IEEE P802.11  
Wireless LANs

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| TGbd LB251 Resolutions for Few PHY Comments | | | | |
| Date: 2021-03-05 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Qinghua Li | Intel |  |  | Qinghua.li@intel.com |
| Bahar Sadeghi | Intel |  |  | Bahareh.sadeghi@intel.com |
| Jonathan Segev | Intel |  |  |  |
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Abstract

This submission contains resolutions for the following 10 CIDs on PHY:

* 1648, 1649, 1650, 1651, 1652, 1731, 1768, 1787, 1803, 1804

Revision History:

* Rev 0: Initial version of the document
* Rev 1: Minor correction
* Rev 2: Add summaries and links to the resolutions

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| --- | --- | --- | --- | --- | --- |
| **CID** | **Page.line** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1648 | 52.52 | 32.3.3 | In 11ax 27.3.5 and 27.3.9.12 DCM is defined as part of the constellation mapper/mapping. Similarly, in 11bd DCM is defined in 32.3.9.6 as part of the constellation mapping. In contrast 32.3.3 defines a tone mapper and pilot insertion block that contains the DCM tone mapping (p. 53, line 42). This is contradicting 32.3.9.6. Hence, it is proposed to define the DCM tone mapping as part of the constellation mapper/mapping. | As the DCM tone mapper should be part of the constellation mapper replace "Tone mapper and pilot insertion" with "Pilot insertion" | Revised.  Agreed in principle. "Tone mapper and pilot insertion" is replaced with "Pilot insertion".  Add link  <https://mentor.ieee.org/802.11/dcn/21/11-21-0398-02-00bd-tgbd-lb251-resolutions-for-few-phy-comments.docx> |
| 1649 | 52.55 | 32.3.3 | The LDPC tone mapper is not defined in 11bd D1.0 | Either define LDPC tone mapper in subclause of 32.3.9.6 Constellation mapping, as a new subclause after 32.3.9.6, or refer to subclause 21.3.9.10.2 LDPC tone mapping. | Rejected.  LDPC tone mapper was removed from 11bd draft by a motion, because it is not needed as shown in <https://mentor.ieee.org/802.11/dcn/20/11-20-0887-00-00bd-ldpc-tone-mapping-for-ngv.pptx> |
| 1650 | 53.17 | 32.3.3 | Fig 32-6: In 11ax 27.3.5 and 27.3.9.12 DCM is defined as part of the constellation mapper/mapping. Similar in 11bd DCM is defined in 32.3.9.6 as part of the constellation mapping. In contrast 32.3.3 defines a Tone mapper and pilot insertion block that contains the DCM tone mapping (p. 53, line 42). This is contadicting 32.3.9.6. Hence, it is proposed to define the DCM tone mapping as part of the constellation mapper/mapping. | As the DCM tone mapper should be part of the constellation mapper in Fig. 32-6, remove "Tone mapper and pilot insertion" similar to Fig. 21-5 in REVmd D5.0 or Fig. 27-13 and 27-14 in 11ax D7.0 | Revised.  Agreed in principle. Because DCM tone mapping is part of the constellation mapper, the “Tone mapper and pilot insertion” block is removed from Fig. 32-6 Fig. 32-7, and Fig. 32-8. In addition, the sentence at line 43, page 53, from “The DCM tone mapping, which is part of the Tone Mapper and Pilot Insertion block” with “The DCM tone mapping, which is part of the Constellation Mapper block.”  Add link  <https://mentor.ieee.org/802.11/dcn/21/11-21-0398-02-00bd-tgbd-lb251-resolutions-for-few-phy-comments.docx> |
| 1651 | 53.48 | 32.3.3 | Fig 32-7: In 11ax 27.3.5 and 27.3.9.12 DCM is defined as part of the constellation mapper/mapping. Similar in 11bd DCM is defined in 32.3.9.6 as part of the constellation mapping. In contrast 32.3.3 defines a Tone mapper and pilot insertion block that contains the DCM tone mapping (p. 53, line 42). This is contadicting 32.3.9.6. Hence, it is proposed to define the DCM tone mapping as part of the constellation mapper/mapping. | As the DCM tone mapper should be part of the constellation mapper in Fig. 32-7 replace "Tone mapper and pilot insertion" with "LDPC tone mapper" similar to Fig. 21-11 in REVmd D5.0 or Fig. 27-18 in 11ax D7.0 | Rejected.  Agreed that DCM tone mapper is part of the constellation mapper but disagreed with the replacement of “Tone mapper and pilot insertion” with “LDPC tone mapper.” |
| 1652 | 54.8 | 32.3.3 | Fig 32-8: In 11ax 27.3.5 and 27.3.9.12 DCM is defined as part of the constellation mapper/mapping. Similar in 11bd DCM is defined in 32.3.9.6 as part of the constellation mapping. In contrast 32.3.3 defines a Tone mapper and pilot insertion block that contains the DCM tone mapping (p. 53, line 42). This is contadicting 32.3.9.6. Hence, it is proposed to define the DCM tone mapping as part of the constellation mapper/mapping. | As the DCM tone mapper should be part of the constellation mapper in Fig. 32-8 replace "Tone mapper and pilot insertion" with "LDPC tone mapper" similar to Fig. 21-11 in REVmd D5.0 or Fig. 27-18 in 11ax D7.0 | Rejected.  Agreed that DCM tone mapper is part of the constellation mapper but disagreed with the replacement of “Tone mapper and pilot insertion” with “LDPC tone mapper.” |
| 1731 | 53.35 | 32.3.3 | Glitch in Fig 32-6: Box around "CSD per chain" missing | Please fix | Revised.  Agreed that a box around “CSD per chain” is missing. The missing box is added. This comment is the same as that of CID 1803.  Add link  <https://mentor.ieee.org/802.11/dcn/21/11-21-0398-02-00bd-tgbd-lb251-resolutions-for-few-phy-comments.docx> |
| 1768 | 54.8 | 32.3.3 | The indication of Ntx transmit chains after spatial mapping is missing in Figure 32-8--Transmitter block diagram for the Data field of an NGV transmission with two spatial streams | Please correct the figure to show the accurate spatial mapping | Revised.  Agreed. A label of “NTX Transmit Chains” is added in the Figure 32-8.  Add link  <https://mentor.ieee.org/802.11/dcn/21/11-21-0398-02-00bd-tgbd-lb251-resolutions-for-few-phy-comments.docx> |
| 1787 | 41.1 | 32 | In which frequency band(s) is NGV PHY allowed to operate in? NGV PHY cannot detect preambles of HT, VHT and HE PPDUs, as well as 11a PPDU in 20 MHz bandwidth mode, and vice-versa. Hence, if NGV PHY is allowed to operate in bands where non-HT/HT/VHT/HE PHYs are allowed to operate in (e.g. the 'unlicensed' bands), then NGV PHY will not be interoperable with those other 802.11 PHYs. | Either restrict NGV PHY to operate only in the ITS band, or modify the NGV PHY such that it is interoperable with other 802.11 PHYs (e.g. at least able to detect the preamble of non-HT/HT/VHT/HE PHYs, and also make NGV PHY preamble detectable by those other 802.11 PHYs). | Rejected.  The operation bands of NGV are already defined in lines 12-14, page 3. The term 5.9 GHz band refers to the V2X band. |
| 1803 | 53.20 | 32.3.3 | missing square for CSD per chain in Figure 32-6 | CSD per chain should in the square | Revised.  Agreed that a box around “CSD per chain” is missing. The missing box is added. This comment is the same as that of CID 1731.  Add link  <https://mentor.ieee.org/802.11/dcn/21/11-21-0398-02-00bd-tgbd-lb251-resolutions-for-few-phy-comments.docx> |
| 1804 | 53.43 | 32.3.3 | make it clear how to indicate DCM | DCM is indicated as MCS10 in NGV-SIG fiel | Revised.  Agreed in principle. The MCS of DCM changed to 15 instead of 10. Added the indication of DCM by adding “NGV MCS field value 15 in the NGV-SIG” after “DCM is indicated by”.  Add link  <https://mentor.ieee.org/802.11/dcn/21/11-21-0398-02-00bd-tgbd-lb251-resolutions-for-few-phy-comments.docx> |

