IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Comment Resolutions for Clause 8.2.4 | | | | |
| Date: 2014-09-02 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Liwen Chu | Marvell |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This submission proposes comment resolutions for subclauses under 8.2.4:

3086, 3977, 3978, 3692, 3980, 3981, 3632, 3000, 3001, 3236, 3984, 3985, 4130, 3928***.***

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGah Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGah Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGah Editor: Editing instructions preceded by “TGah Editor” are instructions to the TGah editor to modify existing material in the TGah draft. As a result of adopting the changes, the TGah editor will execute the instructions rather than copy them to the TGah Draft.***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Clause Num** | **P** | **L** | **Comment** | **Propose Change** | | **Resolution** |
| 3086 | 8.2.4.1.1 | 69 | 43 | " An S1G STA never transmits a Control frame with Subtype being equal to 6. "  This is a very obscure way of saying S1G STAs don't transmit PS-Poll frames. | | Express it as I indicate in the comment, and move this somewhere more appropriate to what S1G STAs do and do not do. | Reject  Discussion: The Control frame with Subtype being equal to 6 is not PS-Poll. It is Control Frame Extension which is specially used in DMG devices. |
| 3977 | 8.2.4.1.1 | 69 | 45 | what is meant by "other control frames"? | | clarify | Revise.  Discussion: Other control frames includes control frames otherthan Control Frame Extension.  802.11ah Editor: Change the last sentence in the first paragraph of 8.2..4.1.1 to “The remaining subfields of the Frame Control field in the S1G Control frame are different from the Control frame other than the Control frame with Subtype being equal to 6.” |
| 3978 | 8.2.4.1.1 | 70 | 30 | in the baseline, each subfield of the FC field is introduced and well explained to some length. In D2.0, new subfields were introduced without the proper definition and use. Examples are Bandwidth indication, Dynamic Indication, etc. | | introduce proper definition and description of the newly introduced sub-fields. The description should be at the same level presented in the baseline | Reject  Discussion: Bandwidth and Dynamic Indication are defined in subclause under 8.2.4.1 like other subfields. |
| 3232 | 8.2.4.1.1 | 69 | 40 | This subclause is still very hard to read due to many exceptions and redundancies. | | Change the 2nd sentence of 1st pargraph as: "The remaining subfields of the Frame Control field depend on the setting of the Type, Subtype subfields, and the type of PPDU that carries the frame." and remove the other 3 added sentences. Insert " For a frame carried in a non-S1G PPDU" at the beginning of the 2nd and 3rd paragraphs and insert "For a Control frame carried in an S1G PPDU" to the newly inserted paragraphs. Remove any remaining redundancy because of these additions and keep the same style for all paragraphs of this subclause (e.g., list the remaining subfields instead of all the fields, and keep consistency between style of Figure captions. | Revise  Discussion: Generally agree with the comment.  TGah Editor:  TGah editor to make changes shown in 11-14/1251r2 under CID 3232 |
| 3928 | 8.2.4.1.2 | 71 | 25 | Both "Short MAC frame" and "PV1 frame" is used to specify the same thing. Only one name shall be used. | | Replace all "Short xxx" by "PV1 xxx" except "Short Probe Response"; e.g. - Short frame => PV1 frame - Short MAC frame => PV1 MAC frame - Short MAC header => PV1 MAC header - Short Data => PV1 Data - Short Management => PV1 Management - Short Control => PV1 Control | Revise  Discussion: Generally agree with the comment.  TGah editor makes changes in 11-14/1251r2 under CID 3928. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Clause Num** | **P** | **L** | **Comment** | **Propose Change** | | **Resolution** |
| 3692 | 8.2.4.1.3 | 72 | 4 | Power Management field in any frame is used to indicate that a STA wants to be in power save mode in a frame exchange with the AP. Poll Type is used in PS-Poll frame | | Change "The following indication is only valid when Power Management field is 1" to The following indication is only valid in Ps-Poll frame." | Revise  Discussion: Power Management field being 1 is required by Poll Type. However since Power Management is not just in PS-Poll, in PS-Poll frame is also added.  TGah Editor:  TGah editor to make changes shown in 11-14/1251r2 under CID 3692 |
| 3980 | 8.2.4.1.3 | 72 | 17 | what is a change sequence? | | introduce a definition in Clause 3 | Reject.  Discussion: Change Sequence is defined in Subclause 10.46. |
| 3981 | 8.2.4.1.3 | 72 | 3 | Is is true that the "Poll Type" field needs to be described in as part of Type/SubType description? It doesn't seem to fit in this clause. | | add a new clause number | Revise.  Discussion: generally agree with the comment.  See CID 3234 and 3382 |
| 4130 | 8.2.4.1.1 | 70 | 35 | Regarding the title of this Figure 8-3a, "Frame Control field in S1G Control frames when Subtype is not equal to <ANA> and not equal to 10", I think the logic is not correct. The word OR should be used. | | Change the title of Figure 8-3a from "Figure 8-3a--Frame Control field in S1G Control frames when Subtype is not equal to <ANA> and not equal to 10" to "Figure 8-3a--Frame Control field in S1G Control frames when Subtype is not equal to <ANA> or not equal to 10". Some corresponding changes to the text are also necessary. | Reject  Discussion: Figue 8-3a is about control frame in S1G PPDU that satisfy the following conditions: not (Subtype is <ANA> or subtype is 10). So It should be when Subtype is not equal to <ANA> and not equal to 10. |

