IEEE P802.11
Wireless LANs

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| Resolution for CIDs in clause 9 (TGbn D0.1 cc) |
| Date: July 24, 2025 |
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 Abstract

This submission proposes resolutions for following CIDs received for TGbn D0.1 CC:

3848, 3849, 3851, 3852, 3853, 3859, 144

**Revisions:**

* Rev 0: Initial version of the document.
* Rev 1: Revised based on feedback from Mark R, Xiaofei and Bo Cao.
* Minor updates based on comments received when the doc was discussed on 3/31 TGbn MAC call.
	+ CID 3849 is deferred for further (offline) discussion.
* Rev 3: Alfred’s comment. Also deferred 3851.
* Rev 4: Resolves CID 3851.
* Rev 5: Minor revisions to resolution for CID 3851 based on offline feedback.
* Rev 6: Further revisions to resolution for CID 3851 based additional offline feedback.
* Rev 7: Additional revision based on offline feedback.
* Rev 8: Revised based on offline feedback and inputs received when the doc was presented (7/24/25 PM1 TGbn MAC ad-hoc session).

***TGbn editor: Baseline for this document is 802.11-2024, TGbe D7.0 and 11bn D0.3***

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 TGbn Draft. This introduction is not part of the adopted material.

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Page.line** | **Comment** | **Proposed Change** | **Resolution** |
| 3849 | Abhishek Patil | 9.4.2.3 | 58.11 | Add an entry to Table 9-131 (BSS Membership selector value encoding) in Clause 9.4.2.3 | As in comment | **Revised**Agree with the comment. The proposed resolution updates Table 9-131 to include a row for UHR.**TGbn editor, please incorporate changes tagged with 3849 in this document.** |
| 3852 | Abhishek Patil | 9.4.2.35 | 58.11 | Add a subfield to BSSID Information field of Neighbor Report element (9.4.2.35) to indicate that a reported AP is a UHR AP. | As in comment | **Revised**Agree with the comment. The proposed resolution adds a subfield to BSS Information field of Neighbor Report element to indicate that a reported AP is a UHR AP.**TGbn editor, please incorporate changes tagged with 3852 in <this document>.** |
| 144 | Jay Yang | 9.4.2.36 | 1068.11 | the UHR(ultra high reliability) subfield shall be included in Neighbor Report element (see 9.4.2.35) | the commenter will provide a solution on this. | **Revised**Agree with the comment. The proposed resolution adds a subfield to BSS Information field of Neighbor Report element to indicate that a reported AP is a UHR AP. Same resolution as CID 3852**TGbn editor, please incorporate changes tagged with 3852 in <this document>.** |
| 3848 | Abhishek Patil | 9.4.2.35 | 58.11 | Add a subfield to BSSID Information field of Neighbor Report element (9.4.2.35) to indicate that a reported AP belongs to the same SMD as the reporting AP. | As in comment | **Revised**Agree with the comment. The proposed resolution adds a subfield to BSS Information field of Neighbor Report element to indicate that a reported AP belongs to the same SMD.**TGbn editor, please incorporate changes tagged with 3848 in <this document>.** |
| 3851 | Abhishek Patil | 9.4.2.169 | 58.11 | Provide a mechanism to indicate if a reported (non-collocated) AP belongs to the same SMD or not. Every field added to RNR leads to multiplicative overheads (since it is repeated for each reported AP). Therefore, in the interest of keeping the RNR overhead low, utilize an existing reserved bit field (such as B7 of BSS Parameters field) in the TBTT Information field (Type = 0) of Reduced Neighbor Report element (9.4.2.169) to indicate whether a reported AP belongs to the same SMD as the reporting AP. | As in comment | **Revised**Agree in principle with the comment. A reporting AP must identify the SMD of a reported AP. However, adding new fields to the RNR results in a multiplicative increase in the Beacon frame size. TGbn is exploring mechanisms to minimize the impact on Beacon size. In this context, the proposed resolution introduces methods to eliminate the need for an explicit field while providing a means to infer the SMD affiliation of a reported AP.**TGbn editor, please incorporate changes tagged with 3851 in <this document>.** |
| 3853 | Abhishek Patil | 9.4.2.176 | 58.11 | Add an entry for UHR in to Table 9-337 (PHY Support Criterion subfield) in 9.4.2.176 (FILS Request Parameters element). | As in comment | **Revised**Agree with the comment. The proposed resolution updates Table 9-337 to include a row for UHR.**TGbn editor, please incorporate changes tagged with 3853 in <this document>.** |
| 3859 | Abhishek Patil | 9.6.7.36 | 63.25 | Make appropriate updates to FILS Discovery frame (e.g., add UHR to tables 9-492, 9-494, and 9-495). | As in comment | **Revised**Agree with the comment. The proposed resolution updates cited tables in FILS Discovery frame format to include content for a UHR AP.**TGbn editor, please incorporate changes tagged with 3859 in <this document>.** |

