IEEE P802.11
Wireless LANs

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| CC08 – Normative Text for CIDs allocated to Lin Cai |
| Date: 2013-05-14 |
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Abstract

The document contains the text changes for the resolved comments of the submission 13-264.

**8.4.2.187** Differentiated Initial Link Setup element

*Instructions to Editor: Modify the Clause 8.4.2.187 with the following text:*

The Differentiated Initial Link Setup element includes the conditions for a STA to determine the initial link setup category (ILSC) value for the duration specified in the element. The Differentiated Initial Link Setup element is optionally present in the Beacon, and Probe Pesponse frames. The Differentiated Initial Link Setup element is defined in **Figure 8-183al**.

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| --- | --- | --- | --- |
|  **Element ID** | **Length** | **ILSC Information** | **ILS Time**  |

 **Octets: 1 1 Variable 1**

 **Length**

**Figure 8-183al Differentiated Initial Link Setup element format**

The Element ID field is equal to the Differentiated Initial Link Setup element value in Table 8-54.

The Length field is 1 octet long. It specifies the length of Differentiated Initial Link Setup element in octets.

The ILSC Information field is of variable length, it indicates the conditions to determine the value of the initial link setup category (ILSC) for the time as indicated in the ILS Time field.

The ILSC Information field contains one ILSC Type bitmap subfield and at least one of the four optional subfields including ILS User Priority, MAC Address Filter, ILS Synchronization, and Vendor Specific Category, as specified in Figure 8-183am.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ILSC Type**  | **ILS User Priority**  | **MAC Address Filter** | **ILS Synchronization** | **Vendor Specific Category** |

**Octets:**  1 0 or 1 0 or 1 0 or 1 0 or variable length

**Figure 8-183am — ILSC Information field format**

The ILSC Type subfield is 1 octet in length and it is used to indicate the presence of the optional subfields in the ILSC Information field, as defined in Figure 8-183al. A bit value of 1 in the subfields of ILS User Priority, MAC Address Filter, and Vendor Specific Category subfields indicates that the corresponding ILSC subfield is present and at least one of the bits is set to 1.

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**Figure 8-183al ILSC Type subfield format**

|  |  |  |  |
| --- | --- | --- | --- |
| ILS User Priority | Vendor Specific Category  | MAC Address Filter  | Reserved |

Bit: 1 1 1 5

The ILS User Priority subfield is defined in Figure 8-183am, and the ILS user priorities are mapped from user priority (UP). ILS UP bit 0 is set to 1only if the value of UP is between 4 and 7. ILS UP bit 1 is set to 1only if the value of UP is between 0 and 3. ILS UP bit 2 is set to 1only if the STA has no data traffic. .

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| --- | --- | --- | --- |
| ILS User Priority bit 0 | ILS User Priority bit 1 | ILS User Priority bit 2 | Reserved |

Bit: 1 1 1 5

**Figure 8-183am ILS User Priority subfield format**

The Vendor Specific Category subfield is defined in Figure 8-183an, which includes 1 byte length subfield, variable length OI subfield and Vendor Specific Category subfield.

|  |  |  |
| --- | --- | --- |
| **Length** | **OI** | **Vendor Specific Category**  |

**Octets: 1 variable length vairable length**

 **Figure 8-183an Vendor Specific Category subfield format**

The OI subfield is defined in 8.4.1.31.

The Vendor Specific Category subfield is a variable length field whose content is defined by the entity identified in the OI field.

The MAC Address Filter subfield is 1 octet in length as illustrated in figure 8-183ao. The Bit Pattern Length subfield is 3 bits in length, and the Bit Pattern subfield is 5 bits in length...

B0 B2 B3 B7

|  |  |
| --- | --- |
| Bit Pattern Length | Bit Pattern |

Bits: 3 5

**Figure 8-183ao MAC Address Filter subfield**

The usage of the Bit Pattern Length subfield and Bit Pattern subfield is defined in Table 8-183ao. The Bit Pattern Length subfield specifies the number of bits and the position of the bits in the Bit Pattern subfield that are used for MAC address filtering. The values of the bits specify the MAC addresses of the STAs that are allowed to attempt initial link setup .

Table 8-183a0 MAC Address Filter subfield

|  |  |
| --- | --- |
| Bit Pattern Length valueb2 b1 b0 | Bit Pattern  |
| Bit 3 | Bit4 | Bit 5 | Bit 6 | Bit 7 |
| 001 | 0 | 0 | 0 | 0 | Used for MAC address filtering |
| 010 | 0 | 0 | 0 | Used for MAC address filtering |
| 011 | 0 | 0 | Used for MAC address filtering |
| 100 | 0 | Used for MAC address filtering |
| 101 | Used for MAC address filtering |
| 000 | Reserved |
| 110-111 | Reserved |

|  |  |  |
| --- | --- | --- |
|  | Synchronization Detected | Reserved |
| Bits: | 1 | 7 |

**Figure 8-183ap** ILS Synchronization subfield

The value 1 of the Synchronization Detected subfield of ILS Synchronization subfield indicates that the AP has detected peak of transmitted Initial Link Setup frames after the AP has transmitted Beacon orProbe Response frame. Value 0 indicates that the peak is not detected.

