IEEE P802.11  
Wireless LANs

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| Comment Resolutions for 11bd D0.3 PHY Service Interface Section Part 1 | | | | |
| Date: 2020-05-18 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Bo Sun | ZTE | ZTE R&D center, #9 Wuxingduan, Xifeng Rd., Chang’an district, Xi’an, China | +86-29-68700944 | Sun.bo1@zte.com.cn |
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Abstract

This submission provisions with resolutions to the following 24 CIDs related to PHY Service Interface of IEEE P802.11bd D0.3 (unapproved), including suggested spec text modification to IEEE P802.11bd D0.30 to TGbd editor:

* CIDs: 8, 10, 101, 102, 103, 104, 105, 124, 125, 126, 127, 129, 130, 187, 189, 190, 248, 250, 251, 252, 253, 255, 257, 258

Revisions:

* R0, comment resolutions initial draft.
* R1, update resolutions to duplicated CIDs and update resolution to CID 258
* R2, update resolution to CID 129; some editorial correction.
* R3, update resolution to CID 189 and 130.
* R4, editorial update and update proposed spec text modification as part of resolution to CID 189.

Interpretation of a Motion to Adopt

A motion or majority supported straw poll to approve this submission means that the editing instructions and any changed or added material are actioned in the TGbd Draft. When the baseline spec draft is an unapproved version, a majority supported straw poll to approve this submission means that the editing instructions and any changed or added material are actioned in the unapproved TGbd Draft. This introduction is not part of the adopted material.

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

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

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 101 | 25.33 | 32.2.2 | "The NGV PHY data subcarriers are modulated using ..., 16-QAM DCM, 64-QAM, and 256-QAM." "16-QAM DCM" is not defined in 11bd. | Remove "16-QAM DCM" | **Accepted**  **Discussion:**  The addressed spec text in actually under sub-clause 32.1 (Introduction to NGV PHY). But the author of this resolution agrees on the comment that 16-QAM is not defined SFD or any approved proposal. |
| 124 | 25.33 | 32.2.2 | "The NGV PHY data subcarriers are modulated using ..., 16-QAM DCM, 64-QAM, and 256-QAM." "16-QAM DCM" is not defined in 11bd. Need to remove the modulation. | Remove "16-QAM DCM" from the modulation list. | **Duplicated**  **Discussion:**  Refer to CID 101 |
| 248 | 27.24 | 32.2.2 | add NOTE  For example, NOTE--The Length field of the L-SIG in NGV PPDUs is defined in Equation (32-8) using the TXTIME value defined by Equation (32-46). | as in comment | **Revised**  **Discussion:**  Agree in principle on the comment. The proposed modification to the spec text is provided as part of this resolution.  **TGbd Editor:**  Please implement the proposed spec text modification as part of resolution to CID 247 as in document 11-20/0786r4. |
| 102 | 27.47 | 32.2.2 | In Table 32-1, Since LDPC is the only encoding method for data, FEC\_CODING is not needed. | Remove the row of "FEC\_CODING". | **Accepted**  **Discussion:**  FEC\_CODING is not necessary since LDPC is the only coding scheme in 11bd. |
| 125 | 27.47 | 32.2.2 | In Table 32-1, Since LDPC is the only encoding method for data, FEC\_CODING is not needed. | Remove the row of "FEC\_CODING". | **Duplicated**  **Discussion:**  Refer to CID 102. |
| 187 | 27.47 | 32.2.2 | If the FORMAT is NGV, then only LDPC coding for the data portion of a PPDU is allowed according to SFD. Hence, it is unneccessary to define a parameter "FEC Coding" that can take the values BCC\_CODING and LDPC\_CODING. | Remove parameter "FEC Coding" and row in Table 32-1 | **Duplicated**  **Discussion:**  Refer to CID 102. |
| 250 | 27.47 | 32.2.2 | delete FEC\_CODING in the table. LDPC is the only mode to be indicated for data portion | as in comment | **Duplicated**  **Discussion:**  Refer to CID 102. |
| 103 | 28.35 | 32.2.2 | In Table 32-1, the MCS of NGV is defined from 0 to 10, need to update the MCS range. | Update "TBD" to "10" | **Duplicated**  **Discussion:**  Refer to CID 126. |
| 126 | 28.35 | 32.2.2 | In Table 32-1, the MCS of NGV is defined from 0 to 10, need to update the MCS range. DCM is one of the modulation, no need extra row for DCM. | Update "TBD" to "10", and Remove the row of "DCM<TBD>" | **Revised**  **Discussion:**  As consent in motion [81] in the spec framework document (11-19/0497r7), MCS is defined with 10 values, e.g. 0-9.  **TGbd Editor:**  Please replace “TBD” with “9”, and remove the row of “DCM <TBD>”. |
| 251 | 28.37 | 32.2.2 | fill TBD | TBD should be 10 | **Duplicated**  **Discussion:**  Refer to CID 126. |
| 104 | 28.42 | 32.2.2 | In Table 32-1, DCM is one of the modulation, no need extra row for DCM. | Remove the row of "DCM<TBD>" | **Duplicated**  **Discussion:**  Refer to CID 126. |
| 252 | 28.42 | 32.2.2 | delete DCM in the table. DCM is one of MCS elements | as in comment | **Duplicated**  **Discussion:**  Refer to CID 126. |
| 8 | 28.43 | 32.2.2 | We agreed that LDPC is the only coding scheme for data portion of 11bd PPDU, BCC does not need. | delete the related sentence for BCC in the FCE\_CODING column in table 32-1. | **Duplicated**  **Discussion:**  Refer to CID 102. |
| 105 | 29.35 | 32.2.2 | In Table 32-1, "POWERBOOST" is determined based on Modulation, no need to indicate in TXVECTOR. | Remove "POWERBOOST" entry. | **Accepted**  **Discussion:**  As consent in the spec framework document (11-19/0497r7):  *NGV PPDU modulated with BPSK and DCM shall power boost L-STF and L-LTF by 3dB.*  *[ [5] Motion #63]*  *NGV PPDU modulated with BPSK shall power boost L-STF and L-LTF by 3dB.*  *[ [5] Motion #64]*  *L-STF and L-LTF power boost and repeated NGV-LTF only apply to 11bd transmission using 10MHz bandwidth, one spatial stream and BPSK modulation.*  *[ [6] Motion #77]*  Since power boost is clearly decided by MCS, Bandwidth and number of spatial streams, there’s no need to define a TXVECTOR parameter for power boost. |
| 127 | 29.35 | 32.2.2 | In Table 32-1, "POWERBOOST" is determined based on Modulation, no need to indicate in TXVECTOR. | Remove "POWERBOOST" entry. | **Duplicated**  **Discussion:**  Refer to CID 105. |
| 129 | 29.43 | 32.2.2 | The ''NUM\_SS" is missing in Table 32-1. | Add entires for "NUM\_SS". | **Revised**  **Discussion:**  Agree in principle. As consent in the spec framework document (11-19/0497r7):  *11bd supports two spatial streams for unicast transmissions as an optional feature.*  *[ [3] Motion #26]*  The parameter “NUM\_SS” should be defined in the similar format as that defined in 11ac with max 2 spatial streams supported.  **TGbd Editor:**  Please implement the proposed spec text modification as part of resolution to CID 129 as in document 11-20/0786r4. |

