### IEEE P802.11Wireless LANs

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| 11ax D2.3 MAC Comment Resolution for NAV Part IV |
| Date: 2018-04-30 |
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Abstract

This submission proposes resolutions for comments of TGax Draft 2.3 with the following CIDs:

13133, 11069, 11070, 14262, 12177, 12293, 12942, 12943, 12433, 12460

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 D2.3 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax D2.3 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** |
| 13133 | Po-Kai Huang | 17.3.9.10 | 217.25 | Revise the timing requirment of MU-RTS to align with the language in 28.3.14.3 Pre-correction accuracy requirements | As in comment. | Revised – Agree in principle with the commenter. We have revised the texts to align with the latest agreed texts for synchronization in 28.3.14.3 Pre-correction accuracy requirements as shown below.*A STA that transmits an HE TB PPDU in response to a triggering PPDU (PPDU containing a Trigger frame or a frame containing a TRS Control subfield(#13136)(#14137)) from an AP shall ensure that the arrival time of the HE TB PPDU at the AP is within ±0.4 µs of TXTIME + aSIFSTime + RTD from the transmission start time of the triggering PPDU, where TXTIME is that of the triggering PPDU and RTD is the round-trip delay between the AP and the STA.**NOTE—TXTIME contains the SignalExtension, thus TXTIME + aSIFSTime is equivalent to 16 µs after the end of transmission of the triggering PPDU at the AP. The STA is not expected to measure or compensate for the RTD when transmitting the HE TB PPDU.*TGax editor to make the changes shown in 11-18/0688r0 under all headings that include CID 13133. |
| 11069 | Adrian Stephens | 17.3.9.10 | 217.15 | "pre-compensate for carrier frequency offset (CFO) error with respect tothe PPDU that carries the soliciting MU-RTS Trigger frame and symbol clock error."The PHY is generally considered to be idempotent. It does not record state, such as the CFO, from packet to packet. | Add RXVECTOR parameter to indicate CFO. Add TXVECTOR parameter to control CFO.Add MAC operation description that contains the logic of when and how to record the Rx packet's CFO and when to control the Tx packet's CFO.Change 17.3.9.10 so that it describes how to implement the TXVECTOR CFO parameter operation.It may be that TRIGGER\_RESPONDING now means "CFO present".Make similar changes to the other PHYs. | Rejected – We note that the cited texts is a counter part of the following texts in 28.3.14.3 Pre-correction accuracy requirements.*A STA that transmits an HE TB PPDU compensates for carrier frequency offset (CFO) error and symbol clock error. After compensation, the absolute value of residual CFO error with respect to the PPDU carrying the soliciting Trigger frame shall not exceed 350 Hz for data subcarriers when measured as the 10% point of the complementary cumulative distribution function (CCDF) of CFO errors in AWGN at a received power of 60 dBm in the primary 20 MHz. The residual CFO error measurement shall be made on the HE TB PPDU following the HE-SIG-A field. The symbol clock error shall be compensated by the same ppm amount as CFO error.(#12587)*Hence, based on the existing PHY agreement of CFO compensation, no additional text is required. |
| 11070 | Adrian Stephens | 17.3.9.10 | 217.25 | "A STA that transmits a non-HT or non-HT duplicate PPDU where the TXVECTOR parameter TRIGGER\_RESPONDING is true shall have timing accuracy of +/-0.4 -┴s relative to the ending time of the PPDU carrying the MU-RTS Trigger frame not accounting for the impactof propagation delay."Layering violation.The PHY doesn't record the time of the previous packet. SIFS is a MAC property. | In the PHY, change to accuracy related to TXSTART.request or eliminate this requirement.Add MAC level accuracty requirement when trigger-responding that relates the TXSTART.request to the previous RXEND.indication.Make similar changes to other PHYs that support this parameter. | Revised – Agree in principle with the commenter. We have revised the texts to align with the latest agreed texts for synchronization in 28.3.14.3 Pre-correction accuracy requirements as shown below.*A STA that transmits an HE TB PPDU in response to a triggering PPDU (PPDU containing a Trigger frame or a frame containing a TRS Control subfield(#13136)(#14137)) from an AP shall ensure that the arrival time of the HE TB PPDU at the AP is within ±0.4 µs of TXTIME + aSIFSTime + RTD from the transmission start time of the triggering PPDU, where TXTIME is that of the triggering PPDU and RTD is the round-trip delay between the AP and the STA.**NOTE—TXTIME contains the SignalExtension, thus TXTIME + aSIFSTime is equivalent to 16 µs after the end of transmission of the triggering PPDU at the AP. The STA is not expected to measure or compensate for the RTD when transmitting the HE TB PPDU.*TGax editor to make the changes shown in 11-18/0688r0 under all headings that include CID 13133. |
| 14262 | Yusuke Tanaka | 27.5.3.5 | 253.55 | The NAV set by an intra-BSS frame is intra-NAV so just simplify by saying "The intra-NAV was set" | As commented. | Rejected – The condition is written in a general way such that both intra-BSS NAV and basic NAV can be covered by conditions described in the paragraph.Also note that the condition “The NAV counter is 0” applies to both intra-BSS NAV and basic NAVHence, there is no need to replave “the NAV” with “the intra-NAV”. |
| 12177 | kaiying Lv | 27.2.4 | 223.18 | When a HE STA is not associated with a AP, which NAV is updated by a received PPDU? . | Please clarify it | Rejected – If a STA is not associated with an AP, then based on the condition described in 27.2.2, the frame can not be classified as intra-BSS frame. Hence, only the basic NAV is updated by a received PPDU. |
| 12293 | Kiseon Ryu | 10.3.2.4 | 181.18 | When a TXOP holder intends to truncate the TXOP, it sets the TXVECTOR parameter TXOP\_DURATION to 0. A STA receiving the HE PPDU containing the RXVECTOR parameter TXOP\_DURATION set to 0 should reset the related NAV. | As in the comment | Rejected – Currently, when a STA receives a frame with Duration field in the MAC header indicating 0, the STA does not reset the NAV.The indication in TXOP Duration of HE-SIG-A is supposed to be an extension of of Duration field in MAC header. Hence, there is no need to introduce additional NAV reset rule for TXOP Duration indication in HE-SIG-A |
| 12942 | Mark RISON | 27.2.2 | 150.57 | Resubmitted from D1.0 as spuriously rejected 'in the interest of releasing D2.0' (references and text from D1.0): "The STA is not solicited an immediate response" is non-grammatical and does not make sense. | Change the bullet to "An immediate response is not solicited from the STA by the PPDU carrying the frame". | Revised –The cited sentence has been revised with the following in D2.3.*the PPDU carrying the frame doesnot solicit an immediate response from the STA* |
| 12943 | Mark RISON | 27.2.2 | 151.05 | Resubmitted from D1.0 as spuriously rejected 'in the interest of releasing D2.0' (references and text from D1.0): "The STA is not solicited an immediate response" is non-grammatical and does not make sense. | Change the bullet to "An immediate response is not solicited from the STA by the PPDU carrying the frame". | Revised – The cited sentence has been replaced with the following condition in D2.3.*The RA of the received frame is not the STA's MAC address* |
| 12460 | Liwen Chu | 27.2.4 | 224.21 | A TXOP holder may receive intra-BSS HE PPDU, e.g. when the STA is doing backoff recovery wthin a TXOP. | Change the text per the comment. | Rejected –If the TXOP holder decodes the MAC portion of the frame, TXOP holder can still set the NAV properly if the frame is not destined to the TXOP holder.The rule is introduced to make sure that TXOP holder does not set NAV by the HE-SIG-A from its solicited response, which is the general requirement in the baseline. |
| 12433 | Liwen Chu | 10.3.2.4 | 181.30 | change the bullet to "The RXVECTOR parameter BSS\_COLOR is not equal to the BSS Color of the HE AP or The RXVECTOR parameter BSS\_COLOR is not equal to the BSS Color of the HE AP and the UL/DL is 0" | As in comment | Rejected –The author is proposing that potential TDLS transmission needs to set the I NAV of the TXOP holder even if they use the same BSS color. We think it is not necessary due to the following reason.First, if the HE AP decodes the MAC header, then NAV will still be set properly, and legacy rule can be applied.Second, when TXOP holder resreves the medium, TDLS STA is unlikely to be able to transmit. |

