IEEE P802.11  
Wireless LANs

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| 802.11 TGac WG Letter Ballot LB187  Proposed resolutions to CID 4574 | | | | |
| Date: 2012-03-08 | | | | |
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##### Comments are based on 11ac D2.0. Proposed resolutions are based on 11ac D2.0. Changes indicated by a mixture of Word track-changes and instructions. For equation changes, Latex notation is sometimes used. E.g. a\_{xyz}^b denotes axyzb

Following CID is covered in this document:

PHY: 4574

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 4574 | 197.01 | 22.3.7 | The power constraint "The normalization factor of sqrt(..) ensures that the total power of the time domain signal of a frequency segment summed over all transmit chains is normalized to 1" was removed in D1.0 comment resolutions, the same constraint was present in 11n mixed mode format, i.e. 11n mixed mode format requires that the transmit power is constant throughout the packet, while 11ac does not have such a constraint. Removing the power constraint may cause interop issues. For example, the equations of L-STF through VHTSIGA in the subsequent subclauses guarantee the time domain transmit power being normalized to 1, but the equations in VHTSTF through VHT-Data do not have any power constraint--mainly because the norms of the Q matrices in VHT portion is unconstrained. Without this power constraint, transmitter may bump up the transmit power in the VHT portion to be much higher than the pre-VHT portion and still conform to the spec, however typical receiver may have difficulty receiving such a packet due to AGC limitations. | Add a general sentence saying that the transmit power of VHT portion is equal to or less than the transmit power of the pre-VHT portion, or saying that the power in any portion of the PPDU is normalized to 1 or less than 1 by the factor 1/sqrt(Nnorm\*Nfiled^tone). |

**Discussion:**

Context:



For pre-VHT modulated fields, . Together with Equation (24), one can show that the total power of the time domain signal summed over all transmit chains is 1for pre-VHT modulated fields. For VHT modulated fields, however, there is no constraint on the choice of  which may lead to a very different transmit power between the pre-VHT modulated and VHT modulated fields.

Note that packet detection is performed using the pre-VHT modulated fields. Hence, if the pre-VHT modulated field has lower power than the VHT modulated field, then the probability of missed detection increases both at the intended receiver as well as other STAs which should detect the packet and defer transmission. Thus, the power of the pre-VHT modulated field should not be less than that of the VHT modulated fields.

**Proposed Resolution:**

REVISE. Make changes under heading CID 4574 in 11-12/0311r0. This change adds a sentence clarifying that the power of the VHT modulated fields should not exceed the power of the pre-VHT modulated fields.

**Proposed Text Change:**

Change P196L61 as follows:

This general representation holds for all subfields. In the remainder of this subclause, pre-VHT modulated fields refer to the L-STF, L-LTF, L-SIG and VHT-SIG-A fields, while VHT modulated fields refer to the VHT-STF, VHT-LTF, VHT-SIG-B and Data fields, as shown in Figure 22-10. Total power of the time domain VHT modulated field signals summed over all transmit chains should not exceed the total power of the time domain pre-VHT modulated field signals summed over all transmit chains. For notational simplicity, the parameter BW is omitted from some bandwidth dependent terms.