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**IEEE P802.11**  
**Wireless LANs**

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**CIDs on Signaling for UL HE MU PPDU****Date:** 2017-01-16**Author(s):**

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**Abstract**

This submission proposes resolutions for multiple comments related to TGax D1.0 with the following CIDs:

- 5409, 5412, 6194, 7032, 7033, 9770

**Revisions:**

- Rev 0: Initial version of the document.

*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.*

CID	Page.line	Comment	Proposed Change	Resolution
5409	295.32	Need a description on how the STA-ID field is used for the uplink case	As per comment	Rejected –  For UL HE MU PPDU, the STA-ID field is populated by the AID of the transmitter non-AP STA. It can be helpful for the receiving AP for MAC processing of the received PSDU. However, it is not required to specify the usage in the specification.
5412	285.55	An HE MU PPDU with the UL/DL field set to 1 is intended to one STA and the HE-SIG-B design is not efficient.	Please refine the HE-SIG-B design for the UL case to reduce the length of the HE-SIG-B field.	Revised –  Agree in principle with the comment as discussed in 11-17/0110r0.  For the full-BW UL HE MU PPDU, the Common Block field of HE-SIG-B is redundant. A transmitter may omit the field by setting SIGB Compression field in HE-SIG-A to 1. However, when SIGB Compression field is 1, MU-MIMO user field is sent where its Spatial Configuration subfield can only support NSTS indication for $N_{user} \geq 2$ . Therefore, it is required that the User field in HE-SIG-B contains the non-MU-MIMO user field when the Num of MU-MIMO Users field in HE-SIG-A is set to 0.  TGax editor to make the changes shown in 11-17/0173r0 under the heading that include CID 5412.
6194	84.26	For UL HE MU PPDU transmission from an STA to an AP, the current SIG-A/B design incurs overhead because the current format is designed for DL MU signaling. SIG-B's RU allocation and User specific fields can be redundant overheads for UL HE MU PPDU.	Please specify UL HE MU PPDU's SIG-A/B signaling detail.	Revised –  Agree in principle with the comment as discussed in 11-17/0110r0.  Please see resolution for CID 5412.  TGax editor to make the changes shown in 11-17/0173r0 under the heading that include CID 6194.
7032	84.28	For the current HE-SIG-B design which is designed for DL MU signalling, it is inefficient to signal full-BW UL HE MU PPDU transmission. RU allocation field is not required in full-BW UL HE MU PPDU, since SIG-A's BW subfield signals the PPDU BW and the signaling of RU allocation is not needed.	Please clarify SIG-A/B signalling method for full bandwidth (20/40/80/160(80+80) MHz) UL HE MU PPDU transmission with the minimal overhead.	Revised –  Agree in principle with the comment as discussed in 11-17/0110r0.  Please see resolution for CID 5412.  TGax editor to make the changes shown in 11-17/0173r0 under the heading that include CID 7032.
7033	84.28	For the current HE-SIG-B design which is designed for DL MU signalling, it is inefficient to signal partial bandwidth transmission (left or right 106tone/20MHz) of UL HE MU PPDU transmission. For example, it requires signalling of RU allocation (106, -, 106) and two User specific information fields where one user information field would be useless.	Please clarify SIG-A/B method for partial bandwidth (left/right 106-tone RU within 20MHz) UL HE MU PPDU transmission with the minimal overhead.	Rejected –  For the partial-BW UL HE MU PPDU, it is possible to signal the left/right 106-tone RU with the current HE-SIG-B's RU allocation of (106, -, 106) and assigning AID2046 for signaling the unused 106RU in user field. While there is some overhead of additional user field, it is good to not define new signalling variations in HE-SIG-A only for the case  Wilus Institute of Standards and Technology Inc., Ex. 2021, IPR2025-00934

9770	277.20	Number of MU-MIMO users cannot be 1 (value 0x0) in HE-SIG-A of HE_MU PPDU because the Spatial Config subfield in HE-SIG-B has Nuser >= 2.	Make the value 0x0 reserved for the Number of HE-SIG-B Symbol Or MU-MIMO Users field of HE-SIG-A for HE_MU PPDU if the SIGB Compression field is 1.	Revised –  Agree in principle with the comment, but one use case for setting the value 0 for the Number of HE-SIG-B Symbols Or MU-MIMO Users field of HE-SIG-A in HE MU PPDU is the UL HE MU PPDU case. For the full-BW UL HE MU PPDU, a non-AP STA transmitter may reduce HE-SIG-B overhead by setting SIGB Compression field to 1 while the number of MU-MIMO Users field is set to 0. Therefore, the value 0x0 should not be reserved.  TGax editor to make the changes shown in 11-17/0173r0 under the heading that include CID 9770.
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## 28.3.10.8 HE SIG-B

### 28.3.10.8.1 Encoding and modulation

**TGax Editor: Modify the following paragraph in 28.3.10.8.1 in page 286 of D1.0 0 (#CID 5412, 6194, 7032, 7033)**

When the SIGB Compression field in the HE-SIG-A field of an HE MU PPDU is set to 1 (indicating full bandwidth MU-MIMO transmission), the Common Block field is not present and the content channel consists of only the User Specific field.

When the SIGB Compression field in the HE-SIG-A field of an HE MU PPDU is set to 1 (indicating full bandwidth MU-MIMO transmission) and the Number Of HE-SIG-B Symbols Or MU-MIMO Users field in the HE-SIG-A field of an HE MU PPDU is set to 0 (indicating 1 MU-MIMO user), the User Specific field in the HE-SIG-B field consists of the HE-SIG-B user field for a non-MU-MIMO allocation as shown in Table 28-22 (Fields of the HE-SIG-B user field for a non-MU-MIMO allocation). (#5412) (#6194) (#7032) (#9770)