IEEE P802.11  
Wireless LANs

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| LB286 CR Part 1 | | | | |
| Date: 2024-05-21 | | | | |
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Abstract

This submission proposes to address the following CIDs 2004, 2005, 2006, 2009, 2016, 2037, 2038, 2039, 2043, 2044, 2055 (11 CIDs total) based on P802.11bk D2.0 and P802.11REVme\_D5.0.

Revisions:

1. .

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2004 | 40.29 | 11.21.6.4.3.3 | Clause 10.23.2.8 multiple frame transmission in an EDCA TXOP does not exist.  REVme when incorporating 11ax deleted the clause, and incorporate the content elsewhere.  Thus reference is incorrect | Find the relevant clause incorporating the frame exchange rules and incorporate there. | **Reject.**  REVme modified 10.23.2.8 and indeed removed the specific detailed frame sequence for 11ax and 11az. In CID 7075 an informative addition to annex G adopted a change to replace the deleted sequence.  As a result no further change needed. |
| 2005 | 50.27 | 11.21.6.4.4.2 | Clause 10.23.2.8 multiple frame transmission in an EDCA TXOP does not exist.  REVme when incorporating 11ax deleted the clause, and incorporate the content elsewhere.  Thus reference is incorrect | Find the appropriate section that incorporates what used to be 10.23.2.8. | **Reject.**  REVme modified 10.23.2.8 and indeed removed the specific detailed frame sequence for 11ax and 11az. In CID 7075 an informative addition to annex G adopted a change to replace the deleted sequence.  As a result no further change needed. |
| 2006 | 17.13 | 8.3.5.18.4 | The number of spatial streams in an HE TB Ranging NDP, and HE Ranging NDP as those are not signaled in the PPDU header" - why is this specific to HE and not EHT? The place this is really needed is the secure R2I NDP in TB Ranging together with the LTF\_OFFSET. | Change to "The number of spatial streams in an HE Ranging NDP using secure HE-LTF or EHT Ranging NDP using secuer EHT-LTF in TB Ranging with an LTF\_OFFSET larger 0, as those are not signaled in the PPDU header" | **Revise.**  The commenter is correct that the LTF NSTS information is needed for both HE and EHT (i.e. missing mentioning of EHT formatted NDP PPDUs).  However the information is needed for both the regular NDP and the LTF Secured NDP formats.  The need for Nsts as part of the decode is also specified and detailed in 27.3.19.1 and 27.3.19.2 as well as EHT variant in 36.19a.1 and 36.19a.2.  TGbk editor make changes depicted below in <https://mentor.ieee.org/802.11/dcn/24/11-24-0951-01-00bk-LB286-CR-Part-1.docx> |

***Resolution CID 2006:***

***TGbk editor change*** 8.3.5.18.4 ***P.17.13 in P802.11bk-D2.0 as follows:***

The number of spatial streams in an HE TB Ranging NDP, HE Ranging NDP, EHT TB Ranging NDP and EHT Ranging NDP as those are not signaled in the PPDU header.

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2009 | 19.3 | 9.3.1.22.1 | "NOTE--The expected receive signal power is then the STA's transmit power minus the path loss." does not explain anything related to this table. The original sentence is from 11ax, so not sure why this should be changed. | Revert sentence to "The expected receive signal power is then the STA's maximum transmit power for the assigned MCS minus the path loss." | **Revise.**  The reference to STA’s maximum Tx power in the note is redundant as the this is already stated at the normative description, but it does make the note a moot point.  **TGbk editor change last note in the last row of table 9-54 as follows:**  NOTE–The expected receive signal power is then the STA’s maximum transmit power ~~for~~ of the assigned HE or EHT MCS minus the path loss. |
| 2016 | 28.25 | 9.4.2.301 | Table 9-414--Ranging Subelement IDs for Ranging Parameters - the Secure HE-LTF subelement needs to be renamed to "Secure LTF subelement"; also the figure and descriptive text need to be updated. | As in comment. | **Revise.**  TGbk editor make changes depicted below in <https://mentor.ieee.org/802.11/dcn/24/11-24-0951-01-00bk-LB286-CR-Part-1.docx> |

***Resolution CID 2016:***

***TGbk editor change table 9-414 P.27L.3 in P802.11bk-D2.0 as follows:***

In table 9-414 row with subfield value 2 change Secure HE-LTF subelement to Secure LTF subelement.

***TGbk editor change following paragraph from REVme D5.0 P.1548 L.46 and on:***

The Secure LTF subelement is included in the IFTMR frame to indicate that the initiator supports use of

secure LTF and the associated parameters; it is included in the IFTM, if the initiator and the responder

successfully negotiate an FTM session where secure LTF is used.

The format of the Secure LTF subelement is as shown in Figure 9-1047 (Secure LTF subelement

format(11az)). (#2016)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 B7 | B8 B15 | B16 B18 | B19 | B20 | B21 | B22 B23 |
|  | Subelement ID | Length | Protocol Version | Secure LTF Req. (#2016) | R2I Tx Window | I2R Tx Window | Reserved |
| Bits: | 8 | 8 | 3 | 1 | 1 | 1 | 2 |

**Figure 9-1047—Secure LTF subelement format**

The Subelement ID and Length fields are defined in Figure 9.4.3 (Subelements).

