IEEE P802.11  
Wireless LANs

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| Resolutions to NGV preamble and NGV receive procedure | | | | |
| Date: 2022-01-11 | | | | |
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|  |  |  |  |  |

Abstract

This submission shows

* Comments from TGbd draft 3.0.
* Resolutions applied to TGbd draft 3.0.
* 14 CIDs:   
  3101, 3102, 3000, 3059, 3037, 3038, 3096, 3097, 3039, 3098

3040, 3099, 3041, 3100

Revisions:

* Rev 0: Initial version of the document.
* Rev 1:
* typos fixed
* resolution to CID3101 updated.
* Rev 2: updated text proposal in CID3102 and CID3097

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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3101 | 100.01 | The sentence of "NGV-LTF-2x-Repeat is constructed by repeating the time domain symbol of NGV-LTF-2x ... " is a standalone one. Suggest to move it to P102L1 for complete description of NGV-LTF-2x-Repeat construction. | As in the comment. | Revised.  Agreed in principle.  TGbd Editor: Incorporate the changes in 11-22-0019-02-00bd-Resolutions to NGV preamble and NGV receive procedure. |

***Discussion***

No discussion

***To TGbd Editor:*** ***P100L6*** *update the description as below.*

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

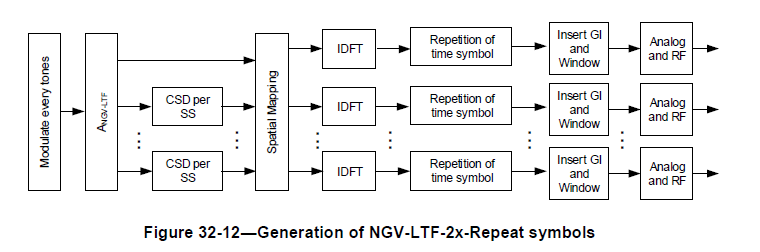
An NGV PPDU supports three NGV-LTF formats: NGV-LTF-1x, NGV-LTF-2x, and NGV-LTF-2x-Repeat. NGV-LTF-2x is the default LTF format; NGV-LTF-1x is used for high efficiency transmission of one spatial stream and NGV-LTF-2x-Repeat is used for extended range transmissions. When BPSK-DCM is applied to the NGV Data field of PPDU in 10 MHz, the NGV-LTF symbol uses NGV-LTF-2x-Repeat regardless of the value of the LTF Format subfield in the NGV-SIG field.(#2064, #2281) ~~NGV-LTF-2x-Repeat is constructed by repeating the time domain symbol of NGV-LTF-2x excluding GI and preappend one cyclic prefix of duration 1.6 μs.~~

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

***To TGbd Editor:*** ***P102L1*** *update the description as below.*

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

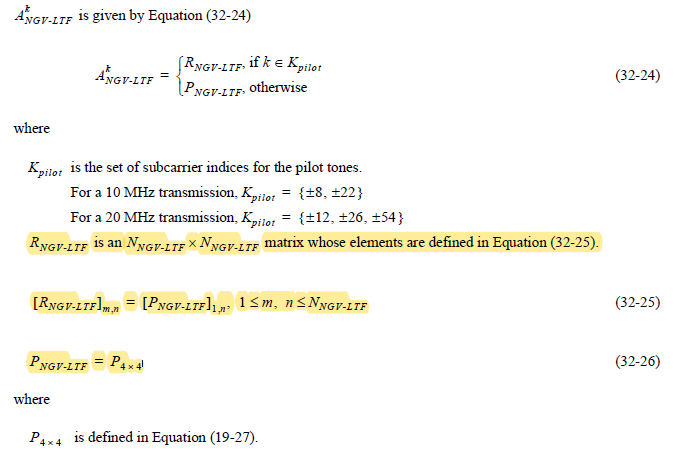
NGV-LTF-2x-Repeat is constructed by repeating the time domain symbol of NGV-LTF-2x excluding GI and preappend one cyclic prefix of duration 1.6 μs. The generation of time domain symbol of NGV-LTF-2x-Repeat is equivalent to modulating every tone in an OFDM symbol of 6.4 μs excluding GI, and then the OFDM symbol is repeated in time domain, as shown in Figure 32-12 (Generation of NGV-LTF-2x-Repeat symbols).



