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Re: Consultation "Second Draft National Radio Frequency Plan 2025 (NRFP)"

Dear Mr. Davis Kgosimolao Moshweunyane and Mr. Manyaapelo Richard Makgotlho,

IEEE 802 LAN/MAN Standards Committee (LMSC) thanks the Independent Communications Authority of South Africa (ICASA) for issuing the consultation "Second Draft National Radio Frequency Plan 2025 (NRFP)" and for the opportunity to provide feedback on this draft frequency plan.

IEEE 802 LMSC is a leading consensus-based industry standards body, producing standards for wireless networking devices, including wireless local area networks ("WLANs"), wireless specialty networks ("WSNs"), wireless metropolitan area networks ("Wireless MANs"), and wireless regional area networks ("WRANs"). We also produce standards for wired Ethernet networks, and technologies produced by implementers of our standards are critical for all networked applications today.

IEEE 802 LMSC is a committee of the IEEE Standards Association and Technical Activities, two of the Major Organizational Units of the Institute of Electrical and Electronics Engineers (IEEE). IEEE has about 460,000 members in over 190 countries. IEEE's core purpose is to foster technological innovation and excellence for the benefit of humanity. In submitting this document, IEEE 802 LMSC acknowledges and respects that other components of IEEE Organizational Units may have perspectives that differ from, or compete with, those of IEEE 802 LMSC. Therefore, this submission should not be construed as representing the views of IEEE as a whole[1].

Please find below the responses of IEEE 802 LMSC on part 5 of "NRFP".

Wi-Fi remains the preferred indoor wireless connectivity solution across South Africa, with traffic volumes growing significantly faster than those on mobile networks. Significant economic value is provided by Wi-Fi to the South Africa's economies: the economic value reached USD $31.0 billion in 2021 and is expected to increase to USD $44.2 billion by 2025[2]. In addition, Wi-Fi is a key component of the South Africa Connect (SA Connect) initiative[3], which has made significant progress in expanding national broadband coverage. Phase 1 connected 970 government facilities—including schools and healthcare centers—with a focus on rural areas. Phase 2, launched in late 2023, aims to connect more than 42,000 government buildings across sectors such as education, healthcare, law enforcement, and community services by 2026. It also targets broadband access for 5 million households and the installation of 32,000 community Wi-Fi hotspots, significantly improving rural affordability and access.

In our response to the consultation on the first NRFP issued in May this year, we emphasized that authorising the entire upper 6 GHz band (i.e., 6425 MHz to 7125 MHz) for Wi-Fi is essential to fully support the high throughput requirements of high-density networks such as those in universities, hospitals, schools, stadiums, and shopping centres. In addition, 1200 MHz (i.e., the

[1] This document solely represents the views of IEEE 802 LMSC and does not necessarily represent a position of either the IEEE or the IEEE Standards Association.
[2] See Wi-Fi Alliance: Global economic value of Wi-Fi® to reach $5 trillion in 2025, https://www.wi-fi.org/system/files/Economic_Value_of_Wi-Fi_Highlights_202305.pdf [accessed: 3 December 2025].
[3] South Africa Country Commercial Guide by the US Department of Commerce International Trade Administration, https://www.trade.gov/country-commercial-guides/south-africa-digital-economy [accessed: 3 December 2025].

entire 6 GHz band) is needed to support novel applications which would benefit from three 320 MHz channels. This includes technologies such as augmented, virtual, and mixed reality, which require wider channels to ensure lower latency as recently shown by a medical school training use case demonstration[4]. Similarly, local processing and cloud processing of artificial intelligence workloads will require higher throughput to support the large datasets. Dedicated access to the entire upper 6 GHz band is particularly important for enabling the aforementioned applications in dense residential settings and for scaling them in enterprise and industrial environments, where multiple sessions must operate simultaneously and in close proximity.

