IEEE P802.11
Wireless LANs

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| CRs on 28.3.3.8.3 |
| Date: 2017-05-07 |
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Abstract

This submission shows

* Resolution for a comment received from TGax comment collection (TGax Draft D1.0)
* The proposed changes are based on 11ax D1.2.

The submission provides resolutions to comment related to the resource indication and STA self-identification in an HE MU PPDU.

* The submission provides solutions to 10 CIDs:

8820, 10093, 10094, 10096, 10097, 10098, 10100, 10102, 10105, 10107

Revisions:

* Rev 0: Initial version of the document.

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

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

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

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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 8820 | 238.60 | Use HE-SIG-B instead of SIGB | Replace throughout the text. | Revised.Agreed in principle. In order to keep consistency, the SIGB Comon field is replaced with Common field in HE-SIG-B.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3. |
| 10093 | 238.60 | no defintion of "SIGB Common field" in the spec. "SIGB Common field" needs to be replaced with "Common field of HE-SIG-B" to be consistent through the spec. | As in the comment. | Revised.Agreed in principle. The same resolution to CID 8820 is applied.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3. |
| 10094 | 238.61 | no defintion of "HE-SIGB Common field" in the spec."HE-SIG-B Common field" needs to be replaced with Common field of HE-SIG-B to be consistent through the spec | As in the comment. | Revised.Agreed in principle. The same resolution to CID 8820 is applied.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3. |
| 10096 | 239.01 | HE-SIG-B common field needs to be replaced with Common field of HE-SIG-B to be consistent in the spec | As in the comment. | Revised.Agreed in principle. The same resolution to CID 8820 is applied.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3. |
| 10097 | 239.02 | HE-SIG-B consists of Common field and User specfic field. Remove s from fields. No plurality of User Specific fields defind in the spec. Or it meant to be User fields. | As in the comment. | Revised.Agreed in principle.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3.  |
| 10098 | 239.05 | User block fields in this chapter should be modified with User fields. User Block field should be used only when describing on the encoding process. | As in the comment. | Revised.Agreed in principle.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3 |
| 10100 | 239.08 | "user specific block" should be modified with "User field" to be consistent through the spec. A User field should be used when describing on each user content through the spec if it is refered. | As in the comment. | Revised.Agreed in principle.The original text is changed to User field.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3 |
| 10102 | 239.19 | no definition of "user specific blocks" in the spec. all user specific blocks in this chapter should be replaced with User fields to be consistent through the spec. A User field should be used when describing on each user content | As in the comment. | Revised.Agreed in principle.The original text is changed to User field.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3 |
| 10105 | 239.22 | add the reference of "a multiplexing information lookup table" with Table 28-24 (Spatial Configuration subfield encoding). | As in the comment. | Revised.Agreed in principle.Add the reference.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3 |
| 10107 | 239.39 | no definition of "HE-SIG-B user specific blocks" in the spec. It should be replaced with "User field in HE-SIG-B". | As in the comment. | Revised.Agreed in principle.The original text is changed to User field.TGax Editor: make changes according to this document 11-17-0781-00-00ax CRs on 28.3.3.8.3 |

**Discussion**

* In this section,
* HE-SIG-B section mixes terminology in the description between “Common Block field” vs “Comon field” and “User Specific field” vs “User Block field” vs “User field”.
	+ Common Block field should be replaced with Common field to keep consistency.
	+ User field should be used when describing individual user content (see 28.3.10.8.5 HE-SIG-B per-user content).
	+ User Block field should be used when describing the field which made up of two User fields (or one User field depending on the number of assigned users), CRC bits and tail bits (see Figure 28-20).
	+ User Specific field consisting of the User fields and padding bits (if present) should be used when describing on the whole content.
* Propose to clean up the text and use the consistent terminology.

***To TGax editor:*** ***P238L55*** *replace the current text with the proposed changes below.*

***------------- Begin Text Changes ---------------***

* Resource indication and STA self-identification in an HE MU PPDU

An AP that transmits an HE MU PPDU shall set the UL/DL field in the HE-SIG-A field to 0. A full bandwidth MU-MIMO transmission using HE MU PPDU format has a value of 1 for the SIGB Compression field in HE-SIG-A and the Common field in HE-SIG-B is not present. If the value of SIGB Compression field in HE-SIG-A is 0, the RU Allocation field in the Common field in HE-SIG-B indicates the combination of RUs in current PPDU bandwidth and the number of STAs on each RU for SU/MU-MIMO transmission. The number of users in RU *r* for MU-MIMO transmission, *Nuser,r* is indicated together with the RU allocation as defined in Table 28-21 (RU allocation signaling: arrangement and number of MU-MIMO allocations). If the value of the SIGB Compression field in HE-SIG-A is 1, there is no RU Allocation field in Common field in HE-SIG-B and HE-SIG-B contains only User Specific field. The number of STAs in the MU-MIMO group is indicated in the Number Of HE-SIG-B Symbols Or MU-MIMO Users field in HE-SIG-A. For bandwidths larger than 20 MHz, the User fields are split equitably between two SIG-B content channels, i.e., for a *k* user MU-MIMO PPDU, 1, …., ceil(k/2) User fields are carried in HE-SIG-B content channel 1 and ceil(*k*/2) + 1, …, *k* User fields in HE-SIG-B content channel 2. The number of spatial streams, *NSS,r,u*, is indicated by the NSTS field in User field in HE-SIG-B as defined in Table 28-22 (Fields of the User field for an non-MU-MIMO allocation) and Table 28-23 (Fields of the User field for an MU-MIMO allocation). The allocated spatial streams for a designated MU-MIMO user and the total number of spatial streams on the RU are indicated in Spatial Configuration field of User field in HE-SIG-B containing the STA-ID of designated MU-MIMO STA as defined in Table 28-24 (Spatial Configuration subfield encoding).

When processing the HE-SIG-B, a STA will look at information of each RU to find out its membership status, i.e., if it belongs to a beamformee group in a certain RU. If *Nuser,r* STAs are scheduled in RU *r*, there are *Nuser,r* User fields for RU *r*. Each User field has an 11-bit field indicating the STA-ID. A STA identifies itself as a member in the beamformee group in the RU, if its STA-ID matches one of the STA-IDs. The user position is indicated by the block index. From a multiplexing information lookup table (see Table 28-24 (Spatial Configuration subfield encoding)) for *Nuser,r*, the ordered number of spatial streams for all members in the beamformee group in RU *r*, *NSS,r,u*, *u*= 1, …, *Nuser,r,* is obtained. The spatial streams of different users are ordered in accordance to user position values, i.e., the spatial streams for the user in user position 0 come first, followed by the spatial streams for the user in position 1, followed by the spatial streams for the user in position 2, and followed by the spatial streams for the user in position 3, and so on.

A STA is also able to identify the space-time streams intended for other STAs that act as interference. HE-LTF symbols in the DL HE MU PPDU are used to measure the channel for the space-time streams intended for the STA and can also be used to measure the channel for the interfering space-time streams. To successfully demodulate the space-time streams intended for the STA, it is recommended that the STA uses the channel knowledge for all space-time streams to reduce the effect of interfering space-time streams.

If a STA finds that it is a member of the beamformee group in RU r, its corresponding *NSTS,r,u* interpreted from the User field in HE-SIG-B shall not be zero for the STA in the PPDU. If a STA finds that it is not a member of the beamformee group in RU *r*, then the STA may elect not to process RU *r* in the remainder of the PPDU.

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