IEEE P802.11
Wireless LANs

|  |
| --- |
| Proposed resolution for REVme LB258 CID 2243 2244 2390 2391 |
| Date: 2022-04-15 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Zinan Lin | InterDigital |  |  | Zinan.lin@interdigital.com |
| Rui Yang | InterDigital |  |  |  |
| Joseph Levy | InterDigital |  |  |  |

Abstract

##### This submission present proposed resolutions for the following CIDs: 2243 2244 2390 2391

##### The proposed changes are based on REVme/D1.0.

##### Revision history:

##### r0 - initial version

r1 – editorial change

r2 – Addressed the comment from Ross

r3 – Addressed the comments when the document is presented on 04/26/2022

r4 – Addressed comments from Youhan

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 2243 | 26.10.3.2 | 4241.1 | RPL should be combined received power, not combined transmit power. It should also be normalized over 20 MHz. | As in comment. | Revised:Agree in principle with comments. TGm editor: please incorporate changes shown in 11-22/0652r4 foollwing “Discussion end”  |
| 2244 | 26.10.3.2 | 4240.57 | There are four PSR values in either Common Info field or RXVECTOR parameter Spatial Reuse of the HE TB PPDU. | Use the min of four SPR values | Revised:Agree in principle with comments. TGm editor: please incorporate changes shown in 11-22/0652r4 foollwing “Discussion end” |
| 2390 | 26.10.3.2 | 4240.53 | It is not clear to show PSR only because there are four values in the UL Spatial Reuse subfield of the common field in the Trigger frame | Need to redifine the upperbound intended transmit power of the PSRT PPDU, specify how to set PSR value when there are different values shown in the four UL Spatial Reuse subfield | Revised:Agree in principle with comments. TGm editor: please incorporate changes shown in 11-22/0652r4 foollwing “Discussion end” |
| 2391 | 26.10.3.2 | 4240.53 | Per current specs, RPL is the combined transmit power at the receiver antenna connector, over the PSRR PDDU bandwidth. This is not consistent with the definition of PSRT\_PPDU - log10(PPDU\_BW/20 MHz) | Need to modify the definition of RPL to be consisten with the PSRT\_PPDU-1log10(PPDU\_BW/20 MHz) | Revised:Agree in principle with comments. TGm editor: please incorporate changes shown in 11-22/0652r4 foollwing “Discussion end” |

***Discussion:***

CIDs 2243, 2244, 2390 and 2391 are all about the PSR-based spatial reuse operation. It is shown in 802.11be D1.5 that

“The intended transmit power of the PSRT PPDU in dBm shall meet the following condition:

 [dBm]

where

is the indended transmit power of the PSRT PPDU in dBm

 is the number of nonpunctured 20 MHz subchannels of the PSRT PPDU

 is the received signal power measured in dBm/20 MHz. It shall be measured in at least one 20 MHz channel in which the preamble of PSRR PPDU is present. The measurement method is implementation specific.

 is equal to PSR value if there exists one PSR value within the bandwidth of PSRT PPDU or equal to the minimum of multiple PSR values if there exist multiple PSR values within the bandwidth of PSRT PPDU. Each PSR is specified per 20 MHz.”

There could be multiple scenarios of PSRT PPDU operating channel and PSRR PPDU operating channel as the examples indicated below:

1. PSRT PPDU operating channel matches PSRR PPDU operating channel
* Case 1.1: The is no punctured subchannel in PSRR and PSRT, e.g.,



* Case 1.2: There is punctured subchannel in PSRR and PSRT. The number of unpunctured subchannels in PSRR is equal to the number of unpunctured subchannels in PSRT, e.g.,



1. PSRT PPDU operatimg channel mismatches PSRR PPDU operating channel
* Case 2.1: The operating bandwidth of the PSRR PPDU is larger than PSRT PPDU, e.g., BW\_PSRR = 160 MHz, BW\_PSRT = 80 MHz. *,*



* Case 2.2: The operating bandwidth of the PSRR PPDU is smaller than PSRT PPDU, e.g., BW\_PSRR = 80 MHz, BW\_PSRT = 160 MHz. *,*



To obtain the RPL value per 20 MHz, more than one subchannel within the overlapping bandwidth of PSRR PPDU and PSRT PPDU should be obtained to have the averaged RPL value per 20 MHz if there is existing more than one overlapping subchannel with the present preamble of PSRR PPDU. If there is existing only one overlapping subchannel with the present preamble of PSRR PPDU, the RPL value is the received signal power at the receiverd signal at the receive antenna connector in this subchannel.

In addition, the unit of PSR in the Meaning column of Table 27-23 is incorrect, i.e., it is not dBm based on Equation (26-7). It needs to be corrected.

***Discussion end***

**TGme Editor: Please make changes 802.11REVme D1.0 on P4240L52**

An HE STA identifies an PSR opportunity if the following two conditions are met:

a) The STA receives a PHY-RXSTART.indication corresponding to the reception of a PSRR PPDU

that is identified as an inter-BSS PPDU (see 26.2.2 (Intra-BSS and inter-BSS PPDU classification)).

b) A PSRT PPDU is queued for transmission, and the intended transmit power of the PSRT PPDU in dBm meets the following condition:

where

 is the intended transmit power over the entire bandwidth of the PSRT PPDU in dBm

 is the number of nonpunctured 20 MHz subchannels of the PSRT PPDU

 in the unit of dBm/20 MHz is the normalized received signal power measured at the antenna connector in at least one 20 MHz subchannel. The measured 20 MHz subchannel(s) shall be the subchannel(s) in which the preamble of both the PSRR PPDU and the PSRT PPDU are present. The measurement method is implementation dependent.

is equal to PSR value if there exists one PSR value within the bandwidth of PSRT PPDU or the minimum of multiple PSR values if there exist multiple PSR values within the bandwidth of PSRT PPDU. Each PSR value is specified per 20 MHz. They are obtained from the Meaning column of Table 27-23 (Spatial Reuse field encoding for an HE TB PPDU(11ax)) based on at least one of the following:

1. The value of the UL Spatial Reuse subfield in the Common Info field of the Trigger frame of the PSRR PPDU
2. The value of the RXVECTOR parameter Spatial Reuse of the HE TB PPDU that follows the PSRR PPDU

NOTE – The PSR value is determined for each 20 MHz subchannel for a 20 MHz, 40 MHz, or 80 MHz PPDU. The PSR value is normalized to 20 MHz subchannel for a 80+80 MHz or 160 MHz PPDU from the PSR value obtained from either the value of the UL Spatial Reuse subfield in the Common Info field of the Trigger frame of the PSRR PPDU or the value of the RXVECTOR parameter Spatial Reuse of the HE TB PPDU that follows the PSRR PPDU.