IEEE P802.11
Wireless LANs

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| Proposed resolution for comments in 27.5.2 |
| Date: July 6, 2017 |
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Abstract

This submission proposes resolutions for multiple comments received for TGax LB225 (18 CIDs):

9901, 5937, 5715, 6066, 9905, 6681, 9530, 9531, 8110, 8060, 9910, 5716, 6067, 9908, 9532, 9909, 7815, 8558

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Split sentence in 27.5.2.3 to cover Trigger frame and UMRS case separately
* Rev 2: Minor editorial
* Rev 3: Editorial fixes based on feedback received when the doc was presented (PM3 MAC ad-hoc 7/11/17)

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** | **Section** | **Pg / Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 9901 | Young Hoon Kwon | 167.25 | 27.5.2.2.3 | First of all, wrong sub-clause number: it should be 10.22.2.7 instead of 9.22.2.7. Moreover, sub-clause 10.22.2.7 describes overall multiple frame transmission in an EDCA TXOP that includes successful transmission cases and also unsuccessful transmission cases that requires anoher backoff or PIFS recovery. Therefore, by just mention that the same procedure is applied does not give clear description. More specifically, when an AP receives an immediate response with at least on MPDU from at least one STA solicited by a Trigger frame, it should be considered as "completion of the immediately preceding frame exchange sequence" in the context shown in 10.22.2.7. So, further description is needed. | As in the comment. | RevisedThe incorrect section numbers were fixed in previous revisions of the draft and no longer appear in D1.3. The case when AP receives an immediate response for at least one MPDU from at least one STA is covered in 10.22.2.7 and the opposite case where AP does not receive response for at least one MPDU from at least one STA is covered in the paragraph below the one referred by the comment.TGax editor: No further changes are needed.  |
| 5937 | James Yee | 167.30 | 27.5.2.3 | The spec says the backoff procedure described in 9.22.2.2 applies to UL MU but there is nothing about UL MU in 9.22.2.2 at this point so it is not clear which of thoes rules apply. For example in 9.22.2.2 (10.22.2.2 in 802.11mc) it says "an HT STA may retransmit unacknowledged MPDUs within the same TXOP or in a subsequent TXOP". Does this also apply to an HE STA? | Please clarify. | RevisedThe incorrect section numbers were fixed in previous revisions of the draft and no longer appear in D1.3. TGax editor: No further changes are needed. |
| 5715 | Guoqing Li | 168.08 | 27.5.2.3 | section 27.2.2 deals with how to update intra and inter NAV, but it doesn't specify how to set TXOP\_Duration parameter. Either this is a wrong reference or section 27.2.2 should be more specific about how to set TXOP\_duration field when responding a trigger frame. | Either refer to the right reference or specify how to set TXOP\_duration parameter in section 27.2.2. | RevisedAgree with the comment. Fixed the reference to point to 27.11.5 (TXOP\_DURATION). TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 6066 | Jeongki Kim | 168.08 | 27.5.2.3 | TXOP\_DURATION parameter setting rule is defined in 27.11.5 (TXOP\_DURATION). Change the related text. | Change the related text as follows:The TXOP\_DURATION parameter shall be set according the rules defined in 27.2.2 (Updating two NAVs) 27.11.5 (TXOP\_DURATION) | RevisedAgree with the comment. Fixed the reference to point to 27.11.5 (TXOP\_DURATION). TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 9905 | Young Hoon Kwon | 168.08 | 27.5.2.3 | 27.2.2 does not describe rule on how to set TXOP\_DURATION value.Need further clarification | As in the comment. | RevisedAgree with the comment. Fixed the reference to point to 27.11.5 (TXOP\_DURATION). TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 6681 | John Coffey | 169.01 | 27.5.2.3 | Ungrammatical and confusing text: what is the "containing an UL MU Response Scheduling A-Control subfield" referring to? By setting this text off in commas, it seems it doesn't refer to the soliciting MPDU(s) (which would cause a case agreement problem). But read literally, the clause set off in commas seems to refer to the STA. | Rewrite to clarify. If the clause set off by commas referes to the soliciting MPDU(s), remove commas and correct case. If it refers to the HE trigger-based PPDU, move it earlier in the sentence, to follow "HE trigger-based PPDU". | RevisedAgree with the comment. Removed the comma after UMRS Control field. TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 9530 | Yasuhiko Inoue | 169.07 | 27.5.2.3 | "UL\_TARGET\_RSSI, DL\_TX\_POWER, RU\_ALLOCATION, and MCS parameters shall be set to ..."Could not find UL\_TARGET\_RSSI nor DL\_TX\_POWER in the TXVECTOR parameters in table 28-1. | Clarify which parameters are referred to. | RevisedAgree with the comment. The incorrect parameters were removed in a previous revision of the draft as a resolution to CID 4823. Please see doc 11-17/250r2. The incorrect parameters are no longer present in D1.3. TGax editor: No further changes are needed. |
| 9531 | Yasuhiko Inoue | 169.15 | 27.5.2.3 | "MU\_MIMO\_LTF\_MODE, LDPC\_EXTRA, NSTS, STBC, CODING TYPE, SS\_ALLOCATIONshall all be set to 0."(1) Could not find MU\_MIMO\_LTF\_MODE in Table 28-1.(2) LDPC\_EXTRA should be LDPC\_EXTRA\_SYMBOL(3) NSTS may be NUM\_STS(4) CODING TYPE may be FEC\_CODING(5) Could not find SS\_ALLOCATION in the TXVECTOR and RX VECTOR parameters in Table 28-1. | Use the consistent terms with other part of the draft. And clarify the parameters which are not in the table 28-1. | RevisedAgree with the comment. The incorrect parameters reference and names were fixed in a previous revision of the draft as a resolution to CID 4824. Please see doc 11-17/250r2. The incorrect parameters are no longer present in D1.3. TGax editor: No further changes are needed. |
