IEEE P802.11
Wireless LANs

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| TGax D0.1 Comment Resolutions on 26.3.7, 26.3.7.3 and 26.3.12 |
| Date: 2016-05-16 |
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Abstract: **Comment Resolutions for Clause 26.3.7, 26.3.7.3 and 26.3.12**

* **CIDs:** 841,1787,1945, 1946,1949,1950,1965,2365,2366,2524,2525,2526,2918

##### CIDs 841,1945, 1946,1949,1950,1965,2365,2366,2524,2525,2526,2918

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| 1949 | Sigurd Schelstraete | 26.3.7 | 87.33 | Clarify sentence | Replace "Using subchannelization, an OFDMA system can potentially allocate different transmit powers to different allocations." with "An OFDMA system may allocate different transmit powers to different subchannels." | **Accepted.** |
| 841 | Jinsoo Choi | 26.3.7.3 | 94.58 | Shouldn't we specify the pilot tone indices for 160MHz (when 2x996 unit is used for SU)? | If noting on explicit tone indices is helpful, add the pilot tone indices for 160MHz in the Table 26-12. | **Revised.**  Modified Table 26-12 as explained below. |
| 1946 | Sigurd Schelstraete | 26.3.7 | 86.63 | What is "the OFDM scheme" | Replace sentence with "OFDMA is an OFDM-based multiple-access scheme where different subsets of subcarriers are allocated to different users". | **Accepted.** |
| 2918 | Guido Hiertz | 26.3.7 | 87.41 | (2.61) is incorrect, T\_CP >= T\_RMS does not prevent ISI. | Should be T\_CP >= T\_excess delay | **Revised,**Removed the equation as it is also indicated in the resolution for CID 2526 in document number 11-16-1227. |
| 1950 | Sigurd Schelstraete | 26.3.7 | 87.36 | remove paragraph | The lines 26-44 are needlessly broad and contain parameters that are not used anywhere else. Remove these lines. | **Revised,**Lines 26 -35 are not part of the paragraph which starts at line 36. Removed lines 36-44. It is also indicated in the resolution for CID 2526 in document number 11-16-1227. |
| 1965 | Sigurd Schelstraete | 26.3.7.3 | 93.34 | Why "If pilot tones are present"? | Remove "If pilot tones are present in the HE-LTF field," | **Rejected.****There are two schemes in UL-MU-MIMO CFO tracking, one uses pilots to track CFO; another one does not need pilot in HE-LTF. Therefor there is a case where pilot tones may not be present.** |
| 2365 | Yasushi Takatori | 26.3.7 | 87.36 | The information of this sentence is redundant (informative but not needed.) | Delete the two sentences. | **Accepted.** |
| 2366 | Yasushi Takatori | 26.3.7 | 87.45 | Whether FFT is used or not is implementation dependent. | Replace "FFT" with "DFT." | **Accepted.** |
| 2524 | Youhan Kim | 26.3.7 | 87.01 | OFDMA can be both DL and UL. | Change "simultaneous data transmission by several users" to "simultaneous data transmission to or from several users". | **Accepted.** |
| 2525 | Youhan Kim | 26.3.7 | 87.01 | RU allocation does not change over time (OFDM symbols) within a PPDU. | Remove the sentence "In OFDMA, the resources are alocated in two dimensional regions over time and frequency." | **Revised,** This section provides a brief overview and in general in OFDMA, the resources can be allocated in time and frequency. Modified the original text by the suggested remedy below, document number 11-16-1227. |
| 2526 | Youhan Kim | 26.3.7 | 87.36 | "OFDMA is a method to add multiple access in OFDM systems and has been adopted by other wireless standards, and the HE amendment introduces OFDMA into 802.11 WLAN networks." This sentence is redundant to the previous paragraphs. Besides, there is no need to talk about what other standards have done. Also the subsequent sentence and equation 26-1 does not seem needed in a standard. | Remove the paragraph P87L36-39, including Equation (26-1). | **Accepted.** |
| 1945 | Sigurd Schelstraete | 26.3.7 | 86.63 | Redundancy in first sentence | "multi-user variant (...) assigning subcarriers to different users, allowing simulateous data transmission by several users". I think we get the idea that this is multi-user. Delete " allowing simultaneous data transmission by several users" | **Rejected.** **This section provides an overview and it is beneficial to have some explanation.**  |

*TGax Editor: Please reflect the (accepted) comment resolution on CID 1949 above to D0.3 Page 126 line 38 for clause 26.3.7 as following:*

Subchannelization defines subchannels that can be allocated to stations depending on their channel conditions and service requirements. ~~Using subchannelization, an OFDMA system can potentially allocate different transmit powers to different allocations.~~An OFDMA system may allocate different transmit powers to different subchannels.

