IEEE P802.11
Wireless LANs

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| LB238 CR MAC Miscellaneous Part 2 |
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Abstract

This submission proposes resolutions of comments received from TGax LB238.

(The proposed change is based on TGax Draft 4.3.)

* CIDs: 21049, 21329, 21328, 20657, 20690 (5 CIDs)

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.***

| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- |
| 21049 | 202.34 | 9.4.2.256 | There is a note that says that the reference power can change after association, yet the only frames in which this element is allowed to be inserted are the (Re)Association frames. This element needs to be allowed within some other frame in order for the STA to be able to change the values of the powers after association, otherwise the note is incorrect. | Add the element to some action frame, maybe a new HE Action? | Revised- Usually, the max transmit power is not changed. If it is changed, it not happened very frequently.TGax editor removes the following NOTE in 9.4.2.257 (UL MU Power Capabilities element), “NOTE—The relative max transmit power might change after an association.”  |
| 21329 | 203.34 | 9.4.2.256 | The note is meaningless. The max transmit power is the max the implementation is capable of. How can this change after association? | Delete note | Accepted  |
| 21328 | 203.03 | 9.4.2.256 | Normative behavior for the UL MU Power Capabilities element has not been defined. In is not clear when this element is transmitted. | Either remove the definition of the element or define how and when this element is transmitted. | Revised- Agree in principle. The normative behaviour for the UL MU Power Capabilities element has been proposed. TGax editor makes changes as specified in 11-19/1658r1 for CID 21328. |
| ***TGax Editor: Insert the following subclause after 26.5.9 (Use of TSPEC by HE STAs) (#21328):*** 26.5.9 UL MU transmit power capabilitiesAn HE non-AP STA may inform an HE AP of the relative maximum transmit power at which the HE non-AP STA is capable of transmitting an HE TB PPDU for each MCS in the current operating channel width when using RU size greater than or equal to 242 subcarriers, by including an UL MU Power Capabilities element in (Re)Association Request frame.An HE AP might use this information as an input into the algorithm used to schedule the HE non-AP STA for UL MU transmission. The specification of the algorithm is beyond the scope of this standard. |
| 20657 | 237.49 | 10.3.5 | "If dot11RTSThreshold is 0, all MPDUs shall be delivered with the use of RTS/CTS." is not true if dot11TXOPDurationRTSThreshold is present and < 1023 | Delete the cited text at the referenced location | Revised-Agree with the comment. The cited text that is a baseline text should be updated.When the TXOP duration-based RTS/CTS is enabled, dot11RTSThreshold is not utilized for the RTS/CTS frame exchange. Suggestion is to modify the cited text for an alignment with 26.2.1 (TXOP duration-based RTS/CTS). TGax editor makes changes as specified in 11-19/1658r1 for CID 20657. |
| ***TGax Editor: Change the subclause 10.3.5 as the following which is aligned with TGmd Draft 2.4 (# 20657):*** **10.3.5 Individually addressed MPDU transfer procedure**If dot11TXOPDurationRTSThreshold is not present or is 1023, a~~A~~ STA shall use an RTS/CTS preceding a frame exchange including an individually addressed Data or Management frame when the length of the PSDU is greater than the length threshold indicated by dot11RTSThreshold. If dot11TXOPDurationRTS­Threshold is present and is not 1023, a non-AP HE STA using EDCA shall use an RTS/CTS exchange as defined in 26.2.1 (TXOP duration-based RTS/CTS). A STA may also use an RTS/CTS exchange to protect the transmission of ~~for~~ individually addressed frames when it is necessary to distribute the NAV, or when it is necessary to establish protection (see 10.28 (Protection mechanisms)), or for other purposes.NOTE—If dot11RTSThreshold is 0, an RTS/CTS exchange precedes all frame exchanges including an individually addressed Data or Management frame, except at a non-AP STA when dot11TXOPDurationRTSThreshold is present and is not 1023, in which case use of an RTS/CTS exchange is controlled by dot11TXOPDurationRTSThreshold (see 26.2.1 (TXOP duration-based RTS/CTS)). |
| 20690 | 422.17 | 26.15.4.1 | The "at that bandwidth" deletions made in 18/2085 in "Otherwise,If the Operating Mode field is received from the first HE STA, the <HE-MCS, NSS> tuple is supported by the first STA on receive as defined 9.4.2.241.4 (Supported HE-MCS And NSS Set field) and by Equation (9-ax2).If the OM Control subfield is received from the first HE STA, the <HE-MCS, NSS> tuple is supported by the first STA on receive as defined 9.4.2.241.4 (Supported HE-MCS And NSS Set field) and by Equation (9-ax2)."(note other instances left behind) and"Otherwise, if the Max HE-MCS For n SS subfield (n = NSS) in each Tx HE-MCS Map For b subfield for b \member {<= 80 MHz, 160 MHz, 80+80 MHz} indicates support, then the <HE-MCS, NSS> tuple is supported by the first STA on transmit as defined in 9.4.2.241.4 (Supported HE-MCS And NSS Set field)." are wrong because the set is defined above as being for each "bandwidth (<= 80 MHz, and 160 MHz or 80+80 MHz)" | Revert the "at that bandwidth" deletions made per 18/2085 | Revised-Agree in principle. Revert the "at that bandwidth" deletions made per 18/2085.TGax editor makes changes as specified in 11-19/1658r1 for CID 20690.  |
| ***TGax Editor: Change the subclause 26.15.4 as the following (# 20690):*** * Rate selection constraints for HE STAs
* Receive HE-MCS and NSS Set

