IEEE P802.11
Wireless LANs

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| BF comment resolution |
| Date: 2017-03-27 |
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Abstract

This document suggest text to for the partial SLS

Changes are based on Draft 0.30

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| 27 | 9.4.2.130 | 21 | 1 | Number of Measuerments also describes the number of measuerments in the EDGM channel measuerment feedback. | Indicate that channel measuement |
| 28 | 9.4.2.130 | 21 | 1 | "It is equal to the number of TRN-T inthe BRP-TX packet" - what is the value in a BRP-TX-RX packet? | Define behavior (submission needed) |

Proposed Resolution: Counter

Discussion

The second comment shall not be dealt with here, the behaviour shall be defined in behaviour clauses. It is not necessary to set rules here as to the length of this field.

***TGay Editor Modify the description of the number of measurements element in P21 Line 3 of the table as follows:***

The Number of Measurements subfield indicates the n~~N~~umber of measurements in the SNR

subfield and the Channel Measurement subfield. ~~It is equal to the number of TRN-T subfields in~~

~~the BRP-TX packet on which the measurement is based, or the number of received sectors if~~

~~TXSS result is reported by setting the TXSS-FBCK-REQ subfield to 1.~~ This field also indicates the number of sectors in the EDMG Sector ID order field and the number of BRP CDOWNs in the BRP CDOWN field of the EDMG Channel Measurement Feedback element when present..

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| 36 | 9.4.2.2.255 | 37 | 5 | L-RX subfield - need to inidicate that this field overrides the equivalent field in the BRP-request field | Add at the end of the paragraph "This fields overides the value of the L-RX field in the BRP Request field if transmitted in the same frame" |

Proposed Resolution: Accept

***TGay Editor: modify the following text in P37L5 of D0.3:***

The L-RX field indicates the number of TRN-R subfields requested by the transmitting STA as part of beam refinement. When the EDMG BRP request element is present, this field overrides the field with the same name in the BRP request field.

***TGay Editor: modify the following text in P37L24 of D0.3:***

The TXSS-REQ field is set to one to indicate the request to perform the BRP TXSS training defined in 10.38.9.5. Otherwise, this field is set to zero. When the EDMG BRP request element is present, this field overrides the field with the same name in the BRP request field.

***TGay Editor: modify the following text in P37L9-11 of D0.3:***

The TX Sector ID field indicates the sector ID that is used when transmitting the packet. If the packet is transmitted using a pattern that is not a sector that has been used in the sector sweep, the value of this field is set to 2047. When the EDMG BRP request element is present, this field overrides the field with the same name in the BRP request field.

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| 100 | 9.4.2.130 | 21 | 13 | In the "Sector ID Order Requested" row, what does "when the and the Short SSW Packet..." mean? | Please clarify |
| 363 | 9.4.2.130 | 22 | 1 | when EDMG Extension Flag is 1, the TX sector IDs/CDOWN values are only present in new 'EDMG channel measurement feedback' element but not old 'channel measurement feedback' element | In the meaning of Secot ID order Present row, revise to:Set to 1 to indicate:- That the Sector ID Order subfield is present as part of the channel measurement feedbackwhen the EDMG Extension Flag field is set to 0; or- That the EDMG Sector ID Order subfield including TX sector IDs is present as part ofthe EDMG channel measurement feedback when the EDMG Extension Flag field is set to 1 andthe Short SSW Packet Used field is set to 0; or- That the EDMG Sector ID Order subfield including CDOWN values is present as part ofthe EDMG channel measurement feedback when the EDMG Extension Flag field is set to 1 and the Short SSW Packet Used field is set to 1.Set to 0 otherwise. |

Proposed Resolution: Accept in Principle

Dicussion:

It is not clear what is the issue. The Short SSW Packet used flag indicates whether the included list is of sector IDs (from a sector sweep using Sector Sweep frames, when it is 0) or a list of CDOWN values from a sector sweep using Short Sector Sweep frames (when set to 1). The second comment is correct, accept to ignoring the legacy case.

