IEEE P802.18
Radio Regulatory Technical Advisory Group (RR-TAG)

Proposed Response to: ECC PT1 on upper 6 GHz band studies – Protection of WAS/RLAN

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Abstract

This document drafts a proposed response to ECC PT1 group on upper 6 GHz band studies about the protection of WAS/RLAN from potential adjacent channel interference generated by licensed users occupying the upper 6 GHz spectrum.

CEPT ECC
Electronic Communications Committee

ECC PT1

ECC PT1(25)aaa

ECC PT1 #82

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Source: **IEEE 802 LMSC**

Subject: **Upper 6GHz Band Studies – Protection of WAS/RLAN**

Group membership required to read? (Y/N) N

Summary:

IEEE 802 LAN/MAN Standards Committee (LMSC) thanks the Electronic Communications Committee Project Team 1 (ECC PT1) for its ongoing work on the coexistence of the WAS/RLAN[1] use and possible use of IMT services in the 6 GHz band and for the opportunity to provide feedback.

IEEE 802 LMSC is a leading consensus-based open standards development committee for networking standards that are used by industry globally. It produces standards for networking devices, including wired and wireless local area networks ("LANs" and "WLANs"), wireless specialty networks ("WSNs"), wireless metropolitan area networks ("Wireless MANs"), and wireless regional area networks ("WRANs"). Technologies produced by implementers of our standards are a critical element for all networked applications today.

IEEE 802 LMSC is a committee of the IEEE Standards Association and of Technical Activities, two of the Major Organizational Units of the IEEE. IEEE has over 460,000 members in more than 190 countries and its core purpose is to foster technological innovation and excellence for the benefit of humanity. IEEE is also a major accredited standards development organization whose standards are recognized worldwide. In submitting this document, IEEE 802 LMSC acknowledges that other components of IEEE Organizational Units may have perspectives that differ from, or compete with, those of IEEE 802 LMSC[2].

Please find below the IEEE 802 LMSC's comments on ECC PT1's consideration on the coexistence of license exempt and IMT services in the 6 GHz band.

EC decision (EU) 2021/1067 Article 3 stipulates that when "introducing new applications into the 5 945-6 425 MHz frequency band or into adjacent frequency bands after the entry into force of this Decision, Member States shall not adopt technical and operational conditions applicable to any new application that unduly restrict the continued use of WAS/RLAN in the 5945 MHz to 6425 MHz frequency band in accordance with this Decision".

The 6 GHz band, including the lower 6 GHz band (i.e., 5945 MHz to 6425 MHz) is of significant importance for WAS/RLAN enterprise networks providing critical services in healthcare, industrial, educational, and other environments. Therefore, WAS/RLANs using this band need to be able to operate reliably. To reduce

[1] IEEE 802 wireless standards such as 802.11 and 802.15 are used as realizations of WAS/RLAN.

[2] 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.

disruption form introduction of much higher power IMT it is necessary to carry out the studies with the appropriate protection criterion of I/N = −6 dB.

The regulatory status of WAS/RLAN in CEPT in 5945 MHz to 6425 MHz is identical to the status in the 5150 MHz to 5350 MHz and 5470 MHz to 5725 MHz bands for which an I/N of −6 dB is applicable.

Should there be an extension of the frequency range for RLAN, the same protection should be afforded since a consistent user experience across the entire frequency range should be ensured.

It should further be noted that the lowest part of 5945 MHz to 6425 MHz already has limitations for very low power (VLP) usage which reduces the performance of the band. It is therefore of utmost importance to ensure that any remaining or added part is fully usable by WAS/RLAN.

Proposal:

IEEE 802 LMSC invites ECC PT1 to adopt I/N = −6 dB criterion as the appropriate protection of RLAN as an application of the Mobile Service and the suggested amendment to the draft ECC Report.

Background:

ECC PT1 is asked to develop a technical report to investigate the potential introduction of IMT into the upper 6 GHz band.

Attachment: 1

ATTACHMENT:

1.1.1 RLAN Protection Criteria

The I/N = −6 dB criterion stands as a significant and internationally recognized protection benchmark for unlicensed systems. Its primary establishment by ITU-R Recommendation M.1739 and subsequent adoption by CEPT/ECC Reports 244 and 277 highlights a harmonized approach to spectrum management, particularly for devices operating in the 5 GHz bands which have similar physical characteristics to those of in the 6 GHz band. This criterion is analytically derived to ensure that the impact of interference on receiver sensitivity is limited to an acceptable minimum, typically around 1.0 dB degradation, based on specific propagation assumptions for indoor environments.

Furthermore, in the early discussions on WAS/RLANs in 5 GHz and before WAS/RLAN was identified in the Radio Regulations in 2003 a relevant precedent was set by the ECC. WGFM linked WAS/RLAN to the existing mobile allocation existing at the time (No S5.447) and the associated rights of an application of a primary service. See ERC Report 67.

As wireless technologies continue to evolve and spectrum becomes increasingly congested, the fundamental principles underpinning protection criteria like the I/N = −6 dB will remain vital. Such protection criterion is essential to ensure effective and fair coexistence in wireless ecosystems.

For the proposed edits on the draft ECC Report see Annex 1.

ANNEX 1: EDITS TO THE DRAFT ECC REPORT

1.1.2 RLAN protection criteria

Table 1: RLAN protection criterion

Parameter	*Unit*	*Value*
[Protection criterion (I/N)]	dB	[-6 (Note 1)] [Copied from SE45 LS for discussion: Studies may want to consider various metrics other than I/N, such as throughput loss or SINR degradation for example, noting that for the 5 GHz band a protection criterion is stated in Recommendation ITU-R M.1739 (I/N = -6 dB defined without percentage of time associated to it)]
Note 1: defined without percentage of time associated to it		

ANNEX 2:

Relevant verbiage from ITU-R Recommendation M.1739 is included for reference.

A2.1 RELEVANT VERBIAGE FROM ITU-R RECOMMENDATION M.1739

The ITU Radiocommunication Assembly,

recommends

that, for the purposes of conducting compatibility studies with respect to services or applications from which WAS/RLAN systems are entitled, according to their status, to be protected, the protection criteria for WAS/RLAN systems operating in the mobile service in accordance with Resolution 229 (WRC-03) should be as follows:

– the I/N ratio at the WAS/RLAN receiver should not exceed –6 dB, assuring that degradation to a WAS/RLAN receiver's sensitivity will not exceed approximately 1.0 dB as described in Annex 1.