IEEE P802.11
Wireless LANs

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| CR for Two BQRs |
| Date: 2023-05-10 |
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Abstract

This submission proposes comment resolution(s) for the following 7 CID(s) received in LB271 on TGbe D3.2

CIDs:

15910, 15911, 15912, 17387, 17388, 17032, 17328

Revisions:

* Rev 0: Initial version of the document.

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| **CID** | **Commenter** | **Clause**  | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 15910 | Zhou Lan | 9.2.4.7.6 | 142.17 | "when the WM is idle as defined in 10.3.2.1 (CS mechanism) and in 26.5.2.5 (UL MU CS mechanism).". It is not clear if the idle busy condition is based on PIFS check defined in 10.3.2.1 or SIFS check defined in 26.5.2.5 | Using SIFS check as specified in section 26.5.2.5 | RevisedAgree with the commenter. Reponse of BQR shall follows the CCA rule in 26.5.2.5 (UL MU CS mechanism) which also refered to 10.3.2.1(CS mechanism). In order to make it clean, the reference of 10.3.2.1 is removed.TGbe editor to make the changes under tag 15910 in 11-23-0373r2  |
| 15911 | Zhou Lan | 9.2.4.7.6 | 142.17 | "when the WM is idle as defined in 10.3.2.1 (CS mechanism) and in 26.5.2.5 (UL MU CS mechanism)." When the AP and STA have a different BW configuration. E.g. AP is operating on 160 MHz and STA is operating on 20 MHz. It is not clear how the 20 MHz operating STA set the bitmpa of the BQR | Add the rules | RejectThe sentence “is reported for the 20 MHz subchannels located in the operating channel of the reporting STA” clarify the availablility of 20MHz subchannels are within the operating channel of the reporting STA. For the case that AP is operating on 160MHz, the 20MHz operating STA only can set bit corresponding to primary 20MHz (the operating channel of the 20MHz operating STA) to 1, the bits in the bitmap of BQR corresponding the 20MHz subchannel outside the operating channel will be set to 0. |
| 15912 | Zhou Lan | 9.2.4.7.6 | 142.09 | "For a non-EHT non-AP HE STA, or a non-AP EHT STA that is associated with a non-EHT HE AP, eachEach bit in the bitmap corresponds to a 20 MHz subchannel within the operating channel width of the BSS in which the STA is associated, with the LSB corresponding to the lowest numbered operating subchannel of the BSS. The bit in position X in the bitmap is set to 1 to indicate that the subchannel X + 1 is idle; otherwise, it is set to 0 to indicate that the subchannel is busy or unavailable.", here the "unavailable" is not accurate. When the operating bandwidth of a STA is smaller than the operating BW of the AP, AP may still send a BQRP that ask channel availability information on the channel that the STA is not capable of performing CCA. Change "unavailable" to "unapplicable". | As shown in the comment | RejectedThe group fail to reach consensus to change the wording from “unavailable” to “unapplicable”. One concern is the ambiguity of “busy” or “unapplicable” for a report 20MHz with value 0 in bitmap. May need a whole solution instead of just changing the interpretation of the feedback. |
| 17387 | Brian Hart | 9.2.4.7.6 | 141.63 | "either" is not needed and in fact is misleading. There is not choice; rather two paths with defined conditions | Delete "either" | RevisedTGbe editor to make the changes under tag 17387 in 11-23-0373r2  |
| 17388 | Brian Hart | 9.2.4.7.6 | 142.10 | Insertion of these conditions leave the bitmap undefined if "For a non-EHT non-AP HE STA, or a non-AP EHT STA that is associated with a non-EHT HE AP" or the later "For a non-AP EHT STA that is associated with an EHT AP" is not true. | Insert a note with a xref to normative text that indicates BQR can never be sent in other conditions. Or define the meaning of BQR in all other conditions(!?) | RejectedThe conditions of “non-EHT non-AP HE STA” and “non-AP EHT STA that is associated with a non-EHT HE AP” are covered by this paragraph. The condition of “non-AP EHT STA that is associated with an EHT AP” is covered in the next paragraph. BQR will not applied to a pre-HE non-AP STA.So all the conditions are covered. |
| 17032 | Mark RISON | 35.5.3 | 596.27 | The way this is written suggests the requirements are for an EHT non-AP STA only, but the term "EHT STA" used also covers APs, and dot11TwoBQRsOptionImplemented is not marked as non-AP STA-only | Change "EHT STA" to "EHT non-AP STA" throughput (or maybe it's "non-AP EHT STA"?) | RevisedAgree with the commenter.TGbe editor to make the changes under tag 17032 in 11-23-0373r2  |
| 17328 | Alfred Asterjadhi | 35.5.3 | 596.28 | Good to have some more details on the location of the subchannels in this subclause for the 2 BQR case. Also it seems this MIB variable should be activated or smth since it can dynamically change value based on the AP to which the STA is associating to. | As in comment. | RevisedThe locations of subchannels are defined in 9.2.4.7.6 (BQR Control), a reference is added. The MIB is already been added.TGbe editor to make the changes under tag 17328 in 11-23-0373r2  |

