IEEE P802.11
Wireless LANs

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| LB266 CR on CID 12318 ESS Report Element |
| Date: 2022.07.29 |
| Author(s): |
| Name | Company | Address | Phone | email |
| Guogang Huang | Huawei Technologies | F3-6-A124, Huawei Base, Bantian, Longgang, Shenzhen, Guangdong, China, 518129 |  | huangguogang1@huawei.com |
| Yuchen Guo |  |  |  |
| Yunbo Li |  |  |  |
| Yousi Lin |  |  |  |
| Ming Gan |  |  |  |

Abstract

This submission contains proposed comment resolutions to comments on P802.11be D2.0.

CID 12318 is resolved.

Revisions:

- Rev 0: Initial version of the document.

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| --- | --- | --- | --- | --- | --- | --- |
| CID | Commenter | Clause Number | Page.Line | Comment | Proposed Change | Resolution |
| 12318 | Guogang Huang | 9.4.2.256 |  | please clarify the usage of ESS Report element for an AP MLD | As in comment | REVISEDAgreed in principle. An Extended ESS Information field is added within the ESS Report element.Instructions to the editor:Please make the changes to the spec as shown in 11/22-1225r1 |

Discussion:

*(Page 1714)The Planned ESS subfield indicates whether the BSS is part of an ESS that is planned with several BSSs in an overlapping configuration.*

*(Page 2904)If the AP transmits an ESS Report element, it shall set the Planned ESS subfield in the ESS Information field to 1 if it is part of an ESS that is planned with several BSSs in overlapping configuration, whereby an associated STA may adjust its BSS transition algorithms accordingly. Otherwise, it shall set the Planned ESS subfield to 0.*

Based on the above description of the Planned ESS subfield, each AP affiliated with an AP MLD shall set the Planned ESS subfield of the ESS Report element to 1 to assist the legacy STA’s roaming. But for the non-AP MLD, it cannot know whether the associated AP MLD is part of an ESS that is planned with several BSSs or AP MLDs in overlapping configuration. In other words, the non-AP MLD cannot know whether these is candidate BSS(s) or AP MLD(s) to be transitioned. Hence, we need to define a new field, i.e. Planned ESS For MLDs to assist the non-AP MLD’s roaming. Similarly, a new field, i.e. Edge Of ESS For MLDs field is added to indicate whether the current AP MLD is at the edge of the ESS.

In the following, I will give two examples to explain the setting of these subfields. In scenario 1, since there is no neighboring AP or AP MLD, the Planned ESS For MLDs subfield is set to 0. But for a legacy STA, since it can initiate a BSS transition between affiliated AP 1 and affiliated AP 2, the Planned ESS subfield is set to 1.



Scenario 1: Single AP MLD

In scenario 2, since a non-AP MLD can initiate a BSS transition among AP MLD 1, AP MLD 2 and AP 3, the Planned ESS For MLDs subfield is set to 1.



Scenario 2 Multiple APs or AP MLDs belonging to the same ESS

***TGbe editor: Modify the following subclause as follows:***

* ESS Report element(11ax)

The format of the ESS Report element is shown in Figure 9-894 (ESS Report element format(11ax)).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  | Element ID | Length | Element ID Extension | ESS Information | Extended ESS Information |
| Octets: | 1 | 1 | 1 | 1 | 0 or 1 |
| * ESS Report element format(11ax)
 |

The Element ID, Length and Element ID Extension fields are defined in 9.4.2.1 (General).

The format of the ESS Information field is defined in Figure 9-895 (ESS Information field format(11ax)).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Planned ESS | Edge Of ESS | Recommended BSS Transition RSSI Threshold Within ESS |
| Bits: | 1 | 1 | 6 |

**Figure 9-895 ESS Information field format(11ax)**

The Planned ESS subfield indicates whether the BSS is part of an ESS that is planned with several BSSs in an overlapping configuration. This subfield is set to 1 to indicate that the ESS is deployed to ensure blanket coverage over the Extended Service Area (ESA). Otherwise, this subfield is set to 0 and the Edge Of ESS and Recommended BSS Transition RSSI Threshold Within ESS subfields are reserved.

