IEEE P802.11
Wireless LANs

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| Resolution for MISC CIDs |
| Date: March 15, 2020 |
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 Abstract

This submission proposes resolutions for following (11) CIDs received for TGax SA Ballot 1:

24552, 24350, 24486, 24311, 24400, 24401, 24351, 24352, 24348, 24349, 24017

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Resolution for CID 24352 was updated based on offline feedback
* Rev 2: Resolution for CID 24349 was updates based on offline feedback.
	+ CIDs highlighted in yellow are deferred
* Rev 3: Revised resolution for deferred CIDs based on offline discussions
	+ No CIDs are deferred
	+ Resolution to CID 24486 is updated to Revised to include additional changes to the text in the figure.
		- Replaced Directed RUs to Individually Addressed RUs
		- Replaced Directed to Individual
* Rev 4: Further revisions to the resolutions based on offline discussions
	+ Highlighted in blue
* Rev 5: CID 24552 is deferred
	+ No other CIDs are deferred
	+ Minor updates based on feedback received when the doc was presented on 4/23 telco
		- Minor update to the definition of individually addressed RU
		- Added bullet on 2046 in 26.5.1.2

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** | **Commenter** | **Pg/Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 24350 | RISON, Mark | 350.14 | 26.5.2.2.4 | "the broadcast RU" suggests there can only be one in an HE MU PPDU. But there could be one for associated STAs and one for unassociated STAs, or one per BSS in a multiple BSSID set, etc. | Change to "a broadcast RU". Also at 459.6 and 459.26 | **Accepted****TGax editor, please implement the change as suggested by the comment.** |
| 24486 | RISON, Mark | 351.06 | 26.5.2.2.4 | Figure 26-4--Example of User Info field ordering and RU location mapping has a confusing heading (what is shown is the TF, not just the order of the UFs) | Delete "Order of User Info fields in a " at the top of the figure | **Revised****TGax editor, please implement the change as suggested by the comment. In addition, please replace the term ‘Directed RUs’ with ‘Individually Addressed RUs’ and ‘Directed’ with ‘Individual’.** |
| 24351 | RISON, Mark | 429.05 | 26.11.1 | "For an AP with dot11MultiBSSIDImplemented equal to true, if the RU is intended for more than oneassociated STA on any of its BSSs, the parameter STA\_ID is set to 2047." should be qualified w.r.t. individually addressed RUs, like the other cases | Change to "For an AP with dot11MultiBSSIDImplemented equal to true, if the RU is intended for more than oneassociated STA on any of its BSSs that is not a recipient of an individually addressed RU, the parameter STA\_ID is set to 2047." | **Accepted****TGax editor, please implement the change as suggested by the comment** |

