IEEE P802.11  
Wireless LANs

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| 11be D2.0 CR for OM Part II | | | | |
| Date: 2022-08-01 | | | | |
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| Po-Kai Huang | Intel |  |  |  |

Abstract

This submission proposes resolutions for the following CIDs:

12118, 12119, 10789, 10817, 10818, 12046, 13539, 13561, 13722, 13465, 13466, 11829

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revision based on the comments from Alfred
* Rev 2: Update resolution to add high level SP results.
* Rev 3: Tag CIDs green per chair guidance based on the SP results.

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 TGbe D2.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe D2.0 Draft. (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

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

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| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 12118 | JINYOUNG CHUN | 9.2.4.7.8 | 125.27 | There's no Rx NSS larger than 8. So 'Indication of the Nss' of '9-16' should be changed to reserved. | In Table 9-33a, modify 'Indication of the Nss' from '8-16' to 'reserved' when 'Rx NSS Extension subfield in EHT OM Control subfield' is '1' and 'Rx NSS subfield in OM Control subfield' is '0-7' | Revised –  Agree in principle with the commenter.  The group also discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118 |
| 12119 | JINYOUNG CHUN | 9.2.4.7.8 | 126.60 | There's no Tx NSS larger than 8. So 'Indication of the Nss' of '9-16' should be changed to reserved. | In Table 9-33c, change 'Indication of the Nss' from '8-16' to 'reserved' when 'Rx NSS Extension subfield in EHT OM Control subfield' is '1' and 'Rx NSS subfield in OM Control subfield' is '0-7' | Revised –  Agree in principle with the commenter.  The group also discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12119 |
| 10789 | Dong Guk Lim | 9.2.4.7.8 | 124.40 | 11be does not support the NSS larger than 8 SS. So, the RX/TX Nss extension field in EHT OM control subfield does not need. Delete those fields in the EHT OM Control subfield and the text related to those fields. | In subclause 9.2.4.7.8, delete the RX/TX Nss extension field and sentence related to those fields. | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We set the value that indicates larger than 8 to be reserved and preserves the enconding to be smaller than 8. Note 4 bits are reserved for Nss indication in 9.4.2.313.4 (Supported EHT-MCS And NSS Set field).  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118, 12119 |
| 10817 | Dong Guk Lim | 35.10 | 513.25 | Since EHT supports up to NSS =8 similar to HE, we don't need to indicate Nss or Nsts separately by using the EHT OM control subfields. | Delete the " the Nss, the Nsts and/or " in P513L25 | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We set the value that indicates larger than 8 to be reserved and preserves the enconding to be smaller than 8. Note 4 bits are reserved for Nss indication in 9.4.2.313.4 (Supported EHT-MCS And NSS Set field).  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118, 12119 |
| 10818 | Dong Guk Lim | 35.10 | 513.45 | Since EHT supports up to NSS =8 equal to HE, we don't need to define the Rx NSS Extension subfield in the EHT OM control subfields. | Delete the following text " or indicated by the Rx NSS Extension subfield in the EHT OM Control subfield combined with the Rx NSS subfield in the OM Control subfield (see 9.2.4.7.8 (EHT OM Control))." | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We set the value that indicates larger than 8 to be reserved and preserves the enconding to be smaller than 8. Note 4 bits are reserved for Nss indication in 9.4.2.313.4 (Supported EHT-MCS And NSS Set field).  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118, 12119 |
| 12046 | Massinissa Lalam | 9.2.4.7.8 | 124.40 | "Tx NSTS larger than 8, and Rx NSS larger than 8" ... more than 8 spatial streams is not defined in the current version of the draft. As long as it is not correctly defined, I don't see the need to mention it. Remove associate part as the feature is not completely covered in 2.0. | As in comment | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We set the value that indicates larger than 8 to be reserved and preserves the enconding to be smaller than 8. Note 4 bits are reserved for Nss indication in 9.4.2.313.4 (Supported EHT-MCS And NSS Set field).  We also revise the description to just say TxNSTS extension and Rx NSS extension.  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118, 12119 |
| 13539 | Jian Yu | 9.2.4.7.8 | 124.39 | The group needs an agreement if Tx NSTSãRx NSS larger than 8 will be supported in 11be R2 or not. If not, Tx NSTS extension part needs to be removed. | If NSTS larger than 8 is not supported, then remove the Tx NSTS extension part. | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We set the value that indicates larger than 8 to be reserved and preserves the enconding to be smaller than 8. Note 4 bits are reserved for Nss indication in 9.4.2.313.4 (Supported EHT-MCS And NSS Set field).  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118, 12119 |
| 13561 | Jian Yu | 35.10 | 513.59 | The group needs an agreement if Tx NSTSãRx NSS larger than 8 will be supported in 11be R2 or not. Accordingly, specify if Tx NSTS, Rx NSS OMI needs EHT OM Control subfield | As in comment | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We set the value that indicates larger than 8 to be reserved and preserves the enconding to be smaller than 8. Note 4 bits are reserved for Nss indication in 9.4.2.313.4 (Supported EHT-MCS And NSS Set field).  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118, 12119 |
| 13722 | Yunbo Li | 9.2.4.7.8 | 125.27 | NSS from 9-16 are mentioned here, the PHY design of 16ss is required accordingly. | as in comment. | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We set the value that indicates larger than 8 to be reserved and preserves the enconding to be smaller than 8. Note 4 bits are reserved for Nss indication in 9.4.2.313.4 (Supported EHT-MCS And NSS Set field).  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118, 12119 |
| 13465 | Liwen Chu | 9.4.2.248.4 | 208.42 | EHT OM Control subfield should not be applied here since OM Control indicate Nss no more than 8 ss and 11ax don't llow >8 SS. | As in comment | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We set the value that indicates larger than 8 to be reserved and preserves the enconding to be smaller than 8. Note 4 bits are reserved for Nss indication in 9.4.2.313.4 (Supported EHT-MCS And NSS Set field).  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118, 12119 |
| 13466 | Liwen Chu | 9.4.2.248.4 | 208.56 | EHT OM Control subfield should not be applied here since OM Control indicate Nss no more than 8 ss and 11ax don't llow >8 SS. | As in comment | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We set the value that indicates larger than 8 to be reserved and preserves the enconding to be smaller than 8. Note 4 bits are reserved for Nss indication in 9.4.2.313.4 (Supported EHT-MCS And NSS Set field).  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include CID 12118, 12119 |
| 11829 | Alfred Asterjadhi | 9.2.4.7.8 | 125.43 | I don't think this statement needs to be here. Move "An EHT STA with dot11EHTBaseLineFeaturesImplementedOnly equal to true does not set Rx NSS Extension subfield in EHT OM Control subfield to 1." to the normative behavior and define the case of the MIB variable set to false. Same for statement in P127L17. | As in comment. | Revised –  The group discussed and ran SPs in both PHY ad-hoc and Joint conference call regarding whether TGbe needs to support 16 SS or not and decided not to. The SP is shown here: " Do you agree that 802.11be shall not define operation with more than 8 spatial streams and that the format of all subfields related to spatial streams shall remain unchanged (i.e. no changing the number of bits)?" and the result in PHY ad-hoc was 22Y, 4N, 5A while the result in Joint was 51Y, 12N, 26A".  We delete the sentence since we have made the setting reserved.  We also do one editorial change.  TGbe editor to make the changes shown in 11-22/1231r3 under all headings that include 11829 |