The Edge Of ESS subfield indicates whether the BSS is at the edge of the ESS. This subfield is set to 1 to indicate the BSS is at the edge of the ESS. Otherwise, this subfield is set to 0.

The Recommended BSS Transition RSSI Threshold Within ESS subfield indicates the RSSI below which an associated STA is recommended to initiate BSS transition to a neighbor BSS belonging to the ESS.

The resolution for the Recommended BSS Transition RSSI Threshold Within ESS subfield is 1 dB. The encoding is defined in Table 9-373 (Recommended BSS Transition RSSI Threshold Within ESS subfield encoding(11ax)).

|  |
| --- |
| * Recommended BSS Transition RSSI Threshold Within ESS subfield encoding(11ax)
 |
| Value | Description |
| 0–62 | –100 dBm to –38 dBm |
| 63 | No recommendation |

If an AP that transmits an ESS Report element is affiliated with an AP MLD that operates with only one affiliated AP, the Extended ESS Information field is not present. Otherwise, the Extended ESS Information field is present. The format of the Extended ESS Information field is defined in Figure 9-xxx (Extended ESS Information field format(11ax)).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Planned ESS For MLDs | Edge Of ESS For MLDs | Reserved |
| Bits: | 1 | 1 | 6 |

**Figure 9-xxx Extended ESS Information field format**

The Planned ESS For MLDs subfield indicates whether the AP MLD is part of an ESS that is planned with several BSSs or AP MLDs in an overlapping configuration. This subfield is set to 1 to indicate that the AP MLD is part of an ESS that is deployed to ensure blanket coverage over the ESA. Otherwise, this subfield is set to 0 and the Edge Of ESS For MLDs subfield is reserved.

The Edge Of ESS For MLDs subfield indicates whether the AP MLD is at the edge of the ESS. This subfield is set to 1 to indicate the AP MLD is at the edge of the ESS. Otherwise, this subfield is set to 0.

The use of the ESS Report element is described in 11.21.7.5 (Planned ESS(11ax)) and 35.3.25.1 (Planned ESS for MLDs).

TGbe editor:Add the following subclause as follows:

35.3.25.1 Planned ESS for MLDs

An AP MLD may transmit an ESS Report element (see 9.4.2.256 (ESS Report element)) through each affiliated AP to assist associated non-MLD STAs and non-AP MLDs' roaming by following the rules defined in 11.21.7.5 (Planned ESS) with the additional rules defined in the following.

If the AP MLD operates with only one affiliated AP, the Extended ESS Information field is not included within the ESS Report element. If the AP MLD operates with more than one affiliated AP, then each affiliated AP shall include the Extended ESS Information field within the ESS Report element (if present) and set the Planned ESS subfield in the ESS Information field to 1.

If the AP MLD that has more than one affiliated AP is part of an ESS that is planned with several BSSs or AP MLD in overlapping configuration, the Planned ESS For MLDs subfield in the ESS Information field is set to 1, whereby an associated non-AP MLD may adjust its BSS transition algorithms accordingly. Otherwise, the Planned ESS For MLDs subfield is set to 0.

If the Planned ESS For MLDs subfield is 1, then the AP MLD shall set the Edge Of ESS For MLDs subfield to 1 if the AP MLD is at the edge of an ESS. Otherwise, it shall set the Edge Of ESS For MLDs subfield to 0. The setting of the Planned ESS subfield, the Planned ESS For MLDs subfield and the Edge Of ESS For MLDs subfield shall be consistent across the Beacon frames transmitted by APs affiliated with the same AP MLD

If the Planned ESS For MLDs subfield is set to 1, a non-AP MLD could then use the Recommended BSS Transition RSSI Threshold Within ESS subfield in the ESS Information field of the ESS Report elements for each setup link to modify when it starts scanning for a new BSS or AP MLD. If the Planned ESS For MLDs is set to 0, then a non-AP MLD could prepare for switching to a different system.

The value of the Edge Of ESS For MLDs subfield may be changed by the AP MLD if conditions in the ESS change. An AP MLD shall not change the value of the Planned ESS For MLDs subfield over the lifetime of the AP MLD.