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| **CID** | **Commenter** | **Pg/Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 24311 | RISON, Mark | 428.52 | 26.11.1 | "If an RU is intended for an AP (i.e., the TXVECTOR parameter UPLINK\_FLAG is 1), then the parameter STA\_ID contains only one element that is set to the 11 LSBs of the AID of the non-AP STA transmitting the PPDU." -- should also be allowed to be 2045 so that an unassociated STA can send a narrow PPDU to an AP | As it says in the comment | **Revised**Benefit from narrow RU comes from ER SU PPDU and duplicated SIG field which is not case the in HE MU PPDU since SIG-A of MU PPDU and SIG-B are not sent in robust rates. A note is added to clarify that the intention of UL HE MU PPDU is to help the AP identify the transmitter of a failed PPDU.**TGax editor, please make changes as shown in doc 11-20/317r5 tagged as 24311** |
| 24401 | RISON, Mark | 428.52 | 26.11.1 | [Resubmission of comment withdrawn on D5.0] AID 2045 should be allowed in an HE MU PPDU from a non-AP STA to an AP, to signal "not from a STA associated with you" | At the referenced location change "If an RU is intended for an AP (i.e., the TXVECTOR parameter UPLINK\_FLAG is 1), then the parameter STA\_ID contains only one element that is set to the 11 LSBs of the AID of the non-AP STA transmitting the PPDU." to "If an RU is intended for an AP (i.e., the TXVECTOR parameter UPLINK\_FLAG is 1), then the parameter STA\_ID contains only one element that is set to the 11 LSBs of the AID of the non-AP STA transmitting the PPDU or that is set to 2045 if the non-AP STA is not associated to the AP. NOTE---Since the purpose of allowing UL HE MU PPDU transmission is to allow the AP to determine the origin of failing PPDUs, the value 2045 must be used so that an AP will not be misled by failed transmissions from a STA that is not in its BSS." | **Revised**Since unassociated STAs do not have a dedicated AID (i.e., they use a common AID 2045), it doesn’t really help the AP identify the STA. The AP can’t do much by known that the failure occurred for an unassociated STA. On the other hand, when transmission from an associated STA were to fail, the AP can identify the transmitter and allocate a directed RU to that STA. On the other hand, an RU for unassociated STA could be used by any unassociated STA providing no benefit to the STA whose transmission failed. Therefore, adding the case of unassociated STA sending an MU PPDU with STAID set to 2045 provides no benefit. A note is added to clarify that the intention of UL HE MU PPDU is to help the AP identify the transmitter of a failed PPDU**TGax editor, please make changes as shown in doc 11-20/317r5 tagged as 24401** |
| 24400 | RISON, Mark |  |  | [Resubmission of comment withdrawn on D5.0] AID 2045 should be allowed in an HE MU PPDU from a non-AP STA to an AP, to signal "not from a STA associated with you" | As it says in the comment | **Revised**A STA may send a PSDU in an MU PPDU so that AP can determine the sender (AID carried in the SIG B) in case there are any failures. This helps in recovery protocols (e.g., AP could schedule/assign an RU for the STA). However, unassociated STAs do not have a dedicated AID instead they have a generic AID (2045) which doesn’t identify an individual unassociated STA. Therefore, adding the case of unassociated STA sending an MU PPDU with STAID set to 2045 provides no benefit. A note is added to clarify that the intention of UL HE MU PPDU is to help the AP identify the transmitter of a failed PPDU**TGax editor, please make changes as shown in doc 11-20/317r5 tagged as 24400** |

[24311, 24401, 24400]

* **STA\_ID**

*TGax editor, please make changes to this subclause (including splitting to multiple paragraphs and adding a NOTE) as shown below*

Each parameter STA\_ID in the TXVECTOR identifies the STA or group of STAs that is the recipient of an RU in the HE MU PPDU transmitted with the TXVECTOR parameter UPLINK\_FLAG set to 0. An individually addressed RU is an RU addressed to either an associated non-AP STA or a TDLS peer STA and the parameter STA\_ID for that RU is set to the 11 LSBs of the AID of the STA receiving the PSDU contained in that RU. If an RU is intended for one or more unassociated non-AP STAs, then the parameter STA\_ID for that RU is set to 2045. If an RU is intended for no user, then the parameter STA\_ID for that RU is set to 2046.

If an RU is intended for an AP (i.e., the TXVECTOR parameter UPLINK\_FLAG is 1), then the parameter STA\_ID contains only one element that is set to the 11 LSBs of the AID of the non-AP STA transmitting the PPDU.

NOTE – A non-AP STA can transmit a PPDU in UL HE MU format to help the AP identify the transmitter of a failed PPDU so that the AP could allocate resources for that non-AP STA in a later TXOP. All unassociated STAs share the same parameter STA\_ID value (i.e., 2045) which doesn’t uniquely identify the transmitter. Therefore an unassociated STA is not allowed to transmit a PPDU in UL HE MU format.

If an RU is intended for multiple STAs for MU-MIMO then multiple STAs identified by STA-IDs in the parameter STA\_ID will use the same resource unit (see 26.5.2 (UL MU operation)).

If an RU is intended for multiple associated STAs and carries a single A-MPDU then the parameter STA\_ID is set as follows:

* For an AP with dot11MultiBSSIDImplemented equal to false, if the RU is intended for more than one associated STA in the BSS that is not a recipient of an individually addressed RU, the parameter STA\_ID is set to 0.
* For an AP with dot11MultiBSSIDImplemented equal to true, if the RU is intended for more than one associated STA in any of its BSSs that is not a recipient of an individually addressed RU, the parameter STA\_ID is set to 0 for transmitted BSSID or to the value of the BSSID Index field corresponding to that BSS (see 9.4.2.73 (Multiple BSSID-Index element)) for a nontransmitted BSSID. The number of such elements shall not exceed the maximum number of BSSs of the multiple BSSID set.
* For an AP with dot11MultiBSSIDImplemented equal to true, if the RU is intended for more than one associated STA on any of its BSSs, the parameter STA\_ID is set to 2047.