**Suggested remedy for CID 841**

*TGax Editor: Please reflect the suggested remedy for CID 841 above to D0.3 Page 134 line 33 for clause 26.3.7.3 by adding a row to the end of the Table 26-12 as following:*

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| *Channel Width* | *RU Size* | *Pilot Tone Indices* |
|  *160 MHz* | *26, 52, 106, 242, 484* | *{pilot tone indices in 80 MHz -512, pilot tone indices in 80 MHz +512}* |
| *996* | *{for the first 80 MHz, pilot tone indices in 80 MHz -512, for the second 80 MHz, pilot tone indices in 80 MHz**+512}* |

**Suggested remedy for CID 2525**

* Add phrase “in general” to convey the explanatory purpose of this sentecnce and added that it can change from one to the next to explain the changes over time.

*TGax Editor: Please reflect the (accepted) comment resolution on CID 1946 and 2524, and the suggested remedy for CID 2525 above to D0.3 Page 125 lines 47-50 for clause 26.3.7 as following:*

Orthogonal Frequency Division Multiple Access (OFDMA) ~~is the multi-user variant of the OFDM scheme where multiple-access is achieved by assigning subsets of subcarriers to different users,~~ is an OFDM-based multiple-access scheme where different subsets of subcarriers are allocated to different users, allowing simultaneous data transmission ~~by~~ to or from several users. In OFDMA, in general, users are allocated different subsets of subcarriers which can change from one packet to the next ~~the resources are allocated in two dimensional regions over time and frequency~~.

*TGax Editor: Please reflect the (accepted) comment resolution on CIDs 2365 and 2526 above to D0.3 Page 126 lines 42-49 for clause 26.3.7 as following:*

~~OFDMA is a method to add multiple access in OFDM systems and has been adopted by other wireless standards, and the HE amendment introduces OFDMA into 802.11 WLAN networks. The OFDMA parameters in HE satisfy general design criteria for OFDM systems as follows:~~

$$ T\_{CP}\geq τ\_{RMS}\left(to prevent ISI due to delay spread\right)$$

$T\_{CP}\ll 1 (for spectral efficiency improvement)$ ~~(26-1)~~

*TGax Editor: Please reflect the (accepted) comment resolution on CID 2366 above to D0.3 Page 126 line 51 for clause 26.3.7 as following:*

In OFDMA, an OFDM symbol is constructed of subcarriers, the number of which is a function of the ~~FFT~~ DFT size.

##### CID 1787

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| 1787 | Robert Stacey | 26.3.7 and 26.3.12 | 86.61 | The tone plan is not specific to OFDMA; It also applies to MU-MIMO. In fact, MU-MIMO is mentioned in this section. OFDMA and MU-MIMO are access techniques (I prefer the term SDMA to MU-MIMO). Anyway, the tone plan is indepenent of the access technique. | Provide an overview of the access techniques (SU, OFDMA, MU-MIMO) in a separate subclause from the tone plan. Perhaps a single subclause "SU and MU transmissions" with the introductory paragraphs from 26.3.7 and 26.3.12. Create a "Tone plan" subclause wit | **Revised,****The OFDMA subclause is moved under “MU transmission”. In addition, “MU transmission” is moved under the main PHY “introduction” as indicated below** and SU tone allocation**.** |

**Suggested remedy for CID 1787**

*TGax Editor: Please make the following changes in D0.3 for clause 26.3:*

**Move the “OFDMA” subclause 26.3.7 under “MU transmission” 26.3.13. In addition, move “MU transmission” under the main PHY “introduction” 26.3.1 with the following new subcaluse numbers**

26.3.1 Introduction

26.3.2 MU Transmission

26.3.2.1 Introduction

26.3.2.2 OFDMA and SU tone allocation

26.3.2.2.1 Resource unit, guard and DC subcarriers

26.3.2.2.2 Null subcarriers

26.3.2.2.3 Pilot tones

26.3.2.2.4 RU restriction rules when operating 20 MHz

26.3.2.3 DL MU Transmission

26.3.2.4 DL MU-MIMO

26.3.2.5 UL MU Transmission

26.3.2.6 UL MU-MIMO