IEEE P802.11
Wireless LANs

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| DL MU MIMO Preference Indiation  |
| Date: 2018-0x-xx |
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Abstract

This submission proposes to define an indication for STA to send its preference to be included in DL MU MIMO PPDU or not.

Revisions:

* Rev 0: Initial version of the document.

**Discussion:**

When included in DL MU MIMO transmissions, the individual STA’s performance is largely dependent on AP’s algorithms including sounding, grouping/scheduling, steering matrix computation etc. If implemented improperly, the DL MU MIMO performance for individual STA can be very sensitive to STA’s mobility, environmental changes, RSSI etc. To alleviate potential performance risks with AP’s DL MIMO operation, we are proposing a signaling mechanism for a STA to provide an indication to inform AP that it is preferred not to be included in DL MU MIMO. One reason of such indication is that the STA is aware of its mobility through means which are out of the scope of the spec. There is no requirement on how 11ax AP uses such info. One usage can be that the 11ax AP can re-do the sounding with this particular STA to get fresh channel info. However, when to indicate and how AP uses such indication is beyond of the scope of the spec. The proposal is to use the reserved bit in OMI Control. Another option is to define a new control ID to carry the 1 or 2 bits of information

Technical editor: please modify 9.2.4.6 a.2 as follows.

**OM Control**

If the Control ID subfield in a Control subfield of an A-Control subfield is 1, the Control Information subfield of the Control subfield contains information related to the operating mode (OM) change of the STA transmitting the frame containing this information (see 27.8 (Operating mode indication)).(#12027) The format of the subfield is shown in Figure 9-15d (Control Information subfield for OM Control(#11971)).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | B0          B2 | B3                  B4 | B5 | B6          B8 | B9 | B10        B11 |
|  | Rx NSS |  Channel Width | UL MU Disable | Tx NSTS | ER SU Disable(#11261) | DL MU MIMO Recommendation |
| Bits: | 3 | 2 | 1 | 3 | 1 | 2 |
| **Figure 9-15d Control Information subfield for OM Control(#11971)** |

The Rx NSS subfield indicates the maximum number of spatial streams, *NSS*, that the STA supports in reception for PPDU(#Ed) bandwidths less than or equal to 80 MHz and is set to *NSS* – 1. The RX NSS support for PPDU bandwidths(#Ed) greater than 80 MHz is defined in 27.8 (Operating mode indication).(#11683)

The Channel Width subfield indicates the operating channel width supported by the STA for both reception and transmission. It is set to 0 for primary 20 MHz, 1 for primary 40 MHz, 2 for primary 80 MHz, and 3 for 160 MHz and 80+80 MHz.

The UL MU Disable subfield is set to 1 to indicate that UL MU operation is suspended and set to 0 to indicate that UL MU operation is resumed.(#Ed) An AP sets the UL MU Disable subfield to 0.

The Tx NSTS subfield indicates the maximum number of space-time streams, *NSTS*, that the STA supports in transmission and is set to *NSTS* – 1.

The ER SU Disable subfield is set to 1 to indicate that 242-tone HE ER SU PPDU reception is disabled and set to 0 to indicate that 242-tone HE ER SU PPDU reception is enabled.(#11261)

The encoding of DL MU MIMO Recommendation subfield is defined in Table 9-x. (note not to be added to draft: if the group only prefers to use one bit, then I will modify the indication to use one bit. Currently, it’s defined as 2 bits which can include some reason info).

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| **Table 9.x DL MU MIMO Recommendation subfield encoding** |
| **Subfield** | **Meaning** |
| 00 | The STA has no recommendation on DL MU MIMO |
| 01 | The STA prefers not to be included in DL MU MIMO due  |
| others | Reserved |
|  |  |

Option 2: define a new contro ID to carry the DL MU MIMO Recommendation subfield