



30 May 2025

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Via email: DSA2023@icasa.org.za
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RMakgotlho@icasa.org.za

Dear Ms Ntshalintshali & Mr Makgotlho

RE: Apple's response to draft regulations on Dynamic Spectrum Access and Opportunistic spectrum management in the innovation spectrum 3800-4200 MHz and 5925-6425 MHz in South Africa

1. Introduction and Background

1.1. We appreciate the opportunity to provide comments on the draft regulations issued by the Independent Communications Authority of South Africa ("ICASA" / "the Authority") regarding the use of Dynamic Spectrum Access ("DSA"), technologies to opportunistically use the unutilised radio spectrum for broadband coverage in rural and underserved areas. We support the Authority's intention to make DSA deployment in the ISFR2 under license-exempt conditions in line with the current radio frequency spectrum regulations.

1.2. We strongly support that the authority has amended the Annex B of the Radio Frequency regulations, 2015¹ which allocates the 5925-6425 MHz band for licence-exempt use of WAS/RLAN services. The Annex B is referenced by the NRFP2025 draft², which allocates this band for fixed, fixed satellite and mobile services on a primary basis but also references Annex B for licence-exempt use of this band.

1.3. According to regulation 2(e), the Authority is determined to establish a technology-agnostic regulatory framework that will support the implementation of the Dynamic Spectrum Access (DSA) approach for the effective use of innovative spectrum. Apple firmly opposes "opportunistic access" to the lower 6 GHz band for licensed technologies since this could enable access for IMT and we believe that 5925-6425 MHz should be made available for

¹ <https://www.icasa.org.za/legislation-and-regulations/notice-to-amend-annexure-b-of-the-radio-frequency-spectrum-regulations-2023>

² <https://www.icasa.org.za/legislation-and-regulations/draft-radio-frequency-plan-2025-nrpf>

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licence-exempt use. If the Authority is considering DSA for this band, it must prioritise enabling standard power use under a licence-exempt framework. Standard power access can be managed effectively through a USS/AFC without requiring licenses for end users or service providers. The only entity that may need authorisation is the USS/AFC database operator. We believe this is an approach that eliminates unnecessary barriers that would limit the ability of the lower 6 GHz band to support affordable and widespread broadband deployment.

1.4. We support the Authority's position detailed in the findings document and position paper regarding DSA and Opportunistic Spectrum Management for licence-exempt technologies. This position designates both the 3.8-4.2 GHz and the lower 6 GHz sub-bands as "DSA Innovation Spectrum," utilising a unified geo-location database approach. The 3.8-4.2 GHz band is designated for short-term licenses, allowing for the provision of low and medium-power mobile and fixed broadband services. Additionally, the lower 6 GHz band is licence-exempt for low-power broadband services.

1.5. In light of the above, we are firmly opposed to any move to introduce licensed operations in the 5925–6425 MHz band under the guise of DSA. The lower 6 GHz band is being opened in global markets for licence-exempt use, including standard power operations controlled by USS/AFC systems. Allowing licensed use in this band would undermine efforts to expand connectivity, drive innovation, and lower costs, particularly in the areas the Authority aims to serve.

1.6. This submission reflects our commitment to ensuring the regulatory framework is effective, practical, and aligns with the interests of all stakeholders. We welcome the consultation process and detail our comments hereunder.

2. Discussions

2.1. Power limits and Antenna Heights in Urban and Rural Area

2.1.1 Regulation 10(3) introduces requirements that may unintentionally limit the flexibility of ISD/SP deployments. The restriction on antenna height above ground level (AGL) does not account for the fact that ISDs can also be installed on high buildings and other elevated structures. USS systems are capable of utilizing antenna height information to ensure protection of incumbent services, regardless of whether the height is provided in AGL or above mean sea level (AMSL). Moreover, the current limitation in Regulation 7(4)(f) to only use AGL reduces operational flexibility without offering significant protection benefits. Similarly, the current 30 dBm power limit for 6 GHz urban operation is conservative and falls short of

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international benchmarks, particularly when compared to the 36 dBm allowed in the US³ and Canada⁴. This gap could reduce the appeal and effectiveness of ISD/SP use in urban environments.

2.1.2 Therefore, it is proposed that Regulation 10(3) be revised to remove the AGL height restriction entirely, allowing ISDs to report antenna heights in either AGL or AMSL, with the USS system performing any necessary conversions. Additionally, the maximum power limit for 6 GHz urban operation should be increased from 30 dBm to 36 dBm to align with the limits used in the US and Canada.

2.2. Licensing requirements for ISFR2

2.2.1. Regulation 6(1) of the draft regulations the term “Network operator” which gives the impression that the Innovation Spectrum opportunity is only presented only to existing network operators contrary to the objective 2(g). We propose that a reference to “Prospective Network operator” instead of Network Operator.

2.2.2. Regulation 6 (3)(f) requirement is confining the application process to the already existing Network operators, we propose that the proof of submission of application for ECNS/ECS/Licence Exempt should also be accepted.

2.2.3. Regulation 6(3)(k) requires proof of payment for USS access fee, it is not clear if the fee is refundable or not, especially wherein the results of preliminary spectrum availability in a particular geographic area of interest reveals spectrum unavailability for the envisaged deployment.

