IEEE P802.11
Wireless LANs

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| CC36 CR for Critical Update |
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Abstract

This submission proposes resolutions of comments received from TGbe comment collection CC36 based on TGbe D1.2.

* 4063 4453 4454 4455 4456 4457 4458 4459 4460 5073 5217 5352 5689 5755 5756 6255 6256 6294 6295 6296 6297 6456 6763 7460 (24 CIDs)

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revised based on the comments from Gaurang
* Rev 2: Modification on the resolution of CID 6296 and 6297 based on offline discussion with Laurent
* Rev 3: fix a bug
1. **Introduction**

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. The introduction and the explanation of the proposed changes are 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 802.11be 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.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 4063 | Abhishek Patil | 35.3.8 | 263.33 | Using the same subfield name is used under Reduced Neighbor Report element and Multi-Link element can be confusing when describing the operation. | Use different names for subfield carried in RNR and ML IE so that the references in the description text is easy to follow. Suggest "Reporting AP BPCC" for subfield carried in ML IE and "Reported AP BPCC" for subfield carried in RNR. | Rejected-There is no confusing issue. For ML element and RNR element, they have their own descriptions, respectively. The meanings for these fields with the same name are the same. The only difference is their objects (one is for reporting AP, and the other is reported AP), which are already described by the corresponding text. |
| 4453 | Arik Klein | 35.3.8 | 263.38 | Repharse the following sentence for clarity and better understanding: "the AP shall include in the Beacon and Probe Response frames it transmits a BSS ParametersChange Count subfield for each of all APs affiliated with the same AP MLD as the AP" | Rephrase the sentence as follows: "the AP shall include a BSS Parameters Change Count subfield in the Beacon and Probe Response frames it transmits for each of all APs affiliated with the same AP MLD as the AP" | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 4453. |
| 4454 | Arik Klein | 35.3.8 | 263.50 | The wording of the following section is complicated and unclear: "provide in the Critical Update Flag subfield ...the Basic variant Multi-Link element."consider splitting it into 2 sentences for better clarity - as proposed | Rephrase the sentence as follows: "provide an indication of an update to the value carried in the BSS Parameters Change Count subfield in the Critical Update Flag subfield of the Capability Information field (9.4.1.4 (Capability Information field)) of the Beacon and Probe Response frames it transmits. The indication will apply for any updated value carried in the BSS Parameters Change Count subfield of the MLD Parameters field in the Reduced Neighbor Report element for any AP affiliated with the same AP MLD as the AP or an updated value carried in the BSS Parameters Change Count subfield in the Common Info field of the Basic variant Multi-Link element." | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 4454. |
| 4455 | Arik Klein | 35.3.8 | 263.58 | The wording of the following section is complicated and unclear: "Set the Critical Update Flag subfield .... of the Basic variant Multi-Link element"consider rephrasing the sentence for better clarity - as proposed | Revise the sentence as follows:" Set the Critical Update Flag subfield of the Capability Information field to 1 in the Beacon frame(s) until and including the next DTIM Beacon frame on the link on which the AP is operating if there is a change to a value carried in the BSS Parameters Change Count subfield of the MLD Parameters field in the Reduced Neighbor Report element for any AP affiliated with same AP MLD as the AP or a change to a value carried in the BSS Parameters Change Count subfield in the Common Info field of the Basic variant Multi-Link element." | Rejected-The suggested text has the same meaning as in the original text in 802.11be D1.0. Adding "a change to" before the second "a value" is redudant  |
