IEEE P802.11  
Wireless LANs

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | All STA CR MCS Negotiation | | | | | | Date: 2019-08-28 | | | | | | Author(s): | | | | | | Name | Affiliation | Address | Phone | email | | Matthew Fischer | Broadcom |  |  | [Matthew.fischer@broadcom.com](mailto:Matthew.fischer@broadcom.com) | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |

Abstract

Proposed language to expand use of Control Response MCS Negotiation from S1G to all STA types.

The proposed changes are not based on any CID from any LB of any TGmd draft.

Changes are referenced to TGmd D2.4.

**REVISION NOTES:**

**R0**:

initial

**END OF REVISION NOTES**

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 TGmd Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGmd Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGmd Editor: Editing instructions preceded by “TGmd Editor” are instructions to the TGmd editor to modify existing material in the TGmd draft. As a result of adopting the changes, the TGmd editor will execute the instructions rather than copy them to the TGmd Draft.***

**CIDs**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| none |  |  |  |  |  |  |

**Discussion:**

**Proposed Changes to TGmd D2.4:**

**9.4.2.26 Extended Capabilities element**

***TGax editor: within TGmd D2.4, add another row to Table 9-153 – Extended Capabilities field as shown:***

**Table 9-153—Extended Capabilities field**

|  |  |  |
| --- | --- | --- |
| **Bit** | **Information** | **Notes** |
| <ANA> | MCS Negotiation Support | A STA sets the MCS Negotiation Support field to 1 when dot11MCSNegotiationActivated is true and dot11S1GOptionImplmeneted is false and sets it to 0 otherwise. |

**6.3.114.2.2 Semantics of the service primitive**

***TGmd editor: within TGmd D2.4, in 6.3.114.2.2 Semantics of the service primitive, within the unnamed table within the subclause, change the text in the Description column of the row that contains “MCSDifference” in the Name column, as shown:***

The nominal minimum difference between the MCS Reference Index value of the primary MCS and the MCS Reference Index value of the MCS that is preferred for use by the STA to transmit control response frame as described in 10.6.6.5.6 (Control response MCS negotiation(11ah)) and 10.6.6.5.3 (Control response frame MCS computation).

**6.3.114.4.2 Semantics of the service primitive**

***TGmd editor: within TGmd D2.4, in 6.3.114.4.2 Semantics of the service primitive, within the unnamed table within the subclause, change the text in the Description column of the row that contains “MCSDifference” in the Name column, as shown:***

The nominal minimum difference between the MCS Reference Index value of the primary MCS and the MCS Reference Index value of the MCS that is preferred for use by the STA to transmit control response frame as described in 10.6.6.5.6 (Control response MCS negotiation(11ah)) and 10.6.6.5.3 (Control response frame MCS computation).

***TGmd editor: within TGmd D2.4, in 9.6.27.2 Control Response MCS Negotiation Request frame format, change the text as shown:***

**9.6.27.2 Control Response MCS Negotiation Request frame format**

The MCS Difference field is 1 octet and is set to an unsigned value that represents the nominal minimum difference between the MCS Reference Index value of the primary MCS and the MCS Reference Index value of the MCS that is preferred for use by the STA to transmit control response frame as described in 10.6.6.5.6 (Control response MCS negotiation(11ah)) and 10.6.6.5.3 (Control response frame MCS computation). The value is a nominal minimum difference because for some values of primary MCS, there is no MCS with a lower MCS Reference Index value that satisfies the minimum difference condition.

***TGmd editor: within TGmd D2.4, in 10.6.6.5.3 Control response frame MCS computation, change the text as shown:***

**10.6.6.5.3 Control response frame MCS computation**

Once the primary MCS, <VHT-MCS, NSS>, or <S1G-MCS, NSS> tuple has been selected, the STA may select an alternate MCS according to 10.6.6.5.4 (Selection of an alternate rate or MCS for a control response frame). If the STA has not executed a control response MCS negotiation as described in 10.6.6.5.6 (Control response MCS negotiation(11ah)) or has received a Reject indication in the Control Response MCS Negotiation Response frame, then it shall transmit the control response frame using either the primary MCS or the alternate MCS, if one exists. If the STA has received an Accept indication in the Control Response MCS Negotiation Response frame from a responding STA, then it shall transmit the control response frame to the responding STA using the negotiated MCS or alternative MCS provided that the duration of the frame at the alternate MCS is the same as the duration of the frame at the negotiated MCS, if one exists. Negotiated MCS is computed as the highest MCS in the CandidateMCSSet that is less than or equal to the MCS that has an MCS Reference Index value that is MCSDifference lower than the MCS Reference Index value of the primary MCS if one exists, or the MCS in the CandidateMCSSet that has an MCS Reference Index value that is MCSDifference lower than the MCS Reference Index value of MCS 10(M101) otherwise. If no MCS in the CandidateMCSSet has an MCS Reference Index value that is MCS Difference lower than the MCS Reference Index value of the primary MCS, then the negotiated MCS is equal to the MCS in the CandidateMCSSet that has the lowest MCS Reference Index value. MCS Reference Index values are defined in Table XX-YY MCS Reference Indices.

