IEEE P802.11  
Wireless LANs

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | CR HE MCS NSS Not Supported | | | | | | Date: 2017-06-21 | | | | | | Author(s): | | | | | | Name | Affiliation | Address | Phone | email | | Matthew Fischer | Broadcom |  |  | [Matthew.fischer@broadcom.com](mailto:Matthew.fischer@broadcom.com) | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |

Abstract

Comment resolution with proposed changes to TGax D1.3 for CIDs from the WG LB for TGax related to HE MCS NSS not supported for HE STA

The CID list is:

9674

The proposed changes on this document are based on TGax Draft 1.3.

**REVISION NOTES:**

**R0**:

initial

**R1**:

Collapse 8/9, 10/11, since it is likely that if the constellation for each of these combinations is supported, then the multiple codings would also be supported, this reduces the total number of bits per NSS from 3 to 2, reducing the overall field length from 3 octets to 2 octets

**R2**:

Add specific mention of that no support refers only to HE PPDUs, not previous formats

**R3**:

Remove the Max HE MCS for n SS field redefinition, because it is now moved to the HE CAP IE subclause because of the reversion of the capabilities description to a more VHT-like format which uses the Max HE MCS for n SS field.

Modify the resolution to include mention of 11-17-0152 as part of the resolution for CID 9674

Modify the discussion section to account for the changes mentioned here

**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 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.***

**CIDs**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 9674 | Yongho Seok | 93.10 | 9.4.2.219 | The addition of the VHT Operation Information field to the HE Operation element does not remove dependency from the VHT Operation element. If it is needed, the Basic VHT-MCS And NSS Set field also be added to the HE Operation element. Second comment is that it shall be placed as an optional field. When an HE AP supports both VHT STAs and HE STAs, it have to include an VHT Operation element. In such case, the addition of the VHT Operation Information field to the HE Operation element is just overhead. Third comment is that on 2.4GHz 80MHz operation is not allowed. Then, why do you think that the VHT Operation Information should be added to the HE Operation element? Are you considering the HE BSS consisting of only HE STAs? Please clarify above comments. | As per commnet. | REVISED (EDITOR: 2017-01-20 17:47:00Z) - Agree with the comment.  Please see resolution for CID 3035  Please see document 11-17/0135r6 and see document 11-17/0926r2d and 11-17/1052r3, TGax editor to perform edits indicated under all headings that include CID 9674 |

**Discussion:**

The field in question is Max HE MCS For n SS. There is a nearly identical version for VHT. The difference is the number of supported MCS values per SS value – there are more MCS values for HE than VHT. However, there is an encoding for “no support” for the VHT version, but currently, no such encoding exists for the HE field. For the HE version, the text of this document proposes to replace one reserved value of three existing reserved values with an encoding that will indicate lack of support for a given NSS.

Note that in a departure from the VHT mechanism, the Max HE MCS For n SS subfields were originally only used for the **Basic** HE MCS and NSS support indication, and **not** for the **per STA *capability*** indication. For the HE STA capability, the HE draft originally defined a different format which is more compact as this information will appear in beacons, where accounting for individual bits is much more important. However, a few CIDs raised objection to the encoding and those CIDs are being resolved by 11-17-1052 to revert to an encoding for the per STA capability that looks more like the VHT example, and as part of that change, the definition of the MAX HE MCS for n SS field is moved back up to the HE Cap IE subclause, hence that change is now removed from this document and put into the 1052.

Without the changes proposed by this document, there is no way for an HE AP to indicate that support for a given NSS value is NOT REQUIRED for a STA that wishes to associate with the BSS. I.e. currently, the minimum REQUIRED HE STA capability that the AP can signal includes MCS0-7 for NSS=0 through 8! With the proposed change, an AP will be able to indicate for example, that support for NSS > 2 is NOT required.

The proposed resolution is a reresolve of the existing resolution for CID 9674 which was chosen because it is the only comment that comes close to this paragraph of this subclause. The new resolution is simply additive to the existing resolution, the highlighted text portion of the resolution indicating the addition.

An additional modification reduces the number of bits per subfield from 3 to 2 by eliminating the separate signalling for support of up to MCS 9 vs 8 and 11 vs 10, as the distinction between 8 and 9 is coding and the distinction between 10 and 11 is also encoding, whereas the difference between 7 and 8/9 is constellation support (64 QAM vs 256 QAM) and similarly, the difference between 8/9 and 10/11 is constellation support (256 QAM vs 1024 QAM).

**Proposed Changes to Draft Text of TGax D1.3:**

**CID 9674**

TGax editor: within subclause 9.4.2.238 HE Operation element, change Figure 9-589cq – HE Operation element format by reducing the number of octets for the Basic HE-MCS And NSSS Set field from 3 to 2.

TGax editor: within subclause 9.4.2.238 HE Operation element, change Figure 9-589cs – Basic HE-MCS And NSS Set field format by reducing the number of bits per subfield from 3 to 2 and adjusting the Bit numbering above the Figure to reflect the new subfield size, resuling in a 2 octet field from the previous 3 octet length.

The other changes that are needed with respect to the encoding of the HE MCS For n SS subfield now appear in 11-17-1052 which has moved the subfield definition to a different subclause and made the same changes as recommended by this document.

**End of proposed changes.**