* Frame Control field
* General

***TGah editor: Change the 1st and 2nd paragraph of subclause 8.2.4.1.1 as follows (CID 3232):***

The first three subfields of the Frame Control field are Protocol Version, Type, and Subtype. The remaining subfields of the Frame Control field depend on the setting of the Type and Subtype subfields.

For a frame carried in a non-S1G PPDU, when the value of the Type subfield is not equal to 1 or the value of the Subtype subfield is not equal to 6, the remaining subfields within the Frame Control field are: To DS, From DS, More Fragments, Retry, Power Management, More Data, Protected Frame, and Order. In this case, the format of the Frame Control field is illustrated in Figure 8-2 (Frame Control field in frames when Type is not equal to 1 or Subtype is not equal to 6 and frame is in non-S1G PPDU).

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0     B1 | B2   B3 | B4      B7 | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 |
|  | Protocol  Version | Type | Subtype | To DS | From DS | More Fragments | Retry | Power  Management | More Data | Protected Frame | Order |
| Bits: | 2 | 2 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| * Frame Control field in non-S1G PPDU when Type is not equal to 1 or Subtype is not equal to 6 | | | | | | | | | | | |

***TGah editor: Insert the following paragraphs and figures from Figure 8-3a to Figure 8-3c after Figure 8-3 (Frame Control field when Type is equal to 1 and Subtype is equal to 6):***

For a frame carried in a S1G PPDU, when the value of the Type subfield is equal to 1 and the value of the Subtype subfield is not equal to <ANA> and not equal to 10, the Frame Control field consists of the following subfields: Protocol Version, Type, Subtype, Bandwidth Indication, Dynamic Indication, Power Management, More Data, Protected Frame, and Order. The format of the Frame Control field is illustrated in Figure 8-3a (Frame Control field in S1G S1G PPDU when Subtype is not equal to <ANA> and not equal to 10).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0     B1 | B2  B3 | B4     B7 | B8        B10 | B11 | B12 | B13 | B14 | B15 |
|  | Protocol  Version | Type | Subtype | Bandwidth Indication | Dynamic Indication | Power Management | More  Data | Protected  Frame | Order |
| Bits: | 2 | 2 | 4 | 3 | 1 | 1 | 1 | 1 | 1 |
| * Frame Control field in S1G PPDU when Type is 1 and Subtype is not equal to <ANA> and not equal to 10 | | | | | | | | | |

For a frame carried in a S1G PPDU, when the value of the Type subfield is equal to 1 and the value of the Subtype subfield is equal to <ANA>, the remaining subfields within the Frame Control field are the following: Bandwidth Indication, Dynamic Indication, Next TWT Info Present, More Data, Flow Control, Reserved. In this case, the format of the Frame Control field is illustrated in Figure 8-3b (Frame Control field in S1G PPDU when Type is 1 and Subtype is equal to <ANA>).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0    B1 | B2   B3 | B4     B7 | B8      B10 | B11 | B12 | B13 | B14 | B15 |
|  | Protocol Version | Type | Subtype | Bandwidth Indication | Dynamic Indication | Next TWT Info Present | More Data | Flow Control | Reserved |
| Bits: | 2 | 2 | 4 | 3 | 1 | 1 | 1 | 1 | 1 |
| * Frame Control field in S1G PPDU whenType is 1 and Subtype is equal to <ANA> | | | | | | | | | |

