IEEE P802.11  
Wireless LANs

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| CIDs related to Multiple BSSID topic – Part 2 | | | | |
| Date: January 17, 2018 | | | | |
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Abstract

This submission proposes resolutions for following CID received for TGax LB230 (10):

11000, 13806, 12392, 11016, 13189, 13190, 13191, 13192, 13193, 11031

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revised based on feedback when the doc was presented during ad-hoc (1/10/18)
  + Reverted to ‘destination AP’ in 27.5.3.3.3 to cover case when STA is not associated with the AP
* Rev 2: No technical change. Fixed the Resolution column of the CID table to point to the same revision for all CIDs
  + Previous revision had a bug where some CIDs were incorrectly pointing to r0 while others were pointing to r1.

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** |
| 11000 | Abhishek Patil | 37.65 | 4.3.14a | The term 'Multi-BSSID' doesn't exist. Replace it with 'Multiple BSSID operation' | As in comment | Revised  Agree with the comment.  **TGax editor, please make changes as suggested in doc 11-17/1857r2 under CID 11000** |
| 13806 | Yasuhiko Inoue | 37.65 | 4.3.14a | "Mandatory support in a non-AP STA for Multi-BSSID"  The text can be improved. | Mandatory support for non-AP STA to receive Multi-BSSID element. | Revised  The term Multi-BSS or an element by that name doesn’t exist. The text in this section was modified to indicate that a non-AP STA is expected to support multiple BSSID operation. Please see resolution to CID 11000.  **TGax editor, please make changes as suggested in doc 11-17/1857r2 under CID 13806** |
| 12392 | Liwen Chu | 121.50 | 9.4.2.46 | "BSS Color Change Announcement" should be removed since it always be same as the related element in transmitted BSSID beacon. | Change the text per the comment. | Reject  The text in 9.4.2.46 already mentions that BSS Color Change Announcement is not included in the nontransmitted BSSID profile and it is inherited from the transmitted BSSID. |
| 11016 | Abhishek Patil | 136.54 | 9.4.2.237.2 | Rx Control Frame to MultiBSS applies only to non-AP STA. Also the description is incomplete - doesn't mention what it means when the field value is set to 1 by a non-AP STA. | Replace text in 'Encoding' column to: "For a non-AP STA:  Set to 1 if STA supports receiving a Control frame with TA set to the transmitted BSSID and addressed to STAs from two or more BSSs of a multiple BSSID set.  Set to 0 otherwise. Reserved for an AP" | Revised  Agree with the comment. Updated the text in the ‘Encoding column  **TGax editor, please make changes as suggested in doc 11-17-1857r2 under CID 11016** |
| 13189 | Rajesh Kumar | 236.01 | 27.4.1 | There is a paragraph towards the end of section 27.5.3.3 (P251L1) that already describes some rules for setting the RA when responding to a Trigger frame. Move this paragraph to section 27.5.3.3 so that all the RA rules are in one place. | As in comment | Revised  The rules for responding to MU-BAR are already covered in the spec (RA=TA of the soliciting frame). Therefore, new rules are not needed. Further, the rules remain the same when the soliciting frame is a multi-BSS MU-BAR TF. Deleted the cited paragraph to remove any ambiguity.  **TGax editor, please make changes as suggested in doc 11-17-1857r2 under CID 13189** |
| 13190 | Rajesh Kumar | 236.01 | 27.4.1 | Rules for setting the RA when responding to a multi-BSS GCR-MU-BAR are missing. Spec needs to have paragraph similar to the one on P236L1 for GCR-MU-BAR. | As in comment | Revised  The rules for responding to GCR MU-BAR are already covered in the spec in 27.5.3.3 (RA=TA of the soliciting frame). Further, the rules remain the same when soliciting frame is a multi-BSS GCR MU-BAR TF Therefore, additional rules for setting the RA field when responding to GCR MU BAR are not needed.  **TGax editor, please make changes as suggested in doc 11-17/1857r2 under CID 13190** |
| 13191 | Rajesh Kumar | 243.01 | 27.5.2 | Rules for setting the RA when responding to a multi-BSS BQRP Trigger frame need to be specified. The responding STA is allowed to set the RA to either the (nontransmitted) BSSID it is associated with or the address of the soliciting frame (i.e., the transmitted BSSID). | As in comment | Revised  Agree with the comment.  BQR may be carried in a QoS Null or in the HE Control for a Data frame. Text in 27.5.3.3 already covers the case of Data frames. Added text to cover QoS Null frames. Revised text to clarify that the response is sent to the associated BSS (to cover the case when responding to multi-BSSID TF).  **TGax editor, please make changes as suggested in doc 11-17-1857r2 under CID 13191** |
| 13192 | Rajesh Kumar | 251.01 | 27.5.3.3 | Rules for setting the RA when responding to a multi-BSS Basic Trigger frame need to be specified. The responding STA is required to set the RA to the (nontransmitted) BSSID it is associated with. | As in comment | Revised  Agree with the comment.  Paragraph in 27.5.3.3 already covers the RA rules when the response is a Data or Mgmt frame. Revised text to clarify that the response is sent to the associated BSS (to cover the case when responding to multi-BSSID TF).  **TGax editor, please make changes as suggested in doc 11-17-1857r2 under CID 13192** |
| 13193 | Rajesh Kumar | 254.01 | 27.5.3.6 | Rules for setting the RA when responding to a multi-BSS BSRP Trigger frame need to be specified. The responding STA is allowed to set the RA to either the (nontransmitted) BSSID it is associated with or the address of the soliciting frame (i.e., the transmitted BSSID). | As in comment | Revised  Agree with the comment.  BSR may be carried in a QoS Null or in the HE Control for a Data frame. Text in 27.5.3.3 already covers the case of Data frames. Added text to cover QoS Null frames. Revised text to clarify that the response is sent to the associated BSS (to cover the case when responding to multi-BSSID TF).  **TGax editor, please make changes as suggested in doc 11-17-1857r2 under CID 13193** |
| 11031 | Abhishek Patil | 251.01 | 27.5.3.3 | Define a new sub-section that specifies the RA rules when responding to a trigger frame. Further, add a paragraph which specifies the RA rules when responding to a multi-BSS trigger frame. Consolidate RA rules from other sections (e.g., section 27.4.1 P236L1) to this section and provide appropriate reference. | Define a new sub-section "RA Rules when responding to a Trigger frame" and move the content in the 1st paragraph (P251L1) and the note under this new sub-section. Add the following paragraph at the end of this sub-section which consolidates the RA rules when responding to a multi-BSS Trigger frame: "A non-AP HE STA that is associated with a BSS corresponding to a nontransmitted BSSID and has indicated support for receiving Control frames with TA set to the transmitted BSSID (via the Rx Control Frame To MultiBSS subfield set to 1 in HE Capabilities element that it transmits) shall, upon receiving a MU-BAR Trigger or a GCR MU-BAR Trigger frame or a BQRP Trigger frame or a BSRP Trigger frame with TA set to the transmitted BSSID, respond with RA set either to the (nontransmitted) BSSID of the BSS it is associated with or the transmitted BSSID (i.e., the TA of the soliciting Trigger frame). A non-AP HE STA that is associated with a BSS corresponding to a nontransmitted BSSID and has indicated support for receiving Control frames with TA set to the transmitted BSSID (via the Rx Control Frame To MultiBSS subfield set to 1 in HE Capabilities element that it transmits) shall, upon receiving an Basic Trigger frame with TA set to the transmitted BSSID, respond with RA set to the (nontransmitted) BSSID of the BSS it is associated with." | Revised  Rules for MU-BAR and GCR MU-BAR are already covered in the spec and don’t change if it is a multi-BSS TF. Section 27.5.3.3 already covers RA rules when TB response is Data or Mgmt frame. Added QoS Null as one of the response since BSR or BQR may be carried in a QoS Null frame. Revised text to clarify that the response is sent to the associated BSS (to cover the case when responding to multi-BSSID TF).  **TGax editor, please make changes as suggested in doc 11-17-1857r2 under CID 11031** |