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

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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3102 | 102.38 | The N\_NGV-LTF mapping has been changed in Table 32-11 to accommodate LTF\_REP. The size of A/R/P matrix is not correct now, which should be NssxN\_NGV-LTF. Correspondingly, the definition of P in Eq. (32-26) also needs to be updated to [P2x2 P2x2] to accomodate repeated LTF in NGV ranging NDP. | As in the comment. | Revised.  Agreed in principle  TGbd Editor: Incorporate the changes in 11-22-0019-02-00bd-Resolutions to NGV preamble and NGV receive procedure. |

***Discussion***



***To TGbd Editor:*** ***P102L38*** *update the description as below.*

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

is an matrix whose elements are defined in Equation (32-25).

(32-25)

=

where

~~definded in Equation (19-27).~~

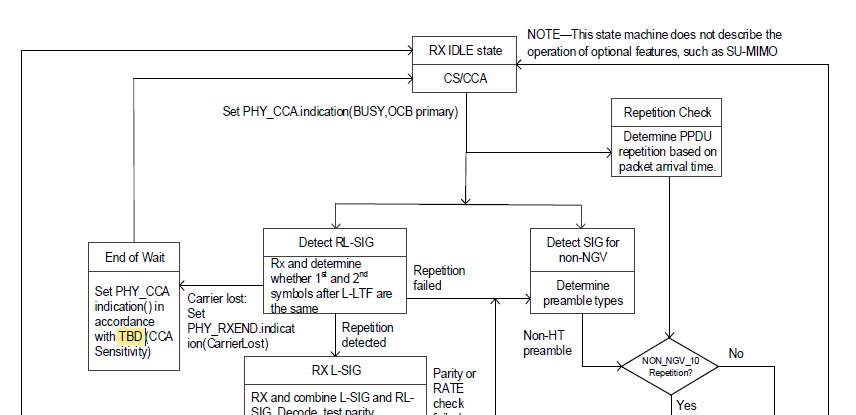
, is a submatrix of with elements of the first two rows and two columns of ,   
 which is definded in Equation (19-27)

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

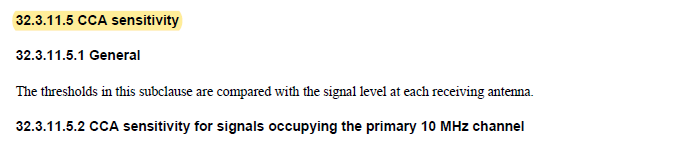
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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3000 | 120.19 | "Set PHY\_CCA indication() in accordance with TBD" , please clarify what is the TBD value for CCA | Define an acceptable CCA level. | Revised.  Agreed in principle. Add the reference to fill the TBD. Same resolution is applied to CIDs 3000 and 3059.  TGbd Editor: replace TBD with 32.3.11.5. |
| 3059 | 120.21 | Fill TBD | as in comment | Revised.  Agreed in principle. Add the reference to fill the TBD. Same resolution is applied to CIDs 3000 and 3059.  TGbd Editor: replace TBD with 32.3.11.5. |

***Discussion***

TBD is shown in Figure 32-17 (PHY receive state machine).

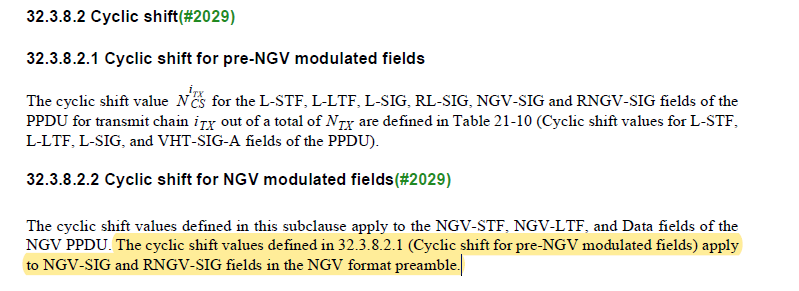


At P115L8, the corresponding subclause is found as below.



