IEEE P802.11
Wireless LANs

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| SB0 Comment Resolution Part5 |
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Abstract

This submission proposes resolutions of comments received from TGah 1st Sponsor Ballot (TGah Draft 5.0).

* CIDs: 8249, 8220, 8233, 8234, 8235, 8476, 8240, 8053, 8253, 8245, 8168, 8248, 8432, 8436, 8437, 8442, 8440, 8082 (18 CIDs)

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** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- |
| 8053 | 49 | 6.3.106.3.4 | " the SME should operate according to the procedure in 9.5.1.5.3 ...".There's a couple of problems with this. I suspect "should" is not correct. If we have any normative requirement, i suspect it should be a "shall".Also placing a normative requirement in clause 9 for the SME is to hide it well. | 1. If the cited text itself contains "shalls" for the SME, then replace "should operate" with "operates" at the cited location, and throughout clause 6 in the same context (7 instances).Move any normative behaviour for the SME out of clause 9 into clause 10. | Revised- I agree in principal. The MLME SAP interfaces in clause 6 are for clause 10 (MLME), not for clause 9 (MAC sublayer functional description).TGah editor removes the the following sub-clauses from TGah Draft 5.1.: - Synch Control (6.3.105)- EDCA Parameter Set update (6.3.107)- TWT Setup, TWT Teardown (6.3.109, (6.3.110)- Sectorized Group ID List management (6.3.111)- Header Compression procedure (6.3.112)- Reachable Address Update (6.3.113)- Control response MCS negotiation operation (6.3.114)- S1G Relay (de)activation (6.3.115) |
| 8082 | 470 | 24.3.9.11 | The row index of the P\_HTLTF matrix in data OFDM symbols when STBC and traveling pilots is enabled is incorrectly configured in Eq (24-51), (24-52), (24-53), (24-58), and (24-60).The current 11ah draft 5.0 implies rank 1 P\_HTLTF vector.However, the specification framework document 1137r15 page 26 R3.7D part 2 states that P\_HTLTF should be rank 2. | Suggest to change the Eq (24-51), (24-52), (24-53), (24-58), and (24-60) to the proposed formula in the 11-15/xxxxr0 (that will be submitted by a commenter). | Revised- Agree in principal. TGah editor makes changes as shown in 11-16/0020r0.  |
| 8168 | 270 |  | "dec()" the case to decimal operator is a red herring. Base 10 doesn't come into it anyway. | If you feel compelled to have an operator use "val()" describes as the "value" operator. But note other locations don't need this operator, e.g. at 271.42.Likewise for all dec() operators in the standard. | Revised- Agree in principal. Proposed changes (i.e., remove “dec()” operator) are aligned with the recent update of TGmc. TGah editor makes changes as shown in 11-16/0020r0.  |
| 8220 | 3 | 3.2 | Throughout this clause there are definitions of PPDU formats which include specific field settings, also known as normative requirements, embedded in definitions. Requirements are not allowed in definition of terms. Requirements should appear in an appropriate normative clause. | Move all the PPDU definitions to Clause 24. | Rejected- The BRC believes that a specific field settings (e.g., TXVECTOR parameter X equal to Y) phrase in a definion is an informative language. The same phrase has been used in Clause 3 of IEEE 802.11 base specification. |
| 8233 | 4 | 3.2 | This definition is inconsistent with the base standard, seemingly adding new meaning to the existing field of the TIM element. | Remove definition | Revised- Paged AID is defined for ADE mode of TIM element.But, as per comment, it can make a misunderstanding that the paged AID is overriding a existing meaning of the base standard.TGah editor makes changes as shown in 11-16/0020r0. |
| 8234 | 5 | 3.2 | This "definition" includes a number of requirements. Definitions shall not contain requirements. This is defining a functional element and belongs (I think) in clause 10 where sensor and non-sensor STA are normatively described. There are MANY definitions in clause 3 that contain requirements...which should be moved to clause 10 or deleted as redundant with what is already in clause 10. | Delete all definitions that contain requirements. Specifically, "sensor station", "non-sensor station", "centralized authentication controller (CAC) access point (AP)", "centralized authentication controlled (CAC) station", "energy limited (EL) station (STA)", "non-traffic indication map (non-TIM) mode", "null data packet (NDP) 1M (NDP\_1M)", "null data packet (NDP) 2M (NDP\_2M)", "null data packet (NDP) carrying medium access control information (CMAC) frame" | Rejected- The BRC believes that all definitions are an informative language. The same phrase has been used in Clause 3 of IEEE 802.11 base specification.Please refer the following examples defined in IEEE 802.11 base specification. 1) 40-MHz-capable (40MC) high throughput (HT) access point (AP): An HT AP that included a value of 1 in the Supported Channel Width Set subfield (indicating its capability to operate on a 40 MHz channel) of its most recent transmission of a frame containing an HT Capabilities element.2) 40-MHz-capable (40MC) high throughput (HT) station (STA): An HT STA that included a value of 1 in the Supported Channel Width Set subfield (indicating its capability to operate on a 40 MHz channel) of its most recent transmission of a frame containing an HT Capabilities element. |