The ILS Time field is an unsigned integer that specifies the time, expressed in units of 10 ms beginning with the transmission of the frame with Differentiated Initial Link Setup element and ending after the ILS Time elapses, during which only the STAs with the ILSC value equal to 1 are allowed to attempt initial link setup to the AP; all categories of STAs can attempt initial link setup with the AP after this time expires.

**10.25.10** Differentiated Initial Link Setup

*Instructions to Editor: Modify the Clause 10.25.4 with the following text:*

To alleviate management frame congestion that may occur when excess initial links are set up concurrently, the differentiated link setup procedure provides a method for an AP to moderate non-AP STAs association events with the AP.

**10.25.10.1** AP procedures for differentiated initial link setup

*Instructions to Editor: Modify Clause 10.25.4.1 with the following text:*

An AP with dot11FILSActivated equal to true may limit the number of STAs that are allowed to attempt association concurrently through the setting of the ILSC in the ILSC Information field of the Differentiated Initial Link Setup element.

The AP may set the ILS User Priority subfield, MAC Address Filter subfield, and/or Vendor Specific Category subfield to allow a number of STAs to atttempt initial link setup. The exact decision which STAs are allowed for initial link setup is is out of scope of this document..

 The exact logic how the AP sets the value of the ILS Time is is out of scope of this document..

The AP may ignore initial link setup from STAs that are not allowed access at the time specified in ILS Time subfield of the ILSC Information field.

**10.25.10.2 Non-AP STA procedures for differentiated initial link setup**

*Instructions to Editor: Modify Clause 10.25.4.2 with the following text:*

When a non-AP STA with dot11FILSActivated equal to true receives a Beacon, Probe Response frame including Differentiated Initial Link Setup element, the STA shall check the ILSC information subfield of the Differentiated Initial Link Setup element.

A STA is considered an ILSC STA with its ILSC value set to 1. An ILSC STA is allowed for fast initial link setup only when it satisfies the condition specified in each and every optional subfield that is present in the ILSC information field. If the STA does not satisfy one or more optional subfields present in the ILSC information field, then the STA is not considered an ILSC STA and its ILSC value is set to 0. A STA with ILSC value set to 0 shall check the ILS Time field and postpone link setup until the time specified in ILS Time field elapses. A logical AND operation of all the conditions in the present optional subfields is used to determine whether the STA is an ILSC STA. The logical AND is not needed if only one optional subfield is present.

If ILS User Priority subfield is present, the STA shall check the ILS User Priority subfields. A bit value of 1 in the ILS User Priority bit n (n=0,1,2) subfield, indicates that the STA of the corresponding user priority satisfies the ILS User Priority condition. A bit value of 0 indicates that STAs of the corresponding User Priority does not satisfy the ILS User Priority condition. If a STA carries more than one types of traffic, the ILS User Priority condition is satisified if any of the bits of ILS User Priority bit 0-2 is set to 1 in the ILS User Priority subfield.

If Vendor Specific Category subfield is present, a STA shall check the OI subfield . If the STA can understand the OI subfield, the STA shall check the following Vendor Specific Category subfield. Otherwise, the STA shall skip the Vendor Specific Category subfield and assume the condition specified in Vendor Specific Category is satisfied..

If MAC Address Filter subfield is present, a STA shall exclusive-OR (XOR) the last 5 LSBs of its MAC address with Bit3 to Bit7 of theBit Pattern subfield specified in MAC Address Filter subfield. If the last n bits of the result are zero, where n is specified in the Bit Pattern Length field, the MAC address condition is satisfied. .

A STA with its ILSC value of 1 is allowed to attempt initial link setup with the AP immediately. A STA with its ILSC value of 0 shall set a timer to the value specified in the ILS Time field of the Differentiated Initial Link Setup element. A STA with its ILSC value of 0 can attempt initial link setup when the timer elapses to 0.

If the ILS Synchronization subfield is present, a STA may delay the transmission of the initial link setup for a random delay that is shorter than the Beacon Interval of the target AP.

**Motion-1:** To authorize the Editor to incorporate the text changes proposed in contribution 11-13-602-00-00ai-normative-text-for-CIDs-allocated –to-LinCai to the draft TGai Specification Document.

Yes: \_\_\_\_\_\_\_\_\_\_\_\_;  No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_;  Abstain: \_\_\_\_\_\_\_\_\_\_\_\_\_

[Result of Motion]