IEEE P802.11  
Wireless LANs

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| Proposed resolution for CIDs for 27-2-1 | | | | |
| Date: 2017-07-12 | | | | |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D1.0 with the following CIDs (30):

* 3056, 3189, 3190, 5167, 5168, 5394, 5454, 5456, 5686, 5779, 5799, 6058, 6059, 6152, 6176, 6574,6575,6576,6577,6578,6579,6580,6581,6582,6583,7022,7071,7232,7659,8358,8693,9380,9519, 9520,9585,9727,~~9739~~,9747,9872,9873,10007,10171,10241,10242,10243,10244,~~10319,~~5453,7162,9438

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: change resolution for CID 3056, 5168, 6059,9727, 9747; ~~remove CID 9739~~
* Rev 2: remove CID 9739
* Rev3: Add CID 5779, change resolution for CID 6580,6581,9747, remove CID 10319
* Rev4: change resolution for CID 5394,6058,7659,10243
* Rev5: change resolution for CID 10241, 6176,6574,6576,6583,9727,6579; Add CID 6577,6578,9873,5453,9519,9520
* Rev6: Update the text based on Draft 1.3; Add CID 7162,9438; change resolution for CID 3056;9747
* reword the text

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 TGax Draft. This introduction is not part of the adopted material.

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

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

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| **CID** | **Section** | **Pg / Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 3056 | 27.2.1 | 149.48 | Need to capture the case when BSS\_COLOR is 0 | Frame is Inter BSS when BSS\_COLOR is 0, Inter-BSS NAV is set | Rejected  An HE PPDU having the BSS\_COLOR equal to 0 is not an inter-BSS PPDU.  It cannot be determined as intra-BSS or inter-BSS frame. Therefore the basic NAV will be set. |
| 6059 | 27.2.1 | 149.51 | The second condition of Inter-BSS frame detection (i.e., BSSID field based detection) could be adopted for RXVECTOR parameter BSS\_COLOR set to 0 as well as absence of BSS\_COLOR. | Change as following:  "When the RXVECTOR parameter BSS\_COLOR of the PPDU carrying the frame is not present or 0, | Rejected  Same as CID 3056. |
| 3189 | 27.2.1 | 149.24 | Clarify the case where the STA has received a Color Change Ano. and color switch countdown is not over yet: "The RXVECTOR parameter BSS\_COLOR in the received PPDU carrying the frame is the same as the BSS color announced by the AP to which the STA is associated" | As in the comment | Rejected  The rules for BSS color classification should not be changed based on the COLOR disable bit. The problem of BSS color collision can be resolved by turning off intra-BSS PPDU power save. |
| 3190 | 27.2.1 | 149.38 | Clarify the case where the STA has received a Color Change Ano. and color switch countdown is not over yet: "The value of RXVECTOR parameter PARTIAL\_AID [5:8] in the received VHT PPDU with the RXVECTOR parameter GROUP\_ID equal to 63 is the same as the partial BSS color announced by the AP to which the STA is associated when the Partial BSS Color field in the most recently received HE Operation element is 1." | As in the comment | Rejected  The rules for BSS color classification should not be changed based on the COLOR disable bit. The problem of BSS color collision can be resolved by turning off intra-BSS PPDU power save. |
| 5167 | 27.2.1 | 149.19 | How does "received frame" equate to the HE receive procedure? To elaborate, in Figure 28-51 PHY receive state machine, BSS color filtering occurs after CRC OK check of HE-SIG-A. However, that doesn't mean the frame can be received. The most obvious example is mismatch in PHY modes (e.g. 2-SS PPDU trying to be received by 1-SS receiver)  With respect to "or MAC | With respect to RXVECTOR parameters located in the HE-SIG-A, "received frame" should probably be changed to "valid CRC of HE-SIG-A or valid CRC of VHT-SIG-A". | Revised.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 5168 | 27.2.1 | 149.25 | If the BSS\_COLOR is zero in the PPDU, and the BSS color of the AP is zero, is the frame still classified as intra-BSS? | As in the comment | Rejected  If the BSS\_COLOR is zero in the PPDU, and the BSS color of the AP is zero,…”  This condition is not happened. The BSS color of the AP is in the range 1 to 63, not 0. |
