IEEE P802.11
Wireless LANs

|  |
| --- |
| Comment Resolutions: CID 4234, 4236, 4237 |
| Date: 2014-07-14 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| George CherianSantosh AbrahamAbhishek PatilJouni Malinen | Qualcomm | 5775 Morehouse Dr., San Diego, CA 92121 | +1 858 651 6645 | gcherian@qti.qualcomm.com |
|  |  |  |  |  |

Abstract

|  |  |  |  |
| --- | --- | --- | --- |
| CID | Section | Comment |  |
| 4237 | 8.4.2.171.1 | Multiple TBTT Information Header subfield for each channel to represent different length for TBTT Info field | The TBTT Information Header is common for each Neighbor AP information field for a channel. This one size fits all may not work in many cases where the neighbor report contains some AP information with TBTT Information field of size 1 (only TBTT Offset) while others with TBTT Info field of size 7 (i.e., with BSSID). It may be better to have the length field along with each TBTT Information field instead of being common to the entire Neighbor AP Information field |
| 4236 | 8.4.2.171.1 | TBTT Information Header subfield in Neighbor AP Information field | The TBTT Information Header subfield is 2 octet long. However, since only two values (1 or 7) are possible for the length of TBTT Information Field, the TBTT Information Header subfield can be reorganized to concisely represent the TBTT Info field length using 1 bit. The 1 bit of the reserved field (B2-B3) can be repurposed to represent length and the entire subfield can be 1 octet long instead of 2 octets. Further, we can have a table that maps the 0 to length size 1 and 1 to represent length size 7. |
| 4234 | 8.4.2.171 | Publising BSSID alone is not very useful. Suggest to add the associated SSID, and/or Hashed domain name. To reduce the length of SSID, a short SSID may be considered | Add a Hashed domain name/Short SSID of the BSSID. If there is only one Hashed domain name for that BSSID, AP may include Hashed domain name, otherwise AP will include short SSID. |

* Reduced Neighbor Report element
* Neighbor AP Information field

***Change as follows:***

The Neighbor AP Information field specifies TBTT and other information related to a group of neighbor APs having the same primary channel. The RNR IE may contain more than one entry for the same primary channel when different TBTT Information field sizes are present. See Figure 8-401cj (Neighbor AP Information field format). [CID 2661]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | TBTT Information Header | Operating Class | Channel Number | TBTT Information field #1 | TBTT Information field #2 (optional) | … | TBTT Information field #n (optional) |
| Octets: | 2 | 1 | 1 | variable | variable |  | variable |
| * Neighbor AP Information field format
 |

The format of TBTT Information Header subfield is a two octet field as defined in Figure 8-401ck (TBTT Information Header subfield).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0 B3 | B4 B7 | B8 B9 | B10 B15 |
|  | TBTT Information Count | TBTT Information Length | TBTT Information Field Type | Reserved |
| Bits: | 4 | 4 | 2 | 6 |
| * TBTT Information Header subfield
 |

The TBTT Information Field Type subfield[CID 2012] defines the structure of the TBTT Information field. Value 0 indicates the presence of the informative Neighbor AP Information that is used to help the STA in AP discovery. Value 1 indicates the presence of the Neighbor AP Information that is used to recommend that the STA switch to another channel, another band, or neighbor AP as specified in the Neighbor AP Information field. Values 2 and 3 are reserved. [CID 2708] [CID 2932]

The TBTT Information Count subfield[CID 2012] contains the number of TBTT Information fields that are included in the Neighbor AP Information field. The TBTT Information Count subfield value is nonzero.

The TBTT Information Length subfield[CID 2012] contains the length in octets of each TBTT Information field included in the Neighbor AP Information field. Table 8-<ANA> shows the possible values for length of the TBTT Information field and the sub-fields present for each values.

Table 8-<ANA>: TBTT Information Length

|  |  |  |
| --- | --- | --- |
| Value | Length(octets) | Sub-fields present in TBTT Information Field |
| 0 | 1 | Only TBTT Offset present |
| 1 | 7 | TBTT Offset and BSSI present |
| 2 | 5 | TBTT Offset and Short-SSID present |
| 3 | 11 | TBTT Offset, BSSID and Short-SSID present |
| 4-15 | - | Reserved |

 [CID 2707, 2412, 2663, 3369, 2709, 2895, 3042, 3347] [CID 2519, 2819]

Operating Class[CID 2012] indicates the band and bandwidth of the primary channel of the APs in this Neighbor AP Information field. Valid values of Operating Class are shown in Table E-4.

Channel Number[CID 2012] indicates the last known primary channel of the APs in this Neighbor AP Information field. Channel Number is defined within an Operating Class as shown in Table E-4.

The format of TBTT Information field is shown in Figure 8-401cl (TBTT Information field).

|  |  |  |  |
| --- | --- | --- | --- |
|  | TBTT Offset  | ~~Optional Subelements~~ BSSID | Short-SSID |
| Octets: | 1 | 0 or 6 | 0 or 4 |
| * TBTT Information field
 |  |

The TBTT Offset in TUs subfield is 1-octet in length and TBTT Offset subfield is one octet in length ~~and~~. When included in a Probe Response frame or FILS Discovery frame, it indicates the offset in TUs, rounded down to nearest TU, to the next TBTT of an AP from the immediately prior TBTT of the AP that transmits this element. When included in a Beacon frame, it indicates the offset in TUs, rounded down to the nearest TU, to the next TBTT of an AP from the TBTT of the Beacon frame in which it is included. The value 254 is used to indicate an offset of 254 TUs or higher. The value 255 is used to indicate an unknown offset value. If the TBTT Information Length subfield is 7, the BSSID subfield is included in TBTT Information field to indicate the BSSID of a neighbor AP. If the TBTT Information Length subfield is 5 or 11, the Short-SSID subfield is included in TBTT Information field to indicate the Short-SSID of a neighbor AP. The Short-SSID is defined as below

Short-SSID = CRC-32(SSID)

where:

SSID is the SSID of the neighboring AP (all set to lower case)

Subject to regulations, a STA may send a Probe Request frame (including the received BSSID) on the channel indicated in the Neighbor AP Information field.