IEEE P802.11
Wireless LANs

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| CR for CC50 on subclause 38.3.10 |
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Abstract

This submission proposes resolutions for the follwing 24 CC50 CIDs in the Overview of the Encoding Process subclause 38.3.10,

27, 581, 582, 947, 948, 1086, 1087, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1341, 1899, 1975, 2274, 2765, 2766, 2767, 3241, and 3242.

The proposed changes are based on IEEE 802.11bn D0.1 [1].

Revisions:

* Rev 0: Initial version of the document.
* Rev 1:

## CID 27, 581, 582, 947, 948, 1086, 1087, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1341, 1899, 1975, 2274, 2765, 2766, 2767, 3241, and 3242

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| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 27 | 126.33 | 38.3.10.2 | Delete excess bracket for GI in step (f). Same comment for that on page 127, line 1. | Same as in comment. | RejectedIn consideration of several different GI length, we need to keep it, which has been there since HT  |
| 581 | 132.24 | 38.3.10.12.1 | Segment parser should be used or bypassed for MCSs which are newly defined in UHR according to the RU size. Include the MCSs in the description | See the comment | RevisedWe need to update the paragraph with the new MCS.Note to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx  |
| 582 | 132.43 | 38.3.10.12.1 | Segment deparser should be used or bypassed for MCSs which are newly defined in UHR according to the RU size. Include the MCSs in the description. | See the comment | RevisedWe need to update the paragraph with the new MCS.Note to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 947 | 127.27 | 38.3.10.4 | Remove extra "," | Remove extra "," in f) | Accepted  |
| 948 | 127.62 | 38.3.10.5 | Remove extra "," | Remove extra "," in f) | Accepted |
| 1086 | 127.27 | 38.3.10.4 | "{-1, -1, -1, 1}, ,", an extra ",". Same on line 62 | delete extra "," | Accepted |
| 1087 | 132.23 | 38.3.10.12 | "Using UHR-MCS 0 to 13 or 15", the four new MCSs should be included. Same applies to line 27, 42, 45. | Change to "Using UHR-MCS 0 to 13, 15, 17, 19, 20, or 23", or. Alternatively, change to "Using UHR-MCSs other than 14". | RevisedWe need to update the paragraph with the new MCS.Note to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 1138 | 127.51 | 38.3.10.5 | L-SIG should be replaced with RL-SIG | As the comment. | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 1139 | 127.52 | 38.3.10.5 | L-SIG should be replaced with RL-SIG and reference also changed with 38.3.15.6 (RL-SIG). | As in comment. | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 1140 | 127.59 | 38.3.10.5 | The reference also changed with 38.3.15.6 (RL-SIG). | As the comment. | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 1141 | 128.01 | 38.3.10.5 | L-SIG should be replaced with RL-SIG | As the comment. | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 1142 | 129.59 | 38.3.10.8 | The reference is wrong. It should be corrected or changed with other reference. Eg., 36.3.13.7 | As the comment. | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 1143 | 132.02 | 38.3.10.12.1 | We don't need to define the new service field for UHR and the service field defined in EHT can be reused in UHR. | Refer the 36.3.13.1 SERVICE field | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 1144 | 132.08 | 38.3.10.12.1 | We don't need to define the new scrambler and descrambler and the scrambler and descrambler defined in EHT can be reused. | Refer the 36.3.12.2 for that. | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 1145 | 132.35 | 38.3.10.12.1 | The constellation does not changed. So, for the reference of constellation, use the subclause 36.3.13.7 as a reference. | As the comment. | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 1341 | 126.09 | 38.3.10 | Add "." after " PPDU)" | see comment | Accepted |
| 1899 | 126.10 | 38.3.10.1 | Missing period. Please add period in front of 'A UHR~'. | As in comment | Accepted |
| 1975 | 127.27 | 38.3.10.4 | two consecutive commatas in text ",, respectively" | delete one comma | Accepted |
| 2274 | 132.24 | 38.3.10.12.1 | "UHR-MCS 0 to 13 or 15" can be intepreted as UHR-MCS 0 to 13 or UHR-MCS 0 to 15. Please change to "UHR-MCS 0 to 13 or UHR-MCS 15". | As in comment | RejectedThe spec-read may depend on reader’s discretion to some extent and the same confusion is still remaining after the change may be made according to the comment. Furthermore, we have introduced the new MCSs and the confusion diminishes with the additional list of new MCSs. |
| 2765 | 127.46 | 38.3.10.5 | The entire texts of 38.3.10.5 should update from L-SIG to RL-SIG | see comments | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 2766 | 132.21 | 38.3.10.12.1 | The entire texts of Segment parser should include new MCS in its description | see comments | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 2767 | 132.40 | 38.3.10.12.1 | The entire texts of Segment deparser should include new MCS in its description | see comments | RevisedNote to editor: Please incorporate the changes in https://mentor.ieee.org/802.11/dcn/25/11-25-0672-00-00bn-cr-for-cc50-on-subclause-38-3-10-overview-of-the-ppdu-encoding-process.docx |
| 3241 | 127.27 | 38.3.10.4 | "," appear twice. Ditto P127L62. | Delete either of one. | Accepted |
| 3242 | 131.49 (131.61 ?) | 38.3.10.10 (38.3.10.12.1 ?) | It is seemed that "non-ELR PPDU" stands for UHR MU PPDU or UHR TB PPDU. But there is no definition about it on the draft. | Please define the term. | RejectedThe non-ELR PPDU in this sub-clause is not a proper noun which may not require a definition. Since the subclause is under the UHR PPDU subclause, the non-ELR PPDU can mean any UHR PPDU which is not an ELR PPDU. |