| 5394 | 27.2.1. | 150.15 | Partial BSS Color information can be included in the Partial AID field. Therefore, the decision made by using the MAC address should take precedence over the decision made by using the RXVECTOR parameter GROUP\_ID and PARTIAL\_AID. | As per comment | Revised  Agree with the comment.  Update the text by adding the priority of the RXVECTOR parameter GROUP\_ID and PARTIAL\_AID.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 6058 | 27.2.1 | 150.16 | Group ID and Partial AID as well as BSS Color can be RXVECTOR paramters in VHT PPDUs. | Change the text as following:  RXVECTOR parameters (e.g., BSS\_COLOR in HE PPDUs or GROUP\_ID and PARTIAL\_AID in VHT PPDUs). | Revised  Agree with the comment.  Update the text by adding the priority of the RXVECTOR parameter GROUP\_ID and PARTIAL\_AID.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 7659 | 27.2.1 | 149.16 | The priority of partial AID is missing. Add it. | As in comment | Revised  Agree with the comment.  Update the text by adding the priority of the RXVECTOR parameter GROUP\_ID and PARTIAL\_AID.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 10243 | 27.2.1 | 150.15 | A precedence rule of PARTIAL\_AID should be defined. | Add "or PARTIAL\_AID" at the end of the sentence. | Revised  Agree with the comment.  Update the text by adding the priority of the RXVECTOR parameter GROUP\_ID and PARTIAL\_AID.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 5454 | 27.2.1 | 149.27 | "The RA field, TA field or BSSID field of the received frame with the Individual/Group bit forced to the value 0 is the same as the BSSID of AP to which the STA is associated" The forcing the Individual/Group bit to 0 only applied to RA and TA fields, not to the BSSID. Needs rewording. | To read "The RA field or TA field of the received frame with the Individual/Group bit forced to the value 0, or the BSSID field, is the same as the BSSID of AP to which the STA is associated" | Revised  TGax editor please make the changes as shown in 11-17/0389r5 |
| 5456 | 27.2.1 | 149.46 | "A frame received by the STA is an inter-BSS frame if one of the following conditions is true:" Having ploughed through the intra-BSS conditions, do we really need to have all these? Why not simply say if none of the intra-BSS conditions is met, then the frame is considered and inter-BSS frame? | Replace with "Otherwise a frame received by the STA is an inter-BSS frame." AND delete P150L15-16. | Rejected.  The purpose of distinguishing the inter-BSS frame is for spatial reuse. |
| 7232 | 27.2.1 | 149.46 | Looking through subclause 27.2.2 (updating two NAVs), there is no need to distinguish inter-BSS frame, as both inter-BSS frame and frame that cannot be identified as intra-BSS or inter-BSS are reflected to basic NAV. | Remove inter-BSS frame recognition, and clean up the description. | Rejected.  The purpose of distinguishing inter-BSS frame is for spatial reuse. |
| 5686 | 27.2.1 | 150.31 | What if STA sends an HE MU PPDU? It's not forbidden in the spec, and therefore this condition is not accurate since this HE MU PPDU may come from its own BSS. | Clarify | Revised  Agree with the comment. Add the condition that it is a DL HE MU PPDU.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 6152 | 27.2.1 | 150.13 | an HE MU PPDU could also be Uplink transmission from a STA of the same BSS to the associated AP | change to downlink HE MU PPDU | Revised  Agree with the comment. Add the condition that it is a DL HE MU PPDU.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 6582 | 27.2.1 | 150.13 | Why does an HE AP interpret each HE MU PPDU as inter-BSS? | Clarify | Revised  Agree with the comment. Add the condition that it is a DL HE MU PPDU.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 7022 | 27.2.1 | 150.13 | HE MU PPDU can be transmitted by a non-AP STA. An HE AP shall not enter intra-PPDU PS when a non-AP STA transmitts UL HE MU PPDU. Therefore, an HE AP shall only enter intra-PPDU PS when it receives DL HE MU PPDU. | Change from "HE MU PPDU" to "DL HE MU PPDU" | Revised  Agree with the comment. Add the condition that it is a DL HE MU PPDU.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 8693 | 27.2.1 | 150.13 | One of the conditions for inter-BSS frame is: "An HE AP receives either a VHT MU PPDU or an HE MU PPDU". Does this imply that STAs can never use the MU format - even if they only transmit to one user. | Use of MU format by STAs should be clarified. Page 212, line 9 states that non-AP STAs may support "Transmission of an HE MU PPDU over partial PPDU bandwidth and full PPDU bandwidth". In that case, reception of an HE MU by the HE AP could be intra-BSS. | Revised  Agree with the comment. Add the condition that it is a DL HE MU PPDU.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 9380 | 27.2.1 | 150.13 | A non-AP HE STA can also send an HE MU PPDU. When an HE AP receives an HE MU PPDU, the AP can not determine whether the PPDU is an inter-BSS or an intra-BSS PPDU. | Please change the text to "An HE AP receives either a VHT MU PPDU or a DL HE MU PPDU | Revised  Agree with the comment. Add the condition that it is a DL HE MU PPDU.