IEEE P802.11  
Wireless LANs

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| CRs for 20 MHz-only STA – Part 4 | | | | |
| Date: 2017-09-10 | | | | |
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Abstract

* The submission provides resolution to comment related to a 20 MHz-only non-AP HE STA capability
* This document contains comment resolution for 9 CIDs:
  + CID 9765, 7237, 8806, 8808, 7827, 10382, 8810, 8811, 9153
* The proposed changes are based on **P802.11ax D1.4 on clauses 28.1.1, 28.3.3.5 and 28.3.3.6**

Rev. 0 initial version of the document

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.***

* Technical comments for 28.3.3.5 and 28.3.3.6 of P802.11ax D1.0

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| **CID** | **Page** | **Clause Number** | **Comment** | **Proposed Change** | **Resolution** |
| 8808 | 238.01 | 28.3.3.6 | "20 MHz-only" instead of "20 MHz only"? | Use one term consistenly throughout the draft | **Revised**  Agree in principal to keep the consistency for the terminology. The global search has been made and all ’20 MHz only’ is replaced to ‘20MHz-only’, so the full terminology would be ‘20MHz-only non-AP HE STA.’  *TGax Editor*: For consistency, please replace the text (marked as CID 8808) as indicated in **doc.: IEEE 802.11-17/1361r0** |
| 7827 | 238.03 | 28.3.3.6 | The term "20-MHz only" (and variants) is very confusing. The lack of clear terminology and normative statements in this subclause (and 28.3.3.5) isn't helping. | Rewrite this subclause, using clearly normative words ('shall', etc.) and clarify if this is a capability, a mode of operation, or a limitation of the implementation, and if it is static for the instantiation of the STA. (I think it is static) | **Revised**  Agree in principal the clear terminology and normative statement are required on the clause. During P802,11ax D1.x comment resolution period, multiple clauses related to 20MHz-only STA operation have been updated with the proposed texts: please refer the following contributions  doc:11-17/0400r3 (CR Motion-238), doc:11-17/0692r1 (CR Motion-255), doc:11-17/0694r2 (CR Motion-312), doc:11-17/0769r0 (CR Motion-314), doc:11-17/0961r5 (CR Motion-331), doc:11-17/0247r2 (CR Motion-194).  On the top of the listed changes, the existing test is updated such that the mandatory/optional capability and indication is clearly described.  The limitation and restriction described in this subclause (28.3.3.5 in P802.11ax D1.4) is applied in a static manner for a 20MHz-only non-AP HE STA. On the other hand, for a non-AP HE STA which is not the 20MHz-only non-AP HE STA, the restriction would be applied in a dynamic manner only when the non-AP HE STA reduces its operating channel width to 20MHz.  *TGax Editor*: Plese update the text (marked as CID 7827) as indicated in **doc.: IEEE 802.11-17/1361r0** |
| 9765 | 237.30 | 28.3.3.5 | The most important restriction is that 20 MHz operation STAs shall not be assigned RUs 'outside' the Primary20 subchannel. This restriction is missing (P237L30). Also, P237L58 says there is no restriction on 242-tone RU, but that is not correct. Only the 242-tone RU corresponding to the Primary20 can be allocated to the 20 MHz operating STA. | Change P237L30 "An AP shall not assign the following RUs to 20 MHz operating STAs" to "An AP shall not allocate RUs which cannot be signalled as part of the HE-SIG-B RU Allocation subfield corresponding to the Primary 20 MHz subchannel to 20 MHz operating non-AP STAs in HE MU or HE trigger based PPDUs. In additional, an AP shall not allocate the following RUs to 20 MHz operation STAs in HE MU or HE trigger based PPDUs:" Also, delete "If supported, there is no restriction on 242-tone RUs." from P237L58. | **Revised**  The explicit description on the RU restriction rule has been made for HE MU and HE TB PPDU formats. Therefore, no further change is required.  The scope of HE-SIG-B RU Allocation subfield is only applied to HE MU PPDU while the RU restriction rule described in this clause is applied for both HE MU PPDU and HE TB PPDU. In addition, the current “shall” text in the draft is sufficient for AP not to assign the RU for a 20 MHz operating non-AP HE STA, which naturally involves an RU signalling exclusion in HE-SIG-B RU Allocation subfield of HE MU PPDU and/or RU Allocation Subfield of Trigger frame.  Therefore, no additional description is required.  Currently, 20 MHz operation is described in primary 20 MHz channel as mandatory, and non-primary 20MHz operation definition or restriction requires more discussion and clarification to make a conclusion.  ‘If supported, there is no restriction on 242-tone RUs.’ sentence was originally present not to include any 242-tone RU, e.g., 242-tone RU 2 or RU 3, into the restriction list. Currently, once a non-AP STA declares the 242-tone RU support in wideband OFDMA operation as 20MHz operating STA, there is no restriction on the particular 242-tone RU. Therefore, it is now a redandunt statement which can be deleted.  *TGax Editor*: Plese update the text (marked as CID 9765) as indicated in **doc.: IEEE 802.11-17/1361r0** |
| 7237 | 237.57 | 28.3.3.5 | The supporting of 242 tones RU in secondary channels of 40/80/160/80+80 DL OFDMA implies that a 20MHz operating STA possibly needs to receive individually signaling and data over different 20MHz channels. While that's not realistic for a 20 MHz device with consideration of the very short switching time and the resulting cost. | 242-tones in secondary channels shall not be allocated to 20 operating STAs in 40/80/160/80+80 DL OFDMA | **Rejected**  Currently, 20 MHz operation is described in primary 20 MHz channel as mandatory, and non-primary 20MHz operation definition or restriction requires more discussion and clarification to make a conclusion.  Note that even if the non-primary 20MHz operation is defined, it should be optional for interoperability. |
| 8806 | 237.57 | 28.3.3.5 | "all 242-tone RUs of 20 MHz operating STAs". How can there be more than one 242-tone RU in 20 MHz? What does this requirement mean? | Clarify | **Rejected**  Currently, 20 MHz operation is described in primary 20 MHz channel as mandatory, and non-primary 20MHz operation definition or restriction requires more discussion and clarification to make a conclusion.  Note that even if the non-primary 20MHz operation is defined, it should be optional for interoperability. |
| 10382 | 238.05 | 28.3.3.6 | A 20 MHz only HE STA operates in the primary 20 MHz channel as a mandatory mode. | Add statement that it "may also operate in non-primary 20 MHz channels" for clarity | **Rejected**  Currently, 20 MHz operation is described in primary 20 MHz channel as mandatory, and non-primary 20MHz operation definition or restriction requires more discussion and clarification to make a conclusion.  Note that even if the non-primary 20MHz operation is defined, it should be optional for interoperability. |
| 8810 | 238.05 | 28.3.3.6 | "A 20 MHz only HE STA operates in the primary 20 MHz channel as a mandatory mode." is not correct language for a standard. | Change to "A 20 MHz only HE STA shall only operate in the primary 20 MHz channel." | **Revised**  Agree that ‘as a mandatory mode’ is not the appropriate form. Change the wording as ‘A 20 MHz-only non-AP HE STA shall operate in the primary 20 MHz channel’  *TGax Editor*: make changes (marked as CID 8810) as in **doc.: IEEE 802.11-17/1361r0** |
| 8811 | 238.05 | 28.3.3.6 | "A 20 MHz only HE STA operates in the primary 20 MHz channel as a mandatory mode." Having 20 MHz-only systems operate in only the primary channel is suboptimal. There should be an option for 20-MHz only devices to operate in any 20 MHz channels. | See comment | **Rejected**  Currently, 20 MHz operation is described in primary 20 MHz channel as mandatory, and non-primary 20MHz operation definition or restriction requires more discussion and clarification to make a conclusion.  Note that even if the non-primary 20MHz operation is defined, it should be optional for interoperability. |
| 9153 | 238.05 | 28.3.3.6 | It is not clear on the possibility of the operation in secondary channels from 'primary 20 MHz channel as a mandatory mode' description. | Clarify the operation capability on secondary 20MHz channels of 20 MHz-only STA, e.g., only primary 20MHz support or else, and if it is required to operate, define the procedure and signaling. | **Rejected**  Currently, 20 MHz operation is described in primary 20 MHz channel as mandatory, and non-primary 20MHz operation definition or restriction requires more discussion and clarification to make a conclusion.  Note that even if the non-primary 20MHz operation is defined, it should be optional for interoperability. |