**Discussion: None**

***TGbe editor: Change 9.2.4.7.8 EHT OM Control as follows (track change on):***

***Insert the following new subclauses after 9.2.4.7.7 (CAS Control)(#10205)***

* + - * 1. **EHT OM Control**

The Control Information subfield in an EHT OM Control subfield contains information related to the OM changes for bandwidth of 320 M, Tx NSTS extension(#12119), and Rx NSS extension(#12119) for the STA transmitting the frame containing this information (see 35.10 (Operating mode indication)). The format of the subfield is shown in [Figure 9-33a (Control Information subfield format in an EHT OM Control subfield)](#bookmark8).

B0 B1 B2 B3 B5

|  |  |  |  |
| --- | --- | --- | --- |
| Rx NSS  Extension | Channel Width Extension | Tx NSTS  Extension | Reserved |

Bits: 1 1 1 3

**Figure 9-33a—Control Information subfield format in an EHT OM Control subfield**

If the operating channel width of the STA is greater than 80 M, then the Rx NSS Extension subfield in the EHT OM Control subfield combined with the Rx NSS subfield in the OM Control subfield indicates *NSS* – 1 , where *NSS* is the maximum number of spatial streams that the STA supports in reception for PPDU bandwidths less than or equal to 80 M.

If the operating channel width of the STA is less than or equal to 80 M, then the Rx NSS Extension subfield in the EHT OM Control subfield combined with the Rx NSS subfield in the OM Control subfield indicates *NSS* – 1 , where *NSS* is the maximum number of spatial streams that the STA supports in reception.

The encoding of the Rx NSS Extension subfield in (#12243)the EHT OM Control subfield combined with the Rx NSS subfield in the OM Control subfield is described in [Table 9-33a (The encoding of the Rx NSS](#bookmark9) [Extension subfield in the EHT OM Control subfield combined with the Rx NSS subfield in the OM Control](#bookmark9) [subfield(#12243))](#bookmark9).