| 8235 | 6 | 3.2 | sub 1 GHz modulation and coding scheme (S1G-MCS) definition: Starting with "a specifiction of" hints that this contains requirements, and everything after "that consists of" is definitely stating characteristics and/or requirements of a S1G-MCS and thus does not belong in the definition in clause 3. | Delete all text starting with "that consists of" through the end of the definition. | Rejected- The BRC believes that all definitions are an informative language. The same phrase has been used in Clause 3 of IEEE 802.11 base specification.Please refer the following examples defined in IEEE 802.11 base specification. 1) high throughput (HT) modulation and coding scheme (HT-MCS): A specification of the HT physical layer (PHY) parameters that consists of modulation order (e.g., BPSK, QPSK, 16-QAM, 64-QAM), forward error correction (FEC) coding rate (e.g., 1/2, 2/3, 3/4, 5/6) and number of spatial streams (NSS) and that is used in an HT PHY protocol data unit (PPDU).2) very high throughput modulation and coding scheme (VHT-MCS): A specification of the VHT physical layer (PHY) parameters that consists of modulation order (e.g., BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) and forward error correction (FEC) coding rate (e.g., 1/2, 2/3, 3/4, 5/6) and that is used in a VHT PHY protocol data unit (PPDU).3) modulation and coding scheme (MCS): A specification of the physical layer (PHY) parameters that consists of modulation order (e.g., BPSK, QPSK, 16-QAM, 64-QAM, and 256-QAM) and forward error correction (FEC) coding rate (e.g., 1/2, 2/3, 3/4, 5/6) and, depending on the context, the number of spacetime streams. |
| 8240 | 16 | 6.3.3.3.2 | "When a Short Probe Response or an S1G Beacon is received, the timestamp is the 4 least significant octets of the TSF timer value of the transmitting STA." - how does the receiving device know the TSF timer value of the transmitting STA? | clarify, i.e. reference the field in the received frame that contains the TSF timer value? | Revised- Agree in principal. After receiving an S1G Beacon frame, a STA can reconstruct the 8 octet TSF timer at the AP by concatenating the 4 octet TSF Completion field in the S1G Beacon Compatibility element with the Timestamp field in the S1G Beacon frame as described in 10.1.3.10.3 (TSF timer accuracy with S1G Beacon).TGah editor makes changes for Page 16 Line 14 sentence (from a table of sub-clause 6.3.3.3.2) as the following: “When a Short Probe Response or an S1G Beacon is received, the timestamp is the 4 least significant octets of the TSF timer value of the transmitting STA.”to“When a Short Probe Response or an S1G Beacon is received, the timestamp is reconstructed as described in 10.1.3.10.3 (TSF timer accuracy with S1G Beacon).” |
| 8245 | 233 | 9.2.1 | The replacement figure 9-1 now conflicts with figure 9-2 in the base standard. This may be an error in the editing instructions, intending that the new 9-1 replace both 9-1 and 9-2? | Correct figure or editing instructions: either remove the content that replicates figure 9-2 in the base standard or change to "replace figure 9-1 and figure 9-2" | Revised- Agree in principal. In the base standard, the DMG related figure was separated to Figure 9-2. TGah editor makes changes as shown in 11-16/0020r0. |
| 8248 | 352 | 10.2.2.2 | The text shown as NOT changed does not match the text in the base standard. (Tble 10-2 row 2). This makes applying the modified text and understanding the result impossible, or at least highly improbably. | Delete all changes to cluase 10.2 | Revised- Agree in principal. The text of Table 10-2 of the base standard has been updated. TGah editor makes changes as shown in 11-16/0020r0. |
| 8249 | 0 | 0 | It is not entirely clear what standard this amendment is amending. The draft states that "This amendment is based on IEEE P802.11REVmc D4.0 amended by IEEE P802.11ai/D4.0", yet in many places the text shown as unmodified by this amendment does not match the text in the base standard. Many of the figure and table numbers do not line up, making it sometimes difficult to determine exactly what is being referenced, what is being changed, etc. This makes a complete technical review of the draft highly improbably. Some odf these disconnects are identified with ballot comments, but many likely are undedected due to the compleity of the draft and the limited time available in the ballot period. | Withdraw the draft from sponsor ballot, bring it in line with the base standrd being amended, and resubmit for sponsor ballot when it is in a form that can be adequately reviewed. | Rejected- All amendments developed in IEEE 802.11 WG are aligning the section, figure, table numbers with the following tool: <https://mentor.ieee.org/802.11/dcn/11/11-11-1149-46-0000-draft-number-alignment-tool.xlsx>The BRC can not specify figure and table that have an index issue. So, the comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined.  |
