recognize that connectivity provided by Wi-Fi through low-cost, Radio Local Area Networks (RLAN) delivers billions

^{1/} ICASA - Regulations on the Dynamic Spectrum Access and Opportunistic Spectrum Management in the Innovation Spectrum Frequency Ranges 3800-4200 MHz and 5925-6425 MHz is available at <https://www.icasa.org.za/uploads/files/Draft-Regulations-on-Dynamic-Spectrum-Access.pdf>

^{2/} See “South Africa sets Africa’s Pace on Wi-Fi Connectivity” available at <https://www.itweb.co.za/article/south-africa-sets-africas-pace-on-wifi-connectivity/dgp45qaBx8wvX9l8>

^{3/} In fact, each subsequent generation of cellular networks has increasingly relied on Wi-Fi, and that is expected to continue. Fifth Generation (“5G”) wireless technology was developed to account for Wi-Fi use, and so 5G network architecture supports Wi-Fi as one of its elements.

of rands in value to South Africa's economy. Indeed, a study by Telecom Advisory Services found that Wi-Fi technology generated over \$44US billion in 2025.^{4/} But, as with any wireless technology, Wi-Fi depends on access to radiofrequency spectrum and lack of spectrum access undermines its performance and functionality. Accordingly, Wi-Fi Alliance respectfully calls on ICASA to recognize the vital role of Wi-Fi in South Africa's connectivity infrastructure and consider adjustments to the *Draft Regulations* so as to ensure that necessary spectrum is available to support Wi-Fi performance and evolution.

The *Draft Regulations* come at a pivotal time in the development of Wi-Fi ecosystem. In 2024, Wi-Fi Alliance introduced the latest generation of Wi-Fi technology, [Wi-Fi 7](#). Wi-Fi 7 devices are now available to support applications that require higher levels of interactivity and reliability. In 2024, over 269 million Wi-Fi 7 devices will be introduced into the global market. And by 2028, the annual shipments of the 6 GHz enabled Wi-Fi devices are projected to exceed 2.5 billion. International harmonization of Wi-Fi regulations in the 5.925–7.125 GHz band create economies of scope and scale and produce a robust equipment market, benefitting South African businesses, consumers, and the economy.

Unified Spectrum Switch System in 6 GHz Frequency band

Wi-Fi Alliance supports ICASA's proposal to authorize Standard Power Devices (SPDs) in the 5925–6425 MHz band under the control of a Unified Spectrum Switch (USS) system.

The USS concept is a forward-looking solution designed to optimize license-exempt access while ensuring continued protection and viability of incumbent services in the band. Given the accelerating demand for robust, high-performance Wi-Fi connectivity, there is no compelling reason to limit USS-controlled spectrum access to just the 5925–6425 MHz range. Wi-Fi Alliance recommends extending USS-authorized SPD operation across the entire 5925–7125 MHz band, consistent with the regulatory frameworks adopted by Canada, South Korea, Saudi Arabia, the United States, and others. Maximizing access to the full 6 GHz band will amplify the socioeconomic benefits Wi-Fi already delivers to South African consumers, businesses, and the broader digital economy.

Process for Designating Unified Spectrum Switch Provider(s)

Wi-Fi Alliance supports ICASA's proposal to designate specific entities as Unified Spectrum Switch system service Providers (USSPs). Similar 6 GHz systems have already been successfully implemented in other countries — notably the United States and Canada — where they have proven effective in managing coexistence with incumbent services, including fixed links. These international precedents demonstrate that a well-designed USSP can enable reliable spectrum sharing while safeguarding existing users in the band. We respectfully encourage ICASA to leverage

^{4/} *Economic Value of Wi-Fi* available at <http://valueofwifi.com>

these existing regulatory frameworks as much as possible to accelerate the 6 GHz USS implementation in South Africa.

Innovation Spectrum Device (ISD) Should Not Require Professional Installation

The *Draft Regulations*, Section 11.3 prescribes the use of professional installation for all ISDs. Wi-Fi Alliance respectfully submits that requiring professional installation for ISDs would be unnecessarily burdensome. Modern ISD manufacturers are fully capable of integrating a range of reliable location-determination technologies — including GPS and other low-cost solutions — directly into devices. These technologies can ensure accurate location information without the need for costly and logistically complex professional installations. This approach maintains the integrity of the ICASA's spectrum management objectives while supporting broader, more scalable deployment of Wi-Fi infrastructure.

Flexibility for ISD Antenna Height in the USS

The *Draft Regulations*, Section 7.4(f) specifies that ISDs must report antenna height to the Unified Spectrum Switch (USS) in meters above ground level (AGL).