**Table 9-33a—The encoding of the Rx NSS Extension subfield in the EHT OM Control sub- field combined with the Rx NSS subfield in the OM Control subfield(#12243)**

|  |  |  |
| --- | --- | --- |
| **Rx NSS Extension subfield**  **in the EHT OM Control subfield** | **Rx NSS subfield**  **in the OM Control subfield** | **Indication of the** *NSS* |
| 0 | 0 | 1 |
| 0 | 1 | 2 |
| 0 | 2 | 3 |
| 0 | 3 | 4 |

**Table 9-33a—The encoding of the Rx NSS Extension subfield in the EHT OM Control sub- field combined with the Rx NSS subfield in the OM Control subfield(#12243) *(continued)***

|  |  |  |
| --- | --- | --- |
| **Rx NSS Extension subfield**  **in the EHT OM Control subfield** | **Rx NSS subfield**  **in the OM Control subfield** | **Indication of the** *NSS* |
| 0 | 4 | 5 |
| 0 | 5 | 6 |
| 0 | 6 | 7 |
| 0 | 7 | 8 |
| 1 | 0-7 | Reserved |
|  |  |  |
|  |  |  |
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|  |  |  |
|  |  |  |
|  |  | (#12118) |

(#11829)

If the operating channel width of the STA is greater than 80 M, then the maximum number of spatial streams that the STA supports in reception for non-EHT PPDU bandwidths greater than 80 M is defined in

26.9 (Operating mode indication).

If the operating channel width of the STA is greater than 80 M, then the maximum number of spatial streams that the STA supports in reception for EHT PPDU bandwidths greater than 80 M is defined in 35.10 (Oper- ating mode indication).

The Channel Width Extension subfield in (#12243)the EHT OM Control subfield combined with the Chan- nel Width subfield in the OM Control subfield indicates the operating channel width supported by the STA for both reception and transmission.

The encoding of the Channel Width Extension subfield in (#12243)the EHT OM Control subfield combined with the Channel Width subfield in the OM Control subfield is described in [Table 9-33b (The encoding of](#bookmark10) [the Channel Width Extension subfield in the EHT OM Control subfield combined with the Channel Width](#bookmark10) [subfield in the OM Control subfield(#12243))](#bookmark10).

**Table 9-33b—The encoding of the Channel Width Extension subfield in the EHT OM Control subfield combined with the Channel Width subfield in the OM Control subfield(#12243)**

|  |  |  |
| --- | --- | --- |
| **Channel Width Extension subfield in the EHT OM Control subfield** | **Channel Width subfield in the OM Control subfield** | **Indication of the operating channel width** |
| 0 | 0 | Primary 20 M |
| 0 | 1 | Primary 40 M |

**Table 9-33b—The encoding of the Channel Width Extension subfield in the EHT OM Control subfield combined with the Channel Width subfield in the OM Control subfield(#12243)**

|  |  |  |
| --- | --- | --- |
| **Channel Width Extension subfield in the EHT OM Control subfield** | **Channel Width subfield in the OM Control subfield** | **Indication of the operating channel width** |
| 0 | 2 | Primary 80 M |
| 0 | 3 | Primary 160 M |
| 1 | 0 | 320 M |
| 1 | 1–3 | Reserved |

The Tx NSTS Extension subfield in (#12243)the EHT OM Control subfield combined with the Tx NSTS

subfield in OM Control subfield indicates *NSTS* – 1 , where *NSTS*

streams that the STA supports in transmission.

is the maximum number of space-time

(#11829)

The encoding of the Tx NSTS Extension subfield in (#12243)the EHT OM Control subfield combined with the Tx NSTS subfield in the OM Control subfield is described in [Table 9-33c (The encoding of the Tx NSTS](#bookmark11) [Extension subfield in the EHT OM Control subfield combined with the Tx NSTS subfield in the OM Con-](#bookmark11) [trol subfield(#12243))](#bookmark11).

**Table 9-33c—The encoding of the Tx NSTS Extension subfield in the EHT OM Control sub- field combined with the Tx NSTS subfield in the OM Control subfield(#12243)**

|  |  |  |
| --- | --- | --- |
| **Tx NSTS Extension subfield in the EHT OM Control subfield** | **Tx NSTS subfield**  **in the OM Control subfield** | **Indication of the** *NSS* |
| 0 | 0 | 1 |
| 0 | 1 | 2 |
| 0 | 2 | 3 |
| 0 | 3 | 4 |
| 0 | 4 | 5 |
| 0 | 5 | 6 |
| 0 | 6 | 7 |
| 0 | 7 | 8 |
| 1 | 0-7 | Reserved |
|  |  |  |
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|  |  |  |
|  |  |  |
|  |  | (#12118) |

(#11829)

(#11829)