| 4456 | Arik Klein | 35.3.8 | 263.61 | Use unified terminology of AP affiliated with AP MLD rather AP in the same AP MLD, as in the sentence: "Set the Critical Update Flag .... for any AP \*in the same AP MLD\* as the AP ..." | Revise the sentence as follows: "Set the Critical Update Flag .... for any AP \*affiliated with the same AP MLD\* as the AP ..." | Accepted- |
| 4457 | Arik Klein | 35.3.8 | 264.04 | Repharse the following sentence for clarity and better understanding: "include in the Beacon and Probe Response frames it transmits a BSS Parameters ChangeCount subfield for each of all APs affiliated with the same AP MLD as the AP corresponding to the non-transmitted BSSID" | Rephrase the sentence as follows: "include a BSS Parameters Change Count subfield for each of all APs affiliated with the same AP MLD as the AP corresponding to the non-transmitted BSSID in the Beacon and Probe Response frames it transmits" | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 4457. |
| 4458 | Arik Klein | 35.3.8 | 264.19 | The wording of the following section is complicated and unclear: "provide in the Critical Update Flag subfield ...in the Nontransmitted BSSID Profile corresponding to the nontransmitted BSSID."consider splitting it into 2 sentences for better clarity - as proposed | Revise the sentence as follows:" provide an indication of an update to the value carried in the BSS Parameters Change Count subfield, in the Critical Update Flag subfield of the Nontransmitted BSSID Capability element (for that nontransmitted BSSID). The indication will apply for any updated value carried in the BSS Parameters Change Count subfield of the MLD Parameters field in the Reduced Neighbor Report element for any AP affiliated with the same AP MLD as the AP corresponding to the nontransmitted BSSID or any updated value carried in the BSS Parameters Change Count subfield in the Common Info field of the Basic variant Multi-Link element in the Nontransmitted BSSID Profile corresponding to the nontransmitted BSSID" | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 4458. |
| 4459 | Arik Klein | 35.3.8 | 264.28 | The wording of the following section is complicated and unclear: "Set the Critical Update Flag subfield .... of the Basic variant Multi-Link element"consider rephrasing the sentence for better clarity - as proposed | Revise the sentence as follows:" Set the Critical Update Flag subfield of the Capability Information field to 1 in the Beacon frame(s) until and including the next DTIM Beacon frame of the nontransmitted BSSID if there is a change to a value carried in the BSS Parameters Change Count subfield of the MLD Parameters field in the Reduced Neighbor Report element for any AP affiliated with the same AP MLD as the AP corresponding to the nontransmitted BSSID or a change to a value carried in the BSS Parameters Change Count subfield in the Common Info field of the Basic variant Multi-Link element in the Nontransmitted BSSID Profile corresponding to the nontransmitted BSSID." | Rejected-The suggested text has the same meaning as in the original text in 802.11be D1.0. Adding "a change to" before the second "a value" is redudant  |
| 4460 | Arik Klein | 35.3.8 | 264.31 | Use unified terminology of AP affiliated with AP MLD rather AP in the same AP MLD, as in the sentence: "Set the Critical Update Flag .... for any AP \*in the same AP MLD\* as the AP ..." | Revise the sentence as follows: "Set the Critical Update Flag .... for any AP \*affiliated with the same AP MLD\* as the AP ..." | Accepted- |
| 5073 | Gaurav Patwardhan | 35.3.8 | 263.32 | The 802.11ax-2021 spec states that "An EMA AP operating in the 2.4 GHz or 5 GHz band that transmits a Beacon or Probe Response frame carrying a partial list of nontransmitted BSSID profiles should include in the frame a Reduced Neighbor Report element carrying information for at least the nontransmitted BSSIDs that are not present in the Multiple BSSID element carried in that frame." An EMA AP exists when there is no space for all the NonTxBSSID profiles in the transmitted Beacon of a TxBSSID (due to limited Tx and Rx MMPDU buffer sizes). Due to the increased Beacon sizes when MLO is used, the RNR elements for all established BSSs on all links respectively are not guaranteed to be included in a Beacon of the TxBSSID. This will cause problems when signaling BSS Parameter Change Counter for all the BSSs. | Fix the subclause 35.3.8 to support EMA for APs affiliated with AP MLD. | Rejected-RNR element carries basic info for each neighbour AP, and the newly added MLD Parameters subfield occupies only 3 octets for each affiliated AP with the same AP MLD. On the other hand, nontransmitted BSSID profile carries complete info for each AP, including almost every element, which is totally different from the RNR element. So there is no such problem as the commenter mentioned given the practical number of the affiliated APs.  |