The parameter STA\_ID values between 2008 and 2044 are reserved.

A non-AP STA shall not transmit an HE MU PPDU where the TXVECTOR parameter STA\_ID includes more than one entry in the range 1 to 2007.

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| **CID** | **Commenter** | **Pg/Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 24552 | Asterjadhi, Alfred | 349.54 | 26.5.2.2.4 | "The other remaining subfields are set to any valid value" This is not clear. I guess you want to say a valid value so that the soliciting STA constructs a valid HE TB PPDU. | Ensure that the AP provides valid combinations of the values so that the STA constructs a valid HE TB PPDU. | **Revised**Agree with the comment. It is possible that the AP sets each of the remaining fields to a valid value. However AP needs to ensure that the values together doesn’t form an invalid set. Therefore, the spec should require that an AP sets the values for the rest of the subfield such that it results in the solicited STA constructing a valid HE TB PPDU as described in 27.3.4 and 27.3.6.10.The following paragraph is updated to address the general cases that values carried in the subfields of Common Info and User Info field, as a combination, should result in the generation of a valid TB PPDU.**TGax editor, please make changes as shown in doc 11-20/317r5 tagged as 24552** |

[24552]

* Allowed settings of the Trigger frame fields and TRS Control subfield

*TGax editor, please move the 3rd paragraph to the 9th paragraph in this subclause as shown :*

*TGax editor, please make changes to the 8th and 9th paragraphs in this subclause as shown below*

An AP that transmits one or more Trigger frames in one or more A-MPDUs and frames carrying a TRS Control subfield in one or more other A-MPDUs in an HE MU PPDU shall set the Common Info field of the Trigger frames and the TRS Control subfields in each A-MPDU as follows:

* The UL Length subfield in the Common Info field of the Trigger frames and the UL Data Symbols subfield in the TRS Control subfields indicate the same HE TB PPDU duration
* The AP Tx Power subfield in the Common Info field of the Trigger frames and the AP Tx Power subfield in the TRS Control subfields indicate the same transmit power
* In the Common Info field of the Trigger frames:
* The MU-MIMO HE-LTF Mode and UL STBC subfields are set to 0
* The Number Of HE-LTF Symbols And Midamble Periodicity subfield is set to 0
* The Doppler subfield is set to 0
* The Pre-FEC Padding Factor subfield is set to the default PE duration value, which is indicated by the AP in the Default PE Duration subfield of the HE Operation element it transmits and the pre-FEC padding factor is set to 4
* The UL Spatial Reuse subfield is set to PSR\_AND\_NON\_SRG\_OBSS\_PD\_PROHIBITED
* If the TXVECTOR parameters HE\_LTF\_TYPE and GI\_TYPE of the HE PPDU carrying the Trigger frame are either 4xHE-LTF and 3u2s\_GI, respectively, or 2xHE-LTF and 1u6s\_GI, respectively, then the GI And HE-LTF Type subfield is set to 2. Otherwise, the GI And HE-LTF Type subfield is set to 1.
* Each of the other remaining subfields are set to a value such that the combination together would cause the solicited non-AP STA to construct a valid HE TB PPDU.

NOTE—A non-AP STA obtains the information required to prepare an HE TB PPDU explicitly and implicitly. Explicit information is obtained in the Common Info field of a Trigger frame, or in the UL Data Symbols and AP Tx Power subfields of the TRS Control subfield contained in the soliciting PPDU. Implicit information is obtained in previously exchanged frames with the AP, e.g., in the BSS Color and the Default PE Duration subfields of the HE Operation element, or from default values specified in 26.5.2.3 (Non-AP STA behavior for UL MU operation).

 An AP shall not set any subfields of the User Info field of a Trigger frame to a value that is not supported by the recipient non-AP STA of the User Info field and the AP. An AP shall set the values of the subfields of the Common Info field and User Info field of a Trigger frame such that the combination together would cause the solicited non-AP STA to construct a valid HE TB PPDU. An AP shall not set any subfields of a TRS Control subfield to a value that is not supported by the recipient non-AP STA of the TRS Control subfield and the AP. An AP shall set the values of the subfields of a TRS Control subfield such that the combination together would cause the solicited non-AP STA to construct a valid HE TB PPDU. If an RU is allocated to only one non-AP STA the Starting Spatial Stream subfield for that non-AP STA shall be set to 0.

