IEEE P802.11  
Wireless LANs

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| Comment Resolution SA1 – HE-LTF Repetitions | | | | |
| Date: 2021-11-10 | | | | |
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Abstract

This submission proposes the comment resolution of CIDs 287679, 287656, 287662, 287663, 287678, 287680, 287683, 288235, 288236, 288297, 288298, 288299, 288300, 288301, 288302, 288305; as part of SA1, changes are relative to Draft 4.0.

Revisions:

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 TGaz Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGaz Editor: Editing instructions preceded by “TGaz Editor” are instructions to the TGaz editor to modify existing material in the TGaz draft. As a result of adopting the changes, the TGaz editor will execute the instructions rather than copy them to the TGaz Draft.***

**The text preceded by “Discussion” is not part of the adopted changes.**

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| **287679** | 20.18 | 3.2 | Add a defintition of "HE-LTF repetitions" or "LTF repetitions" | Add an entry as "HE-LTF repetitions: multiple transmissions of HE-LTF symbols in an HE Ranging NDP or HE TB Ranging NDP, where an HE-LTF repetition value of 1 indicates no extra repetitions, and, e.g., a value of 2 or 3 would indicate twice or three times as many HE-LTF symbls respectively." |  |
| **287656** | 46.1 | 9.3.1.19 | "The R2I Rep and I2R Rep subfields are set to N\_LTF\_REP minus 1, where N\_LTF\_REP is the number of HE-LTF repetitions of the corresponding HE Ranging NDP; see 27.3.18a (HE Ranging NDP). If the I2R and R2I Rep subfields have a value equal to 0, then there is no repetition." - not clear what the point of N\_LTF\_REP is, we can just use words in this descriptive section | Change to "The R2I Rep and I2R Rep subfields are set to the number of HE-LTF repetitions of the corresponding HE Ranging NDP minus 1, see 27.3.18a (HE Ranging NDP). If the I2R and R2I Rep subfields have a value equal to 0, then there are no repetition in the I2R and R2I NDP respectively." |  |
| **287662** | 51.8 | 9.3.1.22.10.2 | "The I2R Rep subfield is set to N\_LTF\_REP minus 1, where N\_LTF\_REP is the number of HE- LTF repetitions in the corresponding HE TB Ranging NDP from the STA indicated in the AID12/RSID12 subfield." - remove N\_LTF\_REP | Change to "The I2R Rep subfield indicates the number of HE- LTF repetitions of the corresponding HE TB Ranging NDP from the STA indicated in the AID12/RSID12 subfield; the I2R Rep subfield is set to the number of HE- LTF repetitions minus 1." |  |
| **287663** | 51.22 | 9.3.1.22.10.3 | "The I2R Rep subfield signals the number of repetitions N\_REP of the HE LTF symbols in the corresponding HE TB Ranging NDP from the STA indicated in the AID12/RSID12 subfield." Repetitive | Change to "The I2R Rep subfield is identical to the corresponding subfield in the Sounding Ranging Trigger frame." |  |
| **287678** | 77.32 | 9.4.2.298 | "The Max I2R Repetition subfield indicates the maximum N\_LTF\_REP minus 1, where N\_LTF\_REP is the maximum number of HE-LTF repetitions that the ISTA uses in the preamble of I2R NDP." - remove N\_LTF\_REP | Change to "The Max I2R Repetition subfield indicates the maximum number of HE-LTF repetitions that the ISTA uses in the preamble of the I2R NDP, the subfield is set to the number of HE-LTF repetitions minus 1." |  |
