### IEEE P802.11Wireless LANs

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| 11ax D3.0 MAC Comment Resolution for Bandwidth Queue Report |
| Date: 2018-08-21 |
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Abstract

This submission proposes resolutions for comments of TGax Draft D3.0 with the following CIDs:

15071, 15074, 15075, 15078, 15680, 16547

Revisions:

* Rev 0: Initial version of the document.

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 D3.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax D3.0 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** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 15071 | Abhishek Patil | 279.11 | 27.5.2 | How long is a BQR valid? | Please clarify | Revised-There is no unified form to decide the length of BQR. If the BQR is unsolicited, any valide MAC frame may contain the BQR information either through QoS Control field or HT Control (A-Control). If the BQR is solicited, then the BQR is sent using QoS Null frame or Action No ACK frame. So the length of BQR really depends on the type of BQR. Clarfied as in the above text. No further text changes are needed.  |
| 15074 | Abhishek Patil | 279.34 | 27.5.2 | STA can't provide unsolicited BQR in response to an NFRP. Same applies to BSR (27.5.3.6 pg 294 Note 1) | Add NFRP to the exclusion list for BQR and BSR | Agreed-TGax editor to make the changes shown in 11-18/xxx under all headings that include CID 15074. |
| 15075 | Abhishek Patil | 279.43 | 27.5.2 | Remove the 1st bullet (on line 43). The first sentence of the paragraph (line 39) covers that case that AP solicites BQR only from the STAs that support it. | Delete the first bullet and expand the first sentence of the paragraph to capture the bit field details. | Agreed-TGax editor to make the changes shown in 11-18/xxx under all headings that include CID 15075. |
| 15078 | Abhishek Patil | 279.60 | 27.5.2 | Add a note that says AP doesn't sent BQRP to a STA that has set UL MU Disabled = 1 in the most recent OM Control subfield. Similar note is needed for MU-RTS. As an example, see Note 3 in 27.5.3.6 (BSRP) | Add a note: "An AP does not send a BQRP Trigger frame containing the 12 LSBs of the AID of the STA that sets the UL MU Disable field to 1." | Revised-TGax editor to make the changes shown in 11-18/xxx under all headings that include CID 15078. |
| 15680 | Huizhao Wang | 279.54 | 27.5.2 | Remove Action No ACK frame option from BQR in TB PPDU. The QoS NULL frame with Ack Policy set to No ACK is the best choice of for BQR, there is no need to have Action No ACK frame as an option | Change the text:"The STA shall include in the HE TB PPDU one or more QoS Null or Action No Ack frames containingthe BQR Control subfield with the channel availability information of the STA."To:"The STA shall include in the HE TB PPDU one or more QoS Null containing the BQR Control subfield with the channel availability information of the STA." | Rejected-It is hard to judge QoS Null frame is better than Action No Ack frame from the perspective of the capability of delievering the BQR information. TGax editor: makes no changes.  |
| 16547 | Patrice Nezou | 279.47 | 27.5.2 | "The STA that receives a BQRP Trigger frame shall follow the rules defined in 27.5.3.3 (STA behavior for UL MU operation) to generate the HE TB PPDU when the Trigger frame contains the STA's AID in any of the Per User Info fields; otherwise the STA shall follow the rules defined in 27.5.5 (UL OFDMA-based random access (UORA)) to gain access to an RA-RU and generate the HE TB PPDU when the Trigger frame contains one or more RA-RUs."If the STA's AID equals to 0 only, the STA shall follow the rules defined in 27.5.5. | It is not possible to to set a RU with AID other than an associated STAs' AID or AID = 0. For instance, a RU with AID= 2045 must be forbidden in a BQRP Trigger frame. Please add a note to precise this condition. | Rejected-There is no issue for an unassociated STA to send Assoc. req (management frame) that contains HT control (A-control) to report the BQR to help AP understand the channel congestion situation. TGax editor: makes no changes.  |

**Discussion:** *None.*

**Proposed text changes to Draft text of TGax D3.0**

***TGax editor: change section 27.5.2 as follows.***

**27.5.2 HE bandwidth query report operation for MU**

A non-A STA may send BQRs to an AP to assist DL MU and UL MU resource allocation in an efficient way. The non-AP STA may either implicitly deliver BQRs in the BQR Control subfield of a frame transmitted to the AP (unsolicited BQR) or explicitly deliver BQRs in a frame sent to the AP in response to a BQRP Trigger frame (solicited BQR).

An HE STA shall set the BQR Support subfield of the HE Capabilities element it transmits to 1 if dot11HEBQRControlImplemented is true; otherwise the HE STA shall set the BQR Support subfield to 0.

A non-AP STA reports its channel availability information (unsolicited BQR) to the AP to which it is associated using the BQR Control subfield of frames it transmits as defined below:

* The HE STA may report the channel availability information as specified in 28.3.19.6.5 (Per 20 MHz CCA sensitivity) in the BQR Control subfield of frames it transmits if the AP has indicated its support in the BQR Support subfield of its HE Capabilities element; otherwise the STA shall not report the channel availability information in the BQR Control subfield.

NOTE—The STA can send an unsolicited BQR in response to certain Trigger frames except NFRP, *(#CID 15074)* MU-RTS and BQRP (with or without RA-RUs, as defined in 27.5.3.3 (STA behavior for UL MU operation) and in 27.5.5 (UL OFDMA-based random access (UORA))) or it can send the unsolicited BQR after accessing the WM using EDCA.

An AP may solicit BQRs from one or more non-AP HE STAs that support generating BQRs, by sending a BQRP Trigger frame (see 9.3.1.23 (Trigger frame format)). An AP may solicit BQRs from a non-AP STA only if the non-AP STA has indicated support by setting the BQR Support field in the HE Capabilities element it transmits to 1; otherwise the AP shall not solicit BQRs from the non-AP STA*(#CID 15075).* A non-AP STA that supports generating a BQR responds (solicited BQR) as defined below:

* ~~An AP may solicit BQRs from a non-AP STA only if the non-AP STA has indicated support by setting the BQR Support field in the HE Capabilities element it transmits to 1; otherwise the AP shall not solicit BQRs from the non-AP STA.~~ *(#CID 15075)*
* The STA that receives a BQRP Trigger frame shall follow the rules defined in 27.5.3.3 (STA behavior for UL MU operation) to generate the HE TB PPDU when the Trigger frame contains the STA's AID in any of the Per User Info fields; otherwise the STA shall follow the rules defined in 27.5.5 (UL OFDMA-based random access (UORA)) to gain access to an RA-RU and generate the HE TB PPDU when the Trigger frame contains one or more RA-RUs.
* The STA shall include in the HE TB PPDU one or more QoS Null or Action No Ack frames containing the BQR Control subfield with the channel availability information of the STA. The HE STA shall not solicit an immediate response for the frames carried in the HE TB PPDU. The Ack Policy subfield of the frame shall be set to No Ack.

NOTE—An AP does not send a BQRP Trigger frame containing the 12 LSBs of the AID of the STA that sets the UL MU Disable field to 1*(#CID 15078).*

An AP may include a BQRP Trigger frame together with other control, data and Management frames in one A-MPDU to a STA if the HE Capabilities element received from the STA has the BSRP BQRP A-MPDU Aggregation field equal to 1. If a STA receives a BQRP Trigger frame aggregated with Control, Data and Management frames that solicits an acknowledgment, the response A-MPDU shall contain MPDUs in the order described in Table 9-428 (A-MPDU contents MPDUs in the control response context).

**End of proposed changes.**