NOTE—27.3.4 and 27.3.6.10 specify the requirements on each of the other remaining subfields, such that the solicited non-AP STAs each construct a valid HE TB PPDU in response to the Trigger frame.

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| **CID** | **Commenter** | **Pg/Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 24352 | RISON, Mark | 429.11 | 26.11.1 | There is a zoo of broadcast RUs (0, 2045, 2047, BSSID index). An HE MU PPDUs shouldn't use more than one of the ones for associated STAs | After "A non-AP STA shall not transmit an HE MU PPDU where the TXVECTOR parameter STA\_ID includesmore than one entry in the range 1 to 2007." add "An AP shall not transmit an HE MU PPDU where the TXVECTOR parameter STA\_ID includesmore than one entry that is 0, 2047 or a BSSID index." | **Revised**Each AID value (e.g., 0, 2045, 2047, BSSID-Index) is directed towards a specific group of STAs and hence should be allowed independently. For example, an AP in a multiple BSSID set can include multiple RUs in a DL MU PPDU such that an RU with STA\_ID=0 is directed towards STAs associated with TxBSSID, an RU with STA\_ID=BSSID-Index-1 is directed towards STAs associated with BSSID-Index-1, an RU with STA\_ID=2047 is directed towards STAs associated with all the remaining BSSIDs in the set and an RU with STA\_ID=2045 is directed towards STAs not associated with the AP. The text in 26.5.1.2 is updated to include normative text to clarify this. Further, a definition for individually addressed RU is added to the spec.**TGax editor, please make changes as shown in doc 11-20/317r5 tagged as 24352** |
| 24348 | RISON, Mark |  |  | The definition of "broadcast RU" is not clear. 26.5.4.5 suggests a broadcast RU is or at least can be one with STA-ID == 2045 but 26.5.1.2 suggests the STA-ID == 2047. The definition in 3.2 suggests it can be 0 or 2047. 26.11.1 indicates the STA\_ID can be 0 or a BSSID index or 2045 or 2047. Need to specify what a broadcast RU is | As it says in the comment | **Revised**Each AID value (e.g., 0, 2045, 2047, BSSID-Index) is directed towards a specific group of STAs and hence should be allowed independently. For example, an AP in a multiple BSSID set can include multiple RUs in a DL MU PPDU such that an RU with STA\_ID=0 is directed towards STAs associated with TxBSSID, an RU with STA\_ID=BSSID-Index-1 is directed towards STAs associated with BSSID-Index-1, an RU with STA\_ID=2047 is directed towards STAs associated with all the remaining BSSIDs in the set and an RU with STA\_ID=2045 is directed towards STAs not associated with the AP. The text in 26.5.1.2 is updated to include normative text to clarify this. Further, a definition for individually addressed RU is added to the spec.**TGax editor, please make changes as shown in doc 11-20/317r5 tagged as 24348** |

[24352, 24348]

* **STA\_ID**

*TGax editor, please make changes to this subclause as shown below*

Each parameter STA\_ID in the TXVECTOR identifies the STA or group of STAs that is the recipient of an RU in the HE MU PPDU transmitted with the TXVECTOR parameter UPLINK\_FLAG set to 0. For an individually addressed RU the parameter STA\_ID is set to the 11 LSBs of the AID of the STA receiving the PSDU contained in that RU. If an RU is intended for one or more unassociated non-AP STAs, then the parameter STA\_ID for that RU is set to 2045. If an RU is intended for no user, then the parameter STA\_ID for that RU is set to 2046. If an RU is intended for an AP (i.e., the TXVECTOR parameter UPLINK\_FLAG is 1), then the parameter STA\_ID contains only one element that is set to the 11 LSBs of the AID of the non-AP STA transmitting the PPDU. If an RU is intended for multiple STAs for MU-MIMO then multiple STAs identified by STA-IDs in the parameter STA\_IDs will use the same resource unit (see 26.5.2 (UL MU operation)). If an RU is intended for multiple associated STAs and carries a single A-MPDU then the parameter STA\_ID is set as follows:

* For an AP with dot11MultiBSSIDImplemented equal to false, if the RU is intended for more than one associated STA in the BSS that is not a recipient of an individually addressed RU, the parameter STA\_ID is set to 0.
* For an AP with dot11MultiBSSIDImplemented equal to true, if the RU is intended for more than one associated STA in any of its BSSs that is not a recipient of an individually addressed RU, the parameter STA\_ID is set to 0 for transmitted BSSID or to the value of the BSSID Index field corresponding to that BSS (see 9.4.2.73 (Multiple BSSID-Index element)) for a nontransmitted BSSID. The number of such elements shall not exceed the maximum number of BSSs of the multiple BSSID set.
* For an AP with dot11MultiBSSIDImplemented equal to true, if the RU is intended for more than one associated STA on any of its BSSs that is not the recipient of an individually addressed RU or another broadcast RU corresponding to parameter STA\_ID equal 0 or equal to the BSSID Index of a BSSID in a multiple BSSID set, the parameter STA\_ID is set to 2047.

The parameter STA\_ID values between 2008 and 2044 are reserved.

A non-AP STA shall not transmit an HE MU PPDU where the TXVECTOR parameter STA\_ID includes more than one entry in the range 1 to 2007.

**26.5.1.2 RU addressing in an HE MU PPDU**

*TGax editor, please make changes to this subclause as shown below*

The Type and Subtype subfields in the Frame Control field and address type (individually addressed or group addressed) of MPDUs may be different across A-MPDUs in different PSDUs within the same HE MU PPDU.

An AP includes in the TXVECTOR for an HE MU PPDU at least one parameter STA\_ID for each RU in the HE MU PPDU as defined in 26.11.1 (STA\_ID). The AP shall not include in the TXVECTOR more than one parameter STA\_ID with the same value unless the value is 2046 (indicating an unallocated RU).

An HE AP with dot11MultiBSSIDImplemented equal to false shall not, in an HE MU PPDU, include anything other than one or more of the following:

* One or more individually addressed RUs, corresponding to the parameter STA\_ID equal to the AID(s) of STA(s) associated with the AP, to carry information intended for the STA(s).
* A broadcast RU corresponding to parameter STA\_ID equal to 0 to carry information intended for the STAs associated with the AP that are not the recipient of a individually addressed RU.
* A broadcast RU corresponding to parameter STA\_ID equal to 2045 to carry information intended for STAs not associated with the AP.
* One or more RUs corresponding to parameter STA\_ID equal to 2046 for unassigned RUs.

An HE AP with dot11MultiBSSIDImplemented equal to true shall not, in an HE MU PPDU, include anything other than one or more of the following:

* One or more individually addressed RUs, corresponding to the parameter STA\_ID equal to the AID(s) of STA(s) associated with any AP in the multiple BSSID set, to carry information intended for that associated STA.
* A broadcast RU corresponding to parameter STA\_ID equal to 0 to carry information intended for STAs associated with the AP corresponding to the transmitted BSSID and not the recipient of an individually addressed RU.
* A broadcast RU corresponding to parameter STA\_ID equal to the BSSID Index of a BSSID in multiple BSSID set to carry information intended for STAs associated with the AP corresponding to that BSSID and not the recipient of an individually addressed RU.
* A broadcast RU corresponding to parameter STA\_ID equal to 2047 to carry information intended for STAs associated with the APs in the multiple BSSID set and not the recipient of an individually addressed RU or another broadcast RU corresponding to parameter STA\_ID equal 0 or equal to the BSSID Index of a BSSID in a multiple BSSID set.
* A broadcast RU corresponding to parameter STA\_ID equal to 2045 to carry information intended for STAs not associated with any AP in the multiple BSSID set.
* One or more RUs corresponding to parameter STA\_ID equal to 2046 for unassigned RUs.

A non-AP STA that receives an HE MU PPDU where the RXVECTOR includes a parameter STA\_ID that matches the 11 LSBs of the non-AP STA’s AID shall disregard any broadcast RU in the HE MU PPDU. A non-AP STA that receives an HE MU PPDU where the RXVECTOR includes a parameter STA\_ID that is equal to the BSSID Index of the BSSID of the AP with which the STA is associated (see 9.4.2.73 (Multiple BSSID-Index element)) shall disregard a broadcast RU (parameter STA\_ID equal to 2047).