**Discussion**

The modification resolves the CIDs

**Changes on Section 28.1.1**

***To TGax editor:***  *For consistency, replace the current text in* ***P802.11ax D1.4*** *with the proposed changes below.*

***------------- Begin Text Changes ---------------***

***P126L16***

B1 is set to 0 if not supported, i.e., it indicates a 20 MHz-only non-AP HE STA(#8808)(#5251) in 5 GHz. B1 set to 1 if supported.

***P291L21***

when the 20 MHz-only(#8808) non-AP HE STA is operating in the 5 GHz band

***P291L32***

The HE PHY with 20 MHz-only(#8808) capability (see 28.3.9 (Mathematical description of signals)) is based on the HT PHY defined in Clause 19, which in turn is based on the OFDM PHY defined in Clause 17.

***P295L09***

A non-AP STA with 20 MHz-only(#8808) capability supports a mixture of HE, Clause 19 and Clause 17 PHYs.

***P294L17***

except for a 20 MHz-only non-AP HE STA(#8808)

***P294L21***

A 20 MHz-only non-AP HE STA(#8808) (#7824) shall support

***P294L31***

Not applicable to a 20 MHz-only non-AP HE STA(#8808).

***P294L32***

For a 20 MHz-only non-AP HE STA(#8808),

***P294L35***

For a 20 MHz operating non-AP HE STA(#8808),

***P294L40***

20 MHz-only non-AP HE STA(#8808)

***------------- End Text Changes ---------------***

**Changes on Section 28.3.3.5**

***To TGax editor:*** ***P326L36 of P802.11ax D1.4*** *replace the current text with the proposed changes below.*

***------------- Begin Text Changes ---------------***

A 20 MHz operating non-AP HE STA shall operate in the primary 20 MHz channel (#7827,8810).

***------------- End Text Changes ---------------***

**Changes on Section 28.3.3.6**

***To TGax editor:*** ***P327L55 of P802.11ax D1.4*** *delete the text described as follows:*

***------------- Begin Text Changes ---------------***

(#9765)

***------------- End Text Changes ---------------***