***---Editor please implement the following changes for resolution of CIDs 1648---***

***Remove “Tone Mapper” in subclause:***

**32.3.3 Transmitter block diagram**

The generation of each field in an NGV PPDU uses many of the following blocks:

a) PHY padding

b) Scrambler

c) FEC (BCC or LDPC) encoders

d) Stream parser

e) BCC interleaver

f) Constellation mapper

g) ~~Tone mapper and p~~Pilot insertion

***---Editor please implement the following changes for resolution of CIDs 1650, 1731, and 1768---***

***Delete the blocks of “Tone Mapper and Pilot Insertion” and “LDPC Tone Mapper” in Figures 32-6, 32-7, 32-8. Replace “CSD per STS” with “CSD per SS” and add “NTX Transmit Chains” in Figure 32-8.***

**32.3.3 Transmitter block diagram**



**Figure 32-6—Transmitter block diagram for the L-SIG, RL-SIG, NGV-SIG, and RNGV-SIG**

**fields for an NGV PPDU**



**Figure 32-7—Transmitter block diagram for the Data field of an NGV transmission with a single spatial stream**



**Figure 32-8—Transmitter block diagram for the Data field of an NGV transmission with two**

**spatial streams**

***---Editor please implement the following changes for resolution of CIDs 1650 and 1804---***

***Revise two subclauses for adding DCM indication.***

**32.3.3 Transmitter block diagram**

**…**

Figure 32-7 (Transmitter block diagram for the Data field of an NGV transmission with a single spatial

stream) shows the transmitter blocks used to generate the Data field of an NGV transmission with a single spatial stream. The DCM tone mapping, which is part of the ~~Tone~~ Constellation Mapper ~~and Pilot Insertion~~ block, is applied only if DCM is indicated by ~~NGV MC~~SMCS field value 15 in the NGV-SIG.