IEEE P802.11
Wireless LANs

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| Resolutions for some comments on 11mc/D4.0 |
| Date: 2015-12-09 |
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Abstract

This submission contains proposed resolutions to miscellaneous MAC Ad Hoc comments on REVmc D4.0 Sponsor Ballot.

References herein are to REVmc Draft 4.0.

R0 – initial version, with CIDs: 5043, 5039, 6721, 6078. New resolution for CID 5922.hj

R1 – Small changes to resolutions, per F2F discussions in Piscataway.

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| 5043 | 253.32 | 6.3.29.2.2 | Michael MONTEMURRO | Use of "block ack" without a noun to qualify it ambiguous. Does it relate to the mechanism, a specific agreement, a specific frame?Suggest that all such uses be qualified with one of these terms, rewording as necessary. | Review all such uses and add qualifying noun where missing. | REVISED (MAC: 2015-11-12 20:12:11Z): Change all occurences of "Block ACK is" to "Block Ack agreement is" throughout the document. | MAC |

**Discussion:**

The resolution that was agreed was not specific as to whether the search is to be done with case sensitivity, and whether the replacement is meant to be accurate as to case. Based on review of the cited text, and other locations with the same issue, the search should be done case-insensitive. Per our conventions, the replacement should be all lower case (“block ack agreement is”).

Also, upon further review, there are instances of “block ack is” (case insensitive) such as, “There are two types of block ack mechanisms: immediate and delayed. Immediate block ack is suitable for high-bandwidth, low-latency traffic while the delayed block ack is suitable for applications that tolerate moderate latency.” (In 9.42.1.) This usage, and ones like it, should not have the replacement done.

**Proposed resolution:**

Revised. Change all occurrences of "Block Ack is" (case insensitive search) to "block ack agreement is" throughout the document, except when the occurrence is preceded by “immediate”, “delayed” or “GCR”.

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| 5039 | 1215.60 | 8.6.20.20 | "The Sampling Frequency Offset field is reserved when set to 0" -- is internally self-contradictory, i.e. you need to test its value to determine whether its value should have been ignored. | Replace it with something meaningful, or delete the sentence. | MAC |

**Discussion:**

Context:

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| The Timing Offset field is 2 octets in length and indicates the amount of time, in nanoseconds, that the STAidentified in the RA of the frame is required to change the timing offset of its transmissions so that theyarrive at the expected time at the transmitting STA.The Sampling Frequency Offset field is 2 octets in length and indicates the amount by which to change thesampling frequency offset of the burst transmission so that bursts arrive at the destination DMG STA withno sampling frequency offset. The unit is 0.01 ppm. The Sampling Frequency Offset field is reserved whenset to 0. |

Note that the above fields are not optional in the TPA Request frame Action field, so it’s not possible to not include offsets that you don’t want to modify.

So, why is zero not valid for the Sampling Frequency Offset? Can't the transmitter suggest a new Timing Offset, without changing the Sampling Frequency? But, if we make zero valid (by deleting the cited sentence), does that cause compatibility problems?

Discussed via e-mail with Carlos Cordeiro. He agrees that zero seems like a useful/valid value. In terms of existing implementations, he notes that this feature has had so many issues, it is unlikely that it is significantly in existing implementations, yet.

**Proposed resolution:**

Revised. Delete the cited sentence.

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| 6721 | None | None | Does "pre-VHT" need defining? | Add a definition of the term | MAC |

**Discussion:**

Agree in concept, but it is simpler. The usage appears only in subclause 23.3, and only for "pre-VHT modulated fields". The meaning of this is described in the NOTE at P2489.56, and also (same text) on P2494.49:

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| NOTE 1—Pre-VHT modulated fields refer to the L-STF, L-LTF, L-SIG, and VHT-SIG-A fields, while VHT modulated fields refer to the VHT-STF, VHT-LTF, VHT-SIG-B, and Data fields (see Figure 22-17 (Timing boundaries for VHT PPDU fields)). |

That description just needs to be sooner, and clearer, within clause 22.3.

While the resolution to CID 5922 removed one usage of “pre-VHT” early in clause 22.3, and added a “(See NOTE 1)” to references within Table 22-6, there are still other references within the subclause, including the title for subclause 22.3.8.2.1. It seems it would still be useful to have a clear definition of this term up-front in this subclause.

**Proposed resolution to CID 6721 and CID 5922:**

Revised.

Add a new paragraph at the end of clause 22.3.1 (Introduction):

“Pre-VHT modulated fields refer to the L-STF, L-LTF, L-SIG, and VHT-SIG-A fields, while VHT modulated fields refer to the VHT-STF, VHT-LTF, VHT-SIG-B, and Data fields (see Figure 22-17 (Timing boundaries for VHT PPDU fields)).”