| 8253 | 75 | 8.2.4.1.1 | "The Control frames carried by S1G PPDUs are called S1G Control frames." suggests that the S1G PHY is incapable of carrying normal 802.11 control frames. If that is true, then this amendment has not met the project scope requiremetn if "maintaining the IEEE 802.11 WLAN user experience" which, per the WG definition, means using the 802.11 MAC. This also seems like the wrong place to make this statement as the subcluse is "general" and not limited to control frames. | Remove sentence if it is in fact incorrect. If the sentence is correct (i.e. this PHY can not be used to convey other 802.11 control frames) then withdraw the PAR as the requirement of "maintaining the IEEE 802.11 WLAN user experience" has not been met by the amendment.. | Rejected- Maintaining the IEEE 802.11 WLAN user experience does not mean that all frames defined in IEEE 802.11 base base specification shall be supported. Also, a S1G control frame is following a general MAC frame structure of IEEE 802.11 base base specification.  |
| 8432 | 367 | 10.48 | "10.48 Dynamic AID assignment operation": this subclause specifies general MAC functionality, not just MLME features, so it does not belong in the MLME clause. | Move "10.48 Dynamic AID assignment operation" to a location between 9.20 and 9.21 (so this subclause becomes the new 9.21). Also rename it to "S1G dynamic AID assignment". | Rejected- 10.48 (Dynamic AID assignment operation) is describing the AID update procedure. Its reference section is 10.3.5 (Association, reassociation, and disassociation) in IEEE 802.11 base specification.The BRC can not identify which operation is considered as the MAC functionality. So, the comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined. |
| 8436 | 369 | 10.49 | "10.49 System information update procedure": this subclause specifies MAC function operation, not just MLME features. But this operation is part of the S1G operation, so make it a subclause of the "S1G BSS operation" clause. After moving the "S1G BSS operation" subclause from 10.50 to the new 9.42, make the current 10.49 subclause the new 9.42.2. | Move subclause "10.49 Channel selection methods for an S1G BSS" to a location between "Basic S1G BSS functionality"(the new 9.42.1) and "Channel selection methods" (the new 9.42.3). Also rename this subclause "S1G BSS channel selection methods". | Rejected- 10.49 (System information update procedure) is describing the system information update mechanism. Its reference section is 10.2.2.17 (TIM Broadcast) in IEEE 802.11 base specification.The BRC can not identify which operation is considered as the MAC functionality. So, the comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined. |
| 8437 | 370 | 10.50. | "10.50 S1G BSS operation": this subclause specifies basic MAC functionality, not just MLME features, so it does not belong in the MLME clause. | Move the full subclause "10.50 S1G BSS operation", except for 10.50.7, to a new subclause 9.42. | Rejected- 10.50 (S1G BSS operation) is describing the BSS operation. Its reference section is 10.40 (VHT BSS operation) and 10.43 (Basic TVHT BSS functionality) in IEEE 802.11 base specification.The BRC can not identify which operation is considered as the MAC functionality. So, the comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined. |
| 8440 | 374 | 10.50.7 | "S1G BSS type and STA type": what is such a specification of a general operation doing buried at the end of the MLME clause? This material does not belong in the MLME clause. | Move subclause 10.50.7 to a location between 9.2.5 and 9.2.6 (so it becomes the new 9.2.6). | Rejected- The BRC can not identify which operation is considered as the MAC functionality. So, the comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined. |
| 8442 | 374 | 10.51 | "Support for energy limited STAs": this subclause is a specification of functional operations, not just MLME components. Move it into the MAC functional specification. | After the TG creates the new subclause 9.42 on S1G operations, rename this subclause "9.42.9 Support for energy limited STAs". | Rejected- The BRC can not identify which operation is considered as the MAC functionality. So, the comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined. |
| 8476 | 13 | 6 | Many STATUS codes are missing from the MLME clause. | Add missing codes in the corresponding subclauses (refer to the Status Code field for a list of those newly defined). | Rejected- The comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined. |