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 9872 | 27.2.1 | 150.13 | A non-AP HE STA can transmit HE MU PPDU. Therefore, receiving an HE MU PPDU by an HE AP does not guarantee that the received frame is an inter-BSS frame. Moreover, if an HE AP receives an HE MU PPDU, it can check if the received frame is an inter/intra-BSS frame by RXVECTOR BSS\_COLOR, which is already mentioned in the first bullet. Therefore, adding HE MU PPDU does not need to be added here. | Delete "or an HE MU PPDU" in the last bullet. | Revised  Agree with the comment. Add the condition that it is a DL HE MU PPDU.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 100171 | 27.2.1 | 150.13 | "An HE AP receives either a VHT MU PPDU or an HE MU PPDU" is one of the conditions to determine an inter-BSS frame in Draft 1.0. But HE MU PPDU is allowed to be used in UL transmission (DL/UL indication in HE MU PPDU). When HE MU PPDU is transmitted by intra-BSS STA for UL transmission, it can not be determined as an inter-BSS frame. | Remove the condition of HE MU PPDU, or disallow HE MU PPDU for UL transmission. | Revised  Agree with the comment. Add the condition that it is a DL HE MU PPDU.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 5799 | 27.2.1 | 149.19 | GROUP\_ID and PARTIAL\_AID cannot be used by non-AP STA to determine inter-BSS or intra-BSS of a frame, if it is not intended receiver because it does have the knowledge of AIDs assigments to other STAs in the same BSS | Remove "or GROUP\_ID and PARTIAL\_AID in VHT" | Rejected  The GROUP\_ID and PARTIAL\_AID can be used by matching with the BSSID[39:47] of the AP to which it is associated or with the partial BSS color announced by the AP to which it is associated. |
| 6176 | 27.2.1 | 150.15 | It seems that to firmly determine whether a frame is intra-BSS or inter-BSS, in certain cases, the whole PPDU needs to be decoded rather than only looking at the BSS Color (e.g., dense environments with BSS color collision). However, certain spatial reuse mechanism needs to issue CCA reset primitive before the end of PPDU (see 27.9.2.1). The requirement seems contradicting each other, which leads to the infeasibility of spatial reuse. | Please clarify | Revised.  Agree with the comment.  It never satisfies the inter-BSS conditions if the received frame is a real intra-BSS frame  Eg. When an AP receives an HE DL MU PPDU with the same color, the received HE DL MU PPDU satisfies both intra-BSS and inter-BSS conditions.  In that case, the AP definitely knows that the received HE DL MU PPDU is an inter-BSS frame. So, it is not necessary to decode the PSDU to check the MAC address.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 6575 | 27.2.1 | 149.18 | Various methods are given for "determining" whether a received frame is an inter-BSS or intra-BSS frame. With the (possible) exception of MAC address, they all have some probability of false classification. As such, it seems that what is being described is an estimate of the inter-BSS / intra-BSS classification, not a definitive determination. If that's the case, it is misleading to write that the HE STA "determines" anything. | Reword appropriately. For example, if it's intended that the HE STA must make some attempt at a classification, but that it doesn’t necessarily have to use the MAC address, then change to something like “An HE STA shall attempt to classify received frames as inter-BSS or intra-BSS using one or more of the following criteria”, etc. | Revised  Agree with the comment. See resolution for CID 6176.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 6576 | 27.2.1 | 149.18 | The text discusses a determination of whether a received frame is inter-BSS or intra-BSS, but at the end of the section it's mentioned (or acknowledged) that frames may satisfy one or more conditions for both. It's very murky what happens then. The draft goes on to provide one way of making a decision (check the MAC address) but doesn't say whether it's required or not. So we don't know (a) if the HE STA is required to do any of this; (b) if it starts the process, is it required to run all the methods or just some?; (c) if it's not required to run all the methods, can it give up its attempt to classify if it gets conflicting answers from the ones it tries? | Reword appropriately. | Revised  Agree with the comment. See resolution for CID 6176.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 6583 | 27.2.1 | 150.17 | "the decision made by using the MAC address takes precedence". The entire section is written in a way that makes requirements frustratingly elusive. The present text is one example among many. Since the text says "the decision", are we to conclude that it is mandatory for the STA to process the MAC address for all received frames? if a STA decided--for power save purposes of for any other reason--to make the conservative decision that the received PPDU should count as both intra-BSS and inter-BSS, would that impact any other device in the network negatively? If not, why insist on HE STAs processing the MAC address? Or more basically, is this in fact what the draft requires? | Clarify this and the entire section. In doing so, please make appropriate and precise use of the key words "shall", "should", and "may", as appropriate. | Revised  Agree with the comment. See resolution for CID 6176.