Discussion：

**Proposed spec text**

***TGbe editor: Please make the following changes in subclause 9.2.4.7.6 (BQR Control):***

9.2.4.7.6 BQR Control

The Available Channel Bitmap subfield contains a bitmap indicating the subchannels available at the STA transmitting the BQR. When there is one BQR Control subfield in an A-Control subfield, the Available Channel Bitmap subfield is applied to (#17387):

—the operating channel width, when the operating channel width is no more than 160 MHz(#17387)

—the primary 160 MHz, when the operating channel width is 320 MHz (#17387)

When there are two BQR Control subfields in an A-Control subfield, the Available Channel Bitmap subfield in the first and second BQR Control subfields are applied to the primary 160 MHz and the secondary 160 MHz, respectively.

For a non-EHT non-AP HE STA, or a non-AP EHT STA that is associated with a non-EHT HE AP, each bit in the bitmap corresponds to a 20 MHz subchannel within the operating channel width of the BSS in which the STA is associated, with the LSB corresponding to the lowest numbered operating subchannel of the BSS. The bit in position *X* in the bitmap is set to 1 to indicate that the subchannel *X* + 1 is idle; otherwise, it is set to 0 to indicate that the subchannel is busy or inapplicable (#15912). The availability of each 20 MHz subchannel is based on the ED-based CCA defined in 27.3.20.6.5 (Per 20 MHz CCA sensitivity) and is reported for the 20 MHz subchannels located in the operating channel of the reporting STA, when the WM is idle as defined (#15910) in 26.5.2.5 (UL MU CS mechanism).

For a non-AP EHT STA that is associated with an EHT AP, each bit in the bitmap corresponds to a 20 MHz subchannel within the operating channel width of the BSS in which the STA is associated, with the LSB in the first BQR Control subfield (or the only BQR Control subfield) corresponding to the lowest numbered operating subchannel of the primary 160 MHz (or of the BSS), and with the LSB in the second BQR Control subfield, if present, corresponding to the lowest numbered operating subchannel of the secondary 160 MHz. The bit in position *X* in the bitmap is set to 1 to indicate that the subchannel *X* + 1 is idle; otherwise it is set to 0 to indicate that the subchannel is busy or inapplicable (#15912). The availability of each 20 MHz subchannel is based on the ED-based CCA defined in 36.3.21.6.4 (Per 20 MHz CCA sensitivity) and is reported for the 20 MHz subchannels located in the operating channel of the reporting STA, when the WM is idle as defined (#15910) in 35.5.2.4 (UL MU CS mechanism for EHT STAs).

***TGbe editor: Please make the following changes in subclause 35.5.3 (Operation of the two BQR Control subfields):***

35.5.3 Operation of the two BQR Control subfields

A non-AP(#17032) EHT STA may set dot11TwoBQRsOptionImplemented to true if it is associated with an EHT AP that supports 320 MHz.

An EHT STA with dot11TwoBQRsOptionImplemented equal to true shall set the Two BQRs Support subfield in the EHT MAC Capabilities Information field in the EHT Capabilities element it transmits to 1; otherwise the EHT STA shall set the Two BQRs Support subfield to 0.

An EHT STA with dot11TwoBQRsOptionImplemented equal to true shall set the BQR Support subfield in the HE MAC Capabilities Information field in the HE Capabilities element it transmits to 1.

A non-AP(#17032) EHT STA may report the channel availability information as specified in 36.3.21.6.4 (Per 20 MHz CCA sensitivity) to its associated AP in two BQR Control subfields of frames it transmits if the AP has indicated its support in the Two BQRs Support subfield of its EHT Capabilities element; otherwise the non-AP EHT(#17032) STA shall not report the channel availability information in the two BQR Control subfields.

(#17328) The location and status of each 20 MHz subchannel reported in the two BQR Control fields are defined in 9.2.4.7.6 (BQR Control).

NOTE—An EHT STA is an HE STA and as such inherits all the functionalities defined in 26.5.6 (Bandwidth query report operation).