IEEE P802.11
Wireless LANs

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| Comment Resolution on Spatial Sharing |
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Abstract

This submission proposes resolution of comments on spatial sharing received from LB #239 (TGay Draft 3.0).

- 1 CID: 4250

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page.Line Number** | **Comment** | **Proposed Change** | **Resolution** |
| 4250 | 360.34 | if a recipient STA is already SISO and SU-MIMO beamformed trained with the target STA, it is unclear which receive antenna configuration is used by the recipient STA for measurement. | will bring a contribution | Revised-The issue raised by the commenter is valid. It is proposed that a field is added in the Directional Channel Quality request/report to indicate the requested/reported RX antenna configuration for SISO or SU-MIMO communication used for measurements. Based on the received Directional Channel Quality report, PCP/AP may also recommend whether SISO or SU-MIMO transmission is used in the candidate SP. |

**Proposed changes to D3.0:**

**9.4.2.20.16 Directional Channel Quality request**

**P99L25: Change Figure 19 as follows:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **B0 B7** | **B8** | **B9** | **B10**  | **B11 B15** |
|  | Measurement Channel Bitmap  | Channel Measurement Report Method  | Antenna Measurement Report Method  | RX Antenna Configuration Type | Reserved |
| Bits: | 8 | 1 | 1 | 1 | 5 |

**Figure 19 —** **Data field of the Measurement Configuration subelement format**

**P103L2: Insert the following paragraph:**

The RX Antenna Configuration Type subfield is set to 0 to indicate the RX antenna configuration for SISO communications is requested to be used for measurements; and set to 1 to indicate the RX antenna configuration for SU-MIMO communications is requested to be used for measurements.

**9.4.2.21 Measurement Report element**

**9.4.2.21.15 Directional Channel Quality report**

**P102L10: Change Figure 23 as follows:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **B0 B7** | **B8** | **B9** | **B10**  | **B11 B15** |
|  | Measurement Channel Bitmap  | Channel Measurement Report Method  | Antenna Measurement Report Method  | RX Antenna Configuration Type | Reserved |
| Bits: | 8 | 1 | 1 | 1 | 5 |

**Figure 23 —** **Data field of the Measurement Configuration subelement format**

**P103L2: Insert the following paragraph:**

The RX Antenna Configuration Type subfield is set to 0 to indicate the RX antenna configuration for SISO communications is used for measurements; and set to 1 to indicate the RX antenna configuration for SU-MIMO communications is used for measurements.

**9.4.2.252 EDMG Extended Schedule element**

**P132L18: Change Figure 64 as follows:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0 | B1 B24 | B25 | B26 B33 |
|  | Scheduling Type | Allocation Key | Channel Aggregation | BW |
| Bits: | 1 | 24 | 1 | 8 |
|  | B34 | B35 B49 | B50 B54 | B55 B56  | B57 B58 | B59 B63 |
|  | Asymmetric Beamforming Training  | Receive Direction  | Number of Space-time Slots  | Nmax STS  | Recommended Transmission Scheme | Reserved |
| Bits: | 1 | 15 | 5 | 2 | 2 | 5 |

**Figure 64 —Channel Allocation field format when Scheduling Type is 0**

**P133L9: Change Figure 66 as follows:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 | B1 | B2 B9 | B10 | B11 B25 | B26 B30 | B31 B32 |
|  | Scheduling Type | Channel Aggregation | BW | Asymmetric Beamforming Training | Receive Direction | Number of Space-time Slots | Nmax STS |
| Bits: | 1 | 1 | 8 | 1 | 15 | 5 | 2 |
|  | B33 B34 | B35 B39 | B40 B159 |
|  | Recommended Transmission Scheme | Reserved | Allocation |
| Bits: | 2 | 5 | 120 |

 **Figure 66 —Channel Allocation field format when Scheduling Type is 1**

**P134L4: Insert the following paragraph:**

The Recommended Transmission Scheme subfield is set to 0 to indicate no transmission scheme is recommended by AP or PCP for the allocation, set to 1 to indicate SISO transmission is recommended by AP or PCP for the allocation; and set to 2 to indicate SU-MIMO transmission is recommended by AP or PCP for the allocation. Value of 3 is reserved.