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 9727 | 27.2.1 | 150.15 | "If the received frame satisfies both intra-BSS and inter-BSS conditions, the decision made by using the MAC address takes precedence over the decision made by using the RXVECTOR parameter BSS\_COLOR."  There exist several further cases that satisfy both intra-BSS and inter-BSS conditions.  For example, a HE AP receives an HE MU PPDU having the same BSS\_COLOR. Above cited spec text is covering only single specific case.  For generalizing it, please change it as the following.  "If the received frame satisfies both intra-BSS and inter-BSS conditions, the decision made by using the RXVECTOR parameter BSS\_COLOR is overridden by the decision made by using the other parameter." | As per comment. | Revised  Agree with the comment. See resolution for CID 6176.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 5779 | 27.2.1 | 149.51 | According the draft, when the BSS\_COLOR is same and Mac address is different, it is determined as intra-BSS frame | Describe this case to be determined as inter-BSS frame | Revised  Agree with the comment.  When the BSS\_COLOR is the same and Mac address is different, it means the color collision happened. When color collision is recognized, the MAC address should always be used for inter-BSS and intra-BSS frame determination.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 9873 | 27.2.1 | 150.16 | If a received frame is considered to be intra-BSS frame based on the RXVECTOR parameter PARTIAL\_AID, it is possible that the STA can determine that the frame is an inter-BSS frame based on the MAC address. This case needs to be clarified, too. | Modify the sentence in P150L16 to "If the received frame satisfies both intra-BSS and inter-BSS conditions, the decision made by using the MAC address takes precedence over the decision made by using the RXVECTOR parameter BSS\_COLOR or PARTIAL\_AID.". | Revised  Agree with the comment.  Change RXVECTOR parameter BSS Color to RXVECTOR parameter so that other parameters like PARTIAL\_AID and PPDU TYPE are also included.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 6574 | 27.2.1 | 149.18 | From the text "An HE STA determines whether a received frame is an inter-BSS or an intra-BSS frame by using ...", it is not clear whether a normative requirement is being described. That is, the text tells us how an HE STA makes this determination, but not whether it is required to make the determination in the first place | Clarify whether this is a requirement or not. If so, say so explicitly. If not, reword to make it clear that there is no requirement. | Revised  Agree with the comment.  Delete the first sentence because all the normative behavior is described below. Also make the text of this section normative.  TGax editor please make the changes as shown in 11-17/0389r3 |
| 6577 | 27.2.1 | 149.18 | The text discusses a determination of whether a received frame is inter-BSS or intra-BSS, but at the end of the section it's mentioned (or acknowledged) that frames may not satisfy any of the conditions. Given this possibility, it is misleading to state that the STA makes a determination about whether the frame is one or the other. | Reword appropriately to allow for the possibility that the HE STA may be unable to make a determination. | Revised  Agree with the comment. See resolution for CID 6574.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 6579 | 27.2.1 | 149.39 | Unnecessary variant used for defined term: "BSS color". The term is "BSS Color". | Change to "BSS Color". | Rejected  It has been agreed to use “BSS color” as descriptive term as shown in 11-17/0347r1 |
| 6580 | 27.2.1 | 149.50 | Unnecessary variant used for defined term: "BSS color". The term is "BSS Color". | Change to "BSS Color". | Rejected  It has been agreed to use “BSS color” as descriptive term as shown in 11-17/0347r1 |
| 6581 | 27.2.1 | 150.09 | Unnecessary variant used for defined term: "BSS color". The term is "BSS Color". | Change to "BSS Color". | Rejected  It has been agreed to use “BSS color” as descriptive term as shown in 11-17/0347r1 |