The Protocol Version field in the IFTMR frame is set to the value 0 by the ISTA, with values 1 to 7 reserved for future use; see Table 9-415 (Secure LTF protocol section identifier(11az)). (#2016) In the IFTM frame the Version field is set to the value 0 by the RSTA, with values 1 to 7 reserved for future use. The interpretation of the version field in the IFTMR frame and IFTM frame, and the possible resulting actions, are described in 11.21.6.3.4 (Negotiation for secure HE-LTF in the TB and non-TB ranging measurement exchange).

The Secure LTF Required field is set to 1 by the ISTA to indicate it requires secure LTF to be enabled and is set to 1 by the RSTA to enable a secure HE-LTF measurement exchange between an ISTA and an RSTA. Otherwise the Secure LTF Required field is set to 0. (#2016)

The R2I Tx Window field in the IFTMR frame is set to 1 to indicate the ISTA requests use of the optional frequency domain Tx Window in the R2I NDPs, and 0 to indicate the default frequency domain Tx window. In the IFTM frame, the R2I Tx Window field is set to 1 to indicate the RSTA will use the optional frequency domain Tx window in the R2I NDPs, and 0 to indicate the default frequency domain Tx window; see Table 9-415 (Secure LTF protocol section identifier(11az)). (#2016)

The I2R Tx Window field in the IFTMR frame is set to 1 to indicate that the ISTA supports use of the optional frequency domain Tx window in the I2R NDPs, and 0 to indicate the default frequency domain Tx window. In the IFTM frame, the I2R Tx Window field is set to 1 by the RSTA to request that the ISTA use the optional frequency domain Tx window in the I2R NDPs, and 0 to indicate the default frequency domain Tx window; see Table 9-415 (Secure LTF protocol section identifier(11az)). (#2016)

|  |  |
| --- | --- |
| * Secure LTF protocol section identifier(11az) | |
| Protocol Version | Secure LTF PHY sections |
| 0 | 27.3.18a (HE Ranging NDP and HE TB Ranging NDP)  36.3.19a EHT Ranging NDP and EHT TB Ranging NDP (#2016) |
| 1–7 | Reserved |

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2037 | 17.3 | 8.3.5.15.3 | Add ",EHT Ranging NDP" before "and EHT TB Ranging NDP". | As per comment | **Accept.** |
| 2038 | 17.13-14 | 8.3.5.15.4 | Change "The number of spatial streams in an HE TB Ranging NDP, and HE Ranging NDP as 13 those are not signaled in the PPDU header" to | The number of spatial streams in an HE TB Ranging NDP, HE Ranging NDP, EHT TB Ranging NDP and EHT Ranging NDP as those are not signaled in the PPDU header | **Accept.** |
| 2039 | 17.34 | 9.3.1.19 | Should "36.3.4.1" be hyperlink as reference to the section? | As per comment. If needed change entire document | **Revise.**  TGbk editor change reference 36.3.4.1 in P.17L.34 to 36.3.19a.1 (EHT Ranging NDP) and create a hotlink reference in the PDF. |

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2043 | 28.06 | 9.4.2.301 | Delete the word 'valid' as the list includes all punctured patterns | As per comment | Accept. |

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2044 | 30 | Figure 9-1216 | Need to add 320MHz Ranging subelement to the FTM frame as we have normative text in "11.21.6.5.2 Operation in the 6 GHz band" | As per comment | **Reject**.  In the FTM frame, the Ranging subelements (including 320 MHz Ranging Subelement), are incorporated into Ranging Parameters element as a Ranging Subelement variable size field.  Figure 9-1216 is FTM frame action field, and as this includes the Ranging Parameters subelement there, it therefore also incorporates the 320 MHz Ranging subelemement within it but is not showing the 320 MHz Ranging subelement as this is a subelement of the Ranging Parameters subelement not the FTM frame action field. |
| 2055 | 96.12 | 36.3.19b.2 | Add a NOTE to define MSB and LSB of pseudorandom octets used for per stream phase rotation as it was also done for secure HE-LTF in REVme. | As per comment | **Reject.**  See discussion detailed below in: <https://mentor.ieee.org/802.11/dcn/24/11-24-0951-01-00bk-LB286-CR-Part-1.docx> |

**Discussion for CID 2055:**

There should (and there is) a normative definition of the phase rotation. A note is informative, referring to Annex J in the note (as the suggested by comment) is informative to informative thus seem to be providing even less value.

P.98L.24 Clause 36.3.19b.4 (Pseudorandom and deterministic per spatial stream phase rotations) defines the deterministic and pseudorandom phase rotation of the secure LTF symbol and across the streams and the LTF block for the HE LTF case. Refer to step d ) in the construction of Secure EHT LTF symbols: “Apply per spatial stream phase rotation: Generate the pseudorandom phase rotation for each spatial stream. Apply the pseudorandom phase rotation along with the deterministic phase rotation to the spatial streams as described in 27.3.20.3 (Pseudorandom and deterministic per spatial stream phase rotations).

P.4397 L.60 REVme 27.3.20.3 through P.4398L.55 provides detailed and normative description of octet and bit ordering in equation 27-131, 27-132 and table 27-53.