IEEE P802.11
Wireless LANs

|  |
| --- |
| DL MU MIMO Preference Indiation  |
| Date: 2018-0x-xx |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Guoqing Li | Apple |  |  | Guoqing\_li@apple.com |
| Huizhao Wang | Quantenna |  |  |  |
| Siguard schelstraete | Quantenna |  |  |  |

Abstract

This submission proposes to defines an indication that a non-AP STA can use to suggest that the AP re-sound the channel to facilate AP’s DL MU MIMO operation.

**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. The DL MU MIMO performance for individual STA can be very sensitive to STA’s mobility, environmental changes, RSSI etc. To facilitate AP’s DL MU MIMO operation, we are proposing a signaling mechanism for a STA to provide suggestions to AP’s DL MU MIMO operation. AP is not required to follow STA’s suggestion. The proposal is to use one reserved bit in OMI Control.

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

**9.2.4.6 a.2 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 Resound Recommendation | Reserved |
| Bits: | 3 | 2 | 1 | 3 | 1 | 1 | 1 |
| **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 DL MU MIMO Resound Recommendation subfield is set to 1 to indicate that the STA suggests that the AP re-sound the channel with the STA. The subfield is set to 0 to indicate that the STA has no recommendation on AP’s DL MU MIMO operation.

Technical editor: please add the following text at the end of **27.8.2** as follows.

**27.8.2 Receive operating mode (ROM) indication**

A non-AP OMI Initiator may set DL MU MIMO Resound Recommendation subfield to 1 in the OM Control field in frames addressed to an AP OMI responder to indicate that the STA suggests that the AP re-sound the channel with the STA. A non-AP OMI Initiator shall set DL MU MIMO Resound Recommendation subfield to 0 when the STA has no recommendation on AP’s DL MU MIMO operation.

An OMI Responder may re-sound or increase the frequency of the sounding the channel with the OMI Iniator after reception of a frame that carries OM Control field with DL MU MIMO Resound Recommemdation subfield set to 1 .