NOTE - The values of MCS Reference Indices are independent of the values of the CH\_BANDWIDTH and FORMAT parameters of the TXVECTOR or RXVECTOR of the PPDU that is transmitted or received with the indicated modulation and coding rate values.

Table XX-YY MCS Reference Indices

|  |  |  |
| --- | --- | --- |
| **Modulation** | **Coding rate** | **MCS Reference Index** |
| BPSK | ½ | 0 |
| BPSK | ¾ | 1 |
| QPSK | ½ | 2 |
| QPSK | ¾ | 3 |
| 16-QAM | ½ | 4 |
| 16-QAM | ¾ | 5 |
| 64-QAM | ½ | 6 |
| 64-QAM | 2/3 | 7 |
| 64-QAM | ¾ | 8 |
| 64-QAM | 5/6 | 9 |
| 256-QAM | ¾ | 10 |
| 256-QAM | 5/6 | 11 |
|  |  |  |
|  |  |  |

***TGmd editor: within TGmd D2.4, in 10.6.6.5.5 MCS for asymmetric Block Ack operation, change the text as shown:***

**10.6.6.5.5 MCS for asymmetric Block Ack operation(11ah)**

The primary MCS for asymmetric Block Ack operation is defined as the MCS that has an MCS Reference Index value that is MCSDifference (see 10.26.2 (Setup and modification of the block ack parameters)) lower than the MCS Reference Index value of the eliciting (Ed)A-MPDU. An alternate MCS may be selected provided that the duration of the frame at the alternate MCS is the same as the duration of the frame at the primary MCS.

***TGmd editor: within TGmd D2.4, in 10.6.6.5.6 Control response MCS negotiation, change the text as shown:***

**10.6.6.5.6 Control response MCS negotiation(11ah)**

Control response MCS negotiation allows two STAs with power imbalance to send control response frames with a different MCSs from the primary MCS as defined by the rules in 10.6.6.5.3 (Control response frame MCS computation). A STA may initiate Control Response MCS Negotiation by sending a Control Response MCS Request frame to another STA that supports control response MCS negotiation. After reception of a Control Response MCS Response frame that includes a command value of Accept, the STA that received the Control Response MCS Response frame sends control response frames with a Negotiated MCS as defined in 10.6.6.5.3 (Control response frame MCS computation) to the STA from which it received the Control Response MCS Response frame.

An S1G STA with dot11MCSNegotiation equal to true shall set the MCS Negotiation Support field of the S1G Capabilities element to 1. An S1G STA with dot11MCSNegotiation equal to false shall set the MCS Negotiation Support field of the S1G Capabilities element to 0.

A STA with dot11MCSNegotiation equal to true and dot11S1GOptionImplemented equal to false shall set the MCS Negotiation Support field of the Extended Capabilities element to 1. A STA with either dot11MCSNegotiation equal to false or dot11S1GOptionImplemented set to false shall set the MCS Negotiation Support field of the Extended Capabilities element to 0.

A STA shall not transmit a Control Response MCS Negotiation Request frame to another STA unless the MCS Negotiation Support subfield of either the S1G Capabilities element or Extended Capabilities element received from that STA contained a value of 1 and dot11MCSNegotiation is true. A STA with dot11MCSNegotiation equal to true may transmit a Control Response MCS Negotiation Request frame to another STA from which it has received an element with an MCS Negotiation Support subfield equal to 1. The determination of the value placed in the MCS Difference field of the frame is beyond the scope of the standard.

A STA shall transmit a Control Response MCS Negotiation Response frame to a STA from which it has received a Control Response MCS Negotiation Request frame. The STA shall include a value that indicates either Accept or Reject in the Command field of the Response frame as defined in Table 9-516 (Command Values(11ah)).

**End of proposed changes.**