### **IEEE P802.11Wireless LANs**

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| Comment Resolutions of CID 5090 |
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| Author(s): |
| Name | Affiliation | Address | Phone | Email |
| Steve Shellhammer | Qualcomm |  |  | shellhammer@ieee.org |
| Bin Tian | Qualcomm |  |  | btian@qti.qualcomm.com |

**Abstract**

The document provides comment resolutions for CIDs: 5090.

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| **CID** | **Clause** | **Page/Line** | **Comment** | **Proposed Change** | **Resolution** |
| 5090 | 11.21.6.4.627.3.18a |  | Need to specify STF signal characteristic in the PHY normative sections to include the following constraints:>STA with the largest Nsts sent first in the NDP that's destined to more than 1 STA>Apply per stream CSD>NTX shall be equal to Nsts hence no per chain CSD | As per comment | **Revised**TGaz Editor make edits shown in document 802.11-21/864r1https://mentor.ieee.org/802.11/dcn/21/11-21-0864-01-00az-comment-resolutions-of-cid-5090.docx |

**Discussion (CID 5090)**

* Note, that in D3.0, Page 224, Line 27 the draft states: “When the TXVECTOR parameter NUM\_USER is more than 1, the TXVECTOR parameter NUM\_STS[1] is used to encode the NSTS And Mid-amble Periodicity field of the HE-SIG-A1. Otherwise, the TXVECTOR parameter NUM\_STS is used to encode the NSTS And Mid-amble Periodicity field of the HE-SIG-A1”
* To ensure the correct value of NUM\_STS, it is important to have the first set of LTFs in the Ranging NDP be for a STA with the maximum value of N\_STS. To accomplish this, the LTF Offset in the Ranging NDPA for the STA with the maximum value of N\_STS needs to have the smallest LTF Offset value.
* We agree that that per-stream CSD is applied to the HE-STF same as in 802.11ax and that per-chain CSD is not applied. In fact, in 802.11ax, per-stream CSD is covered in 27.3.11.2.2 Cyclic shift for HE modulated field and per chain CSD is covered in 27.3.11.2.1 Cyclic shift for pre-HE modulated field. Considering that HE-STF is in the HE modulated fields, it is clear that for the HE-modulated fields, which includes HE-STF, per-stream CSD is applied. The equation in HE-STF (27.3.11.9) also clearly indicate which CSD is applied.
* There is already text in the draft, 27.3.18a on the NTX relative to NSTS. To clarify that this also applies to HE-STF we recommend adding “HE-STF” at the appropriate location in the draft.

**Instructions to the Editor**

TGaz Editor Please make the following edits to the Draft 3.0

TGaz Editor, after Equation (11-6b) on Page 163 insert the following equation,

$$Offset\_{m}\leq Offset\_{n} ∀ n\ne m$$

TGaz Editor, right after “MaxOffset : represents the set of indexes of all STA Info fields excluding i-th STA Info field” on Page 163 insert the following,

m: is the index of the STA with the largest N\_STS value, or the index of one of the STAs with the largest N\_STS value if there is more than one STA with the largest N\_STS value.

In 27.3.18a HE Ranging NDP, right before the sentence “— Can use insecure HE-LTFs or Secure HE-LTFs” please insert the following,

* HE-STF in HE Ranging NDP is the same as the HE-STF in a HE SU PPDU

In 27.3.18b HE TB Ranging NDP, right before the sentence “— Can use insecure HE-LTFs or Secure HE-LTFs” please insert the following,

* HE-STF in HE TB Ranging NDP is the same as the HE-STF in a HE TB PPDU

On Page 224, Line 13, please insert the text shown in Red,

No beamforming steering matrix is applied to the waveform. The Beamformed field in HE-SIG-A of a Ranging NDP is always set to 0. For transmission of HE-STFs and HE-LTFs, if NSTS = NTx, Q matrix shall be an Identity matrix, and if NSTS < NTx, Q matrix shall be based on antenna selection matrix with no antenna swapping. Q matrix becomes an Identity matrix when all 0 rows are removed.