IEEE P802.11  
Wireless LANs

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| Proposed spec text for NGV ranging NDP | | | | |
| Date: 2021-02-24 | | | | |
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Abstract

This submission contains proposed spec text for ranging in NGV.

Specifically:

* IEEE 802.11bd NGV Ranging NDP frame format.
* IEEE 802.11bd NGV Ranging NDPA fields.

Revision History:

* Rev 0: Initial version of the document

***Insert a new subclause at the end of clause 32.3:***

# 32.3.16 NGV Ranging NDP

The NGV Ranging NDP is a variant of NGV data PPDU but without the Data field. The format of an NGV Ranging NDP is shown in Figure 32-xx (NGV Ranging NDP format).



**Figure 32-xx—NGV Ranging NDP Format**

The NGV Ranging NDP has the following properties:

— The TXVECTOR parameter NUM\_SS is used to encode the *NSS* field of the NGV-SIG and RNGV-SIG.

— The TXVECTOR parameter LTF\_REP indicates the number of repetitions of the NGV-LTF.

The only supported NGV-LTF symbol format is NGV-LTF-2x. The other NGV-LTF symbol formats are disallowed.

The number of NGV-LTF symbols in an NVG Ranging NDP is the product of the number of spatial streams NUM\_SS and the number of LTF repetitions LTF\_REP. The number of LTF repetitions LTF\_REP equals to 1 or 2.



**Figure 32-xx—Example of NGV LTF with N\_SS=2 and LTF\_REP =2**

The construction of the NGV-LTFs in an NGV Ranging NDP is done by repeating the steps in Subclause 32.3.4.7 (Construction of NGV-LTF) LTF\_REP times.

# 32.3.8.3.3 NGV-SIG definition

***Make the following changes:***

**Table 32-10—Fields in the NGV-SIG field**

|  |  |  |  |
| --- | --- | --- | --- |
| **Bit** | **Field** | **Number of Bits** | **Description** |
| … |  |  |  |
| ~~B12-B13~~ | ~~Reserved~~ | ~~2~~ | ~~Reserved and each bit is set to 1.~~ |
| 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 ranging NDP with NGV-LTF repetition |
| B13 | Reserved | 1 | Reserved and set to 1. |
| … |  |  |  |

# 9.3.1.19 VHT/HE/Ranging NDP Announcement frame format

***Insert the following new paragraphs at the end of 9.3.1.19***

When used as part of Non-TB Ranging measurement exchange in 11.21.6.4.4, the I2R N\_STS and I2R Rep subfields are used to indicate the configuration of HE-LTF and NGV-LTF of the following I2R NDP’s. The R2I N\_STS and R2I Rep subfields indicate the configuration of HE-LTF and NGV-LTF of the R2I NDP sent in response by the RSTA. When a Ranging NDP Announcement frame is configured for NGV ranging, the subfields of the STA Info field shall be set as follows:

* LTF Offset shall be set to zero.
* R2I N\_STS shall be set to the number of spatial streams of the R2I NDP minus 1.
* R2I Rep shall be set to 1 if the NGV-LTF in the R2I NDP is not repeated and shall be set to 2 if the NGV-LTF in the R2I NDP is repeated.
* I2R N\_STS shall be set to the number of spatial streams of the I2R NDP minus 1.
* I2R Rep shall be set to 1 if the NGV-LTF in the R2I NDP is not repeated and shall be set to 2 if the NGV-LTF in the R2I NDP is repeated