**9.4.2.3 Supported Rates and BSS Membership Selectors element**

***TGbn editor: Please insert the following entry (only the last row) to Table 9-131 (BSS membership selector value encoding) (not all lines shown):***

**Table 9-131—BSS membership selector value encoding**[#3849]

|  |  |  |
| --- | --- | --- |
| **Value** | **Feature** | **Interpretation** |
| <Last assigned – 1> | UHR PHY | Support for the mandatory features of Clause 38 (Ultra High Reliability (UHR) PHY specification) is required in order to join the BSS that was the source of the Supported Rates and BSS Membership Selectors element or Extended Supported Rates and BSS Membership Selectors element containing this value. |

* + - 1. **Neighbor Report element**

 ***TGbn editor: Please change Figure 9-416 (BSSID Information field format) as follows:***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| B0 B1 | B2 | B3 | B4 B9 | B10 | B11 | B12 | B13 | B14 |
| APReachability | Security | Key Scope | Capabilities | Mobility Domain | High Throughput | Very High Throughput | FTM | High Efficiency |
| 2 | 1 | 1 | 6 | 1 | 1 | 1 | 1 | 1 |

Bits:

 B15 B16 B17 B18 B19 B20 B21 B22 <ANA> <ANA> <ANA> B31

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ER BSS | Colocated AP | Unsolicited Probe Responses Active | Members Of ESS With2.4/5 GHzColocated AP | OCTSupported With Reporting AP | Colocated With 6 GHz AP | Extremely High Throughput | DMG Positioning | Same SMD [#3848] | Ultra High Reliability [#3852] | Reserved |

Bits: 1 1 1 1 1 1 1 1 1 1 7

**Figure 9-416—BSSID Information field format**

***TGbn editor: please insert the following paragraphs before the paragraph “The Operating Class and Channel Number fields...”***

[3848]The Same SMD subfield is set to 1 to indicate that the AP represented by this BSSID (reported AP) belongs to the same SMD as the reporting AP. Otherwise, the Same SMD subfield is set to 0.

[3852]The Ultra High Reliability subfield is set to 1 to indicate that the AP represented by this BSSID (reported AP) is a UHR AP. Otherwise, the Ultra High Reliability subfield is set to 0.

**9.4.2.176 FILS Request Parameters element**

***TGbn editor: please insert a new row to Table 9-337 (PHY Support Criterion subfield) (not all lines shown) and change the value of the reserved row as follows:***

**Table 9-337—PHY Support Criterion subfield**[#3853]

|  |  |
| --- | --- |
| **Value** | **Explanation** |
| 5 | Indicates that a responding FILS STA is UHR capable. |
| 6–7 | Reserved |

**9.6.7.36 FILS Discovery frame format**[#3859]

***TGbn editor: please change Table 9-492 (BSS Operating Channel Width) as follows:***

**Table 9-492—BSS Operating Channel Width**

|  |  |  |  |
| --- | --- | --- | --- |
| **BSS Operating Channel Width field** | **HR/DSSS, OFDM, ERP, HT, VHT, or HE BSS****operating channel width** | **EHT or UHR BSS operating channel width** | **TVHT BSS operating channel width** |
| 0 | 20 MHz or 22 MHz | 20 MHz or 22 MHz | TVHT\_W |
| 1 | 40 MHz | 40 MHz | TVHT\_W+W |
| 2 | 80 MHz | 80 MHz | TVHT\_2W |
| 3 | 160 MHz or 80+80 MHz | 160 MHz | TVHT\_4W or TVHT\_2W+2W |
| 4 | Reserved | 320 MHz | Reserved |
| ~~4~~5–7 | Reserved | Reserved | Reserved |