*---------------------------****Proposed Spec Text Modifications for CID 248/129****--------------------------------*

***TGbd Editor: please implement following proposed modification to Table 32-1 (TXVECTOR and RXVECTOR parameters) in sub-clause 32.2.2 (TXVECTOR and RXVECTOR parameters) in IEEE P802.11bd D0.3 as proposed below as part of resolution to CID 248 and 129 respectively.***

**32.2.2 TXVECTOR and RXVECTOR parameters**

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**Table 32-1 -- TXVECTOR and RXVECTOR parameters**

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| --- | --- | --- | --- | --- |
| **Parameter** | **Condition** | **Value** | **TXVECTOR** | **RXVECTOR** |
|  | ... | ... |  |  |
| L-LENGTH | FORMAT is NGV | Not present.  Note, the value of Length field of the L-SIG in an NGV PPDU is calculated as in Equation (32-8). *[CID 248]* | N | N |
| Otherwise | Indicates the length of the PSDU in octets in the range of 1 to 4095. The value is used by the PHY to determine the number of octet transfers that occur between the MAC and the PHY. | Y | Y |
| ... | ... | ... |  |  |
| MUM\_SS | FORMAT is NGV | Indicates the number of spatial streams.  Integer: range 1-2 . | Y | Y |
| Otherwise | Not present *[CID 129]* | N | N |
| NOTE 1—In the “TXVECTOR” and “RXVECTOR” columns, the following apply:  Y = Present;  N = Not present;  O = Optional; | | | | |

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-------------------- ***End of proposed changes for resolution to CID 248/129*** *---------------------*

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 253 | 29.54 | 32.2.3 | complete the sentence correctly and properly. TBD should be OCB primary. | as in comment | **Revised**  **Discussion:**  Agree on the comment in principle.  **TGbd Editor:**  Please implement the proposed spec text modification as part of resolution to CID 129 as in document 11-20/0786r4. |

*---------------------------****Proposed Spec Text Modifications for CID 253****----------------------------------*

***TGbd Editor: please implement the following modification to the first paragraph in sub-clause 32.2.3 (PHY CONFIG\_VECTOR) in IEEE P802.11bd D0.3 as below as part of resolution to CID 253.***

**32.2.3 PHY CONFIG\_VECTOR**

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for the NGV PHY contains an OPERATING\_CHANNEL parameter, which identifies the OCB primary ~~operating or primary <TBD>~~ channel. ~~The PHY shall set dot11CurrentPrimaryChannel to the value of this parameter (TBD).~~ The PHY shall set dot11CurrentPrimaryChannel to the value of parameter OPERATING\_CHANNEL.