**Propose:**

Revised for CID 8082 per discussion and editing instructions in 11-16/0020r0.

***TGah editor: Replace Equation (24-51), (24-52), (24-53), (24-58), and (24-60) as the following:***

~~ (24-51)~~

 (24-51)

where



~~~~ ~~(24-52)~~

 (24-52)

where



~~ (24-53)~~

 (24-53)

where

…



~~ (24-58)~~

 (24-58)

where

…



~~ (24-60)~~

 (24-60)

where

…



**Propose:**

Revised for CID 8068 per discussion and editing instructions in 11-16/0020r0.

***TGah editor: Modify Table 9-9a and Table 9-9b as the following:***

**Table 9-9a—Settings for the TXVECTOR parameter PARTIAL\_AID for NDP frames**

|  |  |
| --- | --- |
| Condition | PARTIAL\_AID |
| A frame that is addressed to an AP or sent by an AP as a broadcast address | ~~(~~*~~dec~~*~~(BSSID[39:47])~~*~~mod~~*~~(2~~~~9~~~~-1))+1~~BSSID[39:47]*mod*(29-1)+1 |
| A frame that is sent by an AP and addressed to a STA associated with that AP or sent by a DLS or TDLS STA in a direct path to a DLS or TDLS peer STA, or to a group of STAs with a common multicast AID and a common BSSID | ~~(~~*~~dec~~*~~(AID[0:8])+2~~~~5~~~~×~~*~~dec~~*~~(BSSID[44:47]BSSID[40:43]))~~*~~mod~~* ~~2~~~~9~~(AID[0:8]+25×(BSSID[44:47]BSSID[40:43])*mod* 29)(9-15a)~~where~~ *~~dec~~*~~(A[~~*~~b~~*~~:~~*~~c~~*~~]) is the cast to decimal operator where the digit~~ *~~b~~* ~~has weight 2~~~~0~~ ~~and the digit~~ *~~c~~* ~~has weight 2~~*~~c-b~~* |
| Otherwise | 0 |

**Table 9-9b—Settings for the TXVECTOR parameter PARTIAL\_AID for non-1 MHz PPDUs and non-NDP frames**

|  |  |
| --- | --- |
| Condition | PARTIAL\_AID |
| A frame that is not a Control frame that is addressed to an AP | ~~(~~*~~dec~~*~~(BSSID[39:47])~~*~~mod~~*~~(2~~~~9~~~~-1))+1~~BSSID[39:47]*mod*(29-1)+1 |
| A frame that is not a Control frame that is sent by an AP and addressed to a STA associated with that AP or is sent by a DLS or TDLS STA in a direct path to a DLS or TDLS peer STA or is sent to a group of STAs with a common multicast AID and a common BSSID | ~~(~~*~~dec~~*~~(AID[0:8])+2~~~~5~~~~×~~*~~dec~~*~~(BSSID[44:47]BSSID[40:43]))~~*~~mod~~* ~~2~~~~6~~(AID[0:8]+25×(BSSID[44:47]BSSID[40:43])*mod* 26(9-15b)~~where~~ *~~dec~~*~~(A[~~*~~b~~*~~:~~*~~c~~*~~]) is the cast to decimal operator where the digit~~ *~~b~~* ~~has weight 2~~~~0~~ ~~and the digit~~ *~~c~~* ~~has weight 2~~*~~c-b~~* |
| Otherwise | 0 |

***TGah editor: Modify Sub-clause 9.20a as the following:***

An S1G AP should not assign to an S1G STA, an AID that results in the PARTIAL\_AID value, as computed using Equation 9-15a or Equation 9-15b, being equal to either

~~0 or (~~*~~dec~~*~~(BSSID[39:47])~~*~~mod~~*~~(2~~~~9~~~~-1))+1 or (dec(OBSSID[39:47])mod(2~~~~9~~~~-1))+1~~

0 or BSSID[39:47]*mod*(29-1)+1 or OBSSID[39:47]mod(29-1)+1

The partial BSSID is defined to be the PARTIAL\_AID of the address of the STA contained in the AP and is equal to

~~(~~*~~dec~~*~~(BSSID[39:47])~~*~~mod~~*~~(2~~~~9~~~~-1))+1~~

BSSID[39:47]*mod*(29-1)+1

**Propose:**

Revised for CID 8233 per discussion and editing instructions in 11-16/0020r0.

***TGah editor: Modify the definion of paged AID as the following:***

paged association identifier (AID): An ~~association identifier~~ AID of a sub 1 GHz (S1G) non-access point (non-AP) station (STA) whose corresponding bit value in a transmitted traffic indication map (TIM) encoded in an AID with differential encoding (ADE) mode is 1.

**Propose:**

Revised for CID 8245 per discussion and editing instructions in 11-16/0020r0.

