IEEE P802.11
Wireless LANs

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| OFDM spoofing error length indicator |
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Abstract

This document suggests text that defines a new field within the EDMG-Header-B that indicates whether the spoofing error resultant from values transmitted in the L-Header is smaller than one OFDM symbol.

**Discussion**

* EDMG OFDM PPDUs are spoofed by using the format/structure of a DMG SC PPDU
* The bits of the Length field (except for the 5 LSBs) shall be set so that the spoofing error is smaller than one SC symbol block (512×Tc = ~291 ns)
* The duration of an OFDM symbol (DFT period + GI) is smaller than the duration of a SC symbol block.
	+ IDFT/DFT period is equal to ~194 ns, and the GIs are defined to have duration equal to 18.18 ns, 36.36 ns, and 72.72 ns for short, normal, and long GIs, respectively.
* Thus, the duration of an OFDM symbol is in the range from ~212 ns to ~267 ns and the spoofing error of an EDMG OFDM PPDU (which has a maximum of 291 ns) can be greater than 1 OFDM symbol.
* The fact that the spoofing error of an EDMG OFDM PPDU may be larger than one OFDM symbol may create difficulties.
* Example: MU-MIMO transmission



Single-carrier PPDUs

* Length of the data field plus the length of the TRN field is known, with an error smaller than one SC symbol, with values transmitted in the L-Header
	+ L-Header 🡪 PSDU + padding + TRN + spoofing error
* Length of the TRN field is given in the EDMG-Header-A
* Length of the PSDU is given, on a per-user basis, in the EDMG-Header-B
* Because the spoofing error is smaller than one SC symbol, users are able to determine the length of the padding used to “align” the data streams

OFDM PPDUs

* Different from the previous case, since the spoofing error may be larger than one OFDM symbol, users are not able to determine the length of the padding used to “align” the data streams (and, therefore, the start of the TRN field).

Proposed solution: Indicate whether the spoofing error is smaller than one OFDM symbol or equal to/larger than one OFDM symbol

**Change to D0.4:** 30.3.3.3.5.1 (General)

*Change Table 24 as follows*

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| --- | --- | --- | --- |
| **Field** | **Number of bits** | **Start bit** | **Description** |
| Scrambler Seed | 7 | 0 |  |
| PSDU Length | 22 | 7 | Length of the PSDU field in octets |
| EDMG-MCS1 | 5 | 29 | Indicates the modulation and coding scheme for the first spatial stream. If the IsSCPSDU field in the L-Header is equal to 1, this field contains a SC MCS index. If the IsSCPSDU field in the L-Header is equal to 0, this field contains an OFDM MCS index. |
| EDMG-MCS2 | 5 | 34 | Indicates the modulation and coding scheme for the second spatial stream and is reserved if the number of spatial streams is 1. If the IsSCPSDU field in the LHeader is equal to 1, this field contains a SC MCS index. If the IsSCPSDU field in the L-Header is equal to 0, this field contains an OFDM MCS index |
| NUC Applied | 1 | 39 | If the MCS indicated by either the EDMG-MCS1 field or the EDMG-MCS2 field does not support non-uniform constellation, uniform constellation was applied to both streams and this field is reserved.Otherwise and if this field is set to 1, non-uniform constellation was applied at the transmitter for the MCSs indicated by the EDMG-MCS1 and EDMG-MCS2 fields. If set to 0, uniform constellation was applied. |
| Spoofing error length indicator | 1 | 40 | If set to 0 in an EDMG OFDM PPDU, indicates that the spoofing error, defined as the difference between the PPDU duration calculated based on L-Header and the actual PPDU duration, is smaller than *TOFDM-SYM*, where *TOFDM-SYM = TDFT + TGI*, *TDFT* is the OFDM IDFT/DFT period, and *TGI* is the guart interval duration, which is determined by bits B2 and B3 of the Last RSSI field within the L-Header of the PPDU. Otherwise, if set to 1 in an EDMG OFDM PPDU, indicates that the spoofing error is greater than or equal to *TOFDM-SYM*. For EDMG SC PPDUs, this field is reserved. |
| Reserved | ~~24~~ 23 | ~~40~~ 41 |  |

*Add the following paragraph after Table 24 as follows*

The value of the Spoofing Error Length Indicator subfield within all EDMG-Header-B fields present in an EDMG MU PPDU shall be the same.

**SP:** Do you agree to include the text proposed in 17/1182r1 into the 802.11ay draft spec?

**References:**