IEEE 802.18

Radio Regulatory Technical Advisory Group

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| Reply Comments on FCC 21-264 NPRM  Amendment of Section 15.255 of the Commission’s Rules  FCC Seeks to Enable State-of-the-Art Radar Sensors in 60 GHz Band | | |
| Date: 2021 – 09 – 15 | | |
| Reply Comments of IEEE 802-60 GHz motion sensing FCC NPRM ET 21-264 | | |
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Abstract

r00: 15 sept21: initial draft

**Before the**

**Federal Communications Commission**

**Washington, D.C. 20554**

In the Matter of )

)

Amendment of Section 15.255 of the ) ET Docket No. 21-264

Commission’s Rules )

**Reply Comments of IEEE 802**

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Standards Committee

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xx October 2021 *[Note: to be filled in when the letter is finalized]*

The IEEE 802 LAN/MAN Standards Committee (LMSC) is pleased to submit these reply comments in response to the Commission’s NPRM proposing to permit greater flexibility for radar operations in the 57-64 GHz band while continuing to ensure that this unlicensed band continues to support important communications applications, such as IEEE 802.11ad, IEEE 802.11ay, and IEEE 802.15.3c (“IEEE 802-based 60 GHz technologies”)[[1]](#footnote-1).

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 reply comments to the Commission.

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 420,000 members in about 190 countries and supports the needs and interests of engineers and scientists broadly. 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 whole.[[2]](#footnote-2)

Should the FCC move forward with its proposal to enable higher-power radar operations in the 60 GHz band, the FCC should also ensure that its technical rules allow sharing with all types of unlicensed communications applications, including IEEE 802-based 60 GHz technologies such as IEEE 802.11ad, IEEE 802.11ay, and IEEE 802.15.3c. IEEE 802 believes that to ensure coexistence between radar and unlicensed communications technologies in the 60 GHz band, the FCC in its final rules should include multiple options for coexistence in spirit of the NPRM that mentions these multiple options, as also allowing manufacturers flexibility to choose the appropriate implementation for their technology. The first option is restrictions on radar duty cycle. Alternatively, FCC should require channelization or sensing technologies like listen before talk (LBT) be implemented by radar to ensure co-existence between radar and other unlicensed communications technologies in the 60 GHz band.

1. **FCC’s note in the NPRM of the submission by Qualcomm, Intel, Facebook in relation to co-existence between radar and 60 GHz communications technologies.**

FCC has noted in paragraph (31) of its NPRM document FCC-21-83A1 Qualcomm, Intel, Facebook submission ET docket no. 21-48 (filed May 10, 2021) and the concerns raised in relation to issues of coexistence between AR/VR communication devices and FDS devices and modifying duty cycle restriction in the new waivers granted by FCC. The FCC has hence asked in paragraph (34) whether such a duty cycle restriction is required in the final rule making.

The FCC also mentions in paragraph (33) of its NPRM that another way of co-existence between radar and 60 GHz communications technologies is channelization technologies with radar implementation of 2, 4, 7 GHz bandwidths.

The FCC further proposes in paragraph (38) the spectrum sensing technology like listen before talk (LBT) and questions whether duty cycle restriction is needed in case radar implements such a technology.

1. **IEEE 802 response to FCC NPRM**

To ensure radar and 60 GHz communication technologies, IEEE 802 hence requests FCC to require that the radar implement at least one of the below co-existence techniques:

1. The FCC should require radar to implement the additional “2 ms condition” that it has included in its most recent waiver grants[[3]](#footnote-3) (#2 below) on any higher power radar system it proposes to permit within the 57 to 64 GHz portion of the band, as set out in (b) below:
2. A radar device may operate in the 57-64 GHz band at a maximum +13 dBm EIRP, +10 dBm transmitter conducted output power, and +13 dBm/MHz power spectral density, so long as the radar device does not exceed a transmit duty cycle (i.e., on-time/[on-time + off-time]) of 10% in any 33 ms interval (i.e., the device will not transmit longer than a total of 3.3 ms).
3. Any radar off-time period between two successive radar pulses that is less than 2 ms shall be considered “on time” for purposes of computing the duty cycle.
4. FCC should require that radar uses channelization aligned to WiGig channel boundaries. A 2 GHz (or lower) radar should only use *either* channel 1 (that is, 57-59.4 GHz) or channel 2 (that is, 59.4 to 61.56 GHz) and a 4 GHz radar should only be allowed to use channel 1+2 (for 4 GHz radars) leaving channels 3, 4, 5, and 6 for exclusive use by WiGig; or
5. In case of 7 GHz radar, the radar implements LBT whose performance is similar to the WiGig channel sensing allowing radar-to-WiGig co-existence. Its spectrum usage should also be limited to channels 1, 2, and 3.

# Conclusion:

IEEE 802 thanks the Commission for providing an opportunity to comment on the NPRM ET Docket 21-264 and respectfully requests that these reply comments be considered by the Commission during the final rule making process.

Regards,

By: /ss/ .

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1. *See Amendment of Section 15.255 of the Commission’s Rules*, Notice of Proposed Rulemaking ET Docket No. 21-264, FCC 21-83 (rel. July 14, 2021) (“NPRM”). [↑](#footnote-ref-1)
2. 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. [↑](#footnote-ref-2)
3. See supra note 3. [↑](#footnote-ref-3)