**Via Electronic Filing**

Marlene H. Dortch, Secretary

Federal Communications Commission

445 12th Street, SW

Washington, DC 20554

Re: NPRM on a plan to make the spectrum above 95 GHz more readily accessible for new innovative services and technologies.

FCC 18-17; ET Docket No. 18-21, Spectrum Horizons

Dear Ms. Dortch:

In ET Docket No. 18-21, the FCC seeks comments on a plan to make the spectrum above 95 GHz more readily accessible for new innovative services and technologies. The Notice seeks comment on proposed rules to permit licensed fixed point-to-point operations in a total of 102.2 gigahertz of spectrum; on making 15.2 gigahertz of spectrum available for unlicensed use; and on creating a new category of experimental licenses to increase opportunities for entities to develop new services and technologies from 95 GHz to 3 THz with no limits on geography or technology.

IEEE 802[[1]](#footnote-1), as a leading consensus-based industry standards body, produces 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 the FCC.

**IEEE Std. 802.15.3d-2017 Recently published standard for Operation in 252-425 GHz Band**

In October 2017 IEEE 802 approved and published IEEE Std. 802.15.3d-2017. This standard is the first world-wide standard for wireless communication operating at carrier frequencies between 252 and 325 GHz enabling signal transmission with bandwidths from two to seventy gigahertz. Applications that have been identified presently for operation in this spectrum include Wireless fronthaul and backhaul links for cellular networks over distances up to several 100 m, additional Wireless links in data centers for intra device communications and Close-proximity links, e.g. for kiosk downloading. The upcoming WRC-19 AI 1.15 calls for investigations into the use of spectrum in the frequency range 275-450 GHz. In this context ITU-R has published technical and operational reports ITU-R M.2416 and ITU-R F.2416, which form the basis for undertaking sharing studies with passive services (radio astronomy, earth exploration satellite services) which are currently under development. The parameters outlined in above ITU-R reports align nicely with IEEE 802 standards work and assume the use of 2 GHz channel bandwidths as well as multiples of these bandwidths. Frequencies beyond 325 GHz may be considered in the future for further extensions of the standard.

**Unlicensed operations under Part 15**

IEEE 802 supports the Commission’s proposal to open 15.2 GHz of spectrum above 95 GHz for unlicensed use in the four bands, 122-123 GHz, 174.8-182 GHz, 185-190 GHz and 244-246 GHz. In allowing unlicensed use of these four bands, we also strongly support the Commission’s proposal to remove these bands from the list of restricted bands.

With respect to rules for these bands, IEEE 802 agrees with the Commission proposal to use the same unlicensed rules used for the 57-71GHz band, including the power levels.

Considering the growing demand for more unlicensed spectrum to support the ever-increasing need for improved connectivity, IEEE 802 fully supports the Commission’s proposal to also open the 116-122 GHz band as unlicensed. We agree that with Part 15 devices operating at currently stated power levels and given the increased signal attenuation due to high atmospheric absorption, Part 15 devices will be able to share spectrum with passive services without causing interference.

**Experimental licensing**

IEEE 802 supports the Commission’s consideration for a new subpart of the Part 5 Experimental Radio Service (ERS) rules to better encourage innovation and experiments in the spectrum range between 95 GHz and 3 THz. We understand this is mostly an uncharted spectrum range and experimental licensing will be a key in the development of standards and technologies in this spectrum. We also agree that the ERS rules in place today used in frequencies less than 95 GHz may not by suitable above 95 GHz, e.g. with the additional path loss, atmospheric absorption, hardware technology needed, field trials to show real performance, etc.

The Commission makes a good point that with the technology just forming for this frequency range, experimentation will be dynamic as new hardware and technics are developed to achieve the performance necessary for valid networks and the experimental licensing will need to allow for that. At the same time, we agree that any experimentation above 95 GHz would continue to be on a non-exclusive, non-harmful interference basis to authorized spectrum users in that range in accordance with Section 5.84 of the Commission’s rules and subject to coordination with federal users through NTIA.

Along with technology just forming, it would be anticipated that there would be experimentation that would last longer than the renewable 2-year and 5-year licenses available today and a 10-year renewable ERS license in this band would be justified.

**Summary**

IEEE 802 supports the Commission’s proposal to extend Part 15 unlicensed rules to the proposed unlicensed bands and updating experimental licensing in the 95 GHz to 3 THz frequency range to support both present and future applications for high data rate communications. IEEE 802 thanks the Commission the opportunity to respond to this Notice of Proposed Rule Making.

Regards,

By: /s/ \_\_\_\_

Paul Nikolich

IEEE 802 LAN/MAN Standards Committee Chairman

em: IEEE802radioreg@ieee.org

1. This document represents the views of IEEE 802. It does not necessarily represent the views of the IEEE as a whole or the IEEE Standards Association as a whole. [↑](#footnote-ref-1)