IEEE P802.11
Wireless LANs

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| CIDs 2709, 2710, 2711 |
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Abstract

This document discusses CIDs 2709, 2710 and 2711.

# Introduction

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| --- | --- | --- | --- | --- | --- |
| 2709 | 19.3.21 | 3037 | 11 | "non-HT preamble" is used in Figure 19-27 but it is not defined explicitly. It should be defined as L-STF + L-LTF + L-SIG. Subclause 19.3.9.3 (Non-HT portion of the HT-mixed format preamble) may be an appropriate place to define it.Note that the term "non-HT preamble" is also used in P3033 (Figure 19-22) and in P3044L14 (parameter in eq. 19-90 and 19-91), however, it means L-STF + L-LTF which is different from the usage here. I think these should be renamed. Comments for this issue are submitted sepalately. | In 19.3.9.3 (Non-HT portion of the HT-mixed format preamble) at P2976L48, change the sentence "The transmission of the non-HT training fields and the L-SIG as part of ..." to "The transmission of non-HT preamble (the non-HT training fields and the L-SIG) as part of ..." |

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| 2710 | 19.3.20 | 3033 | 17 | "non-HT preamble" is used to indicate training fields "L-STF + L-LTF". It is confusing because "non-HT portion of the HT-mixed format preamble" includes L-SIG. In P3037L11 (Figure 19-27), non-HT preamble seems to include L-SIG.Since the term "HT-Training" is used for "HT-STF + HT-LTF" in the same figure, "training" is better than "preamble" for "L-STF + L-LTF". | Replace "Non-HT Preamble" with "Non-HT Training" in the figure 19-22. |

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| 2711 | 19.4.3 | 3044 | 14 | "non-HT preamble" is used to indicate training fields "L-STF + L-LTF". It is confusing because "non-HT portion of the HT-mixed format preamble" includes L-SIG. "HT preamble" is also used to indicate training fields HT-STF + HT-LTFs, however, HT preamble in subclause 19.3.9 includes HT-SIG.The term "training" is better than "preamble" in subclause 19.4.3. | Replace "T\_LEG\_PREAMBLE" with "T\_LEG\_TRAINING" (eq 19-90 and 91, P3044L14).Replace "T\_HT\_PREAMBLE" with "T\_HT\_TRAINING" (eq 19-90 and 91, P3044L15).Replace "T\_GF\_HT\_PREAMBLE" with "T\_GF\_HT\_TRAINING" (eq 19-92 and 93, P3044L18).Replace "non-HT preamble" in P3044L14 with "non-HT training fields".Replace "HT preamble" in P3044L15 with "HT training fields".Replace "preamble" in P3044L18 with "training fields". |

# Discussion

## 2711

CID 2711 is about he highlighted text below.



The comment likely stems from the fact that typically “preamble” means everything before the data field. At least, that seems to be the convention starting with HT. For Clause 17 however, it appears preamble is indeed defined as L-STF + L-LTF only (see 17.3.3).



As such, the use of the term “non-HT preamble” on page 3044 is strictly speaking correct. It’s true that there is some similarity with the term “non-HT portion of HT preamble”, but even though the terms are similar, the wording is clearly distinct.

The main issue may be referring to T\_HT\_PREAMBLE as “the HT preamble in HT-mixed format”. Per 19.3.9.2, the HT-mixed format preamble contains more than just the training fields.



On page 3044 however, T\_HT\_PREAMBLE only refers to the HT-specific training fields.

Proposed resolution:

Revised

* Change T\_HT\_PREAMBLE to T\_HT\_TRAINING
* Change T\_GF\_HT\_PREAMBLE to T\_GF\_HT\_TRAINING

Modify text on pages 3043 and 3044 as shown below

|  |  |
| --- | --- |
| TXTIME = *TLEG\_PREAMBLE* + *TL\_SIG* + *~~T~~~~HT\_PREAMBLE~~* *THT\_TRAINING* + *THT\_SIG*+ *T*SYM × $\left⌈\frac{T\_{SYMS}×N\_{SYM}}{T\_{SYM}}\right⌉$ + *SignalExtension* | (19-90) |
| TXTIME = *TLEG\_PREAMBLE* + *TL\_SIG* + *~~T~~~~HT\_PREAMBLE~~* *THT\_TRAINING* + *THT\_SIG*+ *T*SYM × *NSYM* + *SignalExtension* | (19-91) |
| TXTIME = *~~T~~~~GF\_HT\_PREAMBLE~~TGF\_HT\_TRAINING* + *THT\_SIG* + *TSYMS* × *NSYM* + *SignalExtension* | (19-92) |
| TXTIME = *~~T~~~~GF\_HT\_PREAMBLE~~TGF\_HT\_TRAINING* + *THT\_SIG* + *TSYM* × *NSYM* + *SignalExtension* | (19-93) |