**Discussion:** *None.*

**Propose:** Revised for CID 13133 per discussion and editing instructions in 11-18/0688r0.

***TGax editor: Change 17.3.9.10 Pre-correction accuracy requirements: (Track change on)***

* Pre-correction accuracy requirements

(…existing texts…)

A STA that transmits a non-HT or non-HT duplicate PPDU, where the TXVECTOR parameter TRIGGER\_RESPONDING is true, in response to a triggering PPDU (PPDU containging a MU-RTS Trigger frame) from an AP shall ensure that the arrival time of the non-HT or non-HT duplicate PPDU at the AP is within ±0.4 µs of TXTIME+aSIFSTime+RTD from the transmission start time of the triggering PPDU, where TXTIME is that of the triggering PPDU and RTD is the round-trip delay between the AP and the STA.(#13133)

NOTE 1—TXTIME contains the SignalExtension, thus TXTIME + aSIFSTime is equivalent to 16 µs after the end of transmission of the triggering PPDU at the AP. The STA is not expected to measure or compensate for the RTD when transmitting the non-HT or non-HT duplicate PPDU. (#13133)

NOTE 2—The timing requirement for transmitting an non-HT or non-HT duplicate PPDU when the TXVECTOR parameter TRIGGER\_RESPONDING is true is the same as the timing requirement for transmitting an HE TB PPDU (see (28.3.14.3 Pre-correction accuracy requirements)). (#13133)