IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Comment resolution for CS Required subfield | | | | |
| Date: 2017-01-17 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Raja Banerjea | Qualcomm Inc. | 5775 Morehouse Drive,  San Diego, CA 92121 | +1 408-392-8728 | rajab@qti.qualcomm.com |
| Alfred Asterjadhi | Qualcomm Inc. | 5775 Morehouse Drive,  San Diego, CA 92121 | +1-858-658-5302 | aasterja@qti.qualcomm.com |
| George Cherian | Qualcomm Inc. | 5775 Morehouse Drive,  San Diego, CA 92121 | +1-858-651-6645 | gcherian@qti.qualcomm.com |

Abstract

This submission proposes resolutions for multiple comments related to TGax D1.0 with the following CIDs (6 CIDs):

* 3012, 3019, 9648, 9837, 10162, 5189

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 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.***

# PARS I (CS Required)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3012 | Abhishek Patil | 43.01 | The expected behavior of a STA that receives the CS Required set to a certain value is somehow sparsed and confusing in all normative subclauses I checked. Please add a reference here to where the normative behaviro is defined. It should be something along this lines: If CS Required is 0 then STA is not requred to check ED and NAV, if CS Required is 1 then STA is required to check both ED and NAV. | As in comment. | Accepted modified.  The definition of CS required in section 9.3.1.23 is clear “The CS Required subfield is set to 1 to indicate that the STAs identified in the User Info fields are required to use ED to sense the medium and to consider the medium state and the NAV in determining whether or not to respond. The CS Required subfield is set to 0 to indicate that the STAs identified in the User Info fields are not required to consider the medium state or the NAV in determining whether or not to respond.”. However the normative clause in section 27.5.2.4 where CS Required field was described is confusing and has been modified to reflect that CS Required set to 0 means NAV need not be considered when responding. |
| 3019 | Abhishek Patil | 50.49 | The setting of the CS required field is missing in some cases. Specify that the AP should set the CS Required to 1 when transmitting the MU-RTS frame | Insert on P50L47: "The CS Required is set to 1". | Rejected.  The CS Required subfield setting for MU-RTS is specified in section 27.5.2.4 already. |
| 9648 | Yongho Seok | 52.05 | "The CS Required subfield is set to 1." For consistency with other Trigger frame description, please move this sentence to 27.5.2.4. For example, remove above sentence and change P170 L58 as the following "The CS Required subfield in the MU-RTS variant and the BQRP variant of the Trigger frame shall be set to 1." | As per comment. | Accepted |
| 9837 | Young Hoon Kwon | 52.05 | Currently, an AP can set the CS Required subfield to 0 only if the Trigger frame solicits Ack/BA and the length is shorter than some threshold value. As the BQRP does not solicits Ack/BA frame, the CS Required subfield is supposed to be set to 1. Therefore, there's no need to mention this. | Delete the sentence "The CS Required subfield is set to 1.". | Rejected.  The Bandwidth Query Report Poll requires the STA to check the Ed level for the requested 20 MHz and then send a response to indicate which 20 MHz channels are free. However if the requested 20 MHz is being used by other transmission then the BQRP should not lead to medium collision. |
| 10162 | yujin noh | 43.01 | The CS Required subfield is set to 1, ED-based CCA follows the same procedure as defined in VHT receiver specification. The rules describes the STA behaviors such that the STA shall start sensing the primary 20MHz channel first and then if present, additional secondary 20MHz channel, secondary 40MHz and secondary 80MHz channel(s) are measured to compare with the pre-determined CCA-ED threshold(s) depending on the operating channel.  However when receiving the Trigger frame in 11ax, there might be a STA which is assigned to use the RU whose 20MHz channel(s) does not contain the primary 20MHz channel.  ED-based CCA needs to be modified to sense either a single 20 MHz channel or multiple of 20 MHz channels which does not contain the primary 20MHz channel. | As in the comment. | Rejected  In section 27.5.2.4 the STA medium using energy-detect after receiving the PPDU that contains the Trigger frame is described. “the CS Required subfield in a Trigger frame is set to 1, the STA shall consider the status of the CCA (using Energy Detect defined in 21.3.18.5.2 CCA sensitivity for operating classes requiring CCA-ED) and the virtual carrier sense (NAV) before UL MU transmission in response to the Trigger frame. In this case, the STA shall sense the medium using energy-detect (ED) after receiving the PPDU that contains the Trigger frame (i.e. during the SIFS time), and it shall perform the energy-detect (ED) at least in the subchannel that contains the STA’s UL allocation, where the sensed subchannel consists of either a single 20 MHz channel or multiple of 20 MHz channels. The STA may transmit an HE trigger-based PPDU when the 20 MHz channels containing the allocated RUs in the Trigger frame are considered idle; if the STA detects that the 20 MHz channels containing the allocated RUs are not all idle, then the STA shall not transmit anything in the allocated RUs”. |
| 5189 | Dorothy Stanley | 166.17 | Regarding "CS Required subfield is set to 0", why is CS not required? And if the answer is because there is "UL MU Response Scheduling A-Control subfield" in the trigger, then why is CS not required with "UL MU Response Scheduling A-Control subfield"? It seems like an easy way to cheat on CS is for an AP to always include this field, especially since it duplicates the information already in the Trigger frame format. At least make the Trigger basic trigger frame CS requirements the same as the UL MU Response Scheduling A-Control requirements. | as in comment | Rejected  The UL MU Response scheduling A-Control field solicits a short response and therefore does not require the CS Requred field. However if a AP transmits a PPDU with the trigger frame and the UL MU Response scheduling then the information in both have to be consistent. Therefore the common information field of the trigger frame should have the fields set according to the UL MU Response scheduling. |

**Discussion: *None.***

**TGax Editor: *Please make the change on Page 52, line 5 as follows (#CID 9648):***

~~The CS Required subfield is set to 1.~~

**TGax Editor: *Please make the change on Page 170, line 58 as follows (#CID 9648):***

The CS Required subfield in the MU-RTS variant of the Trigger frame and the BQRP variant of the Trigger frame shall be set to 1.

**TGax Editor: *Please make the change on Page 170, line 58 as follows (#CID 3012):***

A NAV is considered in virtual CS for a STA that is solicited by a Trigger frame for transmission unless one of the following conditions is met:

— CS Required subfield is set to 0

— The NAV was set by an intra-BSS frame