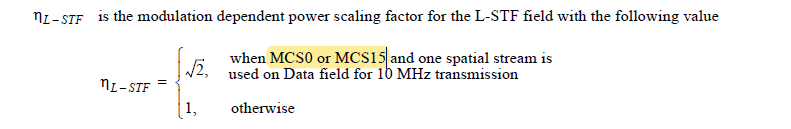
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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3037 | 93.05 | The cyclic shift values defined in 32.3.8.2.1 (Cyclic shift for pre-NGV modulated fields) have nothing to do with the values in Cyclic shift for NGV modulated field. | delete the text "The cyclic shift values defined in 32.3.8.2.1 (Cyclic shift for pre-NGV modulated fields) apply to NGV-SIG and RNGV-SIG fields in the NGV format preamble." | Accepted. |

***Discussion***



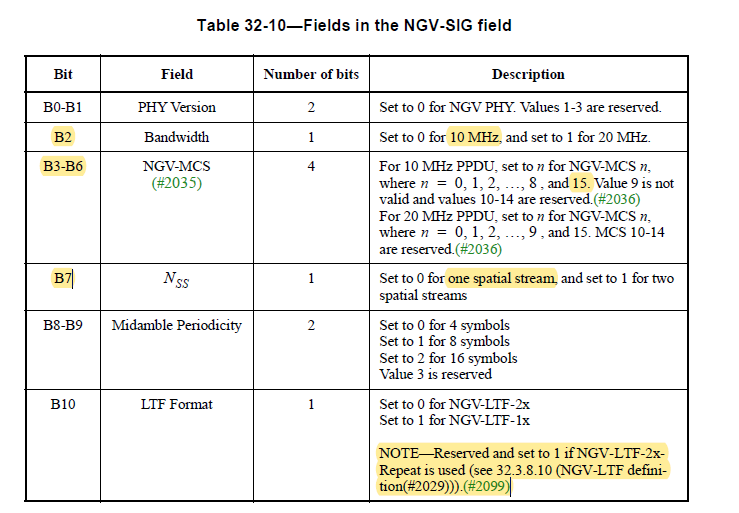
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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3038 | 93.43 | MCS0 or MCS15 should be NGV-MCS 0 or NGV-MCS 15 | as in comment | Accepted. |

***Discussion***



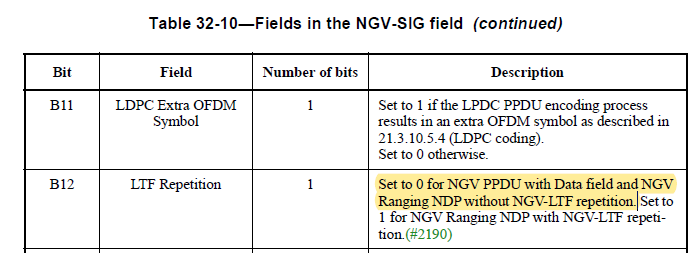
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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3096 | 96.60 | The description in "NOTE" is confusing. It says "Reserved", and also "set to 1 if NGV-LTF-2x-Repeat is used". | Change the NOTE as "NOTE-If NGV-LTF-2x-Repeat is used (see 32.3.8.10 (NGV-LTF definition) with B2 set to 0, B3-B6 set to 15 and B7 set to 0, this field is Reserved and set to 1." | Accepted. |

***Discussion***



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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3097 | 97.11 | The description for value 0 is redundant. Suggest to follow B11, and describe as "Set to 1 for .... Set to 0 otherwise". | As in the comment. | Revised.  Agreed in principle  TGbd Editor: Incorporate the changes in 11-220019-02-00bd-Resolutions to NGV preamble and NGV receive procedure. |

***Discussion***



***To TGbd Editor:*** ***P97L11*** *update the description as below.*

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

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| … |  |  |  |
| B12 | LTF Repetition | 1 | ~~Set to 0 for NGV PPDU with Data field and NGV~~  ~~Ranging NDP without NGV-LTF repetition.~~  Set to 1 for NGV r~~R~~anging NDP with NGV-LTF repetition.(#2190).  Set to 0 otherwise. |
| … |  |  |  |

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

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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3039 | 97.17 | delete perid before B14 | as in comment | Accepted. |