Where

*TLEG\_PREAMBLE* = *TL-STF* + *TL-LTF* is the duration of the non-HT preamble

*~~T~~~~HT\_PREAMBLE~~* *THT\_TRAINING* is the duration of the HT ~~preamble~~training in HT-mixed format, given by *THT* – *STF* + *THT* – *LTF*1 + (*NHT*-*LTF* – 1) *THT* – *LTFs*

*~~T~~~~GF\_HT\_PREAMBLE~~* *TGF\_HT\_TRAINING* is the duration of the ~~preamble~~HT training in HT-greenfield format, given by *THT* – *GF* – *STF* + *THT* – *LTF*1 + (*NHT*-*LTF* – 1) *THT* – *LTFs*

## 2709

CID 2709 is about the highlighted text shown below. Only part of Figure 19-27 is shown.



Figure 19-27 is essentially a flowchart showing how to move through the reception process. The specific step shown above is about deciding whether the format of the signal is GF or not. If it is, a HT\_SIG GF preamble is expected. If not, the regular L-SIG is expected and needs to be evaluated.

The two possible outcomes are labelled in Figure 19-27 as “HT\_SIG (GF preamble)” and “L-SIG (MF or non-HT preamble)”. The commenter argues that “non-HT preamble” is not clearly defined and used in a different meaning elsewhere.

Since the decision is more about the format of the packet, the issue could be avoided by referring to the format of the received packet, rather than the preamble. I.e.: replace “(MF or non-HT preamble)” with “(MF or non-HT format)” and replace “HT\_SIG (GF preamble)” with “HT\_SIG (GF format)”. With this, the decision flow is unaffected and the language is less ambiguous.

Proposed resolution:

Revised.

In Figure 19-27, replace “(MF or non-HT preamble)” with “(MF or non-HT format)” and replace “HT\_SIG (GF preamble)” with “HT\_SIG (GF format)”.

## 2710

CID 2710 is about the use of the term “non-HT preamble” in Figure 19-22, as highlighted below.



The commenter argues that this is not the right term. The comment is similar to what was discussed under CID 2711. As explained there, use of the term “non-HT preamble” to indicate L-STF + L-LTF is consistent with the way the preamble is defined in 17.3.3.

Proposed resolution:

Reject.

Use of the term “non-HT preamble” to indicate L-STF + L-LTF is consistent with the way the preamble is defined in 17.3.3.

## Additonal changes

The resolution of the three comments above is based on the observation that for Clause 17, non-HT preamble means L-STF and L-LTF. With this clarification, there are some additional places in the document where wording is inconsistent with this.

For completeness, it is proposed to make the additional changes shown below as related to these comments.

**Page 2916, line 56:**

**17.3.7 PHY data modulation and modulation rate change**

~~The PHY preamble shall be transmitted using an OFDM modulated fixed waveform.~~ The SIGNAL field, which follows the non-HT preamble, ~~BPSK-OFDM modulated with coding rate 1/2,~~ shall indicate the modulation and coding rate that shall be used to transmit the MPDU. The transmitter (receiver) shall initiate the modulation (demodulation) constellation and the coding rate according to the RATE indicated in the SIGNAL field. The MPDU transmission rate shall be set by the DATARATE parameter in the TXVECTOR, issued with the PHYTXSTART.request primitive described in 17.2.2 (TXVECTOR parameters).

**Page 2929, line 8:**

The PHY proceeds with PSDU transmission through a series of data octet transfers from the MAC. The PHY header parameter, SERVICE, and PSDU are encoded by the convolutional encoder with the bitstealing function described in 17.3.5.6 (Convolutional encoder). Transmission can be prematurely

terminated by the MAC through the PHY-TXEND.request primitive. Normal termination occurs after the transmission of the final bit of the last PSDU octet, according to the number supplied in the ~~OFDM PHY preamble~~ LENGTH field of the SIGNAL field.

**Page 2931, line 57:**

The received PSDU bits are assembled into octets, decoded, and presented to the MAC using a series of PHY-DATA.indication(DATA) primitive exchanges. The rate change indicated in the SIGNAL field shall be initiated from the SERVICE field data of the PHY header, as described in 17.3.2 (PPDU format). The PHY shall proceed with PSDU reception. After the reception of the final bit of the last PSDU octet indicated by the ~~PHY preamble~~ LENGTH field of the SIGNAL field, the receiver shall be returned to the RX IDLE state, as shown in Figure 17-19 (Receive PHY(#1002)). A PHY-RXEND.indication(NoError) primitive shall be issued.