| **287680** | 77.35 | 9.4.2.298 | "The Max R2I Repetition subfield indicates the maximum N\_LTF\_REP minus 1, where N\_LTF\_REP is the maximum number of HE-LTF repetitions that the RSTA uses in the preamble of R2I NDP. The values of 0 to 7 contained in the Max I2R Rep and Max R2I Rep subfield are mapped to 1 to 8 in the N\_LTF\_REP parameter, the number of HE-LTF repetitions, respectively; see 9.3.1.19 (VHT/HE/Ranging NDP Announcement frame format), 9.3.1.22.10.2 (Sounding subvariant) and 9.3.1.22.10.3 (Secured Sounding subvariant)." | Change to "The Max R2I Repetition subfield indicates the maximum number of HE-LTF repetitions that the RSTA uses in the preamble of the R2I NDP, the subfield is set to the number of HE-LTF repetitions minus 1. " |  |
| **287683** | 78.37 | 9.4.2.298 | "The maximum number of LTFs limits the allowed combinations of number of space-time streams and LTF repetitions." Use 'HE-LTF repetitions' | Change to "The maximum number of LTFs limits the allowed combinations of number of space-time streams and HE-LTF repetitions." |  |
| **288235** | 132.11 | 11.21.6.3.3 | "In Ranging Parameters field of the Ranging Parameters element of the IFTM frame, an RSTA sets the Max R2I Repetition subfield to RSTA Assigned R2I Rep, and sets the Max I2R Repetition subfield to RSTA Assigned I2R Rep." - duplication, RSTA behavior described in paragraph starting at line 42/ page 133, also line 31, page 134 | remove |  |
| **288236** | 132.14 | 11.21.6.3.3 | "When RSTA Assigned R2I Rep is equal to 0, N\_LTF\_REP in the corresponding HE Ranging NDP 14 is equal to 1 and there is a single HE-LTF segment without repetition. When RSTA Assigned R2I 15 Rep is greater than 0 , N\_LTF\_REP in the corresponding HE Ranging NDP is greater than 1 and 16 HE-LTF repetition is used. When RSTA Assigned I2R Rep is equal to 0, N\_LTF\_REP in the 17 corresponding HE Ranging NDP or HE TB Ranging NDP is equal to 1 and there is a single HE-18 LTF segment without repetition; when RSTA Assigned I2R Rep is greater than 0, N\_LTF\_REP in 19 the corresponding HE Ranging NDP is greater than 1 and HE-LTF repetition is used." some duplication, also the use of these parameters is described in sublcause 11.21.6.4 and PHY sections | remove |  |
| **288297** | 236.32 | 27.3.18a.1 | "The TXVECTOR parameter LTF\_REP that indicates N\_LTF\_REP, the number of the HE LTF repetitions. A value of N\_LTF\_REP equal to 1 indicates a single HE-LTF segment  without repetition, and a value of N\_LTF\_REP greater than 1 indicates the use of HE-LTF  repetitions. For decoding the HE-LTF fields, a PHY-RXLTFSEQUENCE.request primitive issued from the MAC provides the LTF\_REP parameter and LTF\_OFFSET parameter, which are not encoded in the HE-SIG-A, but included in the preceding Ranging NDP Announcement frame. The LTF\_OFFSET parameter indicates the number of secure HE-LTF symbols to skip for receiving the corresponding user’s HE-LTF field, e.g., in Figure 27-46d the LTF\_OFFSET for the first and second user would be 0 and 4 respectively"" - this is an overview, too much detail, move to later; also remove N\_LTF\_REP" | Change to "The TXVECTOR parameter LTF\_REP indicates the number of the HE LTF repetitions. For decoding the HE-LTF fields, a PHY-RXLTFSEQUENCE.request primitive issued from the MAC provides the LTF\_REP parameter and LTF\_OFFSET parameter, which are not encoded in the HE-SIG-A, but included in the preceding Ranging NDP Announcement frame. The LTF\_OFFSET parameter indicates the number of secure HE-LTF symbols to skip for receiving the corresponding user’s HE-LTF field." |  |
| **288298** | 237.18 | 27.3.18a.1 | "The number of HE-LTF symbols is the product of the number of HE-LTF repetitions N\_LTF\_REP and the conventional number of HE-LTF" - remove use of N\_LTF\_REP, not defined in PHY | Change to "The number of HE-LTF symbols is the product of the number of HE-LTF repetitions, given in LTF\_REP, and the conventional number of HE-LTF" |  |
