IEEE P802.11
Wireless LANs

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| CC50 - CR for 38.3.13 CIDs on Timing-Related Parameters |
| Date: 2025.04.07 |
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This submission includes the resolutions for the following 18 comments:

583, 933, 1152, 1153, 1343, 1344, 1838, 2068, 2279, 2280, 2281, 2282, 2727, 2770, 2771, 3301, 3548, 3557 on Subsection 38.3.13 of draft P802.11bn D0.1.

The baseline document is draft P802.11bn D0.2

##### Revision history:

##### R0 – initial version

**CID: 1152, 1343, 2279, 3301**

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| CID | Clause | Page | Line | Comment | Proposed Change | Proposed resolution |
| 1152 | 38.3.13 | 135 | 55 | TUHR-LTF, ELR is the value including GI. So, the inclusion of GI should be noted in the description. | modify the description as following." ELR-LTF field duration with GI in UHR ELR PPDU" | REVISED:There is a consistent definition of “field duration” that applies to multiple fields, which is: “OFDM symbol duration including GI” times number of symbols in the field. Therefore, it is already clear that “field duration” includes the GIs.However, this comment about TUHR-LTF,ELR parameter raises a related issue: There is a similar notation of TUHR-LTF,ELR for two different parameters (See line 35 and 55). For keeping consistency with the other notations in the table, the first parameter notation that corresponds to OFDM symbol duration without GI should be changed to TDFT,UHR-LTF,ELR, along with a modified description that is aligned with the other TDFT parameters.Instructions to TGbn editor: make changes as described in 0615r0. |
| 1343 | 38.3.13  | 135 | 38 | add space after "+" | see comment | ACCEPTEDNote to editor: make changes as described in 0615r0. |
| 2279 | 38.3.13 | 135 | 24 | Please remove T\_GI, ELR-MARK, and add T\_GI,pre-UHR, which are used in equations for USIG and ELR-MARK fields. | As in comment | REVISED:Indeed T\_GI,pre-UHR should be added as it is referred to in multiple clauses of signals construction and equations. Moreover, T\_GI,LLTF which is referred to in “Construction of L-LTF” clause and L-LTF equation, should also be added.T\_GI, ELR-MARK should be kept in the table since it is used for calculating ELR-MARK symbol and field durations. For the same reason T\_GI,UHR-LTF,ELR and T\_GI,UHR-Data appear in the table despite the fact they are not referred to outside the table. Instructions to TGbn editor: make changes as described in 0615r0. |
| 3301 | 38.3.13 | 135 | 12 | The parameters in table 38-16 are not displayed correctly. | Correct the parameters in table 38-16 | REVISED: The proposed change is not clear, but there are some alignment and spacing issues in Table 38-16 that need to be resolved by the editor.Instructions to TGbn editor: make changes as described in 0615r0. |

Note to editor: Please make changes to table 38-16 as shown below.

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| Table 38-16 - Timing-related constants  |
| Parameter | Value | Description |
|  | 312.5 kHz | Subcarrier frequency spacing for the pre-UHR modulated fields |
|  | 78.125 kHz | Subcarrier frequency spacing for the UHR modulated fields |
|  | 3.2 µs | IDFT/DFT period for the pre-UHR modulated fields |
|  | 12.8 µs | IDFT/DFT period for the UHR modulated fields |
|  | 6.4 µs | IDFT/DFT period for the UHR-LTF,ELR field |
| *TGI* Pre-UHR | 0.8 µs | Guard interval duration for the pre-UHR modulated fields excluding the L-LTF field |
| *TGI* L-LTF | 1.6 µs | Guard interval duration for the L-LTF field |
|  | 0.8 µs | Guard interval duration for the ELR-MARK field |
|  | 1.6 µs | Guard interval duration for the UHR-LTF field in UHR ELR PPDU |
|  | 1.6 µs | Guard interval duration for the ELR-SIG field |
|  | 1.6 µs | Guard interval duration for the Data field in UHR ELR PPDU |
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|  | 4 µs = +  | OFDM symbol duration for ELR-MARK field |
|  | 8 µs = +  | OFDM symbol duration for UHR-LTF field including GI in UHR ELR PPDU |
|  | 14.4 µs = + *=* 1.125   | OFDM symbol duration for ELR-SIG field including GI |
|  | 14.4 µs = + *=* 1.125   | OFDM symbol duration for ELR-Data field including GI in UHR ELR PPDU |
|  | 8 µs = 2  | ELR-MARK field duration |
| *T*UHR-STF, ELR | 4 µs = 5  µs | UHR-STF field duration in UHR ELR PPDU |
| *T*UHR-LTF, ELR | 16 µs =   | ELR-LTF field duration in UHR ELR PPDU |
| *T*ELR-SIG | 28.8 µs=   | ELR-SIG field duration |

