IEEE P802.11  
Wireless LANs

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| LB 203 Comment Resolution for Clause 24.4 | | | | |
| Date: 2014-09-04 | | | | |
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Abstract

This submission proposes resolutions for comments in clause 24.4 of TGah Draft 2.0 with the following CIDs: 3074, 3075, 4183, 4189 and 4190.

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 TGah Draft. This introduction is not part of the adopted material.

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

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

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 3074 | 472.35 | 24.4.2 | Phy type should be "s1g" because syntax for ASN.1 enumerations require this.  And don't include the value here. It may get out of date. | As in comment | Accepted.  Please TGah editor to change “S1G(11)” to “s1g” as at pg472/ln35 in 11ah spec D2.0 |
| 3075 | 478.56 | 24.4.4 | "A constant multiple of 40 us"  OK, let on. Which constant? | Or perhaps "an integer multiple of 40 us"? | Revised.  Please TGah editor to modify 11ah D2.0 as proposed in 11/14-1097r0 |
| 4183 | 478.16 | 24.4.4 | aMPDUMaxLength is not defined in Table 24-37 (nor wasn't it defined in the 802.11n and 802.11ac amendments). So what is the maximum length of an un-aggregated MPDU for the HT PHY? In Clause 16, 17, 18, and 19 this parameter is defined in the PHY characteristics table. For 802.11a and 802.11g the value is 4096 octets. However, the dot11FragmentationThreshold MIB variable limits the longest transmission to be 2346, originally for both PHYs, under the rules of Clause 9, but this was later changed to be 3000 octets in 802.11REVmb, and changed again in 802.11n to 8000 octets. With this last increase to dot11FragmentationThreshold, aMPDUMaxLength = 4096 octets became the effective limit for these two PHYs.  Now, in 802.11n, aMPUDMaxLength was not defined in the HT PHY parameters, although it is still required as one of the parameters in the initialization of the PHY primitive. aPSDUMaxLength = 65536, and the aPPDUMaxTime = 10ms were added, and the configurable dot11MaxAMSDUlength MIB variable = either 7935 or 3839 (default) was added. These 3 parameters, together, do limit the PHY transmission in both the aggregated and unaggregated cases, but then the default value for dot11FragmentationThreshold, which becomes the limit of an unaggregate packet, is ill-defined because aMPDUMaxLength is undefined for the Clause 20 HT PHY. All that is really known is that 8000 octets is the upper limit for dot11Fragmentation Threshold. (See the last sentence of the description of dot11FragmentationThreshold in the MIB, which gives the equation for calculating dot11FragmentationThreshold as a function of aMPDUMaxLength.) | Define aMPDUMaxLength for the HT PHY. In this way, the length of the maximum unaggregated MPDU (and the default maximum fragment as defined by the value of dot11FragmentationThreshold in the MIB) will be well-defined, as well as the parameter to the PHY initialization. | Rejected  Actually, the max HT MPDU length is defined in 802.11-Revmc. But it’s defined in MAC part. As defined in Table 8-19, the max HT MPDU length is limited by the max A-MSDU length which is 3839 octets for 20MHz and 7935 octets for 40MHz. So in turn, the max HT MPDU length is 3879 octets for 20MHz and 7975 octets for 40MHz without Mesh Control field and overhead from encapsulation for encryption. |
| 4189 | 478.5 | 24.4.4 | As the S1G PHY is the 1/10 down clocked variation of the VHT PHY, PHY characteristics parameters shown in Table 20-25 and Table 22-29 cannot be applied to the S1G PHY. | 1) Modify the first paragraph as follows;  --  The static S1G PHY characteristics, provided through the PLME-CHARACTERISTICS service primitive, are shown in Table 24-37 (S1G PHY characteristics). The definitions for these characteristics are given in 6.5 (PLME SAP interface).  2) Insert following specifications to Table 24-37:  - aTxPHYDelay = Implementation dependent, see 9.3.7 (DCF timing relations).  - aRxPHYDelay = Implementation dependent, see 9.3.7 (DCF timing relations).  - aTxRampOnTime = Implementation dependent, see 9.3.7 (DCF timing relations). | Revised.  Please TGah editor to modify 11ah D2.0 as proposed in 11/14-1097r0 |
| 4190 | 478.40 | 24.4.4 | A parameter 'aSTFLength' and a parameter 'aLTFLength' are not defined in the subclause 6.5 (PLME SAP interface) of P802.11mc D2.5. | Replace 'aSTFLength' by 'aSTFOneLength' and replace 'aLTFLength' by 'aLTFTwoLength'. | Accepted  Please TGah Editor to apply the changes as the commenter proposed. |
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**Discussion**