Wi-Fi Alliance recommends allowing devices to report antenna height in either AGL or above mean sea level (AMSL), as both are commonly supported. The USS can perform the necessary conversions between these units. This flexibility would ease implementation for device manufacturers without compromising the accuracy of spectrum coordination.

Additionally, Wi-Fi Alliance advises against imposing a fixed limit on antenna height (reference *Draft Regulations*, Section 10.2 and 10.3). The USS is designed to account for the specific height of a device and can enable safe, interference-free operation — even in high-rise buildings.

This approach ensures regulatory efficiency while supporting broader device deployment and use cases.

ISD Maximum EIRP Limit

Wi-Fi Alliance notes that the *Draft Regulations*, Section 10.3 limits the ISD's maximum EIRP for 6 GHz operation in urban areas at 30 dBm. This limit is significantly more restrictive — 6 dB lower — than the 36 dBm maximum allowed in the United States and Canada for comparable device operations.

To ensure the 6 GHz USS/ISD concept is supportive of practical deployments and global device/use case ecosystem, Wi-Fi Alliance recommends aligning the maximum power limit with international best practices by increasing it to 36 dBm. This change would enhance coverage and performance, particularly in dense urban environments, while remaining compatible with incumbent protection requirements under a USS framework.

Licensing Requirements

While the *Draft Regulations* appropriately exempt 6 GHz devices from licensing fees, they require network operators to register with ICASA and obtain a license that must be renewed every three years (reference Section 6). Wi-Fi Alliance believes this requirement introduces an unnecessary administrative burden that could hinder broad deployment of devices in the 6 GHz band. Given that USSPs will already have the necessary operator contact details and device location data, Wi-Fi Alliance recommends removing the separate operator licensing and registration requirement from the regulation. This would streamline deployment while maintaining effective oversight through the USS framework.

USS instructions for ISD Shutdown (“kill-switch”) Requirements

The *Draft Regulations*, Sections 7.13 and 7.14 require the Unified Spectrum Switch (USS) to have the ability to instruct ISDs to cease operation within a defined time frame — for example, within 60 seconds as specified in Section 12.3. Wi-Fi Alliance notes that such a near-instantaneous shutdown requirement implies the need for a persistent, active connection between the USS and each ISD. This is not practical and aligned with the approach taken in other countries. In the U.S. and Canada achieve effective coexistence protection by requiring ISDs to contact the coordination system periodically — typically once per day. Section 11.17 of the *Draft Regulations* already incorporates a similar daily communication requirement. This mechanism is sufficient to manage changes in operating characteristics and to address any interference concerns. Devices can be deauthorized or adjusted during the next scheduled contact. Wi-Fi Alliance therefore recommends removing the requirement for immediate device shutdown (“kill-switch”) functionality, as it imposes unnecessary complexity and does not materially improve interference protection beyond what daily updates already provide.

Channel Bandwidth Requirements

The *Draft Regulations*, Section 4.1(b) currently restricts the Innovation Spectrum Frequency Range 2 (ISFR 2) devices to operation with channel bandwidths up to 160 MHz. Wi-Fi Alliance recommends updating this provision to reflect the evolving capabilities of latest-generation technologies such as Wi-Fi 7, which supports channel bandwidths up to 320 MHz. Moreover, rather than statically defining maximum channel bandwidth in regulation, Wi-Fi Alliance recommends allowing devices to operate with flexible bandwidths, provided that:

- The spectrum is determined to be available by the Unified Spectrum Switch (USS), and
- Devices comply with the power spectral density (PSD) and total power limits authorized by the USS.

This approach ensures future proofing of the regulatory framework and allows innovation and performance to scale with advancements in Wi-Fi technology, without compromising coexistence or interference protection.

Protocol for Accessing the USS

The *Draft Regulations*, Section 7.1 mandates that communication between ISDs and the USS must follow latest version of the communications protocol for accessing USS (CPAUSS) developed by a South African research organization. Wi-Fi Alliance respectfully recommends that the regulation avoid mandating a single protocol and instead allow flexibility for industry stakeholders — including device manufacturers and USS operators — to determine the appropriate communication protocol. Wi-Fi Alliance has developed a widely adopted System-to-Device Interface Specification (available [here](#)), currently used by all certified Automated Frequency Coordination system operators in the United States and Canada. This protocol has been proven in large-scale deployments and supports secure, reliable coordination of unlicensed devices. Permitting the use of established industry protocols will promote international alignment, reduce implementation costs, and support faster time to market without compromising the ICASA’s core objectives of spectrum management.