| 5217 | Huizhao Wang | 35.3.8 | 264.04 | Why the transmitted BSSID need to include each of all APs, affiliated with the same AP MLD of the nontransmitted BSSID, BSS Parameters Change Count? It should just include its nontransmitted BSSID's BSS Parameters Change Count. And the other transmitted BSSID will do the same for their own nontransmitted BSSIDs. | Remove the text that requires a transmitted BSSID report other APs in a MLD, which are not in the MBSSID set with it. | Rejected-This was discussed in the group before and the group agreed to include BPCC for each of all APs affiliated with the same AP MLD as the AP corresponding to the non-transmitted BSSID.Based on the P264 L04 in 802.11be D1.0, the non-AP STA affiliated with non-AP MLD could obtain the BPCCs for every setup link through the beacon sent by its associated non-transmitted BSSID. |
| 5352 | Jarkko Kneckt | 35.3.8 | 264.36 | When AP's critical parameter value changes, just detecting the change may not be optimal solution. It would be goodto | The affliated APs should transmit the updated parameter values for some time in DTIM Beacons when critical update is updated. This ensures that assocaited non-AP MLDs can update their parameters easily without additional Beacon receptions. | RejectedThe change counter simply provides an indication on whether there is an update or not. When there is an update, the STA could get the detail through the corresponding Beacon or Probe Response frame reception. This mechanism is aligned with the baseline. The proposed change provided by the commenter results in an excessively large Beacon frame. |
| 5689 | kaiying Lu | 35.3.8 | 264.40 | A non-AP MLD shall maintain a record of the most recently received BSS Parameters Change Count subfield value for each AP in the AP MLD with which it has multi-link setup on each setup link. Suggested to add 'on each setup link' at the end of the sentence. | As in comment | Accepted- |
| 5755 | Laurent Cariou | 35.3.8 | 263.58 | clarify that it is also a "shall" statement | as in comment | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 5755. |
| 5756 | Laurent Cariou | 35.3.8 | 263.65 | clarify that it is also a "shall" statement | as in comment | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 5756. |
| 5757 | Laurent Cariou | 35.3.8 | 263.43 | If the critical update corresponds to CSA/eCSA/quiet element, all information is contained in the frame and the non-AP MLD that receives it gets all the information there and doesn't need to retrieve it elsewhere. However, if the critical udpate corresponds to a CSA/eCSA/quiet element and another critical update element, the non-AP MLD that receives it doesn't know if all info is included in the frame or if it needs to retrieve it elsewhere. | Add a bit, for instance in the same place as the Critical Update flag, to indicate that the critical update info is entirely included in the frame or not | 　 |
| 5758 | Laurent Cariou | 35.3.8 | 263.43 | we extended the meaning of the critical update flag to indicate updates that happen not only to APs affiliated to the same AP MLD as the transmitting AP, but also to the transmitting AP, so that we cover also the use case where the STA just needs to check this bit that comes early in the beacon in order to determine if it needs to parse the rest of the beacon or not. This is very useful for the STA. Now in case of multiple BSSID, this indication for non-transmitted BSSIDs will come in the Multiple BSSID element, which comes much later in the beacon frame, and the STA needs to parse quite a bit of the beacon frame before being able to determine if it can drop the beacon or not. It would be useful to add another bit at the very beginning of the beacon that indicates if there are critical updates to any of the non-transmitted BSSIDs in the same multiple BSSID set as the transmitting AP. | Add a bit, for instance in the same place as the Critical Update flag, to indicate that there is critical update for any of the non-transmitted BSSIDs in the same multiple BSSID set as the transmitting AP and to APs affiliated to the same AP MLDs as these non-transmitted BSSIDs. | 　 |
