

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 GHz of spectrum; on making 15.2 GHz 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.

The IEEE 802 LAN/MAN Standards Committee¹, 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 252-325 GHz Band

In October 2017, the IEEE Standards Association (IEEE-SA) approved and published IEEE Std. 802.15.3d-2017. This standard is the first worldwide standard for wireless communication operating at carrier frequencies between 252 and 325 GHz, enabling signal transmission with bandwidths from two to seventy

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.

GHz. 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 hundred meters, additional wireless links in data centers for inter-device communications, and close-proximity links, e.g. for kiosk downloading. The upcoming WRC-19 agenda item 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 amendments 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. We also strongly support the Commission's proposal to remove these bands from the list of restricted bands and allowing unlicensed use.

With respect to rules for these bands, IEEE 802 agrees with the Commission proposal to use the same unlicensed rules used for the 57-71 GHz band, but requests consideration of increased power levels reflecting the increased path loss at higher frequencies to maintain the same coverage as the 57-71 GHz band.

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 current power levels from 57 – 71 GHz 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 for frequencies less than 95 GHz may not be suitable above 95 GHz, e.g. with the

additional path loss, atmospheric absorption, hardware technology needed, and field trials required to show real performance, etc.

The Commission makes a good point that experimentation will be dynamic as new technologies are developed, so experimental license rules are needed to support these new developments. At the same time, we agree that any experimentation above 95 GHz should 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.

In order to support the development of new technologies, there is a need for experimental licenses of longer duration than the 2-year and 5-year licenses available today, so we would propose that the Commission adopt a 10-year renewable ERS license in these bands.

Alternatively, as Software Reconfigurable Radios become more developed, it is possible to define Software Defined Operator rules that require annual equipment check-ins to maintain grants to use particular ERS bands. This gives opportunities to take smaller steps and learn from experience over longer timeframes.

Summary

IEEE 802 supports the Commission's proposal to extend Part 15 unlicensed rules and to update the experimental license rules for the 95 GHz to 3 THz frequency range to enable 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

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