| 8110 | Matthew Fischer | 169.17 | 27.5.2.3 | There is no language describing what a recipient is required to do or not do when it sees the value SR\_DISALLOWED in a received PPDU and of intra or inter-BSS, etc. Such language is required, plus it is unclear whether the value applies to OBSS\_PD SR or SRP SR or both. There is no language to differentiate the SR field in the MAC trigger frame common info field vs the PHY SIGA SR field. | Provide language to indicate what a recipient does when SR\_DISALLOWED is received in a PPDU - does it apply to OBSS\_PD or SRP or both? What about Intra vs Inter-BSS? | RejectedThis paragraph describes how to set TXVECTOR parameters and is not the appropriate section to define the behavior at the receiver of the PPDU. Further sections 27.11.6 & 27.9 provide details on the behavior at the receiving STA. In addition, Table 28-21 provides details on what each Spatial Reuse value means (e.g., SRP\_DISALLOWED or SRP\_AND\_NON-SRG\_OBSS-PD\_PROHIBITED). Therefore, the behavior at the receiving STA should be clear. |
| 8060 | Massinissa Lalam | 169.18 | 27.5.2.3 | In "-- SPATIAL\_REUSE shall be set to the value indicating SR\_Disallowed", the parameter "SR\_Disallowed" is not defined in the Draft. please define it or rephrase if based on Table Table 28-19, e.g. ""-- SPATIAL\_REUSE shall be set to 0 (SR disallow)". | As in comment. | RevisedThe inconsistency was fixed in a previous revision of the draft as a resolution to CID 8057. The issue is no longer present in D1.3. TGax editor: No further changes are needed. |
| 9910 | Young Hoon Kwon | 169.18 | 27.5.2.3 | In case of SR\_Disallowed setting, only SRP-based spatial reuse is disallowed, which implies that OBSS\_PD based SR operation is still allowed. As NDP frame is used for channel measurement, not only SRP based spatial reuse but also OBSS\_PD based spatial reuse shall be disallowed. In this sense, it's better to set to "SR\_delayed" as no spatial reuse operation will be allowed during the PPDU duration. | Change the sentence to "SPATIAL\_REUSE shall be set to the value indicating SR\_Delayed". | RevisedThe commenter is asking to disable SR operation. The exact value to disable both SR schemes has changed in D1.3 (after CID 6768 was resolved). Changed Spatial Reuse parameter to 15 which indicates that SRP and OBSS\_PD based SR is not allowed (see Table 28-21 in D1.3).TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 5716 | Guoqing Li | 169.23 | 27.5.2.3 | section 27.2.2 deals with how to update intra and inter NAV, but it doesn't specify how to set TXOP\_Duration parameter. Either this is a wrong reference or section 27.2.2 should be more specific about how to set TXOP\_duration field when responding a trigger frame. | Either refer to the right reference or specify how to set TXOP\_duration parameter in section 27.2.2. | RevisedAgree with the comment. Fixed the reference to point to 27.11.5 (TXOP\_DURATION). TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 6067 | Jeongki Kim | 169.23 | 27.5.2.3 | TXOP\_DURATION parameter setting rule is defined in 27.11.5 (TXOP\_DURATION). Change the related text. | Change the related text as follows:The TXOP\_DURATION parameter shall be set according the rules defined in 27.2.2 (Updating two NAVs) 27.11.5 (TXOP\_DURATION) | RevisedAgree with the comment. Fixed the reference to point to 27.11.5 (TXOP\_DURATION). TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 9908 | Young Hoon Kwon | 169.23 | 27.5.2.3 | 27.2.2 does not describe rule on how to set TXOP\_DURATION value.Need further clarification | As in the comment. | RevisedAgree with the comment. Fixed the reference to point to 27.11.5 (TXOP\_DURATION). TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 9909 | Young Hoon Kwon | 169.29 | 27.5.2.3 | It is not clear how to set TXVECTOR HE\_SIGA\_RESERVED as UL MU Response Scheduling A-Control subfield does not include this information. Needs clarification | As in the comment. | Revised:Agree in principle. As the HE-SIG-A Reserved subfield are set to all 1s for Trigger frame, a STA can set this value to all 1s even though there’s no explicit indication in UL MU Response Scheduling A-Control subfield.TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 9532 | Yasuhiko Inoue | 169.25 | 27.5.2.3 | "CP\_LTF\_TYPE parameter shall be set to ..."There is no such a parameter in TXVECTOR and RXVECTOR in table 28-1. | Clarify which parameter is referred to. | RevisedAgree with the comment. The incorrect parameter name was fixed in a previous revision of the draft as a resolution to CID 4825. Please see doc 11-17/250r2. Further inconsistencies are fixed in this document. TGax editor, please make changes as suggested in document 11-17/1032r3 |
| 7815 | Mark Hamilton | 169.30 | 27.5.2.3 | Use proper normative verbs | Change "is not required" to "is optional". | RevisedThe sentence was changed in a previous revision of the draft and the issue pointed in the comment is no longer present in D1.3. TGax editor: No further changes are needed. |
| 8558 | Rojan Chitrakar | 172.49 | 27.5.2.6.1 | This note (If the STA does not receive the RAPS element, the STA does not transmit any HE trigger-based PPDU usingrandom access RUs.) implies that an STA performing Active Scan may not use Random Access to transmit Probe Request frames to an AP from which it has not received Beacon/Probe Response frames. Since unassociated STAs were one of the target device categories given as example when the random access scheme was introduced, this limitation appears restrictive. | Define default values for OCWmin and OCWmax that may be used by unassociated STAs to transmit the probe request frames using random access RUs. | RevisedAgree with the comment. D1.3 has defined default RAPS (OCWmin and max values). Deleted the note referred by the comment. Added text to indicate that associated (AID12=0) or unassociated (AID12=2045) STAs could use the default RAPS values.TGax editor, please make changes as suggested in document 11-17/1032r3 |