**CID: 583, 933, 1153, 1344, 1838, 2068, 2280, 2727, 3548, 3557**

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| CID | Clause | Page | Line | Comment | Proposed Change | Proposed resolution |
| 933 | 38.3.13 | 136 | 5 | Something wrong with values in table 38-17. For example, N\_SD,total is 192 and DC should be much larger than 3 as there is no center 26 tone RU. | See comment. Correct values in table 38-17. | REVISED:Indeed N\_SD,total should be changed to 192. N\_DC should be changed to 33 (7 DC subcarriers for RU52 + inactive middle RU26) Instructions to TGbn editor: make changes as described in 0615r0. |
| 583 | 38.3.13 | 136 | 11 | It is weird that "total number of data subcarriers" is larger than "total number of subcarriers". Change 234 to 192. | See the comment. | ACCEPTEDNote to editor: Same resolution as CID 933. |
| 1153 | 38.3.13 | 137 | 11 | ELR PPDU uses the 4x 52 tone RUs. So, the value of parameters in Table 38-17 should be corrected. | As the comment. | REVISED:Indeed N\_SD,total should be changed to 192. Note to editor: Same resolution as CID 933. |
| 1344 | 38.3.13  | 136 | 12 | the total number of data subcarrier for the UHR ELR PPDU is 192 | change "234" to " 192" | ACCEPTEDNote to editor: Same resolution as CID 933. |
| 1838 | 38.3.13 | 136 | 12 | The value of N\_{SD,total} should be 192 which is four times duplication over the data subcarriers of a 52-tone regluar RU. | please refer to the comment | ACCEPTEDNote to editor: Same resolution as CID 933. |
| 2068 | 38.3.13 | 136 | 12 | "N\_SD,total" should be "4x48=192" instead of 234. | Replace "234" with "192" | ACCEPTEDNote to editor: Same resolution as CID 933. |
| 2280 | 38.3.13 | 136 | 12 | NSD,total number is wrong in table 38-17, it should be 192 instead of 234. | As in comment | ACCEPTEDNote to editor: Same resolution as CID 933. |
| 2727 | 38.3.13 | 136 | 12 | Change N\_SD,total from 234 to 192 | see comments | ACCEPTEDNote to editor: Same resolution as CID 933. |
| 3548 | 38.3.13 | 136 | 11, 19 | Incorrect parameters in Table 38-17 | ELR number of data sub-carriers and number of d.c. subcarriers seems incorrect. Doesn't match with ELR PDT which seems correct. | REVISED:Indeed N\_SD,total should be changed to 192. N\_DC should be changed to 33 (7 DC subcarriers for RU52 + inactive middle RU26) Note to editor: Same resolution as CID 933. |
| 3557 | 38.3.13 | 136 | Table 38-17 | Incorrect table contents | This table is presumably for ELR only, NSD\_total should be 208-16=192 (4x52-4x4)NDC is 33 tones not 3 tonesNGuard-left and NGuard-right are 7 and 6 bits respectively208+33+7+6=254, plus two guard tones between the 2 RRU52s on each side | REVISED:Indeed N\_SD,total should be changed to 192. Indeed N\_DC should be changed to 33 (7 DC subcarriers for RU52 + inactive middle RU26) However, in previous specifications, NGuard-left and NGuard-right parameters do not include the neighboring null subcarrier. For consistency, they should remain unchanged. Note to editor: Same resolution as CID 933. |

Note to editor: Please make changes to table 38-17 as shown below.

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| Table 38-17 - Subcarrier allocation related constants for the UHR ELR PPDU  |
| Parameter | ELR PPDU | Description |
| *NSD,total* | 192 | Total number of data subcarriers |
| *NSP* | 16 | Number of pilot subcarriers |
| *NST* | 208 | Total number of subcarriers |
| *NSR* | 121 | Highest data subcarrier index |
| *NDC* | 33 | Number of null subcarriers at DC |
| *NGuard,Left* | 6 | Number of low frequency guard subcarriers |
| *NGuard,Right* | 5 | Number of high frequency guard subcarriers |

