

Dear European Commission Radio Spectrum Policy Group,

This response is provided in regards to the Radio Spectrum Policy Group (RSPG) consultation on its draft “Opinion on the ITU-R World Radiocommunication Conference 2023” [1]. IEEE 802 LAN/MAN Standards Committee (LMSC) is thankful for the opportunity to express its views on the RSPG’s draft. IEEE 802 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 acknowledges and respects that other components of IEEE Organizational Units may have perspectives that differ from, or compete with, those of IEEE 802. Therefore, this submission should not be construed as representing the views of IEEE as a whole¹.

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. Technologies produced by implementers of our standards are critical for all networked applications today.

In the past ten years, the IEEE 802 LMSC has overseen the development of standards (including both IEEE Std. 802.11ac-2014 and IEEE Std. 802.11ax-2021) that operate in license-exempt bands and are capable of providing gigabit throughput, i.e., provide physical layer throughput over 1 Gb/s. These technologies have become an integral part of European citizens’ lives, providing the basis of “the 5 GHz network”. Next-generation technologies will utilize both 5 GHz and 6 GHz bands to satisfy new requirements in internet of things or lower latency and jitter requirements for applications such as home video, video conferencing or video gaming. Further improvements continue to be made to our hundreds of standards development contributors.

In light of the important role IEEE 802 technologies play in European network eco-systems, IEEE 802 LMSC would like to highlight the importance of license-exempt designation. Developments in Wireless Access Systems (WAS) including Radio Local Area Networks (RLAN) such as Wireless Local Area Networks (WLAN) (IEEE 802.11) and Wireless Specialty Networks (WSN) (IEEE 802.15) technologies are crucial components in realizing the gigabit connectivity targets envisioned in the Commission’s “2030 Digital Compass: the European way for the Digital Decade” [2]. Without doubt, current and next generations of WAS/RLAN technology based on IEEE Std. 802.11ax-2021 [3] and IEEE 802.11be [4] are expected to play a critical role in achieving “Excellent and secure connectivity for everybody and everywhere in Europe,” which “is a prerequisite for a society in which every business and citizen can fully participate” [2]. The European digital transition will critically depend on opportunities for European industries and consumers to benefit from emerging technologies like high-precision positioning, object sensing, and many others already under development in IEEE 802 LMSC.

In its request to open the entire 6 GHz band (5 925–7 125 MHz), the RLAN industry engaged in the most comprehensive study of interference with both satellite services and fixed terrestrial networks it has ever done. As a result, regulators worldwide agreed that sharing without harmful interference is possible. In case of Europe, the results of these studies and coexistence studies within CEPT are contained in ECC Report 302 [5] and ECC Report 316 [6]. These studies also showed that spreading the RLAN energy across the full 1.2 GHz would reduce the interference potential. It is for this reason that we believe that RLAN technology is better suited than IMT networks for sharing with the incumbents in this band with typically high-power macro base stations operating as much higher power levels, even compared to Standard Power

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.

RLAN. It is important to note that this view about RLAN coexistence is shared by the incumbents of the band (which is not the case for the “uncertain” IMT coexistence).

IEEE 802 LMSC noted the attention of RSPG to the fact that the band 6 425–7 125 MHz is heavily used by long distance and high-capacity fixed links in Europe supporting critical infrastructure in the continent. IEEE 802 LMSC also noted that the RSPG is currently contemplating, analyzing and addressing IMT coexistence with fixed service (FS) in a medium-term perspective. IEEE 802 LMSC would like to bring to the RSPG’s attention that, while it is still unclear whether and how IMT could coexist with FS, the coexistence of RLAN with FS incumbent services has already been addressed for Low Power (indoor) and Very Low Power (indoor and outdoor) RLAN usage [5, 6]. Furthermore, coexistence work between Standard Power RLAN and FS is currently being progressed in close collaboration between European administrations and the industries through utilization of Automated Frequency Coordination (AFC).

Supporting ever-increasing demands for wireless connectivity traffic in Europe as well as enterprise/commercial level scaling of performance-demanding innovative applications, such as VR/AR, telepresence, e-health, e-education, Industrial IoT, HD and 3D video streaming, is more readily facilitated when multiple channels with wide bandwidth of 160 MHz and 320 MHz are available for WAS/RLAN. Extending the license-exempt operation to the upper 6 GHz band (specifically, 6 425–7 125 MHz) in Europe will make this possible.

IEEE 802 LMSC wishes to express its hope that the RSPG follows its Option 2 of section 4.1.3, not to identify the 6 GHz bands with IMT during WRC-23. Leaving the bands unassigned for now still leaves flexibility to later consider the band for licensed 5G use, should this be deemed necessary. Indeed, European countries have already done this for many years in the 3.4–3.8 GHz band, since an IMT identification was not made for Region 1 in these bands. An IMT identification on the contrary would pre-determine the future use of the band to be presumed licensed, as was the case for the many other bands that have been identified for IMT in the last 20 years.

Respectfully submitted

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References:

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- [2] COM/2021/118 final (“2030 Digital Compass: the European way for the Digital Decade”), <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118>
- [3] IEEE 802.11ax™-2021 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, February 2021
- [4] https://www.ieee802.org/11/Reports/tgbe_update.htm
- [5] CEPT ECC Report 302: Sharing and compatibility studies related to Wireless Access Systems including Radio Local Area Networks (WAS/RLAN) in the frequency band 5925-6425 MHz (published 29 May 2019), <https://docdb.cept.org/document/10170>
- [6] CEPT ECC Report 316: Sharing studies assessing short-term interference from Wireless Access Systems including Radio Local Area Networks (WAS/RLAN) into Fixed Service in the frequency band 5925-6425 MHz (published 21 May 2020), <https://docdb.cept.org/document/14482>