(#3233)

For a frame carried in a S1G PPDU, when the value of the Type subfield is equal to 1 and the value of the Subtype subfield is equal to 10, the remaining subfields within the Frame Control field of S1G Control frames are the following: Bandwidth Indication, Dynamic Indication, Power Management, More Data, Poll Type. In this case, the format of the Frame Control field is illustrated in Figure 8-3c (Frame Control field in S1G PPDU when Type is 1 and Subtype is equal to 10).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0     B1 | B2    B3 | B4      B7 | B8              B10 | B11 | B12 | B13 | B14    B15 |
|  | Protocol Version | Type | Subtype | Bandwidth Indication | Dynamic Indication | Power Management | More Data | Poll Type |
| Bits: | 2 | 2 | 4 | 3 | 1 | 1 | 1 | 2 |
| * Frame Control field in S1G PPDU when Type is 1 and Subtype is equal to 10 | | | | | | | | |

**8.2.4.1.2 Protocol Version field**

***TGah Editor: Change the 1st paragraph of sub-clause 8.2.4.1.2 as following (CID 3928):***

The Protocol Version field is 2 bits in length(#3979) and is invariant in size and placement across all revisions of this standard. For this standard, the value of the protocol version is 0 for MAC frames as described in(#3087) 8.2 (MAC frame formats) and 1 for PV1 MAC frames as described in(#3087) 8.8 (MAC frame format for PV1 frames). All other values are reserved. The revision level ~~will be~~ is incremented only when a fundamental incompatibility exists between a new revision and the prior edition of the standard. See 9.27.2 (Revision level field processing).

**8.2.4.1.14 Poll Type field**(#3234, 3382)

***TGah Editor***: Change the first paragraph in subclause 8.2.4.1.14 as follows(CID 3692):

The Poll Type field is 2 bits. The following indication is only valid when Power Management field is 1 in PS Poll frame. Otherwise, the Poll Type bits are reserved.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Clause Num** | **P** | **L** | **Comment** | **Propose Change** | | **Resolution** |
| 3632 | 8.2.4.1.4 | 72 | 40 | the management and control frames also set the To DS=0 and From Ds=0 | | add"as well as all management and control frames" | Reject  Discussion: The management frame and control frame are defined in another table, see 802.11 Revmc D3.0. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Clause Num** | **P** | **L** | **Comment** | **Propose Change** | | **Resolution** |
| 3000 | 8.2.4.6.3 | 76 | 11 | "where neither the originator nor the addressed recipient support Fragment BA procedure"  The encodings as shown are incomplete for the case where only one of the peers supports the Fragment BA procedure. | | Replace with "where either the originator or the addressed recipient do not support Fragment BA procedure" | Revise  Discussion: The comment is related with 8.2.4.5.4 Ack Policy field. Generally agree with the comment. In table 8-417, same issue should be solved.  TGah editor to make the changes shown in 11-14/xxxxr0 under all headings that include CID 3000. |
| 3001 | 8.2.4.6.3 | 76 | 26 | "When both the originator and the addressed recipient support the fragment BA procedure, the addressed recipient returns an NDPBlockAck frame after a SIFS, according to the procedure defined in 9.3.2.10a (Fragment BA procedure)."  Interpreting what a frame means according to the capbilities of both transmitter and receiver is generally a bad idea. It requires the a STA to determine its peer's capabilities before knowing how to respond or interpret a frame. And that might be in a SIFS period. It also makes it difficult for a 3rd party - e.g. a sniffer, to follow the exchange or report it meaningfully. | | Find a way to encode the format in a way that is either explicitly signalled, or is known without needing to know the peer's capabilities, such as per-band, per-BSS, per-phase-of-moon. | Reject  Discussion: There is no issue for non-AP STA since the AP is the source or destination of the STA’s transmission. When an AP can’t figure out its STA’s capacity of fragment BA in SIFS, the AP will not announce fragment BA support. |
| 3236 | 8.2.4.6.3 | 76 | 11 | I agree that "An S1G STA always set the S1G subfield to 1". But what about a non-S1G STA? | | Replace it with " The S1G subfield is set to 1 by an S1G STA and is set to 0 by a non-S1G STA". | Accept |
| 3984 | 8.2.4.6.3 | 76 | 3 | Table 8-9 seems to be out of place. It belongs to QoS Control field | | Move the table to its proper clause | Revise  Discussion: Table 8-9 is already moved to the place under subclause 8.2.4.5.4. |
| 3985 | 8.2.4.6.3 | 76 | 45 | what is the purpose of setting the reserved bit always to 1? Why waste a bit for something that seems to serve no purpose. | | keep the reserved bit | Revise  Discussion: It is set to 1 only by S1G STA. A non S1G STA will set the subfield to 0.  See comment resolution for comment 3236. |