**11.31 Spatial sharing and interference mitigation for DMG STAs**

**11.31.2 Spatial sharing and interference assessment**

**P359L33: Change the paragragh as follows:**

… Additionally, the AP or PCP may include a Measurement Configuration subelement in the Directional Channel Quality request where the Measurement Channel Bitmap subfield indicates one or more 2.16 GHz channels for which the measurement request applies; in this case, it may set the Channel Measurement Report Method subfield to 0 to indicate the results of measurements over all the requested 2.16 GHz channels during each measurement time block are reported per 2.16 GHz channel or may set this subfield to 1 to indicate the averaged results of concurrent measurements over all the requested 2.16 GHz channels during each measurement time block are reported, and may set the Antenna Measurement Report Method subfield to 0 to indicate the results of concurrent measurements over each requested 2.16 GHz channel using multiple RX DMG antennas during a measurement time block are reported per DMG antenna or may set this subfield to 1 to indicate the averaged results of concurrent measurements over each requested 2.16 GHz channel using multiple RX DMG antennas during a measurement time block are reported, and may set the RX Antenna Configuration Type subfield to 0 to indicate the RX antenna configuration for SISO communications is requested to be used for measurements or may set this subfield to 1 to indicate the RX antenna configuration for SU-MIMO communications is requested to be used for measurements. …

**P360L13: Change the paragragh as follows:**

… Additionally, the PCP or AP may include a Measurement Configuration subelement in the Directional Channel Quality request where the Measurement Channel Bitmap subfield indicates one or more 2.16 GHz channels for which the measurement request applies; in this case, it may set the Channel Measurement Report Method subfield to 0 to indicate the results of measurements over all the requested 2.16 GHz channels during each measurement time block are reported per 2.16 GHz channel or may set this subfield to 1 to indicate the averaged results of concurrent measurements over all the requested 2.16 GHz channels during each measurement time block are reported, and may set the Antenna Measurement Report Method subfield to 0 to indicate the results of concurrent measurements over each requested 2.16 GHz channel using multiple RX DMG antennas during a measurement time block are reported per DMG antenna or may set this subfield to 1 to indicate the averaged results of concurrent measurements over each requested 2.16 GHz channel using multiple RX DMG antennas during a measurement time block are reported, and may set the RX Antenna Configuration Type subfield to 0 to indicate the RX antenna configuration for SISO communications is requested to be used for measurements or may set this subfield to 1 to indicate the RX antenna configuration for SU-MIMO communications is requested to be used for measurements. …

**P360L34: Change the paragragh as follows:**

If a recipient STA that receives a Directional Channel Quality request frame is already beamformed trained with the target STA specified by the AID field within the frame, then the recipient STA shall carry out the measurement employing the same receive antenna configuration as is used by the recipient STA when receiving frames from the target STA in SISO communications or carry out the measurements concurrently employing the same receive antenna configuration as is used by the recipient STA when receiving frames from the target STA in SU-MIMO communications. If the AID field is set to the broadcast AID or an unknown AID, then the recipient STA shall perform the measurements using a quasi-omni antenna pattern.

**11.31.3 Achieving spatial sharing and interference mitigation**

**Modify the second and third paragraphes as follows:**

An AP or PCP should schedule a candidate SP that overlaps with an existing SP in its beacon interval only after it receives a Directional Channel Quality report from the STAs involved in the candidate SP. When an AP or PCP schedules a candidate SP that overlaps with an existing SP in its beacon interval, it may also recommend whether SISO transmission or SU-MIMO transmission is used in the candidate SP.

If a candidate SP is already scheduled in the beacon interval, the AP or PCP should schedule this candidate SP time-overlapping with an existing SP in its beacon interval only after it receives a Directional Channel Quality report from the STAs involved in the existing SP. When an AP or PCP schedules this candidate SP time-overlapping with an existing SP in its beacon interval, it may also recommend whether SISO transmission or SU-MIMO transmission is used in this candidate SP.