IEEE P802.11  
Wireless LANs

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| **CIDs for: Section 10.3.2.8a**  **CS Condition to Respond CTS** |
| **Date:** 2016-07-26 |

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Abstract

This submission proposes resolutions for multiple comments related to TGax D0.1 with the following CIDs (6 **CIDs**):

* 1070, 2226, 693, 125, 2650, 2651

Revisions:

Rev 0: Initial version of the document

Rev 1: Some editorial improvement

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** | **PP.LL** | **Comment** | | **Proposed Change** | **Resolution** |
| 1070 | Kiseon Ryu | 41.11 | Clarify TBD in the text "Other transmission conditions TBD are met.", especially CTS response rule to MU-RTS whether using Static or Dynamic BW operation. | Add the following text at the end of the sentence on the line 27, page 41:  when the indicated 20MHz channels are all idle. | | Revised.  Agree in principle with the comment.  The current draft allows only static CS for UL MU transmission:  MU-RTS is a variant of the Trigger frame, so the STA can send CTS frame only if 20MHz channels indicated in the Per User Info field are all idle. Otherwise, STA shall not send any CTS frame.  In addition, static BW operation for responding simultaneous CTS in respond to MU-RTS can help AP recoginizing which STA(s) responded when different BW are assigned to those STAs (e.g., primary20, primary40, primary80).  TGax editor to make the changes shown in 11-16/875r0 under all headings that include CID 1070. |
| 2226 | Tomoko Adachi | 41.8 | It says "The UL MU CS condition described in 25.5.2.4 (UL MU CS mechanism) indicates the medium is idle" Does this intended to mean that the CS is always required when an MU-RTS is transmitted? If so, such condition should be written in 25.5.2.4. | As in comment. | | Revised.  Agree in principle with the comment.  Considering conventional RTS/CTS exchange sequence, there’s no case that CTS frame can be sent without checking NAV. An HE STA that has non-zero value of the NAV shall not send a CTS frame after receiving the MU-RTS frame, which means that CS Required bit in the MU-RTS frame shall be set to 1.  TGax editor to make the changes shown in 11-16/875r0 under all headings that include CID 2226. |
| 693 | Jae Seung Lee | 41.11 | There are TBDs in the subclause. | Define the transmission conditions, and the method of request | | Revised.  Agree in principle with the comment.  Delete the TBD text. If other transmission condition needs to be defined, it can be added specifically.  TGax editor to make the changes shown in 11-16/875r0 under all headings that include CID 693. |
| 125 | Alfred Asterjadhi | 41.11 | The only other trasnsmission conditions that are missing are the following: the MU RTS frame is sent by the AP with which the STA is associated with and that the inter BSS NAV counter is 0. | As in comment. | | Revised.  Agree in principle with the comment.  In addition, ‘inter BSS NAV’ should be changed to ‘regular NAV’ according to the current spec text.  TGax editor to make the changes shown in 11-16/875r0 under all headings that include CID 125. |
| 2650 | Young Hoon Kwon | 59.17 | CS mechansim for CTS frame transmission in response to MU-RTS frame is not clear. As current CS mechanism rule for CTS frame is to do CS for PIFS duration before RTS reception, it is not in line with proposed rule. | Add a paragraph explaining CS rule for CTS frame transmission in response to MU-RTS frame. | | Revised.  Agree in principle with the comment.  MU-RTS is a variant of the Trigger frame. Preferred to keep the consistency for the CS mechanism for MU-RTS variant of the Trigger frame (i.e. ED based CCA during SIFS after MU-RTS frame should be applied).  TGax editor to make the changes shown in 11-16/875r0 under all headings that include CID 125. |
| 2651 | Young Hoon Kwon | 59.26 | Transmission bandwidth selection rule for CTS frame transmission in response to MU-RTS frame is not clear, especially for the case that some of the allocated band are idle and some are not. | Add a paragraph explaining bandwidth selection rule for CTS frame transmission in response to MU-RTS frame. | | Revised:  Agree in principle with the comment.  The current draft allows only static CS for UL MU transmission:  MU-RTS is a variant of the Trigger frame, so the STA can send CTS frame only if 20MHz channels indicated in the Per User Info field are all idle. Otherwise, STA shall not send any CTS frame.  In addition, static BW operation for responding simultaneous CTS in respond to MU-RTS can help AP recoginizing which STA(s) responded when different BW are assigned to those STAs (e.g., primary20, primary40, primary80).  TGax editor to make the changes shown in 11-16/875r0 under all headings that include CID 2651. |

**Discussion: *None***

**Propose:**

Revised for CID 693 per discussion and editing instructions in 11-16/875r0.

***TGax editor: Delete the sentence on page 41 line 11 as the following:***

~~—Other transmission conditions TBD are met.~~ (#693)

HE STAs may transmit CTS responses to an MU-RTS frame in a non-HT or non-HT duplicate PPDU with frame format as defined in 9.3.1.3 based on the request in MU-RTS frame. ~~The method of request is TBD~~(#693).

**Propose:**

Revised for CID 2226 per discussion and editing instructions in 11-16/875r0.

***TGax editor: Insert the sentence on page 59 line 31 as the following:***

CS Required subfield in the MU-RTS variant of the Trigger frame shall be set to 1.(#2226)

**Propose:**

Revised for CID 2650 per discussion and editing instructions in 11-16/875r0.

***TGax editor: Insert the sentence on page 41 line 10 as the following:***

The ED-based CCA during the SIFS after receiving an MU-RTS frame and virtual CS functions are used to determine the state of the medium to respond to an MU-RTS frame.(#2650)

**Propose:**

Revised for CID 125 per discussion and editing instructions in 11-16/875r0.

***TGax editor: Insert the sentence on page 41 line 11 as the following:***

* The MU RTS frame is sent by the AP with which the STA is associated and the value of the regular NAV is 0.(#125)

**Propose:**

Revised for CID 1070, 2651 per discussion and editing instructions in 11-16/875r0.

***TGax editor: Modify the sentence on page 41 line 25 as the following:***

If the CTS sent in response to an MU-RTS frame is transmitted in a non-HT or non-HT duplicate PPDU, then the CTS response shall be transmitted on the indicated 20 MHz channels identified in the RU Alloca­tion subfield of the Per-User Info field when the indicated 20MHz channels are all idle. If any 20MHz channel indicated in the RU Allocation subfield of the Per-User Info field is busy, the CTS response shall not be transmitted.(#1070)(#2651)