Propose:

***TGbf editor: please modify the senstence between P132L22 and P132L30 in D0.1 as follows in red color***

Segment parser: In a 2×996-tone RU, 4×996-tone RU, 996+484-tone MRU, 996+484+242-tone MRU, 2×996+484-tone MRU, 3×996-tone MRU, or 3×996+484-tone MRU using UHR-MCS 0 to 13, *15, 17, 19, 20, or 23,* divide each spatial stream output from the stream parser into multiple frequency subblocks as described in 38.3.16.*5* (Segment ~~de~~parser). This block is bypassed for RU(s) or MRU(s) of other sizes when using UHR-MCS 0 to 13, *15, 17, 19, 20, or 23*. In a 320 MHz UHR MU PPDU using UHR-MCS 14, the output of the stream parser is divided into two 80 MHz frequency subblocks as described in 36.3.13.5 (Segment parser). Segment parser is bypassed in an 80 MHz or 160 MHz UHR MU PPDU using UHR-MCS 14. (#581, #1087, #2766)

***TGbf editor: please modify the senstence between P132L41 and P132L49 in D0.1 as follows in red color***

Segment deparser: In a 2×996-tone RU, 4×996-tone RU, 996+484-tone MRU, 996+484+242-tone MRU, 2×996+484-tone MRU, 3×996-tone MRU, or 3×996+484-tone MRU using UHR-MCS 0 to 13, *15, 17, 19, 20, or 23,* merge the multiple 80 MHz frequency subblocks into one frequency segment as described

in 38.3.16.6 (Segment deparser). This block is bypassed for RU(s) or MRU(s) of other sizes when using UHR-MCS 0 to 13, *15, 17, 19, 20, or 23*. In a 320 MHz UHR MU PPDU using UHR-MCS 14, merge the two 80 MHz frequency subblocks into one frequency segment as described in 38.3.16.6 (Segment

deparser). Segment deparser is bypassed in an 80 MHz or 160 MHz UHR MU PPDU using UHR-MCS 14. (#582, #1087, #2767)

***TGbf editor: please modify the senstence between P127L49 and P128L16 in D0.1 as follows in red color***

Construct the RL-SIG field as defined in 38.3.15.6 (RL-SIG) with the following highlights:

* Set the RATE subfield in the *R*L-SIG field to 6 Mb/s. Set the LENGTH, Parity, and Tail fields in the L-SIG field as described in 38.3.15.*6* (*R*L-SIG).
* BCC encoder: Encode the *R*L-SIG field by a convolutional encoder at the rate of  as described in 38.3.16.1.2 (BCC coding).
* BCC interleaver: Interleave as described in 17.3.5.7 (Data interleavers).
* Constellation Mapper: BPSK modulate as described in 36.3.13.7 (Constellation mapping).
* Pilot insertion: Insert pilots as described in 38.3.15.*6* (*R*L-SIG).
* Extra subcarrier insertion: Four extra subcarriers are inserted at  for channel estimation purpose and the values on these four extra subcarriers are , respectively.
* Duplication and phase rotation: Duplicate the *R*L-SIG field over each occupied 20 MHz subchannel of the channel bandwidth. Apply appropriate phase rotation for each occupied 20 MHz subchannel as described in 38.3.14 (Mathematical description of signals) and 38.3.14.4 (Transmitted signal).
* IDFT: Compute the inverse discrete Fourier transform.
* CSD per chain: Apply CSD per chain for each transmit chain as described in 38.3.15.2.1 (Cyclic shift for pre-UHR modulated fields).
* Insert GI and apply windowing: Prepend a GI  and apply windowing as described in 38.3.14 (Mathematical description of signals).
* Analog and RF: Upconvert the resulting complex baseband waveform associated with each transmit chain. Refer to 38.3.14 (Mathematical description of signals) and 38.3.15 (UHR preamble) for details.

(#1138~1141, #2765)

***TGbf editor: please modify the senstence between P129L57 and P129L60 in D0.1 as follows in red color***

* Constellation mapper: Obtain MCS\_UHR\_SIG from the TXVECTOR and use it to modulate the interleaved bits as described in *36.3.13.7* (Constellation mapping) to form the UHR-SIG OFDM symbols.

(#1142)

***TGbf editor: please modify the senstence between P129L57 and P129L60 in D0.1 as follows in red color***

* Construct the SERVICE field as described in *36.3.13.1* (SERVICE field) and append the PSDU to the SERVICE field.
* Pre-FEC padding: Append the pre-FEC padding bits as described in 38.3.16 (Data field). If the user is using BCC, then add tail bits.
* Scrambler: Scramble the pre-FEC padded data as described in *36.3.12.2 (EHT PHY DATA scrambler and descrambler)*.
* Encoder: If the user is using BCC, then BCC encode and, if UHR-MCS 15 is used in a 106-tone RU, 242-tone RU, or 106+26-tone MRU, insert a padding bit after every  coded bits as described in 38.3.16.1.2 (BCC coding). If the user is using LDPC, then LDPC encode as described in 38.3.16.1.3 (LDPC coding).
* Post-FEC padding: Append the post-FEC padded bits as described in 38.3.16 (Data field) and the PE field as described in 38.3.17 (Packet extension).
* Stream parser: Rearrange the output of encoder into blocks as described in 38.3.16.2 (Stream parser).
* Segment parser: In a 2996-tone RU, 4996-tone RU, 996+484-tone MRU, 996+484+242-tone MRU, 2996+484-tone MRU, 3996-tone MRU, or 3996+484-tone MRU using UHR-MCS 0 to 13 or 15, divide each spatial stream output from the stream parser into multiple frequency subblocks as described in 38.3.16.6 (Segment deparser). This block is bypassed for RU(s) or MRU(s) of other sizes when using UHR-MCS 0 to 13 or 15. In a 320 MHz UHR MU PPDU using UHR-MCS 14, the output of the stream parser is divided into two 80 MHz frequency subblocks as described in 36.3.13.5 (Segment parser). Segment parser is bypassed in an 80 MHz or 160 MHz UHR MU PPDU using UHR-MCS 14.
* BCC interleaver: If the user is using BCC, interleave as described in 38.3.16.4 (BCC interleavers). This block is bypassed if the user is using LDPC.
* Constellation mapper: Map to BPSK, BPSK-DCM, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM, or 4096-QAM constellation points as described in *36.3.13.7* (Constellation mapping).

(#1143~1145)

**References:**

**[1] 802.11bn D0.1**