IEEE P802.11
Wireless LANs

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| CR on PHY Intro |
| Date: 2018-11-11 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Yujin Noh | Newracom |  |  | yujin.noh at newracom.com |
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Abstract

This submission shows

* Resolution for a comment received from TGax comment collection (TGax Draft D3.0)
* The proposed changes are based on 11ax D3.1.

The submission provides resolutions to comments related to PHY Introduction.

* The submission provides resolutions to 11 CIDs:
16773, 16572, 15917, 16553, 16554, 16550, 16552, 16724, 16520, 16705
and 16555

Revisions:

* Rev 0: Initial version of the document.

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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 16773 | 377.36 | "the maximum number of users supported for DL MU-MIMO transmissions to eight per RU". RU is used before the acronym is defined. Note that on line 38, the term "resource unit" is used instead. | 　 | RevisedRU is replaced with resource unit.TGax Editor: make changes according to this document 11-18-1735-00-00ax CR on PHY Intro |
| 16572 | 377.36 | The HE PHY can not possibly support 8 users per RU in the DL MU-MIMO transmissions. This must be a typo. | Remove "per RU" from line 36 of this paragraph. | Revised.To make it clear, "The HE PHY extends the maximum number of users supported for DL MU-MIMO transmissions to eight" is replaced with "The HE PHY extends the maximum number of users supported for DL MU-MIMO transmissions up to eight"TGax Editor: make changes according to this document 11-18-1735-00-00ax CR on PHY Intro |

***To TGax editor:*** ***P381L34*** *replace the current text with the proposed changes below.* (#16773 and 16572)***------------- Begin Text Changes ---------------***

The HE PHY extends the maximum number of users supported for DL MU-MIMO transmissions up to 8 users per resource unit ~~RU~~ and provides support for DL and UL orthogonal frequency division multiple access (OFDMA) as well as for UL MU-MIMO. Both DL and UL MU-MIMO transmissions are supported on portions of the PPDU bandwidth (on resource units greater than or equal to 106 tones). In an MU-MIMO resource unit, there is support for up to 8 users with up to 4 space-time streams per user with the total not exceeding 8 space-time streams.

***------------- End Text Changes ---------------***

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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 15917 | 378.05 | Delete 'HE PHY supports the regulatory requirements in 21.3.13'. There is already an explicit section 28.3.23 for it | Delete 'HE PHY supports the regulatory requirements in 21.3.13 (Regulatory requirments)' | Accepted |
| 16553 | 378.05 | Incorrect reference to the "Regulatory Requirements" | Change the statement as follows: The HE PHY supports the regulatory requirements in 28.3.23 (Regulatory requirements). | Revised.Same resolution to CID15917TGax Editor: make changes according to this document 11-18-1735-00-00ax CR on PHY Intro |
| 16554 | 378.05 | Need additional reference for "Regulatory Requirements" for 6-7 GHz band | The HE PHY is intended to operate in frequency bands between 1 GHz and 7.125 GHz. It may need to reference additional requirements for frequency band from 6 - 7.1 GHz when it is formulated. One solution is to add a TBD sub clause under the 28.3.23 sub clause. | Revised.I don’t think it is the proper stage to add TBD in the spec.Same resolution to CID15917 and leave 28.3.23 add its own text on 6 GHz band as of now.TGax Editor: make changes according to this document 11-18-1735-00-00ax CR on PHY Intro |

***To TGax editor:*** ***P382L01*** *delete the current text as below.* (#15917, 16553 and 16554 )***------------- Begin Text Changes ---------------***

The HE PHY provides support for midambles, which facilitate the updating of the channel estimate during HE PPDU reception, for example, in fast varying channels.