***TGah editor: Modify first sentence of sub-clause 9.2.1 as the following:***

**9.2 MAC architecture**

**9.2.1 General**

~~The MAC architecture is shown in Figure 9-1 (MAC architecture).~~

The MAC architecture is shown in Figure 9-1 (Non-DMG STA MAC architecture) and Figure 9-2 (DMG STA MAC architecture).

***TGah editor: Replace Figure 9-1 with the following figure:***



**Figure 9-1—~~MAC architecture~~ Non-DMG STA MAC architecture**

**Propose:**

Revised for CID 8248 per discussion and editing instructions in 11-16/0020r0.

***TGah editor: Delete changes related with Table 10-2 as the following:***

~~Change the second row of Table 10-2 as follows:~~

|  |  |
| --- | --- |
| ~~PS~~ | ~~STA with dot11NonTIMModeActivated equal to false listens to selected Beacon frames (based upon the ListenInterval parameter of the MLME-ASSOCIATE.request or MLME-REASSOCIATE.request primitive) and sends PS-Poll frames to the AP if the TIM element in the most recent Beacon frame indicates an individually addressed BU is buffered for that STA. An S1G non-AP STA for which dot11NonTIMModeActivated is false is a TIM STA.~~~~STA with dot11NonTIMModeActivated equal to true shall transmit at least one PS-Poll or trigger frame that is individually addressed to the associated AP every listen interval without being required to receive an S1G Beacon frame (based upon the ListenInterval parameter of the MLME-ASSOCIATE.request or MLME-REASSOCIATE.request primitive) unless it follows the TWT or NDP Paging procedure. An S1G non-AP STA for which dot11NonTIMModeActivated is true is a non-TIM STA.~~~~A non-TIM STA may send (NDP) PS-Poll frames to an S1G AP regardless of whether individ­ually addressed buffered BUs have been indicated by the S1G AP.~~~~The AP shall transmit buffered individually addressed BUs to a PS STA only in response to a PS-Poll from that STA, during the CFP in the case of a CF-Pollable PS STA, during a scheduled or unscheduled APSD service period for the STA, or during the SP of a scheduled GCR-SP. In PS mode, a STA shall be in the Doze state and shall enter the Awake state to receive selected Beacon frames, to receive group addressed transmissions following certain received Beacon frames, to receive transmissions during the SP of a scheduled GCRSP, to transmit, and to await responses to transmitted PS-Poll frames or (for CF-Pollable STAs) to receive CF transmissions of buffered BUs.~~ |

***TGah editor: Modify 5th paragraph of sub-clause 10.2.2.1 as the following:***

A STA operating in PS mode with dot11NonTIMModeActivated equal to false that is not in WNM-sleep mode shall periodically listen for Beacon frames, as determined by the STA’s ListenInterval and the ReceiveDTIMs parameter in the MLMEPOWERMGT.request primitive. An S1G non-AP STA for which dot11NonTIMModeActivated is false is a TIM STA. STAs operating in PS modes with dot11NonTIMModeActivated equal to true transmit at least one (NDP) PS-Poll or trigger frame that is individually addressed to the associated S1G AP every ListenInterval parameter used by the MLME primitives starting from the last known transition of the non-TIM STA in doze state unless it follows the TWT or NDP Paging procedure, without being required to receive an S1G Beacon frame (based upon the ListenInterval parameter of the MLME-ASSOCIATE.request or MLME-REASSOCIATE.request primitive). An S1G non-AP STA for which dot11NonTIMModeActivated is true is a non-TIM STA.