***Discussion***

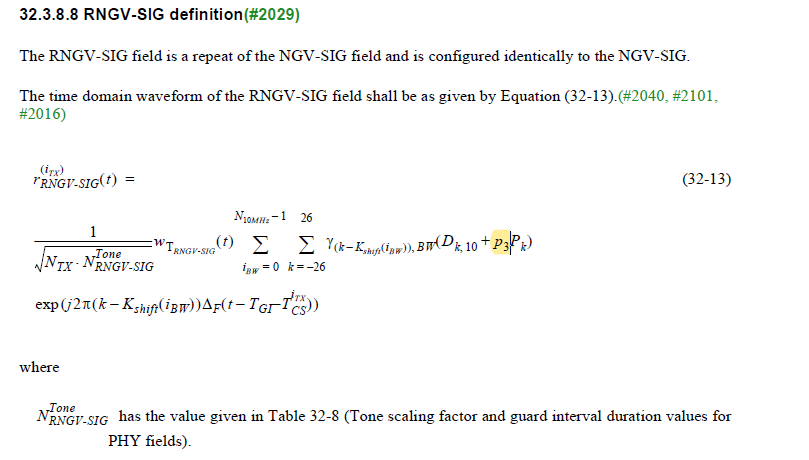


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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3098 | 98.25 | Add the definition of p\_3 in Eq. (32-13), similar to p\_1 definition in Eq. (32-11). | As in the comment. | Revised.  Agreed in principle.  TGbd Editor: Incorporate the changes in 11-22-0019-02-00bd-Resolutions to NGV preamble and NGV receive procedure. |

***Discussion***

***To TGbd Editor:*** ***P98L40*** *update the description as below.*

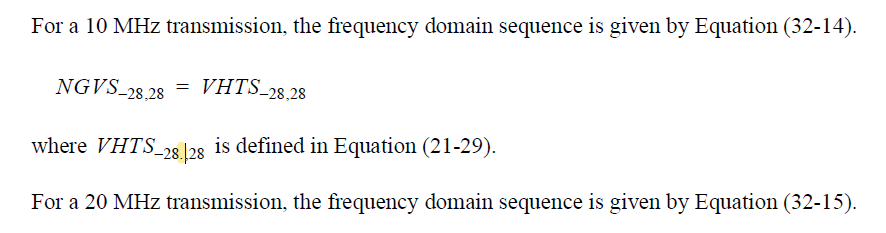
***------------- Begin Text Changes ---------------***

   
 *p*3 is the fourth pilot value in the sequence defined in 17.3.5.10 (OFDM modulation).

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

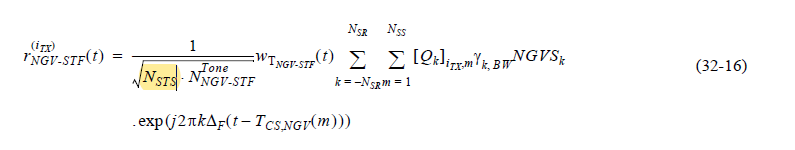
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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3040 | 98.57 | delete period before ,28. -28.,28 should be -28,28 | as in comment | Accepted. |

***Discussion***



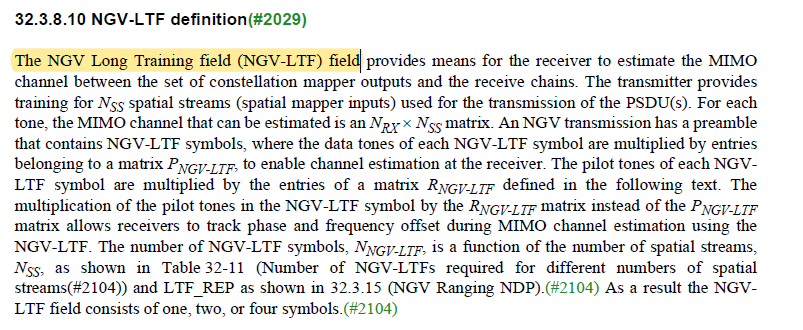
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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3099 | 99.10 | Change "N\_STS" to "N\_SS" in Eq. (32-16). | As in the comment. | Accepted. |

