IEEE P802.11
Wireless LANs

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| CC40 cid428 resolution |
| Date: 2022-10-25 |
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|  |  |  |  |  |

Abstract

This document proposes resolution to CID 428 of CC40 of TGbf

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 428 | 28 | 89.01 | No provision for using different Golay sequences when transmitting different instances of the the same burst to reduce Doppler side lobes. | submission will be provided | Revise |

Discussion:

The reasons for using multiple Golay sequences for doppler estimation were discussed in 11-22-0040. This document proposes the text changes required to allow an optional use of multiple Golay in sensing.

***TGbf Editor: Add a new subfield “Multiple Golays Supported” to the DMG Sensing Capabilities field (Figure 9-1002ay—DMG Sensing Capabilities field format, P55L24) reducing the number of reserved bits to 1***

***TGbf Editor: Add the following text after P56L20 (after paragraph dealing with Golay Seq Len)***

The Multiple Golays Supported subfield is set to 1 to indicate the capability to use different Golays in the TRN fields of PPDUs sent in different DMG sensing instances.

***TGbf Editor: Add a new subfield “Multiple Golays” to the Measurement Setup Control field (Figure 9-1002be—Measurement Setup Control field format) reducing the number of reserved bits to 1.***

***TGbf Editor: Add the following text after P59L47 (after the paragraph about the Orientation Present subfield”***

When present in a DMG Sensing Measurement Setup Request frame, the Multiple Golays subfield is set to 1 to indicate a request by the sensing initiator to use different Golay sequences in the TRN fields of PPDUs sent in different DMG sensing instances. When present in a DMG Sensing Measurement Setup Response, the Multiple Golays subfield is set to 1 to indicate an agreement by the sensing responder to use different Golay sequences in different DMG sensing instances.

***TGbf Editor: Add the following text after P110L53 (after the paragraph starting with “In the DMG Sensing Measurement Setup element”):***

If the initiator has set the Report Type field to either DMG Sensing Image Range-Doppler, DMG Sensing Image Doppler-Direction, DMG Sensing Image Range-Doppler Direction or Target, the initiator may set the Multiple Golays subfield to 1 to request measurement with different Golay sequences per each instance.

***TGbf Editor: Add the following lines to table 28-1 in P117L15***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EDMG\_SENS\_MULTIPLE\_GOLAY | FORMAT is EDMG, EDMG\_MODULATION is EDMG\_SC\_MODE, NUM\_USERS is 1, NUM\_STS is 1  | Set to 1 to indicate that the multiple Golay sequences option is used in this PPDU.  | Y | Y |
| Otherwise | Not Present |
| EDMG\_SENS\_GOLAY\_INDEX | EDMG\_SENS\_MULTIPLE\_GOLAY is present and set to 1. | Set to an integer value between 1 and 8 to indicate the Golay sequence index to be used in the TRN field. | Y | Y |
| Otherwise | Not Present |

***TGbf Editor: Modify Table 28-13 (EDMG-MCS field definition when the Number of SS field is 0) as follows:***

|  |  |  |  |
| --- | --- | --- | --- |
| Subfield | Number of bits | Start bit | Description |
| Multi-Static Sensing | 1 | 9 | Corresponds to TXVECTOR parameter EDMG\_MS\_SENSING. Set to 1 to Indicates that the PPDU is an EDMG Multi-Static Sensing PPDU. Set to 0 otherwise |
| Multi-Static Sensing NSTA | 3 | 10 | Corresponds to TXVECTOR parameter EDMG\_MS\_SENSING\_NSTA. Set to the number of Sync subfields in this EDMG Multi-Static Sensing PPDU. |
| Sense Multiple Golays | 1 | 13 | Corresponds to TXVECTOR parameter EDMG\_SENS\_MULTIPLE\_GOLAY. Set to 1 to indicate that the Golay sequences used in the TRN field are based on sequence index specified in the Sense Golay Index field |
| Sense Golay Index | 3 | 14 | Corresponds to TXVECTOR parameter EDMG\_SENS\_GOLAY\_INDEX. Indicates the index of the Golays sequences to be used in the TRN field. |
| Reserved | 4 | 17 |  |

***TGbf Editor: in (Figure 9-110a—TDD Beamforming Information field format) replace the Reserved field with two fields: Sense Multiple Golays of one bit and Sense Golay Index with 3 bits.***

***TGbf Editor: Change the text in P42L8-10 as follows:***

The EDMG TRN Length, RX TRN-Units per Each TX TRN-Unit, EDMG TRN-Unit P, EDMG TRN-Unit M, EDMG TRN-Unit N, TRN Subfield Sequence Length, BW, Sense Multiple Golays and Sense Golay Index subfields contain the values of the corresponding header fields in the EDMG Multistatic Sensing PPDU

***TGbf Editor: Insert the following text before 28.9.3:***

28.9.2.2.6 TRN subfield definition for EDMG SC PPDUs and EDMG control mode PPDUs

***Editor: Insert the following text as the 4th paragraph in 28.9.2.2.6 (before the paragraph starting with “If the TRN\_BL × NCB length is equal to 64”)***

If the EDMG\_SENS\_MULTIPLE\_GOLAY TX\_VECTOR parameter is set to 1, the basic SC TRN subfield waveform for the 1st and only transmit chain in time domain is defined as follows:

$$r\_{TRN\\_BASIC}^{i\_{G}}\left(q\frac{T\_{c}}{N\_{CB}}\right)=\left(Ga\_{TRN\\_BL×N\_{CB}}^{i\_{G}}\left(q\right)-Gb\_{TRN\\_BL×N\_{CB}}^{i\_{G}}\left(q-TRN\\_BL×N\_{CB}\right)+Ga\_{TRN\\_BL×N\_{CB}}^{i\_{G}}\left(q-2×TRN\\_BL×N\_{CB}\right)+Gb\_{TRN\\_BL×N\_{CB}}^{i\_{G}}\left(q-3×TRN\\_BL×N\_{CB}\right)+Ga\_{TRN\\_BL×N\_{CB}}^{i\_{G}}\left(q-4×TRN\\_BL×N\_{CB}\right)-Gb\_{TRN\\_BL×N\_{CB}}^{i\_{G}}\left(q-5×TRN\\_BL×N\_{CB}\right)\right)$$

Where $i\_{G}$ is the value of the TX\_VECTOR parameter EDMG\_SENS\_GOLAY\_INDEX.

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**References:**