| 7071 | 27.2.1 | 149.25 | "... the same as the BSS color announced by the AP to which the STA is associated ..."  It seems that this description is only for non-AP STAs. However, this condition (BSS color identification) should be used for APs as well.  (Also in other items of this subclause.) | Clarify the conditions for an AP. | Revised.  Agree with the comment. Update text by changing AP to BSS.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 8358 | 27.2.1 | 149.43 | The STA that receives a control frame without the TA for the first time does not know if the RA matches the saved TXOP holder address for the BSS to which it is associated. In fact, most STAs do not have the knowledge of whether the RA in the received frame is in the same BSS or not. | Modify the paragraph on lines 43-44 to the following: "The frame is a control frame that does not have a TA field and the RA matches the BSSID for the BSS to which it is associated". | Rejected  This statement is for the case where the STA received a control frame with TA and RA first and then it received a control frame without the TA.  For the case that the commenter mentioned here is already covered by the rule “The RA field, TA field or BSSID field of the received frame with the Individual/Group bit forced to the value 0 is the same as the BSSID the AP to which the STA is associated” |
| 9585 | 27.2.1 | 149.47 | A CTS frame transmitted by an associated AP would be considered as an inter-BSS frame. | If an RTS sender STA is an HE STA, RA field of CTS frame shall be set to AP's MAC address. | Rejected.  If the RA field of CTS frame sent by AP is set to AP’s MAC address instead of destination STA’s address, then it might cause ambiguity. For example, if two STAs send an RTS simultaneously, the CTS responded by AP will be considered as its response. Then the following data PPDU might collide. |
| 9747 | 27.2.1 | 149.55 | "If the BSSID field is not available, both the RA and TA fields exist, and none of the address fields of the received frame with Individual/Group bit forced to the value 0 match the BSSID of AP to which the STA is associated"  When a STA knows the BSSID of an OBSS AP (e.g., through an active or passive scanning), it can identify a received frame as an inter-BSS frame through the BSSID of the OBSS AP.  Insert the following additional conditions:  "If the BSSID field is not available and the address field of the received frame with Individual/Group bit forced to the value 0 match the BSSID of an OBSS AP to which the STA is not associated"  "If the BSSID field is not available, both the RA and TA fields exist, and none of the address fields of the received frame with Individual/Group bit forced to the value 0 match the BSSID of AP to which the STA is associated"  When a STA knows the BSSID of an OBSS AP (e.g., through a active or passive scanning), it can identify a received frame as an inter-BSS frame through the BSSID of the OBSS AP.  Insert the following additional conditions:  "If the BSSID field is not available and one of address fields of the received frame with Individual/Group bit forced to the value 0 match the BSSID of an OBSS AP that was previuously observed by the STA." | As per comment. | Revised  The received frame with only RA address field case is added.  TGax editor please make the changes as shown in 11-17/0389r5 |
| 10007 | 27.2.1 | 150.61 | Any response frame (such as ACK/BA/CTS) sent by associated AP in legacy PPDU doesn't meet this condition, therefore third party STAs which can't receive the UL PPDU frame will not be able to update the intra NAV. | Define a way to convey BSS Color information for legacy PPDUs. | Rejected  The STA received a PPDU which can not be determined as intra-BSS or inter-BSS frame will update its basic NAV so that it won’t contend the medium. |
| 10241 | 27.2.1 | 149.20 | It is described that inter-BSS or intra-BSS frame can be identified by its MAC address. From the aspect of early identification for SR, it is beneficial to clarify that the identification of inter-BSS frame is realized per MPDU in the A-MPDU. | Add the following condition for inter-BSS frame identification.  "The MAC address of a MPDU with valid FCS in the received A-MPDU is not the MAC address of members of the BSS with which the STA is associated." | Revised  The MAC addresses of an MPDU with valid FCS in the received frame are checked.  TGax editor please make the changes as shown in 11-17/0389r5. |
| 10242 | 27.2.1 | 150.13 | It is obvious that if the received signal is not IEEE Std 802.11 transmission it is an inter-BSS frame. | Add the following condition for inter-BSS frame identification.  "An HE STA receives signal which is not NON\_HT, HT\_MF, HT\_GF, VHT or HE PPDU." | Rejected  If the received signal can not be identified as 802.11 PPDU, then the STA should use ED threshold to determine the medium condition instead of using OBSS-PD. |