***TGay Editor Change the linke of sector ID order in P21 of D0.3 as follows:***

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| --- | --- |
| Sector ID OrderPresent | Set to 1 to indicate:That the Sector ID Order subfield is present as part of the channel measurement feedbackwhen the EDMG Extension Flag field is set to 0; orThat the EDMG Sector ID Order subfield including TX sector IDs is present as part ofthe EDMG channel measurement feedback when the EDMG Extension Flag field is set to 1 andthe Short SSW Packet Used field is set to 0; orThat the EDMG Sector ID Order subfield including CDOWN values is present as part ofthe EDMG channel measurement feedback when the EDMG Extension Flag field is set to 1 andthe Short SSW Packet Used field is set to 1.Set to 0 otherwise. |

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| 130 | 9.4.2.136 | 24 | 1 | As the spec is written, with NCB=8, the support of the channel becomes 1/8 of the support of the NCB=1 case. This turns out to be 4.47ns for 63 taps when NCB=8. This needs to be fixed. We should allow for more taps to be fedback when NCB>1. | When NCB>1, consider adding a mode where the delay of tap k is in units of either Tc/NCB or Tc. |

Proposed Resolution: Accept

Discussion:

The draft limits NCB to 4. However, the size of the tap delay must be increased.

The tap delays should move to the EDMG Channel feedback element fromt the Channel feedback element.

***TGay Editor: remove subclause 9.4.2.136 (P23-24) from the draft.***

***TGay Editor: Add the Tap Delay field to the EDMG Channel Feedback Element (P35):***

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| --- | --- | --- | --- |
| Tap Delay | Relative Delay Tap #1 | 12 bits | The delay of Tap #1 in units of TC/NCB relative to the path with the shortest delay detected, where NCB is the integer number of 2.16 GHz channels over which the measurement was taken. |
| Relative Delay Tap #2 | 12 bits | The delay of Tap #2 in units of TC/NCB relative to the path with the shortest delay detected, where NCB is the integer number of contiguous 2.16 GHz channels over which the measurement was taken. |
| ... |  |  |
| Relative Delay Tap #Ntaps | 12 bits | The delay of Tap #Ntaps in units of TC/NCB relative to the path with the shortest delay detected, where NCB is the integer number of contiguous 2.16 GHz channels over which the measurement was taken. |

***TGay Editor: Modify the line in change to table 9-235 in P22 D3.0 as follows:***

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| Tap Delay Present | ~~Set to 1 to indicate that the Tap Delay subfield is present as part of the channel measurement feedback.~~ If Set to 1 and the EDMG Extension Flag is set to 1, indicates that the Tap Delay subfield is present as part of the EDMG channel measueremtn feedback.If set to 1 and the EDMG Extension Flag is set to 0, indicates that the Tap Dealy subfield is present as part of the channel measurement feedback.Set to 0 otherwise. |

***TGay Editor: Modify the following line in the change to table 9-234 in P21 D3.0 as follows:***

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| Number of Taps Present | Number of taps in each channel measurement:0x0 – 1 tap0x1 – ~~5~~4NCB+1 taps0x2 – ~~15~~14NCB+1 taps0x3 – ~~63~~62NCB+1 tapsWhere NCB is the integer number of contiguous 2.16 GHz channels over which the measurement was taken. |

***TGay Editor: Modify the following line in the change to table 9-235 in P22 D3.0 as follows:***

|  |  |
| --- | --- |
| Number of Taps Present | Number of taps in each channel measurement:0x0 – 1 tap0x1 – ~~5~~4NCB+1 taps0x2 – ~~15~~14NCB+1 taps0x3 – ~~63~~62NCB+1 tapsWhere NCB is the integer number of contiguous 2.16 GHz channels over which the measurement was taken. |