**Following changes are related to CIDs 11000 and 13806**

* **High efficiency (HE) STA**

***TGax Editor: Please make the following changes to the 6th paragraph of this section (11ax D2.0 P37L65):***

The main MAC features in an HE STA that are not present in VHT STA or non-AP HT STA are the following:

* Optional support for dynamic fragmentation levels 1, 2 and 3
* Mandatory support for an AP to receive and optional an AP to transmit operating mode indication
* Optional support for a non-AP STA to transmit and receive for operating mode indication
* Mandatory support for a non-AP STA and optional support for an AP for two NAV operation
* Optional support in a non-AP STA and mandatory support in an AP for target wake time (TWT) operation
* Optional support for UL OFDMA-based random access (UORA)
* Optional support for spatial reuse operation
* Optional support for multi-TID A-MPDU operation
* Optional support for ER BSS
* Mandatory for a non-AP STA to support multiple BSSID operation

**Following changes are related to CID 11016**

* HE MAC Capabilities Information field

***TGax Editor: Please update the ‘Encoding’ for the row corresponding to ‘Rx Control Frame to MultiBSS’ in Table 9-262z as follows (11ax D2.0 P136L54):***

* Subfields of the HE MAC Capabilities Information field

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| Subfield | Definition | Encoding |
| Rx Control Frame to MultiBSS | Indicates whether the non-AP STA when associated with a BSS corresponding to a nontransmitted BSSID supports reception of a control frame with TA equal to the transmitted BSSID | Set to 1 if the non-AP STA supports receiving a Control frame with TA set to the transmitted BSSID when the Control frame is addressed to STAs from two or more BSSs of a multiple BSSID set. Set to 0 otherwise.  Reserved for an AP |

**Following changes are related to CIDs 13189, 13190, 13191, 13192, 13193 and 11031**

* **Overview**

***TGax Editor: Please modify the 11th paragraph in this section as follows (11ax D2.0 P236L1):***

* STA behavior for UL MU operation

***TGax Editor: Please add the following paragraph after the note (following the 10th paragraph) in this section (11ax D2.0 P251L1):***

The RA field of the frames sent in response to a MU-RTS Trigger frame is set as defined in 9.3.1.3 (CTS frame format). The RA field of the MPDUs sent in response of a GCR MU-BAR Trigger frame or MU-BAR Trigger frame is set as defined in 9.3.1.9 (BlockAck frame format). BlockAck frame and Data frames whose RAs are different shall not be aggregated in one A-MPDU in responding to a GCR MU-BAR Trigger frame or MU-BAR Trigger frame. The RA field of the QoS Null frames, Data frames and Management frames sent in response to a Trigger frame shall be set to the MAC address of the destination AP.

NOTE—All MPDUs within an A-MPDU carried in an HE TB PPDU have the same RA (see 9.7.3 (A-MPDU contents)). The settings of the address fields of MPDUs within the A-MPDU depend on the type and subtype of the MPDU as defined in 9.3 (Format of individual frame types).

A STA generates the A-MPDU carried in the HE TB PPDU as defined in 27.5.3.4 (A-MPDU contents in an HE TB PPDU).