IEEE P802.11
Wireless LANs

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| **Proposed Resolution to CID 9574** |
| **Date:** 2017-05-03 |

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Abstract

This submission proposes resolutions for comment CID 9574 related to TGax D1.2.

NOTE- The proposed changes on this document is based on TGax D1.2

Revisions:

* Rev 0: Initial PPT version of the document.
* Rev 1: Initial word version of the document

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| **CID** | **Clause Number** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 9574 | 27.7.2 | 181 | 1 | If a TWT STA is not required to listen to beacon frame, it may need a mechanism to update the BSS information when AP udpates BSS info in the beacon frames. | define a rule or mechanism for TWT stations to synchronize the BSS information change when AP updates the BSS information in beacon frame. | Revised.Agree in principle with the comment. Proposed resolution to clarify the rules for TWT STAs to synchronize the BSS color disable or change when AP updates the BSS color information TGax editor please make the changes as shown in 11-17/0702r1 |

**Discussion**

Abstract

This document provides resolutions for the following CIDs on Clause 25.9.3. The baseline for this comment resolution document is 802.11ax Draft 0.1.

* CIDs: 705, 706

Both the BSS Color Change Announcement element and the HE operation element are optionally present in Beacon，Probe Response, (Re-)Association response frame. An HE STA that successfully sets up an individual TWT agreement and operates in PS mode shall not be required to listen to Beacon frames as defined in 11.2.2.1.Therefore,

TWT STAs may not be able to get the updated information about BSS color Disabled/Change timely without listening to the beacon frame.

The BSS Color Change Announcement frame can be sent at the beginning of the TWT SP to indicate the color change and count down information. However when the color collision happens, the AP may decide to only disable the use of color for a while without changing the color to a new one because the color collision might be gone after a while.

Therefore the proposed resolution is to modify the BSS Color Change Announcement frame for AP to indicate the color change and BSS color disable / partial BSS color information for the BSS that it serves.

**Proposed resolution**

***Detailed implementation of the resolution***

Make the following changes to TGax D 1.2.

**9.4.2.222 BSS Color Change/Disable Announcement element**

***TGax editor: Change the paragraphs below as follows:***

The format of the ~~New~~ BSS Color Information field is defined in Figure 9-589cy (~~New~~ BSS Color Information field format). The ~~New~~ BSS Color subfield is set to the ~~new~~ BSS color value that the HE AP intends to use starting from the TBTT at which the color switch countdown reaches 0 or set to the existing BSS color that the HE AP is using when the HE AP intends to disable the BSS color only.

The BSS Color Disabled subfield is set to the same value as the BSS Color Disabled subfield in the HE Operation Element as defined in 9.4.2.219 HE Operation element.

The Partial BSS Color subfield is set to the same value as the Partial BSS Color subfield in the HE Operation Element as defined in 9.4.2.219 HE Operation element

 B0 B5 ~~B6~~  ~~B7~~  B6 B7

|  |  |  |  |
| --- | --- | --- | --- |
| ~~New~~ BSS Color | ~~Reserved~~ | BSS Color Disabled | Partial BSS Color |

Bits： 6  ~~2~~ 1 1

Figure 9-589cy—~~New~~ BSS Color Information field format

27.2 Channel Access

27.2.1 Intra-BSS and inter-BSS frame determination

***TGax editor: Change the paragraphs below as follows***

A frame received by the STA is an intra-BSS frame if one of the following conditions is true:

— The value of RXVECTOR parameter PARTIAL\_AID [5:8] in the received VHT PPDU with the RXVECTOR parameter GROUP\_ID equal to 63 is the same as the partial BSS color announced by the AP to which the STA is associated when the Partial BSS Color field in the most recently received HE Operation element or HE BSS Color Change Announcement element is 1.

A frame received by the STA is an inter-BSS frame if one of the following conditions is true:

— The value of RXVECTOR parameter PARTIAL\_AID [5:8] in the received VHT PPDU with the RXVECTOR parameter GROUP\_ID equal to 63 is different from the partial BSS color announced by the AP to which the STA is associated when the Partial BSS Color field in the most recently received HE Operation element or HE BSS Color Change Announcement element is 1.

**27.11.4 BSS\_COLOR**

***TGax editor: Change the paragraphs below as follows:***

An HE AP that decides to discontinue the use of the BSS color for the BSS that it serves, for example, after detecting a BSS color overlap 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 or the HE BSS Color Change/Disable Announcement element to 1 to inform associated STAs that the BSS Color is disabled; otherwise the AP shall set the BSS Color Disabled subfield to 0.

If the most recently received HE Operation element or HE BSS Color Change/Disable Announcement element from the AP to which it is associated contained a value of 1 in the BSS Color Disabled subfield then:

— A non-AP HE STA should use the A1, A2 and Duration/ID fields of the MPDUs contained

in the received HE PPDUs instead of the RXVECTOR parameters BSS\_COLOR and TXOP\_DU-

RATION to determine whether the STA should update the intra-BSS NAV.

