



IEEE 802 LAN/MAN Standards Committee (LMSC)

**IEEE 802 LMSC VIEWS ON WRC-19 AGENDA ITEMS**

For consideration in APG-19 Working Party 1

**Introduction**

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 appreciate the opportunity to provide these comments to APT.

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IEEE 802 LAN/MAN Standards Committee (LMSC) respectfully submits its views for consideration of WRC-19 Agenda Items 1.12 (5.8GHz) and 1.15 (275-450GHz).

**Agenda Items 1.12 (5.8GHz)**

IEEE 802.11 has provided the wireless standard (IEEE Std 802.11p-2010) that provides the basis for much of the Intelligent Transport Systems (ITS) Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) technologies being deployed today. And now IEEE 802.11 is specifying an IEEE Next Generation V2X (NGV) amendment (the [P802.11bd](#) project) backward compatible to IEEE Std 802.11p-2010. We believe that these technologies are capable of sharing frequency bands, including the 5850-5925 MHz, with other unlicensed applications. We also understand that global harmonization of the technology is a notable effort that would enable technology improvements and cost reductions to better address rapid adoption to meet the ITS safety goals, an effort we would support.

**Agenda Item 1.15 (275-450GHz)**

The recently published Std. IEEE 802.15.3d-2017 targets point-to-point links in the frequency range of 252 to 325 GHz.

All technical and operational parameters for LMS and FS have been sent to ITU-R WP 5A and 5C and are considered in the reports ITU-R F.2416 and M.2417 for AI 1.15.

Within IEEE 802 one input document on sharing studies between FS and EESS has been discussed (<https://mentor.ieee.org/802.15/dcn/19/15-19-0095-00-0thz-h2020-thor-initial-results-on-sharing-studies.pdf>), showing that sharing between FS and EESS is possible in the

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<sup>1</sup> This document solely represents the views of the IEEE 802 LAN/MAN Standards Committee and does not necessarily represent a position of either the IEEE, the IEEE Standards Association or IEEE Technical Activities.

bands 275-296 GHz, 306-313 GHz, 319-333 GHz and 354-450 GHz. In May 2019, WP 1A finished the draft new Report ITU-R SM.[275-450GHZ\_SHARING] which was adopted by SG 1 in June 2019 for A11.15:

Different sharing studies have been performed showing slightly different results. However, consensus among all the studies, including the one presented in IEEE 802 and mentioned above is that the following frequency bands could be used by FS/LMS applications without specific conditions, while maintaining the protection of the passive services:

275-296 GHz, 306-313 GHz, 320-330 GHz and 356-450 GHz.

With a look at the study results in the PDNR ITU-R SM.[275-450GHZ\_SHARING], our understanding is:

- Sharing with RAS is possible (maybe with exclusion zones or avoidance angles in the vicinity of a RAS site).
- FS operating in the bands 296-306, 313-318 and 333-356 GHz would cause harmful interference to the EESS.
- For LMS, one study shows harmful interference to EESS in the bands 296-306, 313-320 and 330-356 GHz. Another study shows compatibility of CPMS with EESS in the range 275-325 GHz.

Taking this into account, we believe that the identification (by a new footnote or modification of the existing one 5.565) of at least the bands 275-296, 306-313, 320-330 and 356-450 GHz for LMS and FS will provide proper protection of the passive services. As an improvement to the current situation, this identification will provide clear guidance to manufacturers and administrations which bands should not be used in order to protect the passive services.

We believe that the identification of these bands is very important today for backhaul and fronthaul links supporting 100+ Gbit/s for 5G and enables future applications such as kiosk downloading, reconfigurable wireless links for data centers in addition to fibers and intra-device communications.

However, IEEE 802 will revise [Std. IEEE 802.15.3d-2017](#) according to the outcome of WRC-19 if necessary and may also develop a standard for bands above 325 GHz which were less promising in 2014 when the development of the standard was initiated.

## **Conclusion**

IEEE 802 LMSC appreciates the opportunity to share its view of the WRC-19 agenda items above and hopes that it will provide APT further insight on how to approach them during WRC-19.