Delete NOTE 1 on P2489.56, (and change "NOTE 2" to just "NOTE").

At P2494.49, delete the sentence, “In the remainder of this subclause, pre-VHT modulated fields refer to the L-STF, L-LTF, L-SIG, and VHT-SIG-A fields, while VHT modulated fields refer to the VHT-STF, VHT-LTF, VHT-SIG-B, and Data fields, as shown in Figure 22-17 (Timing boundaries for VHT PPDU fields).”

Change text at P2473.10 as follows:

Figure 22-5 (Transmitter block diagram for the L-SIG and VHT-SIG-A fields) to Figure 22-16 (Transmitter block diagram for the Data field of an 80+80 MHz VHT SU PPDU with LDPC encoding) show example transmitter block diagrams. The actual structure of the transmitter is implementation dependent. In particular, Figure 22-5 (Transmitter block diagram for the L-SIG and VHT-SIG-A fields) shows the transmit process for the L-SIG and VHT-SIG-A fields of a VHT PPDU using one frequency segment. These transmit blocks are also used to generate L-STF and L-LTF, except that the BCC encoder and interleaver are not used for these fields.

Note to editor: Undo other changes that were introduced by previous resolution to CID 5922 (adding “NOTE 1” references within Table 22-6).

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| 6078 | 127.57 | 5.1.1.3 | This subclause is not really unique to APs. The same rules apply to non-AP STAs (and non-infrastructure scenarios), too, per the last paragraph of 5.1.1.4. | Replace the last paragraph of 5.1.1.4 with the text contents of 5.1.1.3 (deleting the 5.1.1.3 header), and changing "at the AP" to "at a STA", and "the AP" with "the STA". NOTE: the last paragraph/sentence of 5.1.1.3 should be moved also, to stay with the rest of the moved text. | MAC |

**Discussion:**

Agree in concept, but the changes are hard to track. So, show/list them more explicitly here.

**Proposed resolution:**

Revised. Change subclauses 5.1.1.3 and 5.1.1.4, as shown. (Note, this merges these into one subclause.)

**5.1.1.3 Interpretation of priority parameter in MAC service primitives**

The value of the priority parameter in the MAC service primitives (see 5.2 (MAC data service specification)) may be a noninteger value of either Contention or ContentionFree or may be any integer value in the range 0 to 15.

When the priority parameter has an integer value, it is used in the TID subfields that appear in certain frames that are used to deliver and to control the delivery of QoS data across the WM.

Priority parameter and TID subfield values 0 to 7 are interpreted as UPs for the MSDUs. Outgoing MSDUs with UP values 0 to 7 are handled by MAC entities at STAs in accordance with the UP.

Priority parameter and TID subfield values 8 to 15 specify TIDs that are also TS identifiers (TSIDs) and select the TSPEC for the TS designated by the TID. Outgoing MSDUs with priority parameter values 8 to 15 are handled by MAC entities at STAs in accordance with the UP value determined from the UP subfield as well as other parameter values in the selected TSPEC. When an MSDU arrives with a priority value between 8 and 15 and for which there is no TSPEC defined, then the MSDU shall be sent with priority parameter set to 0.

The noninteger values of the priority parameter are allowed at all non-QoS STAs. The use of priority value of ContentionFree is deprecated at QoS STAs. The integer values of the priority parameter (i.e., TID) are supported only at QoS STAs that are either associated in an infrastructure QoS BSS or members of a QoS IBSS. A range of 0 to 15 is supported by QoS STAs associated in a QoS BSS; whereas a range of 0 to 7 is supported by QoS STAs that are members of a QoS IBSS. If a QoS STA is associated in a non-QoS BSS, the STA is functioning as a non-QoS STA, so the priority value is always Contention or ContentionFree.

At QoS STAs associated in a QoS BSS, MSDUs with a priority of Contention are considered equivalent to MSDUs with TID 0, and those with a priority of ContentionFree are delivered using the contention free delivery if a point coordinator (PC) is present in the AP. If a PC is not present, MSDUs with a priority of ContentionFree shall be delivered using an UP of 0. At STAs associated in a non-QoS BSS, all MSDUs with an integer priority are considered equivalent to MSDUs with a priority of Contention.

a QoS STA

1. STA
2. STASTA

Not ready yet:

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| 6094 | 3574.15 | V.3.2 | Stephen McCann/Mark Hamilton | This subclause has some significant problems with the architecture of an "AP" and its "BSS". (A single AP can't have multiple BSSIDs, for example. This is probably multiple APs and probably also multiple ESSs, SSIDs, DSs and Portals. There could be a single physical device that includes the multiple APs, but that is a different architectural structure, and not made clear here.) | An Interworking expert will be needed to sort this out. |  | MAC |  |
| 6562 |  |  | Mark Rison/Mark Hamilton | The exception for the PM bit in Probe Responses sent in response to unicast Probe Requests in an IBSS makes no sense | Get rid of this special case (in 3.2, 8.2.4.1.7 and 10.2.2.4) |  | MAC | MAC: 2015-10-26 22:41:17Z7.7.1.3 Question on making sure “sufficient number” is explained – it is in the note.7.7.1.4 Change “for all” to “from all recipients”7.7.1.5 MIB variable deprecated as it is not referenced in the draft any longer.7.7.1.6 Need to move the notes about “where are the rules of DMGIBSSen then?”7.7.1.7 IBSS Changes are still in progress, so we are happy with the Infrastruture BSS changes.7.7.1.8 Discussion on how to convert the changes we are happy with into resolutions for CID 6563, and pull 6562 and 6075 into a separate section for different discussion. |
| 6075 | 566.52 | 8.2.4.1.7 | Mark Rison/Mark Hamilton | The details of when the PM subfield is valid are still a bit murky. (This is a follow-on comment to changes already made which improved things, but left a bit of work to do.) Also, PM should be discussed as a field/subfield, not a "bit". | A submission will be made by Mark Rison/Mark Hamilton with specific proposed changes. |  | MAC | MAC: 2015-10-26 22:41:17Z7.7.1.3 Question on making sure “sufficient number” is explained – it is in the note.7.7.1.4 Change “for all” to “from all recipients”7.7.1.5 MIB variable deprecated as it is not referenced in the draft any longer.7.7.1.6 Need to move the notes about “where are the rules of DMGIBSSen then?”7.7.1.7 IBSS Changes are still in progress, so we are happy with the Infrastruture BSS changes.7.7.1.8 Discussion on how to convert the changes we are happy with into resolutions for CID 6563, and pull 6562 and 6075 into a separate section for different discussion.EDITOR: 2015-05-28 11:46:09Z - 2015-05-28 transferred to MAC. Were wrongly categorized by editor.. |
| 6279 | 1597.52 | 10.3.5.4 | Mark Hamilton | Where is the AP/PCP definition of the reassociation initiation procedures on the current AP (which might as a special case be the same as the new AP), and in particular all the stuff which is deleted or reset (such as BA agreements)? | Add a parallel subclause for APs/PCPs |  | MAC |  |
| 6379 | 1593.00 | 10.3.5 | Mark Hamilton | The description of auth/assoc handling has statements like "the state variable for the STA shall be set to State 4, or to State 3 if RSNA establishment is required". How does the SME know whether RSNA establishment is required | Tie this to the presence of an RSNE in the (Re)Association Request? |  | MAC |  |
| 6380 | 1597.46 | 10.3.5.3 | Mark Hamilton | "An AP may provide neighbor report information to a STA that requests authentication or association by responding with an Authentication or (Re)Association Response frame that includes the Reason Code field set to REJECTED\_WITH\_SUGGESTED\_BSS\_TRANSITION and that includes one or more Neighbor Report elements." What is this doing here? Why is this not in the auth or reassoc subclauses? | Either move the statement to a common subclause, or make it in each subclause and make it specific to that subclause |  | MAC |  |

