IEEE P802.11
Wireless LANs

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| D6.0 Comment Resolution on some CIDs in Clause 8.4.2.173 and 10.1.4.3 |
| Date: 2013-11-04 |
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Abstract

This document proposes resolutions on following CIDs:

* CIDs 10444, 10650, 10236, 10448, and 10682 in sub-clause 8.4.2.173
* CIDs 10651 and 10649 in sub-clause 10.1.4.3.2
* CIDs 10668, 10652, 10653 in sub-cluase 10.1.4.3.4

Changes in the text refer to: Draft P802.11ai/D6.2

Comments (CID 10444)

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| 10444 | 8.4.2.173 | 66 | 59 | from Editor: Awkward wording, reword to make it clearer.Please consult with Editor | Reword sentence | RevisedSee the proposed text in 11-13/1431 |

**Proposed Text**:

***Change the sentence in Section 8.4.2.173 of TGai Draft D6.2 as follows: (P61L54)***

The PHY Support Criterion subfield indicates the ~~supported~~ PHY type of the responding STA that is preferred by the STA that transmits the Probe Request. Only the STA that supports the indicated PHY type ~~applied in the decision to~~ responds to the Probe Request frame as described in 10.1.4.3.4 (Criteria for sending a probe response). The meaning of the values for the PHY Support Criterion is shown in Table 8-248c (PHY Support Criterion subfield).

Comments (CID 10682)

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| **CID** | **Clause**  | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 10682 | 8.4.2.173 | 68 | 1 | Max Channel Time is only the "time that the transmitter of the Probe Request frame will be available after the transmission of the Probe Request frame to receive the probe responses" if it senses something on the medium | Add words to that effect | Revised.Agree with the commenterSee the proposed text in 11-13/1431 |

**Proposed Text**:

***Change the sentence in Section 8.4.2.173 of TGai Draft D6.2 as follows: (P62L48)***

The Max Channel Time field contains the value of MaxChannelTime parameter of the MLME-SCAN.request primitive represented in an unsigned integer of units of 200 μs. It indicates the time that the transmitter of the Probe Request frame will be available after the transmission of the Probe Request frame to receive the probe responses if the STA senses the channel is not idle during MinChannelTime.

Comments (CID 10650, 10651, 10652, 10653)

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| **CID** | **Clause**  | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 10650 | 8.4.2.173 | 67 | 53 | If nothing happens by the end of the MinChannelTime, you just move on to the next channel. Therefore it is not true that MaxChannelTime indicates the time the transmitter of a probe will be available to receive the response | Advertise MinChannelTime rather than MaxChannelTime, as this is the amount of time a scanning STA is guaranteed to be on the channel | RejectedSee the rationale in 11-13/1431 |
| 10651 | 10.1.4.3.2 | 102 | 39 | If nothing happens by the end of the MinChannelTime, you just move on to the next channel. Therefore it is not true that MaxChannelTime indicates the time the transmitter of a probe will be available to receive the response | Advertise MinChannelTime rather than MaxChannelTime, as this is the amount of time a scanning STA is guaranteed to be on the channel | RejectedSee the rationale in 11-13/1431 |
| 10652 | 10.1.4.3.4 | 103 | 35 | If nothing happens by the end of the MinChannelTime, you just move on to the next channel. Therefore it is not true that MaxChannelTime indicates the time the transmitter of a probe will be available to receive the response | Advertise MinChannelTime rather than MaxChannelTime, as this is the amount of time a scanning STA is guaranteed to be on the channel | RejectedSee the rationale in 11-13/1431 |
| 10653 | 10.1.4.3.4 | 104 | 2 | If nothing happens by the end of the MinChannelTime, you just move on to the next channel. Therefore it is not true that MaxChannelTime indicates the time the transmitter of a probe will be available to receive the response | Advertise MinChannelTime rather than MaxChannelTime, as this is the amount of time a scanning STA is guaranteed to be on the channel | RejectedSee the rationale in 11-13/1431 |

Discussion on CID 10650, 10651, 10652, and 10653

After a STA transmits a Probe Request, it waits for Probe Responses during MinChannelTime. If it senses channel is not idle, then it further waits for Probe Responses during MaxChannelTime.

So, MinChannelTime is the minimum duration for a STA to stay on a channel, and the MaxChannelTime is the maximum duration for a STA to stay on a channel.

WiFi Alliance has fixed the value of MinChannelTime, so most of the STAs in the market use the same MinChannelTime and it is not necessary to advertise the MinChannelTime.

If the MaxChannelTime is advertised to the AP, then the AP can 100% sure that the STA is not on the channel after MaxChannelTime and unnecessary Probe Responses can be avoided by stopping the transmission of Probe Response by the AP after MaxChannelTime.