**CID: 2281, 2770, 2771, 2282**

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| CID | Clause | Page | Line | Comment | Proposed Change | Proposed resolution |
| 2281 | 38.3.13 | 136,137 | 63,6,17,24 | Row "N\_CBPSS,u, Number of coded bits per OFDM symbol per spatial stream for user u,". This only applies to EQM transmission. Please change to "Number of coded bits per OFDM symbol per spatial stream for user u with EQM transmission". Same comments apply to N\_CBPSS,l,u, N\_BPSCS,u, N\_BPSCS,l,u | As in comment | REVISED:This is indeed a required clarification. The phrasing introduced is: "Number of coded bits per OFDM symbol per spatial stream, for EQM transmission, for user u". Added for all N\_CBPSS and N\_BPSCS parameters.Instructions to TGbn editor: make changes as described in 0615r0. |
| 2770 | 38.3.13 | 136 | 63 | Add "for EQM" in the explanation of the N\_CBPSS,u | see comments | REVISED:This is indeed a required clarification. The phrasing introduced is: "Number of coded bits per OFDM symbol per spatial stream, for EQM transmission, for user u". Added for all N\_CBPSS and N\_BPSCS parameters.Note to editor: Same resolution as CID 2281. |
| 2771 | 38.3.13 | 137 | 7 | Add "for EQM" in the explanation of the N\_CBPSS,l,u (line7) and N\_BPSCS,u (line17) | see comments | REVISED:This is indeed a required clarification. The phrasing introduced is: "Number of coded bits per OFDM symbol per spatial stream, for EQM transmission, for user u". Added for all N\_CBPSS and N\_BPSCS parameters.Note to editor: Same resolution as CID 2281. |
| 2282 | 38.3.13 | 137 | 34 | Definition of "N\_ss,r,total" is missing in Table 38-18, which is used for the defintion of Nss. Please add the definition | As in comment | REVISED:This definition is missing since Table 38-18 was apparently truncated by mistake and doesn’t include its last part since the reference Table 36-32 in 11be specification is split to two pages. The missing part of the table was added and updated to UHR.Instructions to TGbn editor: make changes as described in 0615r0. |

Note to editor: Please make changes to table 38-18 as shown below.

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| Table 38-18 - Frequently used parameters |
| Symbol | Explanation |
|  | For pre-UHR modulated fields, *.*For UHR modulated fields,  represents the number of occupied RU(s) or MRU(s) in the transmission. |
|  | For pre-UHR modulated fields, .For UHR modulated fields,  represents the total number of users in the *r*-th occupied RU or MRU of the transmission. |
|  | Total number of users in all occupied RU(s) or MRU(s) of a UHR transmission, i.e., . |
|  | Number of coded bits per OFDM symbol for user *u*, . |
|  | Number of coded bits per OFDM symbol over the *m*-th spatial stream for user *u*, in OFDMA transmission, . |
|  | Effective number of data tones carrying unique data.NOTE—The  value with DCM (when applicable) is half of the  value without DCM, for each RU or MRU size. |
|  | Effective number of data tones carrying unique data for user *u*, . |
|  | Number of coded bits per OFDM symbol per spatial stream, for EQM transmission, for user *u*,. |
|  | Number of coded bits per OFDM symbol per spatial stream, for EQM transmission, for user *u* in the *l*-th 80 MHz frequency block,  and . *L* is the number of 80 MHz frequency subblocks. |
|  | Number of data bits per OFDM symbol for user *u*, .NOTE—For LDPC,  is derived from  using , rather than the effective LDPC code rate, which may vary depending on shortening/puncturing/repetition performed during LDPC encoding. |
|  | Number of coded bits per subcarrier per spatial stream, for EQM transmission, for user *u*,. |
|  | Number of coded bits per subcarrier over the *m*-th spatial stream for user *u*,  in OFDMA transmission, . |
|  | Number of coded bits per subcarrier per spatial stream, for EQM transmission, for user *u* in the *l*-th 80 MHz frequency block,  and . *L* is the number of 80 MHz frequency subblocks. |
|  | Number of receive chains. |
| , ,  | Number of spatial streams. For the Data field,  is the number of spatial streams at *r*-th RU or MRU for user *u*, , and  is the number of spatial streams for user *u*, .For the Data field of a UHR PPDU, . |
| *NSS* *r* *total* | For UHR modulated fields, *NSS* *r* *total* is the total number of spatial streams at *r*-th RU or*Nuser* *r* – 1MRU in a PPDU: *NSS* *r* *total* =  *NSS* *r* *u* .*u* = 0For pre-UHR modulated fields, *NSS* *r* *total* is undefined. |
| *NTX* | Number of transmit chains. |
| *N*UHR-LTF | The number of OFDM symbols in the UHR-LTF field (see [X.X.X.X (UHR-LTF)](#_bookmark156)). |
| *N*UHR-SIG | The number of OFDM symbols in the UHR-SIG field (see [X.X.X.X (UHR-SIG)](#_bookmark112)). |
| *Kr* | Set of used subcarrier indices in the *r*-th occupied RU or MRU. |
| *Ru* | Coding rate for user *u*, *u* = 0 1  *Nuser* *total* – 1 . |
| *Mr* *u*  | The sum of the number of spatial streams of users prior to user *u* in RU or MRU *r*. For pre-UHR modulated fields, *Mr* *u* = 0 . For UHR modulated fields, *Mr* 0 = 0 for *u* = 0*u* – 1and *Mr* *u* =  *NSS* *r* *u*' , for *u* = 1 2  *Nuser* *r* – 1 .*u*' = 0 |