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| 5130 | 1313.19 | 9.13.5 | Mark Hamilton | "MPDUs in an A-MPDU carried in an HT PPDU shall be limited to a maximum length of 4095 octets.A STA shall not transmit an MPDU in a VHT PPDU to a STA that exceeds the maximum MPDU lengthcapability indicated in the VHT Capabilities element received from the recipient STA."These statements do not relate to the transport of A-MPDUs, but he formation of A-MPDUs from MDPUs. | Either change the heading to capture the actual purpose of this subclause or move these statements in a new sibling subclause "constraints on MPDUs carried in an A-MPDU". |  | MAC | MAC: 2015-05-09 00:03:44Z: MAH - prefer the new subclause suggestion. |
| 6090 | 97.01 | 4.4.4 | Mark Hamilton | Figure 4-14 is far from the "complete" 802.11 architecture. | Change the caption for Figure 4-14 to "Complete IEEE Std 802.11 infrastructure architecture." Change the similar phrase at 97.2 to match. |  | MAC | MAC: 2015-10-07 17:21:51Z - But, this has PBSS, so it not "infrastructure" (only) either. Needs more work. MAC: 2015-05-12 05:28:11Z: Propose - Accept. |
| 6378 | 1593.00 | 10.3.5 | Mark Hamilton | The description of auth/assoc handling has statements like "If an Association Response frame is received with a status code of SUCCESS, the state for the AP orPCP shall be set to [...]". How does the SME know this? | Tie this to receiving a .indication (SUCCESS)? |  | MAC |  |
| 6273 | 1591.00 | 10.3.4 | Mark Hamilton | "Deauthentication notification sets the STA's state to State 1.", "If STA A in an infrastructure BSS receives a Class 2 or Class 3 frame from STA B that is not authenticated with STA A (i.e., the state for STA B is State 1), STA A shall discard the frame. If the frame has an individual address in the Address 1 field, the MLME of STA A shall send a Deauthentication frame to STA B.", "The state for the indicated STA shall be set to State 1.", "If no valid SA Query response is received, the non-AP STA may delete the SA and move into State 1 with the AP.", "If the target AP is distinct from the previous AP, the FTO shall enter State 1 with respect to the previous AP.", "If the target AP is distinct from the previous AP, then the FTO shall enter State 1 with respect to the previous AP." -- these statements do not apply to DMG STAs which do not perform 802.11 authentication | Update the statements to take account of DMG STAs which do not use State 1 |  | MAC |  |
| 6818 | 1599.00 | 10.3.5.5 | Mark Hamilton | In 10.3.5.5 there is no mention of state deletion for an AP on receipt on reassociation. Would expect something to match the non-AP STA procedure stated in 10.3.5.4 c). | Add such information |  | MAC |  |
| 6340 | 1088.00 | 8.6 | Mark Hamilton | "Vendor Specific" should not appear in $Foo frame Action field formats, since the VSIEs are in the Action frame not the Action field (per 8.3.3.13/14) | Remove vendor-specific elements at 1111.46, 1166.17, 1167.31, 1188.43, 1190.8, 1205.38, 1205.61, 1206.28, 1206.52, |  | MAC | MAC: 2015-08-18 07:06:00Z: MAH - Propose: Accepted. I believe this is correct, but would like to confirm. Needs detailed submission to remove elements and corresponding text.1111.46 is probably wrong, and shouldn't be changed.Also watch for places where VS doesn't have to be at the end.Mesh ones are problematic. Need to look at the VS, MME, MP stuff at the end of each, and delete if it matches the master copy. |
| 6341 | 1088.00 | 8.6 | Mark Hamilton | "Vendor Specific" subelements are not needed in $Foo frame Action field formats, since the VSIEs can all be put at the end of the Action frame (per 8.3.3.13/14) | Remove vendor-specific subelements in subclause 8.6 (e.g. p 1114, 1127, 1183, 1184) |  | MAC | MAC: 2015-08-18 07:12:21Z: MAH - Agree in principle. Needs detailed submission. |
| 6342 | 1088.00 | 8.6 | Mark Hamilton | The $Foo frame Action field does not include VSIEs, MICEs or AMPEEs (per 8.3.3.13) | Remove those fields at 1188.43, 1190.8, 1191.7 |  | MAC | MAC: 2015-08-18 07:14:04Z: MAH - Agree in principle. Largely duplicates CID 6340, except for 1191.7. |
| 6429 | 1306.36 | 9.7.12.2 | Mark Hamilton | The Tx Supported VHT-MCS and NSS Set is not used anywhere | Delete the referenced subclause |  | MAC | Look at again. Parenthetical in the table isn't needed?MAC: 2015-08-18 07:32:24Z - MAH: Propose: Reject. This clause is needed to set Tx Highest Supported Long GI Data Rate, per Table 8-241. |
| 6499 | 1260.38 | 9.3.2.9 | Mark Hamilton | It says "An exception is that recognition of a valid Data frame sent by the recipient of a PS-Poll frame shall also be accepted as successful acknowledgment of the PS-Poll frame." but so should a valid Management frame; similar issues at 1272.4, 1330.33, 1383.7 | Add "or Management" after "Data" in the cited text; similarly extend the text at 1272.4, 1330.33, 1383.7 |  | MAC | Fix up to be like commenter's proposed change, but in the additional locations.MAC: 2015-05-10 00:01:58Z: MAH - Agree, but the correct response to a PS-Poll is either an ACK, or a BU. (Not an arbitrary Data or Management frame.)Propose: Revise. Change "Data frame" to "a Data or Management frame containing all or part of a BU", at 1272.6, 1272.8 (two locations), 1272.11. Change "data" to "BU" at 1330.33. Change "Data frames sent in response to PS-Poll" to "Bus sent in response to PS-Poll" at 1383.7. Change "MSDU" to "BU" at 1272.13, 1272.14, 1272.15, 1272.16. |

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| 6218 | 1587.00 | 10.3.2 | Mark Hamilton | The difference between State 3 and State 4 is not expressed clearly (though there are hints in Figure 10-12) | State explicitly that in State 3 the controlled port is blocked (note that State 4 is also used in a non-RSNA, so there may not be a controlled port at all) |  | MAC |  |