~~The HE PHY supports the regulatory requirements in 21.3.13 (Regulatory requirements).~~

An HE STA shall support the following features:

***------------- End Text Changes ---------------***

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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 16550 | 378.14 | Incomplete requirements on the type of coding to be used for HE SU PPDUs that occupy bandwidth larger than 20 MHz. | Remove the last sentence "Binary convolutional coding is not used in the following cases:" and the following 6 sub-bullets. | Rejected.There is nothing wrong with the description contents-wise when BCC is not used.There had been a long discussion that “shall support A feature (e.g. LDPC)” does not mean “shall not support B feature (e.g. BCC)” before.For example. “LDPC coding (transmit and receive) shall support in all supported HE PPDU types, RU sizes, and number of spatial streams if the STA supports transmitting and receiving in channel bandwidths greater than 20 MHz” does not mean “BCC is not used in the following cases: 1) An HE SU PPDU with a bandwidth greater than 20 MHz and 2) An RU of size greater than 242 subcarriers in an HE MU PPDU or an HE TB PPDU)It would be better to keep it as of now |
| 16552 | 378.14 | Incomplete requirements on the type of coding coding to be used for HE SU PPDUs or an RU in an HE MU PPDU or HE TB PPDU using HE-MCSs 10 or 11 | Remove the last sentence "Binary convolutional coding is not used in the following cases:" and the following 6 sub-bullets. | RejectedSame resolution to 16550 |
| 16724 | 378.00 | It looks very strange to have this "not used" cases under "An HE STA shall support the following features". | It is better to create a paragraph to include all "not supported" cases | RejectedThere had been a long discussion that “shall support A feature (e.g. LDPC)” does not mean “shall not support B feature (e.g. BCC)” before.For example. “LDPC coding (transmit and receive) shall support in all supported HE PPDU types, RU sizes, and number of spatial streams if the STA supports transmitting and receiving in channel bandwidths greater than 20 MHz” does not mean “BCC is not used in the following cases: 1) An HE SU PPDU with a bandwidth greater than 20 MHz and 2) An RU of size greater than 242 subcarriers in an HE MU PPDU or an HE TB PPDU)Even though it seems not to be nature between “shall” and “not used”, it would be better to keep it as of now. |
| 16520 | 378.20 | "\* An RU allocated to a single user in an HE MU PPDU or for an HE TB PPDU with a number of spatial streams greater than 4". Material may be organized as frequency information then spatial information. | bullet point three: "An RU allocated to a single user in an HE MU PPDU""bullet point five: "An RU allocated for an HE TB PPDU with a number of spatial streams greater than 4 | Rejected.Nothing wrong with contents when BCC is not used.In two bullets with 1) An HE SU PPDU with number of spatial streams greater than 4 and 2) An RU allocated to a single user in an HE MU PPDU or for an HE TB PPDU with a number of spatial streams greater than 4, the point is “all supported HE PPDU types with number of spatial streams greater than 4”. |
| 16555 | 379.28 | Should emphasize that HE AP only uses MCS 0 -5 to transmit HE-SIG-B. | Change the paragraph to: "Transmission of the HE-SIG-B field in an HE MU PPDU using only HE-MCSs 0 to 5." | Rejected.Looking at Table 28-19 (HE-SIG-A field of an HE MU PPDU), SIGB MCS field indicates MCS 0 to 5 such that there is no way to use beyond MCS 5. The original text is clear enough as of now. |
| 16705 | 378.50 | "HE ER SU PPDU is not used" is not an item the HE STA shall support | Move it to a sub-item to the previous line "Single spatial stream HE-MCS ..." similar to the BCC requirement at line 15 of the same page. | RejectedThere had been a long discussion that “shall support A feature” does not mean “shall not support B feature before.For example. Supporting mandatorily “Single spatial stream HE-MCSs 0 to 2 in primary 20 MHz channel for HE ER SU PPDUs.” does not mean “HE-MCS greater than 2 when 242 subcarriers are not used in the Data field OFDM symbols” for HE ER SU PPDUsEven though it seems not to be nature between “shall” and “not used”, it would be better to keep it as of now. |

***Discussions***

For your information at P382L7

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