The AP should transmit Probe Response after MinChannelTime since the STA may be on the channel after MinChannelTime.

So, indicating MaxChannelTime is more useful for preventing unnecessary Probe Responses

Comments (CID 10668)

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| **CID** | **Clause**  | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 10668 | 10.1.4.3.4 | 103 | 35 | FILS relies on a STA noticing when the probe request actually went on air and then managing to stay on channel for the specified channel duration after that. In reality many STAs will have a deadline for channel time in certain circumstances. If a probe didn't get to the medium until near the deadline the STA may go off channel anyway. Similarly many access points may be able to limit scheduling of a probe response to channel time but they can't cancel stuff in their transit pipeline so may well transmit after the probe requests channel time in the presence of contention | Allow for some "leakage" | RevisedSee the proposed text in 11-13/1431 |

Discussion on CID 10668

The commenter concerns that the APs cannot cancel the probe response in their transmit pipeline.

But, we have similar feature in the baseline

MSDU lifetime is defined in legacy spec, and it uses the similar concept of discarding a frame after lifetime even though the frame is in the queue.

MSDU lifetime is a mandatory feature of 802.11:

“QSTAs shall maintain a transmit MSDU timer for each MSDU passed to the MAC………. If the value of this timer exceeds the appropriate entry in dot11EDCATableMSDULifetime, then the MSDU, or any remaining, undelivered fragments of that MSDU, shall be discarded by the source QSTA without any further attempt to complete delivery of that MSDU.”

 (Reference: Clause 9.19.2.6 Retransmit Procedure of IEEE 802.11-2012 & Clause 9.9.1.6 Retransmit procedures of IEEE 802.11e)

We already have a similar mandatory feature of allowing discarding a frame after lifetime even though the frame is in the queue in the legacy spec.

But, some people are concerning on the difficulty of discarding a frame in the queue, so we propose to change “shall” to “should” to allow for some leakage.

**Proposed Text**:

***Change the sentence in Section 10.1.4.3.4 of TGai Draft D6.2 as follows: (P97L35)***

If the Max Channel Time field of the FILS Request Parameters element is present in the Probe Request frame, the responding FILS STA ~~shall~~ should discard the Probe Response frame that has not been transmitted as a response to the Probe Request frame when the elapsed time measured from the end of the reception of the Probe Request frame by the MAC entity of the responding STA exceeds the time indicated by value of the Max Channel Time field of the FILS Request Parameters element of the Probe Request frame.

Comments (CID 10649)

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| 10649 | 10.1.4.3.2 | 102 | 39 | "When the Max Channel Time field of the FILS Request Parameters element of the Probe Request frame is present" -- well, when is it present, in fact? Nothing seems to ever require its presence | Add some words to explain when it ought to be present | RevisedSee the proposed text in 11-13/1431 |

**Proposed Text**:

***Change the sentence in Section 10.1.4.3.2 of TGai Draft D6.2 as follows: (P96L39)***

A FILS STA may indicate its MaxChannelTime in the Max Channel Time field of the FILS Request Parameters element of the Probe Request frame to prevent the responding STA from transmitting the Probe Response after the time indicated by the MaxChannelTime is elapsed.

~~When the Max Channel Time field of the FILS Request Parameters element of the Probe Request frame is~~

~~Present, the~~ The Max Channel Time field shall be set to the MaxChannelTime of the MLME-SCAN.request primitive as defined in 8.4.2.173 (FILS Request Parameters element).

Comments (CID 10448)

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| 10448 | 8.4.2.173 | 67 | 55 | "of units of 200 [micro seconds]" --- why is 200 used as a basis. This seems akward. 100 would feel more natural and would make calculations much more easier | replace 200 --> 100 | RejectedSee the rationale in 11-13/1431 |

Discussion on CID 10448

The Max Channel Time field is just 1 octet.

If we use units of 100 μs, then the Max Channel Time field can indicate up to 25.5 ms.

If we use units of 200 μs, then the Max Channel Time field can indicate up to 51.0 ms.

In a very dense environment, it will take more time for channel access by the AP to transmit Probe Responses, and STA may not find some APs if we limit the Max Channel time value less than or equal to 25.5 ms.

It is safe to use a little bit larger range, up to 51.0 ms for such dense environment.

It is better to use units of 200 μs to allow enough range for Max Channel Time.

Comments (CID 10236)

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| **CID** | **Clause**  | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 10236 | 8.4.2.173 | 67 | 16 | Values 3 through 7 in Table 8-248c can be combined and expressed in one row. | As in comment. | AcceptedThe table has been already modified in D6.2 |