IEEE P802.11  
Wireless LANs

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | LB270 DSSS TX Mask Floor | | | | | | Date: 2022-12-07 | | | | | | Author(s): | | | | | | Name | Affiliation | Address | Phone | email | | Youhan Kim | Qualcomm Technologies, Inc. |  |  | [youhank@qti.qualcomm.com](mailto:youhank@qti.qualcomm.com) | | Sigurd Schelstraete | Maxlinear |  |  | [sschelstraete@maxlinear.com](mailto:sschelstraete@maxlinear.com) | | Xiaogang Chen | Zeku |  |  | [xiaogang.chen@zeku.com](mailto:xiaogang.chen@zeku.com) | | Rui Cao | NXP |  |  | [rui.cao\_2@nxp.com](mailto:rui.cao_2@nxp.com) | | Wook Bong Lee | Samsung |  |  | [wookbong.lee@samsung.com](mailto:wookbong.lee@samsung.com) | | Qinghua Li | Intel |  |  | [qinghua.li@intel.com](mailto:qinghua.li@intel.com) | | Jianhan Liu | Mediatek |  |  | [jianhan.liu@mediatek.com](mailto:jianhan.liu@mediatek.com) | |

Abstract

This submission proposes resolutions for the following comments from comment collection on P802.11-REVme D2.0:

3816

NOTE – Set the Track Changes Viewing Option in the MS Word to “All Markup” to clearly see the proposed text edits.

**Revision History:**

R0: Initial version.

R1: Additional authors.

R2: Editorial update made during the Dec. 7, 2022 TGme Ad Hoc.

# CID 3816

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| **CID**  **Clause**  **Page.Line** | **Comment** | **Proposed Change** |
| 3816  15.4.5.5  3129.3 | TX spectral mask for 11b is missing the absolute PSD floor limit which is present for ERP-OFDM, HT and HE PPDUs.  ERP-OFDM: 18.4.7.3 refers to 17.3.9.3 for the TX spectral mask, which has a -39 dBm/MHz floor for the TX spectral mask (D2.0 P3194L52).  HT: 19.3.18.1 (D2.0 P3300L43) specifies -53 dBm/MHz as the TX spectral mask floor for HT PPDUs in 2.4 GHz.  HE: 27.3.19.1 (D2.0 P4156L8) specifies -53 dBm/MHz as the TX spectral mask floor for HE PPDUs in 2.4 GHz. | Add a TX spectral mask floor of -53 dBm/MHz for DSSS, HR/DSSS and ERP-DSSS transmissions at 15.4.5.5, 16.3.7.4 and 18.4.7.3. |

## Discussion

In case of OFDM, HT, VHT and HE PHYs, the transmit spectrum mask consists of two components:

* A relative spectrum mask (the “dBr” mask relative to the peak spectrum)
* Absolute spectrum floor limit

For example, a 20 MHz HT and HE PPDU in the 2.4 GHz has an absolute spectrum floor limit of -53 dBm/MHz.

REVme D2.0 P3300-3301

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REVme D2.0 P4155-4156

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The reason for the absolute floor limit is because the inherent noise floor of the transmitter does not scale down as the transmit power is lowered, and is not specific to OFDM based modulations such as HT and HE PPDUs.

However, the transmit spectrum mask for DSSS and HR/DSSS is missing such absolute floor limits. Since the inherent reason for the absolute spectrum mask floor limit still exists for DSSS and HR/DSSS waveforms just as for OFDM based waveforms, we should add the same -53 dBm/MHz floor limit to DSSS and HR/DSSS masks to make the standard more complete.

## Proposed Resolution: CID 3816

**REVISED**

**Instruction to TGme Editor:**

Implement the proposed text update for CID 3816 in <https://mentor.ieee.org/802.11/dcn/22/11-22-2076-02-000m-lb270-dsss-tx-mask-floor.docx>.

**Note to Commenter:**

The text update referenced above adds a transmit spectrum mask floor of -53 dBm/MHz for DSSS and HR/DSSS transmit spectrum masks. No text change is needed for ERP-DSSS (18.4.7.3) as the ERP-DSSS transmit spectrum mask simply refers to that of HR/DSSS.

## Proposed Text Update: CID 3816

*Instruction to TGme Editor: Update REVme D2.0 P3129L3 as shown below.*

15.4.5.5 Transmit spectrum mask

The overall transmit spectrum mask is constructed using two components. First, an interim spectrum mask is constructed whose mask level is determined relative to the SINx/x peak of the signal. The overall transmit spectrum mask is then constructed by taking the higher of the interim transmit spectrum mask and –53 dBm/MHz at each frequency offset.

The  interim transmit spectrum mask shall be 0 dBr (decibel relative to the SINx/x peak) for *f*c – 11 MHz < *f* < *f*c +11 MHz*,* –30 dBr for *f*c – 22 MHz < *f* < *f*c –11 MHz and *f*c +11 MHz < *f* < *f*c + 22 MHz, –50 dBr for *f* < *f*c –22 MHz and *f* > *f*c + 22 MHz, where *f*c is the channel center frequency. The transmit spectrum mask shall not exceed the maximum of the interim transmit spectrum mask and -53 dBm/MHz at any frequency offset in the 2.4 GHz band. The transmit spectrum mask when the –50 dBr spectrum level is above –53 dBm/MHz is shown in Figure 15-10 (Transmit spectrum mask). The measurements shall be made using 100 kHz resolution bandwidth and a 30 kHz video bandwidth.



*Instruction to TGme Editor: Update REVme D2.0 P3157L31 as shown below.*

16.3.7.4 Transmit spectrum mask

The overall transmit spectrum mask is constructed using two components. First, an interim spectrum mask is constructed whose mask level is determined relative to the SINx/x peak of the signal. The overall transmit spectrum mask is then constructed by taking the higher of the interim transmit spectrum mask and –53 dBm/MHz at each frequency offset.

The interim transmit spectrum mask shall be 0 dBr (decibel relative to the SINx/x peak) for *f*c – 11 MHz < *f* < *f*c +11 MHz, –30 dBr for

*f*c – 22 MHz < *f* < *f*c –11 MHz and

*f*c + 11 MHz < *f* < *f*c + 22 MHz

and –50 dBr for

*f* < *f*c – 22 MHz and

*f* > *f*c + 22 MHz

where

*f*c is the channel center frequency

The transmit spectrum mask shall not exceed the maximum of the interim transmit spectrum mask and –53 dBm/MHz at any frequency offset in the 2.4 GHz band. The transmit spectrum mask when the –50 dBr spectrum level is above –53 dBm/MHz is shown in Figure 16-8 (Transmit spectrum mask). The measurements shall be made using a 100 kHz resolution bandwidth and a 100 kHz video bandwidth.



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