IEEE P802.11
Wireless LANs

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| 6.9.1 Short SSW packet related text for D0.1 |
| Date: 2017-1-11 |
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Abstract

This document proposes specification text for subclause 6.9.1 of the SFD describing Short SSW packet [1].

### x.y.z Short SSW packet

### x.y.z.1 General

The Short SSW packet is transmitted in the Data field of an EDMG PPDU. The format of the Short SSW packet depends on whether it is transmitted as part of an I-TXSS or R-TXSS, and whether it is used for SU MIMO or MU MIMO beamforming training.

The format of the Short SSW packet when transmitted as part of an I-TXSS for SU MIMO beamforming training is shown in Figure 1. The format of the Short SSW packet when transmitted as part of an I-TXSS for MU MIMO beamforming training is shown in Figure 2. The format of the Short SSW packet when transmitted as part of an R-TXSS is shown in Figure 3. The fields of the Short SSW packet are defined in Table 1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Packet Type | Direction | Addressing Mode | Source AID | Destination AID | CDOWN | RF Chain ID | Short Scrambled BSSID | Reserved | FCS |
| Bits | 2 | 1 | 1 | 8 | 8 | 11 | 2 | 10 | 1 | 4 |

1. —Short SSW packet format when the Direction field is 0 (I-TXSS) and Addressing Mode field is 0

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Packet Type | Direction | Addressing Mode | Source AID | Destination AID | CDOWN | RF Chain ID | Setup Duration | Reserved | FCS |
| Bits | 2 | 1 | 1 | 8 | 8 | 11 | 2 | 10 | 1 | 4 |

1. —Short SSW packet format when the Direction field is 0 (I-TXSS) and Addressing Mode field is 1

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Packet Type | Direction | Reserved | Source AID | Destination AID | CDOWN | RF Chain ID | Short SSW Feedback | FCS |
| Bits | 2 | 1 | 1 | 8 | 8 | 11 | 2 | 11 | 4 |

1. —Short SSW packet format when the Direction field is 1 (R-TXSS)
2. - Short SSW field definition

|  |  |
| --- | --- |
| Field | Definition |
| Packet Type | Indicates the type of the packet. Possible values: 0: Short SSW1-3: Reserved |
| Direction | Indicates the direction of the transmission. The Direction field is set to 0 to indicate that the frame is transmitted by the beamforming initiator and set to 1 to indicate that the frame is transmitted by the beamforming responder. |
| Addressing Mode | If set to 0, this indicates whether the Destination AID field contains an individual address. Otherwise, the Destination AID field contains a group address.In case on an individual address, the SU MIMO beamforming training is used. Otherwise, the MU MIMO beamforming training is used. |
| Source AID |  Contains the AID of the STA that transmits the Short SSW frame, except if the transmitting STA is a PCP or an AP in which case this field contains the BSS AID (see 9.4.2.251) |
| Destination AID | Contains the AID of the STA addressed by the Short SSW frame, except if the addressed STA is a PCP or an AP in which case this field contains the BSS AID (see 9.4.2.251) |
| CDOWN | A down-counter indicating the number of remaining Short SSW packet transmissions and LBIFSs to the end of the TXSS/RXSS across all antennas. This field is set to 0 in the last Short SSW packet transmission. |
| RF Chain ID | Identifies the RF chain the transmitter is currently using for this transmission. |
| Short Scrambled BSSID | The content of this field is defined in x.y.z.2. |
| Setup Duration | Specifies the duration, in microseconds, of the setup subphase that starts following the Short SSW frame transmission with CDOWN field equal to 0. |
| Short SSW Feedback | In a RSS, contains the value of the CDOWN field of the Short SSW packet that was received with best quality in the immediately preceding sector sweep. The determination of which packet was received with best quality is implementation dependent. This field is reserved when transmitted as part of an ISS. |
| FCS | The four MSBs of the FCS |

### x.y.z.2 Short Scrambled BSSID field definition

The process for generating the Short Scrambled BSSID field is depicted in Figure 4.



1. —Generation of Short Scrambled BSSID field

The process starts by using the BSSID to generate the scrambled BSSID. The BSSID is divided into three words, *wordi* (0 ≤ *i* ≤ 2), of 16 bits each, where *word0* is the 16 MSB of the BSSID and *word2* is the 16 LSB of the BSSID. For each *wordi*, a *scrambled\_wordi* is created as follows:



where:

*wordi* is the corresponding 16 bit word from the BSSID.

*scramble\_pattern* is ((0x5795×*seed\_value*) mod 215), where *seed\_value* is the value of the Scrambler Initialization field in the L-Header of the PPDU carrying the Short SSW packet.

The scrambled BSSID is generated by the consecutive concatenation of *scrambled\_word0*, *scrambled\_word1* and *scrambled\_word2*.

Finally, the Short Scrambled BSSID field is generated by taking the 10 MSBs of CRC-16-CCITT computed over the scrambled BSSID.

**References:**

1. 11-15-1358-09-00ay-11ay Spec Framework