2.2.4. Regulation 6(4)(c) is not relevant to prospective operators intending to operate purely in the lower 6 GHz band, therefore we propose that the regulation incorporate issuance digital spectrum availability certificate valid for Three (3) year for prospective operators exclusively operating in lower 6 GHz band.

2.3. Validity of ISD Cat 2 certification/operation

2.3.1. Regulation 4(2) and 6(5)(b) of the draft regulations exempt 6 GHz deployments from paying license fees, the prospective network operator is required to register with the ICASA (Authority) and obtain a license. This license needs to be renewed every Three (3) years. This creates unnecessary burden for deployment of devices in the 6 GHz band. Since USSP have

³ [https://www.ecfr.gov/current/title-47/part-15/section-15.407#p-15.407\(k\)](https://www.ecfr.gov/current/title-47/part-15/section-15.407#p-15.407(k))

⁴ <https://ised-isde.canada.ca/site/spectrum-management-telecommunications/sites/default/files/attachments/2022/DBS-06-i1-2022-12EN.pdf>



the contact information of the operator and location of devices, we suggest the registration/licensing requirement be removed from the regulation.

2.4. Database protocols

2.4.1. Regulation 7(1) of the draft regulations requires all communications between the USS/AFC and the associated devices of the DSA ecosystem to comply with the latest version of CPAUSS developed by CSIR. The regulation 7(1) requirement deprives the country from benefiting from the economies of scales, limit global interoperability benefits, fragment technological ecosystem within DSA, barrier to global collaboration and investment, duplication of efforts and resources and delays device market placement/access. We propose that the authority consider internationally recognised standards developed by IEEE DySPAN i.e. IEEE 1900.X series of standards which addresses various aspects of DSA for global inclusivity purposes.

2.5. Propagation models

2.5.1. The use of ITU-R P.452 as default propagation model in USS/AFC system offers a robust framework for long-distance interference analysis. However, for many other use cases, particularly those involving short-to-medium range links and complex terrain, the Irregular Terrain Model (ITM) presents clear operational advantages. ITM is specifically designed to account for irregular terrain effects and has been extensively validated and implemented in Automated Frequency Coordination (AFC) systems in the United States and Canada. Its computational efficiency and suitability for localized, real-time interference assessments make it highly relevant in dynamic spectrum access environments. Moreover, aligning propagation models across regions supports equipment interoperability, reduces regulatory complexity for vendors, and fosters consistency in spectrum sharing practices.

2.5.2. It is therefore proposed that the Irregular Terrain Model (ITM) be permitted as an alternative or supplementary propagation model to ITU-R P.452 shown as the default propagation model in Regulation 14(4).

2.6. Channel Bandwidth

2.6.1. Regulation 4(1)(b) currently limits device operation to a maximum bandwidth of 160 MHz. However, with advancements in wireless technologies, such as Wi-Fi 7, which supports 320 MHz channels, there is a growing need to enable wider bandwidths. Fixing the maximum bandwidth to 160 MHz in the framework creates unnecessary limitations for technologies that can utilise higher bandwidths. Instead, devices should also be allowed to operate in bandwidths greater than 160 MHz.

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2.6.2. It is proposed that Regulation 4 (1)(b) be revised to also include bandwidths greater than 160 MHz (e.g., 320 MHz).

2.6.3. Apple believes that an additional 160 MHz licence-exempt channel is needed within 6425-6585 MHz and this would allow two 320 MHz channels. We support shared use of the Upper 6 GHz via a band-split at 6585 MHz, enabling licence-exempt (e.g., Wi-Fi) below 6585 MHz and licensed (e.g., IMT) above 6585 MHz, which will likely bring the greatest overall benefits to citizens and consumers. We believe that the same regulations for the Lower 6 GHz band should apply to the extra licence-exempt portion up to 6585 MHz.

3. Conclusion and Recommendation

3.1. The proposed regulatory framework introduces an important mechanism for facilitating DSA and opportunistic use of the 3800–4200 MHz and 5925–6425 MHz bands. While the intent aligns with international best practices to enhance spectral efficiency, several technical and procedural elements require refinement to ensure practical implementation and ecosystem alignment.

3.2. Key recommendations include the adoption of internationally recognised standards for database protocols (e.g., IEEE 1900.x series), support for flexible antenna parameters and power levels aligned with global benchmarks, and removal of redundant licensing burdens for licence-exempt users in the lower 6 GHz band, plus the addition of a 160 MHz channel for licence-exempt use in 6425-6585 MHz under the same rules as Lower 6 GHz. Overall, a technically sound and flexible framework is essential to ensure effective secondary access while maintaining protection of incumbent services and enabling sustainable innovation in the use of licence-exempt spectrum.

3.3. We commend and applaud the Authority's endeavours and its intentions to expand broadband coverage across the country through the efficient use of the radio frequency spectrum and inclusive participation. Furthermore, the Authority is urged to exercise caution in the deployment of DSA, especially in the lower 6 GHz band, for reasons advanced in the body of our submission. The Authority should consider a licence-exempt approach that allows standard power use in this band, coordinated through a USS. License authorisation should be limited to the USS database operator. Such an approach would remove unnecessary hurdles and enable the lower 6 GHz band to play a meaningful role in expanding affordable and accessible broadband services.

3.4. Finally, we thank the Authority for the opportunity granted to make inputs on the draft.

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