| **288299** | 237.11 | 27.3.18a.1 | "The number of HE-LTF symbols in an HE Ranging NDP depends on the number of space-time streams N\_STS, the number of HE-LTF repetitions N\_LTF\_REP, and when Secure HE-LTFs are used, the number of users NUM\_USERS." remove N\_LTF\_REP, not defined here | Change to "The number of HE-LTF symbols in an HE Ranging NDP depends on the number of space-time streams N\_STS, the number of HE-LTF repetitions LTF\_REP, and when Secure HE-LTFs are used, the number of users NUM\_USERS." |  |
| **288300** | 237.21 | 27.3.18a.1 | "The construction of the HE-LTFs in an HE Ranging NDP is done by repeating the steps in Subclause 27.3.6.9 (Construction of HE-LTF) N\_LTF\_REP times." - remove N\_LTF\_REP and move sentence from bullet points here | Change to "The construction of the HE-LTFs in an HE Ranging NDP is done by repeating the steps in Subclause 27.3.6.9 (Construction of HE-LTF) LTF\_REP times, i.e., a value of LTF\_REP equal to 1 indicates a single HE-LTF segment without repetition, and a value of TF\_REP greater than 1 indicates the use of HE-LTF repetitions." |  |
| **288301** | 237.30 | 27.3.18a.1 | "The total number of HE-LTF symbols is the product of the number of HE-LTF repetitions N\_LTF\_REP and NHE-LTF, the number of HE-LTF based on the number of space-time streams N\_STS, as defined in Table 21-13 (Number of VHT-LTFs required for different numbers of space-time streams). (#2499, #4014) For Secure HE-LTF trasnmissions, the number of LTF repetitions LTF\_REP shall be greater than 1." - remove N\_LTF\_REP, not defined her - and the PHY should encode whatever the TXVECTOR says, not have some extra rules. | Change to "The total number of HE-LTF symbols is the product of the number of HE-LTF repetitions, given in LTF\_REP, and N\_HE-LTF, the number of HE-LTF based on the number of space-time streams N\_STS, as defined in Table 21-13 (Number of VHT-LTFs required for different numbers of space-time streams). (#2499, #4014)" |  |
| **288302** | 238.3 | 27.3.18a.1 | "When the TXVECTOR parameter SECURE\_LTF\_FLAGis set to 1 and the NUM\_USERS parameter is larger than 1, the TXVECTOR parameters LTF\_KEY, NUM\_STS and N\_LTF\_REP will be in array form with NUM\_USERS entries. The number of Secure HE-LTF will depend on the sum of: NHE-LTF times N\_LTF\_REP, across all users." remove N\_LTF\_REP, not defined here | Change to "When the TXVECTOR parameter SECURE\_LTF\_FLAG is set to 1 and the NUM\_USERS parameter is larger than 1, the TXVECTOR parameters LTF\_KEY, NUM\_STS and LTF\_REP will be in array form with NUM\_USERS entries. The number of Secure HE-LTF will depend on the sum of: N\_HE-LTF times LTF\_REP, across all users." |  |
| **288305** | 239.25 | 27.3.18a.2 | "The number of HE-LTF symbols in an HE TB Ranging NDP is the product of the usual number of HE-LTF symbols NHE-LTF and N\_LTF\_REP, the number of HE-LTF repetitions. A value of N\_LTF\_REP equal to 1 indicates a single HE-LTF segment without repetition, and a value of N\_LTF\_REP greater than 1 indicates the use of HE-LTF repetitions." -remove N\_LTF\_REP, not defined here | Change to "The number of HE-LTF symbols in an HE TB Ranging NDP is the product of the usual number of HE-LTF symbols N\_HE-LTF and the number of HE-LTF repetitions, given in LTF\_REP. A value of LTF\_REP equal to 1 indicates a single HE-LTF segment without repetition, and a value of LTF\_REP greater than 1 indicates the use of HE-LTF repetitions." | **Revised** |