***Discussion***



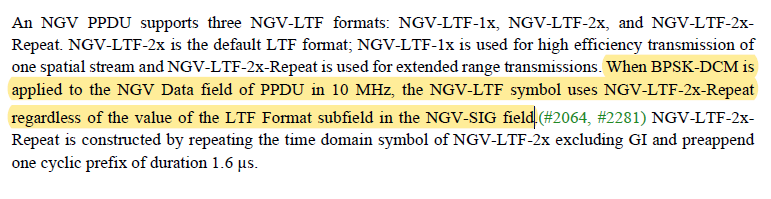
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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3041 | 99.31 | This is the first place to use NGV-LTF such that delete NGV Long Training field and use NGV-LTF instead. | For examplem, "The NGV Long Training field (NGV-LTF) field provides" should be "The NGV-LTF field provides" | Accepted.  Agreed in principle. The intention in the comment seems that this is not the first place to use NGV-LTF. |

***Discussion***



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| **CID** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 3100 | 99.63 | "When BPSK-DCM is applied to the NGV Data field of PPDU in 10 MHz, the NGV-LTF symbol uses NGV-LTF-2x-Repeat", need to add the condition of one spatial stream. It is also not clear how transmitter chooses LTF format and how to signal it. Need to add text to describe that. | Change the text to "A transmitter shall use the NGV-LTF-2x-Repeat format if the NGV Data field of a 10 MHz NGV PPDU is modulated with BPSK-DCM and one spatial stream; the transmitter shall use the NGV-LTF-2x for NGV ranging NDP; Otherwise, the transmitter can choose either NGV-LTF-2x or NGV-LTF-1x. The NGV-LTF format of NGV-LTF-1x or NGV-LTF-2x is signaled by B10 in NGV-SIG field. The NGV-LTF-2x-Repeat format is signaled by the combination of B2 equals 0, B3-B6 equals 15 and B7 equals 0 in NGV-SIG, and B10 is Reserved". | Revised.  Agreed in principle. This description is not enough to cover all the cases for each NGV-LTF format to be used under certain condition. Resolution to CID 3096 is reused for the condition of NGV-LTF-2x Repeat format.  TGbd Editor: Incorporate the changes in 11-22-0019-02-00bd-Resolutions to NGV preamble and NGV receive procedure. |

***Discussion***



In accordance with the 11bd specification,

A transmitter shall use

* The NGV-LTF-2x-Repeat format if the NGV Data field of a 10 MHz NGV PPDU is modulated with BPSK-DCM and one spatial stream
* only the NGV-LTF-2x format, if the NGV Data field is modulated with two spatial streams
* only the NGV-LTF-2x format, if NGV ranging NDP is transmitted

Otherwise, the transmitter can choose either NGV-LTF-2x or NGV-LTF-1x.

***To TGbd Editor:*** ***P99L63*** *update the description as below.*

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

An NGV PPDU supports three NGV-LTF formats: NGV-LTF-1x, NGV-LTF-2x, and NGV-LTF-2x-Repeat. NGV-LTF-2x is the default LTF format; NGV-LTF-1x is used for high efficiency transmission of one spatial stream and NGV-LTF-2x-Repeat is used for extended range transmissions. ~~When BPSK-DCM is applied to the NGV Data field of PPDU in 10 MHz, the NGV-LTF symbol uses NGV-LTF-2x-Repeat regardless of the value of the LTF Format subfield in the NGV-SIG field.~~ A transmitter shall use the NGV-LTF-2x-Repeat format if the NGV Data field of a 10 MHz NGV PPDU is modulated with BPSK-DCM and one spatial stream; the transmitter shall use the NGV-LTF-2x if the NGV Data field is modulated with two spatial streams; the transmitter shall use the NGV-LTF-2x for NGV ranging NDP; otherwise, the transmitter can choose either NGV-LTF-2x or NGV-LTF-1x. The NGV-LTF format of NGV-LTF-1x or NGV-LTF-2x is signaled by B10 in NGV-SIG field. The NGV-LTF-2x-Repeat format is signaled by the combination of B2 set to 0, B3-B6 set to 15 and B7 set to 0 in NGV-SIG field, and B10 is Reserved and set to 1.

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