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| 174 | 9.4.2.130 | 21 | 6 | BS FBCK field size and Antenna ID sizes are not consistent over the current draft. | clarify BF FBCK and antenna/RF chain IDs such that this is consistent over the different frames/fiels wih similar functions. |
| 358 | 9.4.2.130 | 21 | 5 | The new BS-FBCK has 10 bits but 1 BRP-TX packet can have up to 2040x Nss awv's | define suficient bits for BS-FBCK MSB |

Proposed Resolution: Accept

Discussion

The BS feedback should enable 12 bits because of a maximum of 2040 TRN fields. This can be done by adding 2 bits to the BS-FBCK-MSB subfield. This field is larger than these for sector sweep because of the longer length. The BS feedback cannot indicate RX chain. This must be done with the EDMG channel Measurement feedback element.

***TGay Editor: Modify the figure at P20 L20 as follows:***

*Change Figure 9-512 as follows*

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|  | B0 B7 | B8 B15 | B16 | B17 | B18 | B19 | B20 | B21 B26 | B27 B28 | B29 B33 |
|  | Element ID | Length | Initiator | TX-train-response | RX-train-response | TX-TRN-OK | TXSS-FBCK-REQ | BS-FBCK | BS-FBCK Antenna ID | FBCK-REQ |
| Bits: | 8 | 8 | 1 | 1 | 1 | 1 | 1 | 6 | 2 | 5 |

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| --- | --- | --- | --- | --- | --- |
|  | B34 B51 | B52 | B53 | B54 B59 | B60 |
|  | FBCK-TYPE | MID Extension | Capability Request | BS-FBCK MSB | BS-FBCK Antenna ID MSB |
| Bits: | 18 | 1 | 1 | 6 | 1 |

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|  | B61 B64 | B65 | B66 | B67 | B68 | B69 | B70 B71 |
|  | Number of Measurements MSB | EDMG Extension Flag | EDMG Channel Measurement Present | Short SSW Packet Used | BRP-TXSS-OK | BRP-TXSS-response | Reserved |
| Bits: | 4 | 1 | 1 | 1 | 1 | 1 | 2 |

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| 175 | 9.4.2.130 | 22 | It should be specified how Nmeas is defined w.r.t. number of receive antennas. This is not a problem for measurement request but feedback may be a problem if multiple antennas receive simultaneously. | as mentioned in comment |
| 176 | 9.4.2.136 | 24 | Only the channel from one transmit DMG antenna to one receive DMG antenna can be fed back with this element. | It should be clarified how the channel measurement feedback element will carry the information over several receive antennas. It would be probably be the best to define a separate channel measurement element per receive antenna, in which case the amplitudes and tap delay keep their current definition. |

Proposed Resolution: Defer

Discussion: this will be dealt in the MIMO feedback submission.

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| 180 | 9.4.2.253 | 35 | The SNR values from one tx sector to all rx antennas are important as this can help in deciding the down selected sectors for a future MIMO stage, without requirining too many tests. The current organization of this element makes feedbacking this kind of information quite inefficient. | allow channel measurement per rx antenna in which case more than one RX antenna ID is unnecessary or define the Tx Sector 1 antenna ID1 / Rx antenna Id1 / RX antenna ID 2 / .. /RX antenna N\_r / Tx Sector 2 / Rx antenna Id1 / RX antenna ID 2 /... |

Propsoed Resolution: Counter

Discussion:

The interpretation of All the indexed fields in the channel measurement feedback element should be overridden by the existence of the EDMG channel measurement feedback EDMG sector ID order field. This way an SNR is associated with a combination of TX antenna ID , RX antenna ID, and a sector ID/CDOWN/TRN field.

***TGay Editor: Add the following text at the end of 802-16 clause 9.4.2.136 (Channel Measurement Feedback Element)***

When the EDMG Channel Measurement feedback element is present in the same frame as the Channel Measurement Feedback element, the interpretation of the indices of the SNR, channel measurement and tap delays at index *i,* is associated by the entity pointed by *i’th* element of the EDMG sector ID order field, 1<*i*<Nmeas.

