IEEE P802.11
Wireless LANs

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| CC36 Resolution for CIDs related to Multiple BSSID (Part 2) |
| Date: February 8, 2022 |
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 Abstract

This submission proposes resolutions for following 5 CIDs received for TGbe CC36: 5329, 5330, 6329, 7881, 4068

**Revisions:**

* Rev 0: Initial version of the document.
* REV 1:
	+ Updated baseline to D1.5
	+ Bugfix in clause 35.3.10
	+ Includes CID 4068

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

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

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

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| **CID** | **Commenter** | **Clause** | **Pg/Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 5329 | Jarkko Kneckt | 9.4.2.240 | 126.36 | It is not clear what does it mean that element is present in the Management frame. | Please clarify in which part of the management frame, or the element type that can be signaled as non-inherited by the non-inherited element. | **Revised**The cited sentence was updated to clarify that the elements that are not inherited (and hence listed in the Non-Inheritance element) are carried in the frame outside the Basic Multi-Link element.**TGbe editor, please make changes as shown in 11-21-1185r1 tagged 5329** |
| 5330 | Jarkko Kneckt | 9.4.2.240 | 126.36 | Different bands (2.4, 5 amd 6 GHz) have different capability elements (HT, VHT, HE) and operations elements. It does not make sense to always list the capabilities not supported by the band as non-inherited elements. For instance, a BSS in the 6 GHz band is not allowed totransmit HT or VHT capabilities or operations elements and signaling these elements with the non-inherit element adds signaling overheads. | Please define band specific presence rules for the HT and VHT capability and operations elements and avoid their listing in the non-inherited elements of the ML elements. | **Rejected**The Non-Inheritance element is specifically defined to address such use cases. The standard does not need to provide additional mechanisms to solve the same problem. |
| 6329 | Ming Gan | 35.3.18.2 | 284.55 | which part of Basic variant Multi-Link element is carried? | as in the comment | **Revised**A new sentence is added to the cited paragraph to clarify the contents of the Basic Multi-Link element when carried in the nontransmitted BSSID profile of Multiple BSSID element.**TGbe editor, please make changes as shown in 11-21-1185r1 tagged 6329** |
| 7881 | Yongho Seok | 35.3.2.2 | 247.24 | How about is other elements (e.g., Multiple BSSID-Index element, Multiple BSSID Configuration element)? Those IEs can't be included in the Per-STA Profile subelement of the Multi-Link element for a reported AP. | Please list all IEs that can't be included in the Per-STA Profile subelement of the Multi-Link element for a reported AP. | **Revised**Agree with the comment. The two cited IEs are included in the list of IEs that are not permitted in a link profile. The two paragraphs in clause 35.3.2.1 which list the elements that are not permitted in Basic ML IE are moved to a separate subclause. This makes it easy to call out the exceptions. TIM element is added to the list of elements that are not carried in the per-STA profile. In order to keep the inheritance rules consistent, the text provided clarification that such elements are not inherited and are listed in the Non-Inheritance element carried in the profile.**TGbe editor, please make changes as shown in 11-21-1185r1 tagged 7881** |
| 4068 | Abhishek Patil | 35.3.10.4 | 267.10 | The AID space 1 to 2^n - 1 is reserved for nontransmitted multiple BSSIDs in a multiple BSSID set. Therefore, the AP MLD must not assign AID value that falls in this space for any link | Add a sentence as follows: "The AID value assigned to a non-AP MLD shall be greater than or equal to 2^N where N is the maximum of MaxBSSID Indicator (n) for each link where the corresponding AP belongs to a multiple BSSID set." | **Revised**Agree with the comment. In a multiple BSSID set, the first 2^n bits of the TIM element are set aside to indicate group address traffic for BSSIDs in the set. Therefore, these AIDs are assigned to a non-AP MLD. Since we can have multiple BSSID set on more than one link, the AID assignment should be based on maximum of the BSSID in all the sets. Normative behaviors in baseline reflect this intention. Therefore, the proposed resolution adds a note in clause 35.3.5.1.**TGbe editor, please add the following NOTE in clause 35.3.5.1 after the paragraph starting “An AP MLD shall assign a single AID…”**“NOTE – In a multiple BSSID set, the first 2^n bits of the partial virtual bitmap of TIM element are reserved for the indication of group addressed frame for the BSSIDs in the set (see 11.1.3.8.5 (Traffic advertisement in a multiple BSSID set)). As a result, an AP affiliated with an AP MLD does not assign, to a non-AP MLD, an AID value that is less than 2^N where N is the maximum of the value carried in the MaxBSSID Indicator (n) field of the Multiple BSSID element corresponding to each link where the AP affiliated with the AP MLD belongs to a multiple BSSID set.” |

***TGbe editor: The baseline for this document is 11be D1.5.***

**9.4.2.240 Non-Inheritance element**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

When present in the Per-STA Profile subelement of a Basic Multi-Link element, the Non-Inheritance element identifies one or more elements that are not inherited by the STA corresponding to the per-STA profile. The identified elements are present in the same Management frame transmitted by the STA that contains the Basic Multi-Link element, and are not contained within the Per-STA Profile subelement of the Basic Multi-Link element that carried the Non-Inheritance element[5329].