**3.2 Definitions specific to IEEE 802.11**

*TGax editor, please insert the following definition maintaining the alphabetical order in this subclause:*

**individually addressed resource unit (RU)**: a resource unit in a high efficiency (HE) multi-user (MU) physical layer (PHY) protocol data unit (PPDU) transmitted by an access point (AP) or a TDLS peer STA that is intended for a single associated non-AP STA or a TDLS peer STA respectively.

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| **CID** | **Commenter** | **Pg/Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 24349 | RISON, Mark |  | 26.5 | The definition of "broadcast RU" is not clear. 26.5.4.5 suggests a broadcast RU is or at least can be one with STA-ID == 2045 but 26.5.1.2 suggests the STA-ID == 2047. The definition in 3.2 suggests it can be 0 or 2047. 26.11.1 indicates the STA\_ID can be 0 or a BSSID index or 2045 or 2047 | In 26.5.1.2 delete "(parameter STA\_ID equal to 2047)". In 26.5.4.5 change "in a DL HE MU PPDU on a broadcast RU with STA-ID 2045" to "in a DL HE MU PPDU in an RU with STA-ID 2045" | **Revised**Updated the text at the cited locations to identify the type of (broadcast) RU**TGax editor, please make changes as shown in doc 11-20/317r5 tagged 24349** |

[24349]

*TGax editor, please make changes to the following paragraph as shown below*

**26.5.1.2 RU addressing in an HE MU PPDU**

11ax D6.0 P343L17:

A non-AP STA that receives an HE MU PPDU where the RXVECTOR includes a parameter STA\_ID that matches the 11 LSBs of the non-AP STA’s AID may disregard any broadcast RU in the HE MU PPDU. A non-AP STA that receives an HE MU PPDU where the RXVECTOR includes a parameter STA\_ID that is equal to the BSSID Index of the BSSID of the AP with which the STA is associated (see 9.4.2.73 (Multiple BSSID-Index element)) may disregard a (broadcast) RU corresponding to parameter STA\_ID equal to 2047.

**26.5.4.5 Additional considerations for unassociated STAs**

11ax D6.0 P367L12:

An AP that receives Management frames from one or more unassociated non-AP STAs carried in HE TB PPDUs transmitted on RA-RUs shall respond with a Multi-STA BlockAck frame carried either in an SU PPDU or in a DL HE MU PPDU on a (broadcast) RU corresponding to parameter STA\_ID equal to 2045.

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| **CID** | **Commenter** | **Pg/Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 24017 | Bims, Harry | 221.12 | 9.6.7.36 | The text says the FILS Discovery frame optionally includes 3 information elements: Reduced Neighbor Report element, FILS Indication element, and Roaming Consortium element. However, there is no text describing when any of them are optionally included or not included. | Please add text describing when each of the three Information Elements:a) Reduced Neighbor Report elementb) FILS Indication elementc) Roaming Consortium elementis present in the FILS Discovery frame, and when they are not present | **Revised**Agree with the comment. Added condition describing when each of the element is carried in the frame.Note, description of Roaming Consortium Element is missing in baseline (REVmd) spec. This should be addressed in REVmd spec as the impact is not limited to 11ax spec.**TGax editor, please make changes as shown in doc 11-20/317r5 tagged as 24017** |

[24017]

* FILS Discovery frame format

*TGax editor, please make changes to the following table in this sub-clause as shown below*

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| * FILS Discovery frame format
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| Order | Information | Notes |
| 1 | Category  |  |
| 2 | Public Action  |  |
| 3 | FILS Discovery Information field  |  |
| 4 | Reduced Neighbor Report element | The Reduced Neighbor Report element is optionally present if dot11FILSActivated, dot11HEOptionImplemented or dot11HE6GOptionImplemented is true, otherwise it is not present. |
| 5 | FILS Indication element | The FILS Indication element is optionally present if dot11FILSActivated is true, otherwise it is not present.  |
| 6 | Roaming Consortium element | The Roaming Consortium element is optionally present if dot11FILSActivated is true, otherwise it is not present. |
| 7 | TIM element | The TIM element is optionally present if dot11HEOptionImplemented is true, otherwise it is not present. |
| 8 | TWT element | The TWT element is optionally present if dot11HEOptionImplemented is true, otherwise it is not present. If present, the Broadcast field of the TWT element is 1 |
| 9 | OPS element | The OPS element is optionally present if dot11HEOptionImplemented is true, otherwise it is not present. |