IEEE P802.11  
Wireless LANs

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| Comment resolutions for 27.15.3 | | | | |
| Date: 2018-01-05 | | | | |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D2.0 with the following CIDs:

* 12534, 12535, 12536, 12537, 12653, 12657, 13949 (7 CIDs)

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.***

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| **CID** | **Commenter** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 12534 | Liwen Chu | 316.06 | it is not clear about how to figure out as such. | Fix the issue mentioned in comment. | Revised –  Agree in principle with the comment. Not that it is not clear how to figure out as such but perhaps we can make it clearer. Proposed resolution does so.  TGax editor to make the changes shown in 11-18/0013r0 under all headings that include CID 12534. |
| 12535 | Liwen Chu | 316.26 | L16 and L26 paragraphes define similar things. | Fix the issue mentioned in comment. | Rejected –  The two paragraph define substantially different rules. The paragraph starting in L16 defines the channel width rules that the STA follows when transmitting a control frame in response to a soliciting SU, ER SU or MU PPDU, explicitly specifying that the solicit bandwidth cannot be exceeded, and that for the ER SU PPDU it has to be 20 MHz.  The paragraph starting in L26 instead defines the rules that the STA shall follow for selecting the channel width, the MCS, and NSS, explicitly calling out the baseline bandwidth and MCS selection rules when the control responses are carried in the HE SU, HE ER SU, and HE MU PPDU. |
| 12536 | Liwen Chu | 316.35 | "DCM Rx subfield" is not defined. | Fix the issue mentioned in comment. | Revised –  Agree with comment. Names keep changing from one draft to another. Proposed resolution is to keep following the latest change (as of D2.0 now this field is called DCM Max Constellation Rx).  TGax editor to make the changes shown in 11-18/0013r0 under all headings that include CID 12536. |
| 12537 | Liwen Chu | 316.34 | This parageaph is not needed since the general rule about a PPDU format shall not be sent to s receiver if the receiver doesn't support it | Remove the sentence. | Rejected –  The paragraph defines the optionality of transmitting a PPDU with DCM to another STA if the other STA supports reception of any PPDU with DCM. As such the optionality defined is not related to the PPDU but to the fact that the PPDU has Data field encoded with DCM. This paragraph is needed to ensure that optionality is stated and followed by transmitter. |
| 12653 | Mark RISON | 316.44 | "An HE STA that sends a Control frame in an HE ER SU PPDU format shall use: --- DCM encoding if the most recent successfully received PPDU sent by the HE STA to the soliciting STA after association used DCM; otherwise the STA shall not use DCM for the Control frame." is not clear. Which one is the "soliciting STA", the one sending the Control frame or the one receiving it? Assuming it's the latter, why is the STA sending the Control frame required to use the same DCM selection as it previously used, and how does it know whether it was successfully received by the other STA (e.g. if it did not require acknowledgment) | Change the bullet to "DCM encoding if the Control frame is sent in response to a PPDU sent using DCM encoding; otherwise [...]". Ditto next bullet | Revised –  The soliciting STA is the STA that solicits the control frame (provided this clarification in the comment resolution).  The reason for the STA sending the control frame with DCM as it was using in previous exchanges is because even though its peer STA may transmit frames at higher rates (no DCM) the STA may be power imbalanced with respect to its peer (the reason why it is using DCM in the first place). As such the STA will use DCM not only for unsolicited frames but also for control frames (though this latter one is needed to be known by the soliciting STA in order to correctly calculate the Duration/ID for protecting the expected response that now is using DCM rates). The STA knows that the frame is successfully received if it requires the acknowledgment as mentioned in the comment itself.  TGax editor to make the changes shown in 11-18/0013r0 under all headings that include CID 12653. |
| 12657 | Mark RISON | 316.35 | "DCM Rx subfield" -- there is no such subfield | Change the cited text to "DCM Max Constellation Rx subfield" | Accepted |
| 13949 | Yongho Seok | 316.35 | "An HE STA may transmit an HE PPDU with DCM to a peer STA if it has received from the peer STA an HE Capabilities element with the DCM Rx subfield in the HE PHY Capabilities Information field greater than 0; otherwise the STA shall not transmit an HE PPDU with DCM to the peer STA." The DCM Rx field does not exist in an HE Capabilities element. | Change the ECM Rx field with an appropriate field name. | Revised –  Agree with comment. See resolutions for CID 12536 and CID 12657  TGax editor to make the changes shown in 11-18/0013r0 under all headings that include CID 13949. |

**Discussion: *None.***

* MCS, NSS, BW and DCM selection

An HE STA shall follow the rules defined in 10.7 (Multirate support) and 27.15.4 (Rate selection constraints for HE STAs) for selecting the rate, MCS, NSS, and the rules defined in 10.3.2.6 (VHT RTS procedure), 10.3.2.7 (CTS and DMG CTS procedure), 10.7.6.6 (Channel Width selection for Control frames) and 10.7.11 (Channel Width in non-HT and non-HT duplicate PPDUs) for selecting the channel width (BW) of transmitted PPDUs with the following exceptions:

* MCS, NSS, and BW selection for an HE TB PPDU are defined in 27.5.3.3 (STA behavior for UL MU operation).
* Rate and BW selection for a CTS sent in response to MU RTS are defined in 27.2.5 (MU-RTS/CTS procedure)
* MCS, and NSS for a Control frame sent in response to an HE ER SU PPDU(#5222) shall be <MCS0, 1> when the Control frame is carried in an HE ER SU PPDU and the data rate is 6 Mb/s when the Control frame is carried in a non-HT PPDU (see 10.7.6.5 (Rate selection for control response frames)).(#9965, #7584)
* NSS and BW selection is further constrained as defined in 27.8 (Operating mode indication), 11.42 (Notification of operating mode changes) and 27.15.2 (PPDU format selection).(#9751)

**TGax Editor: *Change the paragraphs below of this subclause as follows (#CID 12534):***

An HE STA that transmits an HE PPDU shall use an <HE-MCS, NSS> tuple supported by the receiver STA. The receiving STA indicates that the(#5517) <HE-MCS, NSS> tuple is supported in the Supported HE-MCS and NSS Set field in the HE Capabilities element it transmits. *(#12534)* When the Supported HE-MCS and NSS set of the receiving STA or STAs is not known, the transmitting STA shall transmit using a <HE-MCS, NSS> tuple in the basic HE-MCS and NSS set if the basic HE-MCS and NSS set(#7718) is not empty, otherwise the transmitting STA shall transmit using a <HE-MCS, NSS> tuple(#7718) in the mandatory HE-MCS and NSS Set.(#7585) An HE STA is subject to all of the rules for HT STAs and VHT STAs that apply to its operating band (see 10.26 (Protection mechanisms)).(#5523, #7586)

An HE STA that sends a Control frame in response to a frame carried in an HE SU PPDU or an HE ER SU PPDU or an HE MU PPDU that carries an MPDU with the Ack Policy equal to Normal Ack or Implicit Block Ack Request shall set the TXVECTOR parameter CH\_BANDWIDTH to indicate a channel width that is the same as the channel width indicated by the RXVECTOR parameter CH\_BANDWIDTH of the frame eliciting the response. When the most recent successfully received PPDU sent by the responding STA to the soliciting STA after association was an HE ER SU PPDU, the soliciting STA that sends an HE SU PPDU shall set the TXVECTOR parameter CH\_BANDWIDTH to CBW20.(#9751)

If a control response frame is to be transmitted within an HE SU PPDU, HE MU PPDU, the channel width (CH\_BANDWIDTH parameter of the TXVECTOR) shall be selected first according to 10.7.6.6 (Channel Width selection for Control frames), and then the <HE-MCS, NSS> tuple shall be selected from a set of <HE-MCS, NSS> tuples called the *CandidateMCSSet*. The *CandidateMCSSet* is defined in 10.7.6.5.3 (Control response frame MCS computation) except that the set additionally contains the <HE-MCS, NSS> tuples for an HE STA.(#5524)

**TGax Editor: *Change the paragraphs below of this subclause as follows (#CID 12536, 12657, 13949):***

An HE STA may transmit an HE PPDU with DCM to a peer STA if it has received from the peer STA an HE Capabilities element with the DCM Max Constellation Rx *(#12536, 12657, 13949)* subfield in the HE PHY Capabilities Information field(#Ed) greater than 0(#5512); otherwise the STA shall not transmit an HE PPDU with DCM to the peer STA. An HE STA transmits an HE TB PPDU with DCM as defined in 27.5.3.3 (STA behavior for UL MU operation). When sending a Trigger Frame, the HE AP shall not set the DCM subfield of User Info field in the Trigger Frame to 1 if the destination HE non-AP STA sets the DCM Max Constellation Tx field to 0 in the HE PHY Capabilities Information field.(#6309)

**TGax Editor: *Change the paragraphs below of this subclause as follows (#CID 12653):***

An HE STA that sends a Control frame in an HE ER SU PPDU format shall use:

* DCM encoding if the most recent successfully received PPDU sent by the HE STA, after association, to the STA soliciting the control frame used DCM; otherwise the STA shall not use DCM for the Control frame.
* 106-tone HE ER SU PPDU if the most recent successfully received PPDU sent by the HE STA, after association, to the STA soliciting the control frame was a 106-tone HE ER SU PPDU; otherwise the STA shall not use a 106-tone HE ER SU PPDU for the Control frame.(#9966)*(#12653)*

NOTE—TX parameter switching occurs in subsequent TXOPs. A STA that solicits a Control frame from a peer STA accounts for the TX parameter of the Control frame to calculate the expected duration of the TXOP. The responding STA determines that the most recent PPDU sent to the soliciting STA is successfully received if it receives an immediate acknowledgment by the soliciting STA in response to the PPDU.(#9963)