* + - 1. **General**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

An AP corresponding to the transmitted BSSID shall not include a Basic Multi-Link element in the Nontransmitted BSSID Profile subelement of a Multiple BSSID element unless the corresponding nontransmitted BSSID is affiliated with an AP MLD. When carried in a Nontransmitted BSSID Profile subelement of a Multiple BSSID element, the Basic Multi-Link element shall not include the Per-STA Profile subelement corresponding to another AP affiliated with the same AP MLD unless conditions defined in 35.3.11 (Multi-link procedures for channel switching, extended channel switching, and channel quieting) are satisfied for the reported AP.[6329]

**35.3.2.2 Advertisement of complete or partial per-link information**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

Each Per-STA Profile subelement of the Basic Multi-Link element that is included in a Management frame transmitted by a STA affiliated with an MLD and that carries a complete profile shall consist of the STA Control field to identify the link on which the reported STA operates on and to carry the presence indicators for the subfield(s) within the STA Info field, the STA Info field, and the STA Profile field containing fields and elements based on the following rules:

* If the reporting STA is an AP, the STA Profile field corresponding to the reported AP:
	+ - * + carries fields and elements in the same order and subject to the conditions as in:

Table 9-67 (Probe Response frame body) if the frame is an ML probe response.

Table 9-63 (Association Response frame body) if the frame is an Association Response frame.

Table 9-65 (Reassociation Response frame body) if the frame is a Reassociation Response frame.

* + - * + is subject to inheritance rules defined in 35.3.2.3.1 (Inheritance in the per-STA profile of Basic Multi-Link element) and exceptions specified in [7881]35.3.2.3 (Elements not carried in a per-STA profile).
				+ does not include the Timestamp field, Beacon Interval field, AID field, SSID element, [7881]and BSS Max Idle Period element.
* If the reporting STA is a non-AP STA, the STA Profile field corresponding to the reported non-AP STA:
	+ carries fields and elements in the same order and subject to conditions as in:
		- Table 9-62 (Association Request frame body) if the frame is an Association Request frame.
		- Table 9-64 (Reassociation Request frame body) if the frame is an Reassociation Request frame.
	+ is subject to inheritance rules defined in 35.3.2.3.1 (Inheritance in the per-STA profile of Basic Multi-Link element) and exceptions specified in [7881]35.3.2.3 ( Elements not carried in a per-STA profile).
	+ does not include the Listen Interval field and Current AP Address field.
	+ Optionally, a Non-Inheritance element appears as the last element in the STA Profile field and carries a list of elements that are not inherited by the reported STA from the reporting STA (see 35.3.2.3.1 (Inheritance in the per-STA profile of Basic Multi-Link element)).

**35.3.2.1 General**

***TGbe editor: Please moved the following paragraphs from this subclause to 35.3.2.3 (Element not carried in a Per-STA profile):***

[7881]

[7881]

[7881]***TGbe editor: Please add a new subclause after 35.3.2.2 as shown below:***

[7881]***TGbe editor: Please increment the subclause numbers for existing subclauses that follow 35.3.2.2 subclause after incorporating the new subclause show:***

**35.3.2.3 Elements not carried in a per-STA profile**[7881]

***TGbe editor: Please moved the following paragraphs from 35.3.2.1 (General) to this subclause and make the updates as shown:***

, TIM ele ment, Multiple BSSID-Index element, Multiple BSSID Configuration element

If an element listed in this subclause is included in the frame carrying the Basic Multi-Link element, it shall not be inherited by the reported STA and the element shall be listed in the Non-Inheritance element carried in the reporting STA’s per-STA profile.

**Bugfix – no CID**

In a multiple BSSID set, an AP corresponding to the nontransmitted BSSID responds to a (Re)Association Request frame. In such case the Multiple BSSID element is not carried in the frame. In addition, the Basic Multi-Link element carried in the frame provides information of the affiliated AP MLD and partner APs.

**35.3.10 BSS parameter critical update procedure**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

An AP affiliated with an AP MLD corresponding to a nontransmitted BSSID in a multiple BSSID set shall include in the (Re)Association Response frame it transmits a BSS Parameters Change Count subfield for each of all APs affiliated with the AP MLD.

* The BSS Parameters Change Count subfield for each of the other AP(s) affiliated with the AP MLD shall be carried in the STA Info subfield in the Per-STA Profile subelement of Basic Multi-link element corresponding to that AP where each of the other AP(s) is identified by the Link ID subfield of the STA Control field of the Per-STA Profile subelement.
* The BSS Parameters Change Count subfield for the nontransmitted BSSID shall be carried in the Common Info field in the Basic Multi-Link element where the AP is identified by the Link ID subfield of the Common Info field in the Basic Multi-Link element

NOTE – In a multiple BSSID set, an AP corresponding to the nontransmitted BSSID responds to a (Re)Association Request frame. An AP corresponding to a nontransmitted BSSID does not include Multiple BSSID element in the (Re)Association Response frame that it transmits, and the Basic Multi-Link element carried in the frame provides information of the AP MLD to which the AP is affiliated along with complete profile of other AP(s) affiliated with the same MLD.