IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Changes to D3.3 | | | | |
| Date: 2019-01-07 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Xiaogang Chen | Intel | 2111 NE 25th Ave, Hillsboro, OR, 97124 |  | Xiaogang.c.chen@Intel.com |

Abstract

This submission proposes text changes of TGax Draft 3.3.

Revisions:

* Rev 0: Initial version of the document.

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

**Background and discussions:**

The current draft recommends that the total power of Pre-HE portion >= the total power of HE portion: “The total power of the time domain HE modulated field signals summed over all transmit chains should not exceed the total power of the time domain pre-HE modulated field signals summed over all transmit chains if(#15480) the TXVECTOR parameter BEAM\_CHANGE is 1 or not present and power boost in HE modulated fields is not present.”

For HE TB PPDU, the Pre-HE portion may be **transmitted on wider bandwidth than** the HE portion if the HE portion is populated on some RUs. E.g. the inner 242 tone RUs in 80MHz. That means the **HE portion is transmited across 20MHz but Pre-HE portion is transmitted across 40MHz**.

For the above mentioned HE TB PPDU, in some of the band edge, we found the following Tx power limitation issue due to the OOBE caused by IM3 (one example is shown in the table below for band 36).

*If* ***both the HE portion and the Pre-HE protion*** *of TB PPDU are transmitted in channel 44 (20MHz), they can be transmitted by 20dBm; however, if HE portion is transmitted in channel 44 (20MHz) but pre-HE portion is transmitted in channel 46F (40MHz), the Tx power of HE portion will be limited by 18dBm instead of 20dBm. The reason is the IM3 of 40MHz is much worse than the 20MHz. The IMs push the PA back off more to accommodate the OOBE especially in the band edge.*

**Table 1 Measured Tx power (in dBm) for different band**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 20MHz | | | 40MHz | | |
| Central Frequency | Central Channel | SISO | Central Frequency | Central Channel | SISO |
| 5180 | 36 | 17.00 | 5190 | 38F | 17.00 |
| 5200 | 40 | 20.00 |
| 5220 | 44 | 20.00 | 5230 | 46F | 18.00 |
| 5240 | 48 | 20.00 |

**We propose to make it optional to deboost the pre-HE portion in base band, such that the HE portion is not limited by the Tx power of pre-HE portion given the fact that PA will be the same across the whole PPDU.**

**Proposed changes:**

*To the TGax Editor: modify P.L. 498.64 as following.*

If(#15480) the TXVECTOR parameter BEAM\_CHANGE is 1 or not present and power boost in HE modulated fields is not present, the ~~The~~ total power of the time domain HE modulated field signals summed over all transmit chains should not exceed the total power of the time domain pre-HE modulated field signals summed over all transmit chains, ~~if(#15480) the TXVECTOR parameter BEAM\_CHANGE is 1 or not present and power boost in HE modulated fields is not present~~ except for the HE TB PPDU, in which the total power of the time domain HE modulated field signals summed over all transmit chains may exceed the total power of the time domain pre-HE modulated field signals summed over all transmit chains for up to 3dB.

*To the TGax Editor: modify P.L. 499.38 as following.*

For the HE-SIG-A and Data fields in an HE ER SU PPDU, ~~and all fields in other HE PPDUs,~~ . For the pre-HE portion of the HE TB PPDU, , which means may be any value between  and 1.

*To the TGax Editor: modify equation 28-7 as following (add a new entry highlighted as red)*



*To the TGax Editor: modify P.L. 506.29 as following (add a new entry highlighted as red)*



*To the TGax Editor: modify equation 28-16 as following*

Add “” between and the left bracket as shown below.



*To the TGax Editor: Add the highlighted equation after P.L. 524.43*



