IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Resolution for CIDs related to BSS Color | | | | |
| Date: May 3, 2018 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Abhishek Patil | Qualcomm Inc. |  |  | appatil@qti.qualcomm.com |
| Alfred Asterjadhi | Qualcomm Inc. |  |  | aasterja@qti.qualcomm.com |
| George Cherian | Qualcomm Inc. |  |  | gcherian@qti.qualcomm.com |

Abstract

This submission proposes resolutions for comments received for TGax LB230 (2): 11128, 14127

Revisions:

* Rev 0: Initial version of the document.

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Pg / Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 11128 | Adrian Stephens | 321.28 | 27.16.2 | I believe the addition of the concept BSS color creates a new class of coexistence issues that require urgent attention.  Specifically - color clash. | Add rules so that both BSS color collision and BSS color clash events are reported. Add a table of sympathetic (i.e. non-clashing) colors, and rules for selecting a new BSS color that ensure harmonious colors with surrounding BSSs. These rules should be known as the color collusion rules. | **Revised**  The spec does provide a mechanism for AP/STAs to determine whether there is a color collision and if so, take corrective action. Further, it is recommended that an AP advertises color change announcement for sufficiently long interval of time. This should ensure that all the STAs have heard at least one such announcement.  **TGax Editor, please make changes as shown in doc 11-18/0743r0** |
| 14127 | Yuichi Morioka | 321.33 | 27.16.2.1 | Because the non-AP STA may have better knowledge about OBSSs the spec should define a way for STAs to request change of BSS Color. | Define a way for non-AP STAs to request change of BSS Color. | **Revised**  The spec does provide mechanism for non-AP STAs to determine whether there is a color collision and if so report it to their AP via an autonomous Event Report. Further the spec provides a mechanism for AP to advertise a new color when a color collision is determined or reported. Please see 27.16.2.1 & 27.16.2.2  **TGax editor: No further changes are needed** |
|  |  |  |  |  |  |  |

**TGax editor**: This document includes changes that are not related to the above CIDs. These changes were either missing in documents approved in the past (which were motion during previous meetings) or are essential to cover the color change scenario in co-located BSSID case.

* BSS color
* Selecting and advertising a new BSS color

***TGax Editor: Please update the 2nd & 3rd paragraph in this section as shown below:***

When an HE AP decides to change its BSS color, it shall announce its decision via the BSS Color Change Announcement element which may be carried in the Beacon, Probe Response and (Re)Association Response frames transmitted by the AP. The AP may also advertise the BSS color change event via the HE BSS Color Change Announcement frame. An AP should advertise the color change announcement for sufficiently long period of time so that all STAs in the BSS, including that ones in PS mode, to have the opportunity to receive at least one BSS Color Change Announcement element before the BSS changes its color to a new value.[11128]

If the Color Switch Countdown field in BSS Color Change Announcement element has a value greater than 0, then at the next TBTT the AP shall decrement the Color Switch Countdown value by 1 until it reaches 0. BSS color change TBTT is the one at which the Color Switch Countdown field value has decremented to 0. An HE AP shall not alter the BSS color change TBTT after it has begun advertising an upcoming BSS color change. An AP belonging to a co-located BSSID set (see 27.16.6 (Co-located BSSID set)) should select the value of Color Switch Countdown field such that the BSS color change TBTT interval between the BSSs in the set shall not be greater one beacon interval of the BSS with largest beacon interval in the set.

***TGax Editor: Please update the 5th & 6th paragraph in this section as shown below:***

At the BSS color change TBTT, an HE AP shall:

* Set to 0 the BSS Color Disabled subfield in the HE Operation element that it transmits except that an AP belonging to a co-located BSSID set shall continue to set the BSS Color Disabled subfield to 1 until all the BSSs in the co-located BSSID set have passed their respective BSS color change TBTT.
* Start advertising the new BSS color in the BSS Color subfield in the HE Operation element
* Start using the new BSS color for all frames that it transmits after the TBTT

Note – It is recommended that a co-located AP does not transmit any PPDU in HE format during the transitory period until all the BSSs in the co-located set have completed their switch to the new color

A non-AP HE STA that receives a BSS Color Change Announcement element from an AP shall start using the value specified in the New BSS Color field of the element as the BSS color when communicating with that AP following the BSS color change TBTT.

* BSS\_COLOR

***TGax Editor: Please update the following paragraph in this section as shown below:***

An HE STA that transmits an HE Operation element and that decides to temporarily disable the use of the BSS color for the BSS that it belongs, for example, after detecting a BSS color collision with an OBSS (see 27.16.2.2 (Detecting and reporting BSS color collision)), shall set the value of BSS Color Disabled subfield in the HE Operation element to 1 to inform its associated peer HE STAs that the BSS color is disabled; otherwise the HE STA shall set the BSS Color Disabled subfield to 0.

While the BSS Color Disabled subfield is 1, an HE STA shall continue to advertise a non-zero value (same as before the color was disabled) in the BSS Color subfield of HE Operation element and in the TXVECTOR parameter BSS\_COLOR of an HE PPDU that it transmits.