IEEE P802.11
Wireless LANs

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| Comment Resolution for CR3128 LB249 |
| Date: 2020-11-5 |
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Abstract

This document proposes resolution to CID 3128 related to TGaz LB249.

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| **CID** | **Clause Number©** | **Page(C)** | **Comment** | **Proposed Change** | **Resolution** |
| 3128 | 27.3.17c | 214 | It is not clear if spec should indicate the Ntx in Secure R2I NDP to be the same for all users even if Nsts between users are different. | Add as a NOTE that Ntx can stay the same during secure R2I NDP transmissions while Qmatrix is used to de-select Nsts i.e., hence Ntx | Revised.Instruct the TGaz editor to include the changes as depicted per document <https://mentor.ieee.org/802.11/dcn/20/11-20-1789-00-00az->  |
| 3270 | 27.3.17a | 202.10 | "For transmission of Passive TB Ranging with dot11PassiveTBRangingAoDImplemented set to 1 ..." seems the following text applies in general, when N\_STS is smaller than the number of physical antennas (for example limitations on the receiving side), the the Q matrix is a partial identity matrix (in the sense that if you remove zero rows, it becomes an identity matrix). | Remove qualifier "For transmission of Passive TB Ranging with dot11PassiveTBRangingAoDImplemented set to 1" and make the statement general. | Revised.Instruct the TGaz editor to include the changes as depicted per document <https://mentor.ieee.org/802.11/dcn/20/11-20-1789-00-00az-> |

Discussion: The spatial expansion specified in 11ax standard can be problematic for 11az ranging as if two or more transmit antennas are used with different CSDs in HE-LTFs, it results in inaccurate ToA measurement result, and if two or more antennas are used with the same CSD in HE-LTFs, it results in RX unintentional beamforming. In order to mitigate against this shortcoming, we need to limit the number of transmit antennas (i.e., Ntx) to be the same as number of spatial streams (i.e., Nsts). The proposed limitation should be for both secure and non-secure TB & NTB measurement exchanges.

TGaz editor modify the text in page 214 line 5-10 as below for HE Ranging NDP

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 Passive TB Ranging with dot11PassiveTBRangingAODImplemented set to 1, when~~ For transmission of HE-LTFs, if NSTS = NTx, Q matrix ~~is~~ shall be an Identity matrix, and ~~when~~ if NSTS < NTx, Q matrix shall be based on ~~is~~ antenna selection matrix with no antenna swapping. Q matrix becomes an Identity matrix when all 0 rows are removed. (#**2302**) 10

TGaz editor insert the text below in page 216 line 15 for HE TB Ranging NDP

* For transmission of HE-LTFs, if NSTS = NTx, Q matrix shall be an Identity matrix, and if NSTS < NTx, Q matrix shall be antenna selection matrix with no antenna swapping. Q matrix becomes an Identity matrix when all 0 rows are removed.

**References:**

**[1] Draft P802.11az\_D2.4**