The availability of numerous channels across a range of bandwidths (20 MHz to 320 MHz) enables more modular and flexible deployments that allow scaled operation of services in the above-mentioned target industries. With access to additional 320 MHz channels, Wi-Fi devices can build upon IEEE Std. 802.11az™-2023 to offer sub-1 meter positioning accuracy for multiple users, which results in new innovative use cases such as micro-targeting for retail and warehouse asset tracking. Thus, in addition to additional coverage and capacity, additional spectrum also augments new Wi-Fi locationing capabilities. Some examples include multi-layer operation, service segmentation and prioritisation, context-aware wireless networks, and hyper-aware access point deployments. Highly secure communication with WPA3 security, which is required for Wi-Fi devices operating in the 6 GHz band, further enhances these services and addresses new use cases as well. The current worldwide availability of Wi-Fi devices that can access and use the entire upper 6 GHz band means that most enterprises and industries in South Africa will see immediate and sustained economic benefit from license-exempt access to the upper 6 GHz band.

The biggest contributor of the South African economy is the services sector which accounts for around 73% of the country's Gross Domestic Product (GDP)[5]. This sector has been the primary driver of economic growth since the early 1990s. Within the services sector, almost 40% of GDP is contributed by finance, real estate, business, and government services. Each of these services has an associated carpeted office where a managed/enterprise Wi-Fi is operated and maintained by a network administrator. Additionally, frequency reuse planning is used to minimize co-channel interfernce between APs. Figure 1 illustrates an example of a 7-channel plan that is used in such deployments.

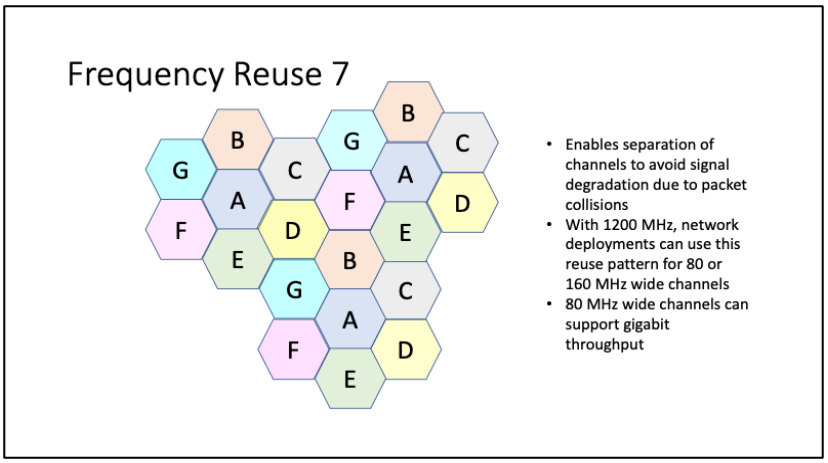

Figure 1: Frequency Reuse 7 Channel Plan

[4] See Wi-Fi Alliance: Wi-Fi Alliance® demonstrates the impact of 6 GHz Wi-Fi® for advanced AR/VR in healthcare, https://www.wi-fi.org/beacon/the-beacon/wi-fi-alliance-demonstrates-the-impact-of-6-ghz-wi-fi-for-advanced-arvr-in [accessed: 3 December 2025].
[5] See South Africa Market Overview, https://www.trade.gov/knowledge-product/exporting-south-africa-market-overview [accessed: 3 December 2025].

If only the lower 500 MHz were available for Wi-Fi, there would not be enough 80 MHz channels in the 6 GHz band to enable deployments that will require at least 7 to 9 non-overlapping channels. If RLAN were given access to the 6425 MHz to 7125 MHz band; however, it would allow not only 80 MHz channels but would also allow seven 160 MHz channels and would support the above use case requirements.

Although the IEEE LMSC strongly favors allocating the entire upper 6 GHz band for WAS/RLAN use, if a full-band allocation is not achievable at this time, a spectrum sharing approach with at least the bottom portion of the upper 6 GHz band should be considered as a feasible alternative to enable an additional 320 MHz channel (i.e., 6265 MHz to 6585 MHz), which straddles the lower and upper 6 GHz bands. Any reduction in WAS/RLAN spectrum allocation may result in limitations to Wi-Fi performance for certain use cases, as elaborated above.

Conclusion

IEEE 802 LMSC thanks ICASA for the opportunity to provide this submission and respectfully requests consideration of the responses provided in this document.

Respectfully submitted,

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