The receive HE-MCS and NSS set is the set of <HE-MCS, NSS> tuples for PPDU bandwidths less than or equal to 80 MHz, 160 MHz PPDUs or 80+80 MHz PPDUs that a STA is capable of receiving. The receive HE-MCS and NSS set for a first STA is determined(#20526) by a second HE STA for each <HE-MCS, NSS> tuple NSS = 1, …, 8 and PPDU bandwidth (≤ 80 MHz, and 160 MHz or 80+80 MHz) from the Supported HE-MCS And NSS Set field of the HE Capabilities element received from the first STA as follows:* If support for the HE-MCS for NSS spatial streams at ~~that~~ PPDU bandwidth is mandatory (see 27.1.1 (Introduction to the HE PHY)), then the <HE-MCS, NSS> tuple at that bandwidth is supported by the first STA on receive.
* Otherwise, if the Max HE-MCS For *n* SS subfield (*n* = NSS) in each Rx HE-MCS Map *b* subfield(#20563) for *b*  {≤ 80 MHz, 160 MHz, 80+80 MHz} indicates support and neither the Operating Mode field nor the OM Control subfield is received from the first HE STA, then the <HE-MCS, NSS> tuple ~~at that bandwidth~~ at PPDU bandwidth b for a given operating channel width is supported by the first STA on receive as defined in 9.4.2.242.4 (Supported HE-MCS And NSS Set field).
* Otherwise,
* If the Operating Mode field is received from the first HE STA, the <HE-MCS, NSS> tuple at PPDU bandwidth for a given operating channel width is supported by the first STA on receive as defined 9.4.2.242.4 (Supported HE-MCS And NSS Set field) and by Equation (9-ax2).
* If the OM Control subfield is received from the first HE STA, the <HE-MCS, NSS> tuple at PPDU bandwidth for a given operating channel width is supported by the first STA on receive as defined 9.4.2.242.4 (Supported HE-MCS And NSS Set field) and by Equation (9-ax2).
* Otherwise, the <HE-MCS, NSS> tuple at ~~that~~ PPDU bandwidth is not supported by the first STA on receive.

The <HE-MCS, NSS> tuples excluded by 26.15.4.3 (Additional rate selection constraints for HE PPDUs) can also be eliminated from the receive HE-MCS and NSS set(#20526).An HE STA shall not, unless explicitly stated otherwise, transmit an HE PPDU unless the <HE-MCS, NSS> tuple and PPDU bandwidth used are in the receive HE-MCS and NSS set(#20526) of the receiving STA(s).* Transmit(#20526) HE-MCS and NSS Set

The transmit HE-MCS and NSS set is the set of <HE-MCS, NSS> tuples for PPDU bandwidth less than or equal to 80 MHz, 106 MHz PPDUs or 80+80 MHz PPDUs that a STA is capable of transmitting. The transmit HE-MCS and NSS set of a first STA is determined(#20526) by a second STA for each <HE-MCS, NSS> tuple NSS = 1, …, 8 and PPDU bandwidth (≤ 80 MHz, and 160 MHz or 80+80 MHz) from the Supported HE-MCS And NSS Set field received from the first STA as follows:* If support for the <HE-MCS, NSS> tuple at that bandwidth is mandatory (see 27.1.1 (Introduction to the HE PHY)), then the <HE-MCS, NSS> tuple at ~~that~~ PPDU bandwidth is supported by the first STA on transmit.
* Otherwise, if the Max HE-MCS For *n* SS subfield (*n* = NSS) in each Tx HE-MCS Map *b* subfield(#20563) for *b*  {≤ 80 MHz, 160 MHz, 80+80 MHz} indicates support, then the <HE-MCS, NSS> tuple at PPDU bandwidth b for a given operating channel width is supported by the first STA on transmit as defined in 9.4.2.242.4 (Supported HE-MCS And NSS Set field).
* Otherwise, the <HE-MCS, NSS> tuple at ~~that~~ PPDU bandwidth is not supported by the first STA on transmit.

A non-AP STA may exclude certain numbers of space-time streams, *NSTS*, as defined in 26.9.3 (Transmit operating mode (TOM) indication) from its transmit HE-MCS and NSS set.(#20526) |