Requirements for Inter-USS and ISD Coordination

The *Draft Regulations*, Section 7.11 requires ISDs to report their use of Innovation Spectrum (IS) channels as feedback to the USS. Additionally, Sections 11.7 through 11.10 impose coordination obligations among ISDs to manage potential interference — effectively requiring USS systems to communicate with each other and track channel usage on a per-device basis. Wi-Fi Alliance believes these requirements are unnecessarily burdensome and go beyond what is technically necessary for effective spectrum management. In established implementations such as those in the United States and Canada, Automated Frequency Coordination system systems operate successfully without requiring aggregate interference calculations or inter-system coordination of individual device usage. These systems rely on conservative propagation models and protections that ensure coexistence with incumbents without adding undue complexity. Wi-Fi Alliance recommends removing these requirements to align with proven international practices and enable a more scalable, efficient deployment of USS-controlled ISDs in the 6 GHz band.

***Out-of-Block* emission limits**

The *Out-of-Block* emission limits table provided in *Draft Regulations*, Section 11.6 lacks sufficient clarity and detail. Wi-Fi Alliance recommends aligning these limits with those established by IEEE and the US FCC for 6 GHz operations, which are well-defined and widely adopted. Specifically, -27 dBm/MHz at frequencies below 5925 GHz and above the upper edge of the IS (either 6425 or 7125 GHz). There is no need to require emission limits between channels. Adopting this approach would enhance regulatory clarity, promote international harmonization, and ease compliance for manufacturers.

Accounting for Building Entry Loss in the USS

Wi-Fi Alliance respectfully asks ICASA to recognize that the Building Entry Loss (BEL) attenuation factor should be an input to the USS predictive propagation model to determine permitted power levels for 6 GHz ISDs devices that by their Product Form Factor restrictions (i.e., wired power, no batteries, no weatherized enclosure) can only operate indoors. In this regard, ICASA may wish to note recent FCC [decisions](#) that permitted the AFC systems to adjust their calculations to take into account BEL when standard-power devices are restricted to indoors.

Mandatory Spectrum Access Mechanism for Devices in ISFR 2

Wi-Fi Alliance respectfully asks the ICASA to establish an appropriate spectrum access mechanism that ensures fair coexistence among various technologies in the 6 GHz band. Fair and balanced spectrum access is essential—without it, Wi-Fi, frequency hopping, and other IS-CPE Cat 2 technologies operating in the 5925-6425 MHz band risk a “race to the bottom,” where spectrum could become congested and potentially unusable in many scenarios. To this end, Wi-Fi Alliance further encourages ICASA to recognize the effectiveness of contention-based protocols, such as Wi-Fi’s carrier sense multiple access with collision avoidance (e.g., Listen Before Talk), in enabling coexistence among multiple technologies. These protocols have been proven to facilitate efficient spectrum sharing, helping to preserve the integrity and usability of the band for all stakeholders. These same contention-based protocols, which Wi-Fi devices use to avoid interfering with one another, also serve to control interference to incumbent operations in the 5925-6425 MHz band. For example, the IEEE Wi-Fi specification requires energy detection at -62 dBm/20 MHz while the ETSI EN 301 893 prescribes -72dBm/20MHz . Wi-Fi Alliance members report that real-world implementations can achieve even lower sensing thresholds, further enhancing compliance with the IEEE specification and improving protection for incumbent operations. Importantly, FCC [47 CFR §15.407\(d\)\(6\)](#) mandates that all non-standard power transmitters (e.g., low-power indoor and very low power) operating in the 5.925-7.125 GHz employ contention-based protocols. Similarly, ETSI EN 303 687 requires the use of a “listen before talk” protocol to ensure efficient spectrum sharing among WAS/RLAN devices (see Section 4.3.6.3.2.1).

Collaboration

Wi-Fi Alliance believes that strong collaboration between ICASA and ISFR-2 stakeholders is essential for the successful implementation of 6 GHz spectrum sharing in South Africa.

To ensure timely and effective deployment of the USS framework, Wi-Fi Alliance respectfully asks ICASA to address key technical considerations early and align requirements with international best practices. Clear and consistent technical rules will facilitate stakeholder participation and promote rapid adoption of USS systems.

Wi-Fi Alliance stands ready to support ICASA and industry stakeholders in this effort. We have developed publicly available [specifications, test plans and training modules](#) to enable successful

deployment of 6 GHz Automated Frequency Coordination systems — the technical foundation for USS frameworks.

Wi-Fi Alliance would welcome the opportunity to collaborate with ICASA and provide additional guidance, resources, and recommendations to support South Africa's leadership in efficient and innovative spectrum management.

Respectfully submitted,

/s/ Alex Roytblat

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