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| 233 | 9.4.2.130 | 22 | The definition of BRP-TXSS-response field seems to overlap with the definition for the EDMG Channel Measurement Present field. Are both necessary? | Clarify the difference in definitions or remove either field (note: EDMG Channel Measurement Present field is not mentioned in normative text) |
| 364 | 9.4.2.130 | 22 | The definition of BRP-TXSS response field seems to be the same as EDMG Channel Measurement Present | remove this field if not necessary |

Proposed Resolution: Counter

Discussion:

In the draft, today, there is no distincition in behaviour between using BRP-TXSS response and using EDMG-Channel-Meaurement. The BRP-TXSS response text can be removed and replaced, when used, with the EDMG channel measurement field.

***TGay Editor: remove the BRP-TXSS response field from the DMG frame in figure 512, P21L1.***

***TGay Editor: remove the following lines P22L10-11 from the draft:***

***TGay Editor: Edit P80L1-2 as follows:***

The BRP frame with feedback sent by the responder shall have the EDMG Channel Measurement Present subfield within the DMG Beam Refinement element set to 1.

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| 235 | 9.4.2.136 | 24 | Please clarify why "contiguous" is present for Relative Delay Tap #2 to #N but not #1 | Insert "contigous" for Relative Delay Tap #1 if needed |

Proposed Resolution: Accept

TGay Editor Modify the text describing the “Relative Delay Tap #1” as follows:

The delay of Tap #1 in units of TC/NCB relative to the path with the shortest delay detected, where NCB is the integer number of contiguous

2.16 GHz channels over which the measurement was taken.

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| 357 | 9.4.2.130 | 21 | 1 | It is not clear when EDMG ChannelMeasurement Present=1, how does the receiver of the beam refinement elelemnt know whether the beam tracking feedback is present in EDMG Channel Measurement Feedback elelment | define a flag to signal the presence of beam tracking feedback in EDMG Channel Measurement Feedback elelemnt |
| 442 | 9.4.2.253 | 36 | 6 | The Beam Tracking Feedback field contains Nmeas TX sector combinations. Each TX Sector Combination7 field contains as many AWV configurations as there are TX DMG antennas: no discusion on how sector combinations map to channel measurements. Examples are needed. | Explicitly link sector combinations to antenna measuremnts |

Porposed Resolution: Counter

Disucssion: The Beam Tracking Feedback does not provide any information that is not present in the Sector ID feedback, we propose to remove it.

***TGay Editor: remove the Beam Tracking Feedback line in table 4- EDMG channel feedback element in P35 D3.0.***

***TGay Editor: remove lines P36L6-7 (D3.0).***

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| 359 | 9.4.2.130 | 21 | 5 | The definition of BS-FBCK in baseline needs to be reworded to include the case of BRP-TX-RX packet and the how index is defined | redefine BS-FBCK based on 11ay BRP packet and TRN structure |

Defer

Discussion:

This is begin dealt with as part of another contribution.

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| 360 | 9.4.2.130 | 21 | 5 | It is not clear what value BS-FBCK and BS-FBCK Antenna ID should be set from the responder when the best sector does not appear in the last BRP packet before the feedback (e.g. BRP TXSS) | define these two fields as reserved in some BRP procedures invoving multiple consecutive BRP-TX packets |

Defer

Discussion:

This is begin dealt with as part of another contribution.

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| 461 | 9.4.2.255 | 37 | 1 | "The EDMG BRP Request element provides BRP configuration in addition to the BRP configurationprovided in the BRP Request field." Both elements provide the same fields. It is not defined what is relationship between same fields of the two different elements. | Remove excessive fields form the EDMG request element or provide interaction rule |

**Reject**

Disucssion: The only field that repeats is the L-RX field and it repeats because a larger length is needed (8 instead of 6 bits). Other fields are either new or have different meaning.

**References:**