— A non-AP HE STA should use the A1, A2 fields of the MPDUs contained in the received HE

PPDUs instead of the RXVECTOR parameters BSS\_COLOR and STA\_ID\_LIST to determine

whether the STA may go to doze state for the duration of that PPDU (see 27.14.1 (Intra-PPDU

power save for non-AP HE STAs)).

A non-AP HE STA may use the RXVECTOR parameter BSS\_COLOR of an HE PPDU to determine whether it should update the intra-BSS NAV (see 27.2.3 (Updating two NAVs)) and/or the STA may go to doze state for the duration of the PPDU (see 27.14.1 (Intra-PPDU power save for non-AP HE STAs if the most recently received HE Operation element or HE BSS Color Change/Disable Announcement element from the AP to which it is associated contained a value of 0 in the BSS Color Disabled subfield.

When the value of TXVECTOR parameter PARTIAL\_AID [5:8] in the transmitting VHT PPDU with the TXVECTOR parameter GROUP\_ID equal to 63 is not the same as the partial BSS color announced by an HE AP, the HE AP shall set the Partial BSS Color field in the HE Operation element and HE BSS Color Change/Disable Announcement element to 0. Otherwise, the HE AP may set the Partial BSS Color field in the HE Operation element and HE BSS Color Change Announcement element to 1 (see 11.49.1 (AID assign rule)).

**27.11.5 TXOP\_DURATION**

***TGax editor: insert the paragraphs below as follows:***

An non-AP HE STA should set the TXVECTOR parameter TXOP\_DURATION to UNSPECIFIED for an HE PPDU that it transmits to an AP if the BSS Color Disabled field in the HE Operation element or HE BSS Color Change/Disable Announcement element most recently received from the AP is1.

**27.14.1 Intra-PPDU power save for non-AP HE STAs**

***TGax editor: Change the paragraphs below as follows:***

The PPDU is an HE MU PPDU, HE SU PPDU or HE ER SU PPDU and one of the following conditions are true:

—The PPDU is an HE TB PPDU where the RXVECTOR parameter BSS\_COLOR is the BSS color of the BSS with which the STA is associated and the BSS Color Disabled subfield is 0 in the most recently received HE Operation element element or HE BSS Color Change/Disable Announcement element from the AP to which it is associated

**27.16.2.1 Selecting and advertising a new BSS color**

***TGax editor: Change the paragraphs below as follows:***

During the time leading up to the BSS color change TBTT:

— An HE AP shall set the BSS Color Disabled subfield to 1 and shall continue to advertise the existing BSS color via the BSS Color subfield in the HE Operation element.

— An HE AP shall set the BSS Color Disabled subfield to 1 in the HE BSS Color Change/Disable Announcement element

— An HE AP shall not change the value it advertises in the ~~New~~ BSS Color subfield of the BSS Color Change/Disabled Announcement element.(#7131)

 — An HE AP shall set the TXVECTOR parameter BSS\_COLOR of an HE PPDU to the existing BSS Color.(#10301)

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

 — Set to 0 the BSS Color Disabled subfield in the HE Operation element and HE BSS Color Change/Disable Announcement element that it transmits

— 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

**27.16.2.1 Selecting and advertising a new BSS color**

***TGax editor: Add the paragraph below at the end of the subclause 27.16.2.1 as follows:***

An HE AP may send an HE BSS Color Change/Disable Announcement frame with BSS color disabled subfield set to 1 to indicate that the BSS color is disabled if the HE AP decides to discontinue the use of the BSS color for the BSS that it serves in the broadcast or individual TWT SPs.

An HE AP may send an HE BSS Color Change/Disable Announcement frame with BSS Color subfield set to a new color to change the BSS color for the BSS that it serves in the broadcast or individual TWT SPs.

**27.16.2.2 Detecting and reporting BSS color collision**

**27.16.2.2.1 General**

***TGax editor: Change the paragraphs below as follows:***

The HE AP shall set the BSS Color Disabled subfield to 1 in the HE Operation element and HE BSS Color Change/Disable Announcement element that it transmits if the BSS color collision esists for a duration of at least dot11BSSColorCollisionAPPeriod.

**27.16.2.2.2 Autonomous reporting of BSS color collision**

***TGax editor: Change the paragraphs below as follows:***

A non-AP HE STA that intends to autonomously report a BSS color collision to its associated HE AP, shall do so by scheduling for transmission a BSS color collision Event Report frame every dot11BSSColorColliionSTAPeriod unless the BSS color collision no longer exists or if the associated HE AP has set the BSS Color Disabled bit to 1 in HE Operation element or HE BSS Color Change Announcement element that it transmits or if the non-AP STA has transmitted several such reports to its associated HE AP.