| 10244 | 27.2.1 | 150.19 | If the received frame does not satisfy any of the intra-BSS and inter-BSS conditions, the frame can be defined as inter-BSS frame to improve benefit of OBSS\_PD based SR. Even in case if the intra-BSS frame is identified as inter-BSS frame by erroneous detection, received power level of intra-BSS frame is usually high so that OBSS\_PD based SR mechanism does not allow to transmit overlapping the frame and prevent interfering. | Replace "then the frame cannot  be determined as intra-BSS or inter-BSS frame." with "then the frame can be determined as inter-BSS frame." | Rejected  The PPDU sent by hidden STA within the same BSS will be interfered |
| 9519 | 27.2.1 | 149.38 | "The value of RXVECTOR parameter PARTIAL\_AID [5:8] in the received VHT PPDU ..."  PARTIAL\_AID [5:8] is not clear enough. | PARTIAL\_AID [5:8] should be rephrased, or define this expression in 1.5 Terminology for mathematical, logical, and bit operations. | Revised  Add the note for the explanation  TGax editor please make the changes as shown in 11-17/0389r5. |
| 9520 | 27.2.1 | 150.05 | "... is different from the BSSID[39:47] of the AP ..."  BSSID[39:47] is not clear enough. | BSSID[39:47] should be rephrased, or define this expression in 1.5 Terminology for mathematical, logical, and bit operations. | Revised  Add the note for the explanation  TGax editor please make the changes as shown in 11-17/0389r5. |
| 5453 | 27.2.1 | 149.16 | This intra inter BSS stuff is a concern. The uses for this are OBSS\_PD spatial reuse, intra-PPDU power save and the two NAV idea. The decision to transmit over another packet has nothing to do with whether they are in different BSSs. OBSS\_PD has no indications of how to pick a value and although it seems on the surface a good idea to never transmit over an intra PPDU, if the STA wanders away it should be encouraged to transition not be extra protected. If transmitting over causes any packet to fail, then it is wrong whether it is in the same BSS or not. The inter\_BSS Power save idea saves what? Any STA that determines the packet is not send to it, can doze if it wants. But it still has to have read the packet duration and the NAV to do this, so can't see why inter\_BSS packet is any different and what time does it really save if using the color etc? Two NAVs is strange as if either NAV is nonzero, then the medium is busy. As the NAV is set by the last packet, what difference is it if it is intra or inter? I know the resolution will be "The TG voted for this feature" but I just wonder if it knew what it was doing. The complexity of the color scheme is one thing, the fact that it does not work with legacy is another, the need to identify inter and intra is very debatable and the results can be dangerous as sharing over OBSSs is a must especially when they are close. | Delete Intra and Inter BSS detection. | Rejected.  The features that commenter mentioned have benefits under certain circumstances so that 11ax draft adopted them. The determination of intra and inter BSS frame is necessary to support these features. |
| 9739 | 27.2.1 | 149.48 | "The RXVECTOR parameter BSS\_COLOR of the PPDU carrying the frame is not 0 and does not match the BSS color announced by the AP to which the STA is associated"  When an HE STA that is associated to a legacy AP receives an HE PPDU with the RXVECTOR parameter BSS\_COLOR, the received HE PPDU is an inter-BSS frame.  Add the following condition for an inter-BSS frame determination.  "The RXVECTOR parameter BSS\_COLOR of the PPDU carrying the frame is present and the STA is associated to the legacy AP." | As per comment. | Deferred by the request from Yongho |
| 7162 | 27.2.1 | 149.16 | Add a general condition" if BSS Color Disabled field in HE operation element is set to 0" through this subclause. | As in comment | Rejected.  It is better to decouple the “BSS Color Disabled” with this subclause. |
| 9438 | 27.2.1 | 149.16 | frame detection doesn't belong to a section called Channel Access. This section should be moved to become a separate section. | frame detection doesn't belong to a section called Channel Access. This section should be moved to become a separate section. | Rejected.  The frame detection is related to NAV updating which belongs to the section called channel access. |
| 6584 | 27.2.1 | 150.20 | The section consists of a long (and none-too-clearly written) set of procedures on "determining" whether PPDUs are intra-BSS or inter-BSS. It seems that this is intended to be mandatory. If mandatory, it doesn't appear anywhere nearly useful enough to justify encumbering devices (dual NAV doesn't count). If optional, it doesn't justify cluttering up the draft. | Delete this section and all references to it in the draft. | Revised.  Agree that the subclause is intended to be mandatory. Change wording to make it mandatory.  TGax editor please make the changes as shown in 11-17/0389r5. |

