

Re: Consultation on the draft amendment of “Radio Frequency Supply Plan”

Dear Ms. Tong,

IEEE 802 LAN/MAN Standards Committee (LMSC) thanks the Taiwan Ministry of Digital Affairs (MODA) for issuing the consultation on the draft amendment of “Radio Frequency Supply Plan” and for the opportunity to provide feedback on the topic of 6425 MHz to 7125 MHz.

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 400,000 members in over 160 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<sup>1</sup>.

Please find below the responses of IEEE 802 LMSC to this consultation.

The IEEE Std 802.11ax-2021 standard [1] supports operation in the 2.4 GHz, 5 GHz, and 6 GHz bands, and products based on this standard are seeing significant adoption where regulatory rules permit deployment [2]. Based on IEEE Std 802.11ax-2021, the Wi-Fi industry is taking the lead in developing Wi-Fi 6E certification program and specifying a number of complementary coexistence strategies for bands with incumbent users, such as automated frequency coordination (AFC) [3] [4] for the 6 GHz band. Wi-Fi technology, based on the IEEE 802.11 standard, has an estimated 18 billion devices in use world-wide, with over 4 billion devices added annually [5]. In addition, the list of Wi-Fi 6E [2] certified products (which are based on IEEE 802.11 technologies) is growing. In 2022, over 350 million Wi-Fi 6E devices entered the market [6].

A new generation of IEEE 802.11 technologies, currently under development in the IEEE P802.11be amendment [7], will continue to improve performance and enhance spectrum coexistence capacities. To achieve the targeted performance improvements, IEEE P802.11be introduces advanced features including channel bandwidths of up to 320 MHz, multiple resource units to a single station, multi-link operation, enhanced quality of service (QoS), improved Target Wake Time, and improved spectrum management to accommodate coexistence with incumbents more effectively and efficiently. To effectively support this scaling requirement, IEEE P802.11be’s global 6 GHz channelization is designed to accommodate multiple 160 MHz and 320 MHz channels throughout the 5925 MHz to 7125 MHz band, if available. MODA’s proposed

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<sup>1</sup> 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.

designation of 480 MHz of the 6 GHz band from 5945 MHz to 6425 MHz for U-NII equipment to operate provides for only one 320 MHz channel, while the 5945 MHz to 7125 MHz band would allow three such channels. Please note that the P802.11be amendment currently supports carrier frequency operation between 1000 MHz and 7125 MHz with extension to 7250 MHz under consideration.

Many countries and regions including the USA, Canada, Brazil, South Korea, and Saudi Arabia have already allocated the 5925 MHz to 7125 MHz band for license-exempt operation. Only recently, Colombia and Argentina authorized license-exempt operation in the 5925 MHz to 7125 MHz band. Availability of the entire 6 GHz band for license-exempt use will create economies of scale and produce a robust equipment market, benefitting Taiwan's businesses, consumers, and economy, while providing societal benefits. IEEE 802 LMSC recommends that MODA authorizes the operation of U-NII equipment to 6425 MHz to 7125 MHz right now.

## Conclusion

IEEE 802 LMSC thanks the MODA for the opportunity to provide this submission and kindly requests MODA to consider our responses in its future decisions regarding the use of U-NII equipment in the 6425 MHz to 7125 MHz band.

Respectfully submitted

By: /s/.

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## References:

- [1] "IEEE Standard for Information Technology - Telecommunications and Information Exchange between Systems Local and Metropolitan Area Networks - Specific Requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment 1: Enhancements for High-Efficiency WLAN," in *IEEE Std 802.11ax-2021 (Amendment to IEEE Std 802.11-2020)*, vol., no., pp.1-767, 19 May 2021, doi: 10.1109/IEEESTD.2021.9442429.
- [2] Wi-Fi Alliance: Wi-Fi 6E momentum underscores need for entire 6 GHz band, November 2022. [Available online](#) [accessed: 28 May 2023].
- [3] Dynamic frequency coalition: Automated frequency coordination - an established tool for modern spectrum management, March 2019. [Available online](#) [accessed: 28 May 2023].
- [4] Intel: Spectrum sharing using automated frequency coordination. [Available online](#) [accessed: 14 May 2023]
- [5] Wi-Fi Alliance: Value of Wi-Fi. [Available online](#) [accessed: 28 May 2023]
- [6] Wi-Fi Alliance: Wi-Fi 6E certified products. [Available online](#) [accessed: 28 May 2023]
- [7] IEEE Draft Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Enhancements for Extremely High Throughput (EHT)," in *IEEE P802.11be/D3.0*, January 2023 , vol., no., pp.1-999, 1 March 2023.