## *TGbn editor: please insert a new row to Table 9-494 (PHY Index subfield) (not all lines shown) as follows:*

**Table 9-494—PHY Index subfield**

|  |  |
| --- | --- |
| **PHY Index subfield** | **PHY** |
| 6 | UHR (see Clause 38 (Ultra high Reliability (UHR) PHY specification)) |
| 7 | Reserved |

## *TGbn editor: please insert the following column in Table 9-495 (FILS Minimum Rate):*

**Table 9-495—FILS Minimum Rate**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **FILS****Minimum Rate subfield** | **PHY Index subfield is 0 (HR/DSSS)** | **PHY Index subfield is 1 (ERP-OFDM)** | **PHY Index subfield is 2 (HT)** | **PHY Index subfield is 3 (VHT or TVHT)** | **PHY Index subfield is 4 (HE)** |  **PHY Index subfield is 5 (EHT)** |  **PHY Index subfield is 6 (UHR)** |
| 0 | 1 Mb/s | 6 Mb/s | HT-MCS 0 | VHT-MCS 0 | HE-MCS 0 | EHT-MCS 0 | UHR-MCS 0 |
| 1 | 2 Mb/s | 9 Mb/s | HT-MCS 1 | VHT-MCS 1 | HE-MCS 1 | EHT-MCS 1 | UHR-MCS 1 |
| 2 | 5.5 Mb/s | 12 Mb/s | HT-MCS 2 | VHT-MCS 2 | HE-MCS 2 | EHT-MCS 2 | UHR-MCS 2 |
| 3 | 11 Mb/s | 18 Mb/s | HT-MCS 3 | VHT-MCS 3 | HE-MCS 3 | EHT-MCS 3 | UHR-MCS 3 |
| 4 | Reserved | 24 Mb/s | HT-MCS 4 | VHT-MCS 4 | HE-MCS 4 | EHT-MCS 4 | UHR-MCS 4 |
| 5–7 | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved |

------------x-x-x Start of changes for CID 3851 x-x-x-------------

**Discussion**: **Beacon frame Optimization and SMD ID Signaling in RNR**

Over time, the Beacon frame has grown significantly in size, leading to increased medium occupancy and various operational challenges in the field. TGbn aims to minimize its footprint within the Beacon frame. In particular, any extension to the Reduced Neighbor Report (RNR) element results in a linear increase in Beacon frame length, as each additional field is replicated per reported BSS. This multiplicative effect can substantially impact airtime efficiency, especially in dense deployments. This contribution provides mechanisms that avoid extensions to the RNR element for providing SMD information.

**Proposed changes**:

* **Neighbor AP Information field**

***TGbn editor: please update Figure 9-734 as shown below:***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  B0 |  B1 |  B2 |  B3 |  B4 |  B5 |  B6 |  B7 |
|  | OCT Recommended | Same SSID | Multiple BSSID | Transmitted BSSID | Member Of ESS With 2.4/5 GHz Colocated AP | Unsolicited Probe Responses Active | Colocated AP | Same SMD |
| Bits:  |  1 |  1 |  1 |  1 |  1 |  1 |  1 |  1 |
| **Figure 9-735 – BSS Parameters subfield format** |

***TGbn editor: please insert the following paragraphs after “NOTE 3—For example, suppose the reported AP transmits …”***

The Same SMD subfield is set to 1 when the reported AP belongs to the same SMD as the reporting AP. Otherwise, the Same SMD subfield is set to 0.

* **SMD BSS transition discovery procedure**

***TGbn editor: please add the following paragraphs at the end of this subclause as shown below:***

A non-AP MLD may infer a reported AP’s SMD affiliation based on fields carried in the TBTT Information field of the Reduced Neighbor Report element:

* If the Same SMD field is equal to 1, then the reported AP belongs to the same SMD as the reporting AP.
* If the reporting AP is the transmitted BSSID in a multiple BSSID set and the reported AP is a collocated AP and the AP MLD ID for the reported AP is equal to the BSSID index of a nontransmitted BSSID in the same set, then the reported AP belongs to the same SMD as the AP corresponding to the nontransmitted BSSID.

NOTE – A non-AP MLD can use other discovery mechanisms described in this subclause to identify the SMD affiliation of a reported AP (if not already inferred) and/or to obtain attributes of a reported AP. A non-AP MLD can, based on the Short SSID field, determine the ESS and hence the SMD affiliation of a non-collocated reported AP that does not belong to the same SMD.

------------x-x-x End of changes for CID 3851 x-x-x-------------