CID 4183:

Agreed with the commenter that parameter “aMPDUMaxLength” is contained in primitive “PLME-CHARACTERISTICS.confirm” defined in sub-clause 6.5.4.2 as a general structure. The parameter “aMPDUMaxLength” is defined as “The maximum number of octets in an MPDU that can be conveyed by a PHY protocol data unit (PPDU).” But it’s also clarified that “Not all parameters are used by all PHYs defined within this standard”.

Besides the commenter’s analysis (in current Revmc D3.0, the limit to variable dot11FragmentationThreshold is updated once more to the the lesser of 11500 and aMPDUMaxLength), the length of max MPDU is actually defined for HT and VHT respectively. Below is a summary to the limitation to MPDU length as in Table 8-13c in released IEEE802.11ac spec (or Table 8-19 in IEEE 802.11 Revmc D3.0):

* For Non-HT Non-VHT non-DMG and non-HT duplicate format, there’s no direct constraint on the maximum MPDU size. But there’s indirectly constrained by the maximum MSDU/MMPDU or (for HT STAs only) A-MSDU size.
* For HT format, there’s no direct constraint on the maximum MPDU size. But the MPDU length is indirectly constrained by the maximum A-MSDU size.
* For VHT formt, the max MPDU length is 3895 or 7991 or 11454 octets up to device’s capability and is indicated in VHT capability field.

Therefore, the max MPDU length for both HT and VHT were actually defined but not limited by PHY characteristics as stated above. So it’s not reasonable to include aMPDUMaxLength in Table 24-37.

**24.4.4 PHY characteristics**

**Instruction to TGah Editor: *Modify Table 24-37 S1G PHY characteristic at ln11/pg478 in 11ah spec draft D2.0 as below:***

The static S1G PHY characteristics, provided through the PLME-CHARACTERISTICS service primitive, shall be as shown in Table ~~20-25 (MIMO PHY characteristics) and Table 22-29 (VHT PHY characteristics) unless otherwise listed in Table~~ 24-37 (S1G PHY characteristics). The definitions for these characteristics are given in 6.5 (PLME SAP interface).

**Table 24-37-- S1G PHY characteristics**

|  |  |
| --- | --- |
| **characteristics** | **Value** |
| …… | …… |
| aRxTxTurnaourndTime | Implementation dependent, see 9.3.7 (DCF timing relations). |
| aTxPHYDelay | Implementation dependent, see 9.3.7 (DCF timing relations). |
| aRxPHYDelay | Implementation dependent, see 9.3.7 (DCF timing relations). |
| aRxTxSwitchTime | Implementation dependent, see 9.3.7 (DCF timing relations). |
| aTxRampOnTime | Implementation dependent, see 9.3.7 (DCF timing relations). |
| …… | …… |
| aSTFOneLength | 80 µs |
| aLTFOneLength | 80 µs |
| aLTFOneLength | 40µs |
| …… | …… |
| Inter-frame Spacing | A ~~constant~~ integer multiple of 40µs |
| …… | …… |
| aPPDUMaxTime | 27,920µs (see NOTE1) |
| aPSDUMaxLength | 797159 octets (see NOTE2) |
| NOTE1 – this is the maximum PPDU duration in µs for an S1G\_1M PPDU with a bandwidth of 1MHz, S1G-MCS10 and 1 spatial stream, limited by PSDU length of 511 octets.  NOTE2 – this is the maximum length in octets for an S1G SU PPDU with a bandwidth of 16 MHz, S1G-MCS9 and 4 spatial streams, limited by 511 data symbols supported by Length field in S1G SIG field, excluding service field and tail bits. | |