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* **STA behavior for UL MU operation**

TGax Editor: Please make the following changes to the 3rd paragraph in section 27.5.2.3 (D1.3 P221L54):

A non-AP HE STA may ignore a Trigger frame that is intended to the STA if it contains one or more subfields in the Common Info field or the User Info field for the STA whose values are not recognized or not supported by the STA. A non-AP HE STA may ignore a UMRS Control field in a frame addressed to the STA if it contains one or more subfields whose values are not recognized or not supported by the STA. A non-AP STA shall update the intra-BSS NAV (see 27.2.3 (Updating two NAVs)) based on the duration information of the Trigger frame or frame containing UMRS Control field even if it decides to ignore its content.

TGax Editor: Please make the following changes to the 6th paragraph in section 27.5.2.3 (D1.3 P222L28):

A non-AP HE STA transmitting an HE TB PPDU in response to a Trigger frame shall set the TXVECTOR parameters as follows:

* The FORMAT parameter is set to HE\_TRIG
* The TRIGGER\_METHOD parameter is set to TRIGGER\_FRAME
* The TXOP\_DURATION parameter is set as defined in 27.11.5 (TXOP\_DURATION) (#5715, #6066, # 9905)

TGax Editor: Please make the following changes to the 7th paragraph in section 27.5.2.3 (D1.3 P223L24):

A STA transmitting an HE TB PPDU in response to a frame containing a UMRS Control field (# 6681) shall set the TXVECTOR parameters as follows:

* The FORMAT parameter is set to HE\_TRIG
* The TRIGGER\_METHOD parameter is set to UMRS
* The L\_LENGTH parameter is set based on *NSYM*, which is set to *FVAL* + 1, where *FVAL* is the value of the UL PPDU Length subfield of the UMRS Control subfield
* The RU\_ALLOCATION and MCS parameters are set to the values of the RU Allocation and UL MCS subfields of the UMRS Control subfield, respectively.
* The CH\_BANDWITDTH parameter is set to the value of the RXVECTOR parameter CH\_BANDWIDTH of the soliciting DL MU PPDU
* The BSS\_COLOR and DCM parameters are set to the values of the RXVECTOR parameters BSS\_COLOR and DCM of the soliciting DL MU PPDU, respectively
* The HE\_LTF\_MODE, STBC, and NUM\_STS parameters are set to 0
* The CODING\_TYPE parameter is set to 0 if the RU Allocation subfield indicates less than 484-tone RU; otherwise set to 1
* The LDPC\_EXTRA\_SYMBOL parameter is not present if the RU Allocation subfield indicates less than a 484-tone RU; otherwise set to 1
* The SPATIAL\_REUSE parameter is set to 15 (SRP\_AND\_NONSRG\_OBSS-PD\_PROHIBITED) (#9910)
* The DEFAULT\_PE\_DURATION parameter is set to the default PE duration value for UL MU response scheduling, which is indicated by the AP in the Default PE Duration subfield of the HE Operation element it transmits and the pre-FEC padding factor is set to 4 (see 28.3.12 (Packet extension))
* The TXOP\_DURATION parameter is set as defined in 27.11.5 (TXOP\_DURATION) (#5716, #6067, # 9908)
* The HE\_SIGA\_RESERVED parameter is set to 511 (all 1s) (#9909)
* The HE\_LTF\_TYPE and GI\_TYPE parameters are set to 4x HE-LTF for 3.2 s if the RXVECTOR parameters ­of the DL MU PPDU containing the UMRS Control field HE\_LTF\_TYPE and GI\_TYPE are either 4x HE-LTF for 3.2 s or 2x LTF for 1.6 s; otherwise HE\_LTF\_TYPE and GI\_TYPE are set to 2x HE-LTF for 1.6 s(#9532)

NOTE 1—Both physical CS and virtual CS are ignored when transmitting an HE TB PPDU as CS required is 0 or is assumed to be 0 (see 27.5.2.4 (UL MU CS mechanism))

* **Allowed settings of the Trigger frame fields and UMRS Control field**

TGax Editor: Please make the following changes to the 4th paragraph in section 27.5.2.2.2 (D1.3 P220L22):

An AP shall set all the subfields, except the Trigger Type subfield, of the Common Info field of a Trigger frame to the same value of the corresponding subfield of the Common Info field of any other Trigger frame that is carried in the same PPDU. An AP shall set the UL PPDU Length and DL Tx Power subfields of an UMRS Control field to the same value of the corresponding subfield of any UMRS Control field that is carried in the same PPDU. An AP shall set the following subfields of the Common Info field of a Trigger frame accordingly if an UMRS Control field is carried in an MPDU within the same PPDU:

* MU-MIMO LTF Mode and STBC are set to 0
* Number of HE-LTF Symbols is set to 1
* Spatial Reuse is set to 15 (SRP\_AND\_NONSRG\_OBSS-PD\_PROHIBITED) (#9910)
* GI and LTF Type is set to 2 if the carrying PPDU TXVECTOR parameter HE\_LTF\_TYPE is 4x LTF for 3.2 µs or 2x LTF for 1.6 µs; otherwise is set to 1
* CS Required subfield is set to 0
* **UL OFDMA-based random access (UORA)**
* **General**

TGax Editor: Please make the following changes to the note after the 7th paragraph in section 27.5.4.1 (D1.3 P229L54):

An HE STA shall obtain OCWmin and OCWmax from the most recently received RAPS element (see 9.4.2.239 (OFDMA-based Random Access Parameter Set (RAPS) element)).

 (#8558)TGax Editor: Please make the following changes to the 8th paragraph in section 27.5.4.1 (D1.3 P229L54):

An unassociated HE STA shall initialize the range of OFDMA contention window (OCW) upon reception of the RAPS element from the intended HE AP.

If the HE STA has not received RAPS element from the AP it wishes to communicate with, it shall use the default value OCWmin = 7 and OCWmax = 31 to be used upon reception of a Trigger frame containing RU with an AID12 subfield equal to 0 or 2045.(#8558)

Each time an unassociated HE STA communicates with a different AP using random access it shall initiate its OBO based on the default values or based on the parameters from the received RAPS element for that AP.