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-------------------- ***End of proposed changes for resolution to CID 253*** *---------------------*

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 255 | 30.14 | 32.2.4 | delete "(when FORMAT is NGV)". It is redundant because the first colum shows the FORMAT parameter. | as in comment | **Accepted** |
| 189 | 30.20 | 32.2.4 | According to Annex E of Draft P802.11md D3.0, both in the US and in Europe, ITS channel spacings for 5, 10, and 20 MHz are defined. However, the last row in Table 32-2 NON\_NGV only defines CBW\_10 for 10 MHz. If in Annex E.1 5, 10, and 20 MHz are supported in the ITS Band, Table 32-2 should define CBW\_5, CBW\_10, and CBW\_20 for NON\_NGV accordingly. | Add additional rows for FORMAT NON\_NGV and CBW\_5 and CBW\_20 in Table 32-3. | **Revised**  **Discussion:**  Agree partially with the comment that the current ITS regulation allows 20 MHz bandwidth. But in the current scope of 802.11bd, the group are only interested in the co-ex of NGV STA with non-NGV STA on 10 MHz bandwidth and the behavior of a NGV STA as a non-NGV STA on 10 MHz channel. So it’s a better way to clarify the intention by defining the value of the parameter FORMAT as “NON\_NGV\_10” when it is contained in a non-NGV PPDU in the scope of 11bd.  **TGbd Editor:**  Please replace “NON\_NGV” to “NON\_NGV\_10” through out the IEEE P802.11bd D0.3 spec. And please implemented the proposed text modification in 11-20/0786r4 as part of resolution to CID 189. |
| 130 | 31.44 | 32.2.5.2 | "NON\_NGV" format is not officially defined before this section. | Add a subsection similar to 19.1.4 (PPDU formats) in 802.11REVmd to define "NGV" and "NON\_NGV" PPDU formats. | **Revised**  **Discussion:**  Agree in principle.  **TGbd Editor:**  Please implement the proposed spec text modification as part of resolution to CID 130 as in document 11-20/0786r4. |

*---------------------------****Proposed Spec Text Modifications for CID 189/130****----------------------------------*

***TGbd Editor: please implement the following modification to add a new sub-clause 32.1.4 (PPDU Formats) in IEEE P802.11bd D0.3 as below as part of resolution to CID 130.***

**32.1.4 PPDU Formats**

The structure of the PPDU transmitted by an NGV STA is determined by the TXVECTOR parameters as defined in Table 32-1 (TXVECTOR and RXVECTOR parameters).

In a NGV STA the FORMAT parameter determines the overall structure of the PPDU and can take one of the following values:

— Non-NGV format (NON\_NGV\_10), for the PPDU format as specified in Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) for 10 MHz channel spacing.

— NGV format (NGV), for the PPDU format as specified in Clause 32 (NGV PHY).

NOTE—Required support for these formats is defined in 17.1(Introduction) and 32.1.1 (Introduction to NGV PHY).

*[CID 189/130]*

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**32.2.2 TXVECTOR and RXVECTOR**

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**Table 32-1 -- TXVECTOR and RXVECTOR parameters**

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| --- | --- | --- | --- | --- |
| **Parameter** | **Condition** | **Value** | **TXVECTOR** | **RXVECTOR** |
| FORMAT | ... | Determines the format of the PPDU.  Enumerated type:  NON\_NGV\_10 indicates Clause 17 PPDU format for 10 MHz channel spacing.  NGV indicates NGV PPDU format as defined in Clause 32. *[CID 189]* | Y | Y |
| ... | ... | ... |  |  |

-------------------- ***End of proposed changes for resolution to CID 189/130*** *---------------------*

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 257 | 31.47 | 32.2.5.2 | non-NGV should be all captal letter like NON-NGV as defined in Table 32-1 | as in comment | **Accepted** |
| 258 | 32.15 | 32.2.5.2 | non-NGV should be all captal letter like NON-NGV to be consistent through the spec | as in comment | **Rejected**  **Reason:**  In some cases, “non-NGV” refers to the format of the PPDU with TXVECTOR/RXVECTOR parameter FORMAT equal to “NON-NGV”. Therefore the comment is not correct. |
| 190 | 32.38 | 32.2.5.2 | In Table 32-3--Mapping of the NGV PHY parameters for non-NGV operation the NGV parameter "CHANNEL\_WIDTH" should not be discarded but passed on. | Change "Discareded" to "CHANNEL\_WIDTH" | **Rejected**  **Reason:**  The purpose of the mapping is for a NGV PHY to behave as Non-NGV PHY (as defined in Clause 17 on 5.9 GHz). The parameter CHANNEL\_WIDTH is defined in NGV PHY, but it’s not defined in Non-NGV PHY (5.9 GHz operation in Clause 17). Therefore the parameter CHANNEL\_WIDTH should be discarded for a NGV PHY to behave like Non-NGV PHY. |
| 10 | 35.37 | 32.2.2 | DCM is not indicated by uisng any signaling and is included in MCS. | Changed <TBD> to NGV MCS | **Accepted** |
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**References:**

1. **IEEE P802.11bd/D0.3, Apr 2020.**