**8.2.4.5.4 Ack Policy subfield**

***TGah editor: Change* Table 8-9 *as follows(CID 3000):***

|  |  |  |
| --- | --- | --- |
| * Ack Policy subfield in QoS Control field of QoS Data frames | | |
| Bits in QoS Control field | | Meaning |
| Bit 5 | Bit 6 |
| 0 | 0 | Normal Ack or Implicit Block Ack Request.  In a frame that is a non-A-MPDU frame or VHT single MPDU where either the originator or the addressed recipient does not support Fragment BA procedure:  The addressed recipient returns an Ack or QoS +CF-Ack frame after a short interframe space (SIFS) period, according to the procedures defined in 9.3.2.9 (Ack procedure) and 9.22.3.5 (HCCA transfer rules). A non-DMG STA sets the Ack Policy subfield for individually addressed QoS Null (no data) frames to this value.  ~~Otherwise~~In a frame that is part of an A-MPDU:  The addressed recipient returns a BlockAck frame, either individually or as part of an A-MPDU starting a SIFS after the PPDU carrying the frame, according to the procedures defined in 9.3.2.10 (Block ack procedure), 9.24.7.5 (Generation and transmission of BlockAck frames by an HT STA, or DMG STA or S1G STA), 9.24.8.3 (Operation of HT-delayed block ack), 9.28.3 (Rules for RD initiator), 9.28.4 (Rules for RD responder), and 9.32.3 (Explicit feedback beamforming).  In a frame that is a fragment:  When both the originator and the addressed recipient support the fragment BA procedure, the addressed recipient returns an NDP BlockAck frame after a SIFS, according to the procedure defined in 9.3.2.10a (Fragment BA procedure). |

* Frame Control field

***TGah editor: Change* Table 8-417 *as follows(CID 3000):***

|  |  |
| --- | --- |
| * Ack Policy field in the Frame Control field for Short frames | |
| Meaning |
| Normal Ack or Implicit Block Ack Request.  In a Short frame that is a non-A-MPDU frame or VHT single MPDU where either the originator or the addressed recipient does not support Fragment BA procedure:  The addressed recipient returns an Ack frame after a short interframe space (SIFS) period, according to the procedures defined in 9.3.2.9 (Ack procedure).  In a Short frame that is part of an A-MPDU that is not a VHT single MPDU:  The addressed recipient returns a BlockAck frame, either individually or as part of an A-MPDU starting a SIFS after the PPDU carrying the frame, according to the procedures defined in 9.3.2.9 (Block Ack procedure), 9.24.7.5 (Generation and transmission of BlockAck frames by an HT STA, or DMG STA or S1G STA), and 9.22.8.3 (Operation of HT-delayed Block Ack).  In a Short frame that is a fragment:  When both the originator and the addressed recipient support the Fragment BA procedure, the addressed recipient returns an NDP BlockAck frame after a SIFS, according to the procedure defined in 9.3.2.10a (Fragment BA procedure).  Ack Policy 0 is limited to at most one MU recipient per MU PPDU. |
| No Ack or Block Ack Policy.  In a Short frame that is a non-A-MPDU frame or VHT single MPDU:  The addressed recipient takes no action upon receipt of the frame. More details are provided in 9.23 (No Acknowledgment (No Ack)). The Ack Policy subfield is set to this value in all individually addressed frames in which the sender does not require acknowledgment. The Ack Policy subfield is also set to this value in all group addressed frames. This combination is not used for Short Data frames with a TID for which a Block Ack agreement exists.  In a Short frame that is part of an A-MPDU frame that is not a VHT single MPDU:  The addressed recipient takes no action upon the receipt of the frame except for recording the state. The recipient can expect a BlockAckReq frame in the future to which it responds using the procedure described in 9.24 (Block acknowledgment (block ack)). |