* **Intra-BSS and inter-BSS frame determination**

TGax Editor: Please modify the paragraphs (pg 197, line 18 in D1.3) in this section as follows:

~~An HE STA determines whether a received frame is an inter-BSS or an intra-BSS frame by using the RXVECTOR parameters (e.g., BSS\_COLOR in HE PPDUs or GROUP\_ID and PARTIAL\_AID in VHT PPDUs) or MAC address.~~ [6574, 6577]

A STA that obtains at least the RXVECTOR for a ~~frame received~~ detected PPDU [5167]~~by the STA is~~ shall [6584]~~be determined as~~ classify the PPDU as an intra-BSS frame if one of the following conditions is true:

* The RXVECTOR parameter BSS\_COLOR ~~in the received PPDU carrying the frame~~ is ~~the same~~ equal to ~~as~~ the BSS color announced by the ~~AP~~ BSS[7071] to which the STA is associated
* ~~The RA field, TA field with the Individual/Group bit forced to the value 0 is the same as the BSSID of to which the STA is associated~~
* A valid MPDU contained in the PPDU has an RA, TA or BSSID field whose value is equal to the BSSID of the BSS to which the STA is associated (where the Individual/Group bit is forced to the value 0 in the RA or TA field prior to the comparison) [5454, 10241, 7071]
* (#7163) The PPDU is a VHT PPDU with ~~The~~ RXVECTOR parameter PARTIAL\_AID ~~in the received VHT PPDU with the RXVECTOR parameter GROUP\_ID equal to 0 is the same as~~ equal to the BSSID[39:47] of the ~~AP~~ BSS [7071] to which the STA is associated, and the GROUP\_ID equal to 0
* The PPDU is a VHT PPDU ~~value of~~ with RXVECTOR parameter PARTIAL\_AID [5:8] ~~in the received VHT PPDU with the RXVECTOR parameter GROUP\_ID equal to 63 is~~ equal to ~~the same as~~ the partial BSS color announced by the ~~AP~~ BSS [7071] to which the STA is associated, the GROUP\_ID is equal to 63 and ~~when~~ the Partial BSS Color field in the most recent~~ly received~~ HE Operation element sent by the AP is 1.
* The ~~frame~~ MPDU contained in the PPDU is a ~~control~~ Control frame that does not have a TA field and ~~the~~ its RA field matches the saved TXOP holder address ~~for~~ of the BSS to which ~~it~~ the STA is associated.
* A valid MPDU contained in the PPDU has an RA, TA, or BSSID field whose value is equal to the BSSID of any BSS that is a member of the same multiple BSSID set as the BSS to which the STA is associated (where the Individual/Group bit is forced to the value 0 in the RA or TA field prior to the comparison)
* The MPDU contained in the PPDU is a Control frame that does not have a TA field and its RA field matches the saved TXOP holder address of any BSS that is a member of the same multiple BSSID set as the BSS to which the STA is associated. (#7163)
* ~~The AP to which the STA is associated is a member of a multiple BSSID set with two or more members and one of the following condition is true:~~

~~The RA field, TA field or BSSID field of the received frame with the Individual/Group bit forced to 0 is same as the BSSID of any member of the multiple BSSID set~~

• ~~The frame is a control frame that does not have a TA field and the RA matches the saved TXOP holder address for a BSS that is a member of the multiple BSSID set.(#7163)~~

NOTE—A frame received by a STA is classified as an intra-BSS frame if the MAC address is the same as the BSSID of any member of the multiple BSSID set when the STA is associated with an AP that is a member of a multiple BSSID set with two or more members and the received VHT PPDU has RXVECTOR parameter GROUP\_ID equal to 0.(#7164, #9378)

A STA that obtains at least the RXVECTOR for a detected [5167]PPDU ~~frame received~~ by the STA ~~is~~ shall ~~be determined as~~ classify the PPDU as[6584] an inter-BSS frame if one of the following conditions is true:

* The RXVECTOR parameter BSS\_COLOR ~~of the PPDU carrying the frame~~ is not 0 and ~~does not match~~ is not equal to the BSS color announced by the ~~AP~~ BSS[7071]to which the STA is associated
* The PPDU is a non-HE PPDU and a valid MPDU contained in the PPDU has a BSSID field that is not equal to the BSSID of the BSS to which the STA is associated.
* The PPDU is a non-HE PPDU and a valid MPDU contained in the PPDU does not have a BSSID field and has both an RA and TA field whose values are not equal to the BSSID of the BSS to which the STA is associated (where the I/G bit is forced to 0 in the RA or TA field prior to the comparison)
* The PPDU is a non-HE PPDU and a valid MPDU contained in the PPDU does not have a BSSID field and a TA field and its RA field whose values are equal to the BSSID of a BSS to which the STA is not associated (where the I/G bit is forced to 0 in the RA or TA field prior to the comparison) [9747]
* ~~When the RXVECTOR parameter BSS\_COLOR of the PPDU carrying the frame is not present:~~
* ~~The BSSID field of the received frame, if available, does not match the BSSID of to which the STA is associated~~
* ~~If the BSSID field is not available, both the RA and TA fields exist, and none of the address fields of the received frame with Individual/Group bit forced to the value 0 match the BSSID of AP to which the STA is associated~~
* The PPDU is a VHT PPDU with RXVECTOR parameter PARTIAL\_AID ~~of the received VHT PPDU frame with the RXVEC-TOR parameter GROUP\_ID equal to 0 is different from~~ not equal to the BSSID[39:47] of the ~~AP~~ BSS[7071] to which the STA is associated and GROUP\_ID equal to 0
* The PPDU is a VHT PPDU with ~~value of~~ RXVECTOR parameter PARTIAL\_AID [5:8] ~~in the received VHT PPDU with the RXVECTOR parameter GROUP\_ID equal to 63 is~~ not equal to ~~different from~~ the partial BSS color announced by the ~~AP~~ BSS[7071] to which the STA is associated and GROUP\_ID equal to 63 when the Partial BSS Color field in the most recent~~ly received~~ HE Operation element sent by the AP is 1.
* The PPDU is ~~An HE AP receives~~ either a VHT MU PPDU or an HE MU PPDU with the RXVECTOR parameter UL\_FLAG equal to 0 and the STA is an AP[5686,6152,6582,7022,8693,9380,9872,100171].
* A valid MPDU contained in the PPDU has a BSSID field that is not equal to the BSSID of any BSS that is a member of the same multiple BSSID set as the BSS to which the STA is associated.(#7165,#7841)
* A valid MPDU contained in the PPDU does not have a BSSID field and has both an RA and TA field whose values are not equal to the BSSID of any BSS that is a member of the same multiple BSSID set as the BSS to which the STA is associated (where the I/G bit is forced to 0 in the RA or TA field prior to the comparison) (#7841)
* The PPDU is a VHT PPDU with RXVECTOR parameter PARTIAL\_AID not equal to the BSSID[39:47] of any BSS that is a member of the same multiple BSSID set as the BSS to which the STA is associated and GROUP\_ID equal to 0 (#7169,#9379)
* ~~The AP to which the STA is associated is a member of a multiple BSSID set with two or more members and one of the following condition is true:~~

~~• The BSSID field of the received frame, if available, does not match the BSSID of any member of the multiple BSSID set.(#7165, #7841)~~

~~• The BSSID field is not available, both the RA and TA fields exist, and none of the address fields of the received frame with the Individual/Group bit forced to 0 match the BSSID of any member of the multiple BSSID set.(#7841)~~

~~• The RXVECTOR parameter PARTIAL\_AID in the received VHT PPDU with the RXVECTOR parameter GROUP\_ID equal to 0 is different from the BSSID[39:47] of any member of the Multiple BSSID set.(#7169, #9379)~~

If the ~~received frame~~ detected PPDU[5167] satisfies one condition in both intra-BSS and inter-BSS condition~~s,~~list (either by using the RXVECTOR parameters or by using both the RXVECTOR parameters and the MAC address) , then the PPDU shall be classified as inter-BSS frame. ~~the decision made by using the MAC address takes precedence over the decision made by using the RXVECTOR parameter BSS\_COLOR.~~ [5394,6058,7659,10243,6176,6575,6576,6583,9727,5779,9873,6584]

If the ~~received frame~~ detected PPDU[5167]does not satisfy any of the intra-BSS and inter-BSS conditions, then the ~~frame~~ PPDU cannot be determined as intra-BSS or inter-BSS frame.

Note: PARTIAL\_AID [5:8] stands for the most significant 4 PARTIAL\_AID bits. [9519] BSSID [39:47] stands for the most significant 9 BSSID bits. [9520]