­­IEEE P802.11
Wireless LANs

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| Comment Resolutions on Clause 28.3.15 (SU-MIMO and DL MU-MIMO beamforming)  |
| Date: 2018-01-10 |
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Abstract

This submission proposes resolutions for the following 3 comments on 28.3.15 (SU-MIMO and DL MU-MIMO beamforming) of TGax D2.0:

13379, 13413, 13414

Revisions:

* Rev 0: Initial version of document
* Rev 1: updated 13379 based on online discussions.

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** | **Clause Number** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 13379 | 28.3.15.2 | 483.61 | "The number of bits for quantization is set by the beamformer, i.e. HE AP."  This line is redundant, because the following line gives more accurate description. | "The number of bits for quantization is set by the beamformer, i.e. HE AP."  This line is redundant, because the following line gives more accurate description. | RevisedThe HE NDP announcement frame (9.3.1.20) from the AP to the STAs contains the Feedback Type (SU/MU), tone grouping (Ng), and quantization resolution (phi, psi) in each STA info subfield (Figure 9-51b, Table 9-25a) in the case that it is addressed to multiple STAs. For scenarios where the NDPA is sent to a single STA, the STA selects the parameters. The current language clearly states that. However, we revise the language to make this concept clearer.The first sentence of the new language states that the parameters are set by the beamformer in the case that the NDPA frame addresses more than one STA. This will be an AP only. The second sentence state that the parameters are set by the beamformee only in the case that the NDPA frame addresses a single STA. This covers a non HE STA (in the case of a BSS) and an AP, a mesh STA and a non HE STA (in the case of an IBSS). The language mirrors that of 27.6.3 and the type of nodes are covered clearly in 27.6.3.TGax editor to make the changes shown in 11-18/0079r2 under all headings that include CID 13379 |
| 13413 | 28.3.15.1 | 483.14 | K\_r is not clearly defined | K\_r is not clearly defined | RevisedPointed to definition of K\_r and added text to reinforce this.TGax editor to make the changes shown in 11-18/0079r2 under all headings that include CID 13413 |
| 13414 | 28.3.15.3 | 484.22 | We have "The CQI-only feedback CQIs,r,u" but meaning of subscript u is undefined. | We have "The CQI-only feedback CQIs,r,u" but meaning of subscript u is undefined. | RevisedAdded definition of subscript u as index of beamformee.TGax editor to make the changes shown in 11-18/0079r2 under all headings that include CID 13414 |

*Discussion*

*#13413*

K\_r is defined in Table 28-15 (Frequently used parameters) on pg 393 line 43 as “the set of used subcarrier indices in the r-th RU”. Although it has been previously defined, we will add some text to enable the reader understand what it is.

*Changes to D2.0*

***TGax Editor: Please make the following change on Pg 483 ln 61 (#13379):***

The number of bits for quantization, tone grouping factor, and the number of columns in the HE compressed beamforming feedback are ~~is~~ set by the HE beamformer ~~i.e. HE AP~~ if the NDP Announcement frame contains more than one STA Info field. The number of bits for quantization, tone grouping factor, and the number of columns in the HE ~~C~~compressed beamforming feedback are ~~set~~ determined by the beamformee., ~~i.e., non-AP STA.,~~ only if the NDP Announcement frame contains ~~only one~~ a single STA Info field. (#13379)

***TGax Editor: Please make the following change on Pg 483 ln 14 (#13413):***

where subcarrier *k* is one of the subcarriers in RU *r*, *Kr* is the set of used subcarriers indices in RU *r*, and k ∈ *Kr* (#13413)

***TGax Editor: Please make the following change on Pg 484 ln 22 (#13414):***

The CQI-only feedback,$CQI\_{s,r,u}$, for beamformee u in RU $r $for space time stream $s$ shall be… (#13414)

**References:**

1. **IEEE P802.11axTM/D2.0, Nov 2017.**