| 6255 | Ming Gan | 35.3.8 | 263.39 | Please clarify "each of all APs", is there one to one mapping between its identifier and BSS Parameters Change Count subfield? | as in the comment | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 6255. |
| 6256 | Ming Gan | 35.3.8 | 264.05 | Please clarify "each of all APs", is there one to one mapping between its identifier and BSS Parameters Change Count subfield? | as in the comment | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 6256. |
| 6294 | Ming Gan | 35.3.8 | 263.38 | Based on RNR element, each of all APs is identified by "link ID", please make it complete | as in the comment | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 6294. |
| 6295 | Ming Gan | 35.3.8 | 264.05 | Based on RNR element, each of all APs is identified by "link ID", please make it complete | as in the comment | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 6295. |
| 6296 | Ming Gan | 35.3.8 | 263.50 | Critical update flag should be updated, it is not only for the update for Change Count, but also for other info in RNR element, like new link ID | as in the comment | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 6296. |
| 6297 | Ming Gan | 35.3.8 | 264.19 | Critical update flag should be updated, it is not only for the update for Change Count, but also for other info in RNR element, like new link ID. Or add another bit to indicate the info change in RNR element | as in the comment | Revised-Agree with the comment in principle. Propose resolution to account for the suggested change.TGbe editor to make the changes shown in 21/1980r4 under all headings that include CID 6297. |
| 6456 | namyeong kim | 35.3.8 | 263.35 | An AP may provide the critical update information for other APs when the critical update event occured. If so, most clients are able to receive the updates and suppress their ML probe reuqest to retrieve the update. (Please see contribution 21/501) | Please define an unsolicitied method for critical update of other APs. | Revised-The behavior about retrieving the update was provided by the contribuion 21/1443r3 and it is in 802.11be D1.3. Note to TGbe editor:There is no text change for this comment. |
| 6763 | Romain GUIGNARD | 35.3.8 | 263.50 | Why are not all BSS parameters change count subfields grouped in the same element? To check all change, the non-AP MLD has to parse basic variant Multi-Link element and RNR element, it is not optimal. | Put the BSS parameters change count subfield of all APs affiliated with an AP MLD in the same place to simplify the parsing. | Rejected-The RNR element is used to provide the info of neighbor AP and it can't provide the info of the transmitting AP itself. So it is reasonable to provide the BPCC for the transmitting AP in other place. |
| 7460 | Thomas Derham | 35.3.8 | 0.00 | "A non-AP MLD shall maintain a record" - why must it maintain a record - why couldn't it ignore all this Critical Update complexity and just parse every beacon if it wants? Even if it keeps a record, it doesn't seem to have to do anything with that record, in which case there is no purpose in maintaining it | Clarify or remove | RevisedMaintaining a record is used to justify if there is update to the critical BSS parameters by comparing the local record and the received change counter. When there is an update, the STA shall retrieve update by Beacon/Probe Response frame reception. This clarification was made in 21/1443r3. Note to TGbe editor:There is no text change for this comment. |

**Discussion:** None.

**35.3.8 BSS parameter critical update procedure**

***TGbe editor: Please update the subclause as shown below***

If an AP affiliated with an AP MLD is not in a multiple BSSID set or corresponds to a transmitted BSSID in a multiple BSSID set, the AP shall

 —include in Beacon, Probe Response and (Re)Association Response frames it transmits a BSS Parameters Change Count subfield for each of all APs affiliated with the same AP MLD as the AP. (CID #4453)

 •The BSS Parameters Change Count subfield value for each AP is initialized to 0, and shall be incremented (modulo 256) when a critical update occurs to the operational parameters for that AP as defined in 11.2.3.15 (TIM Broadcast).

 •In Beacon and Probe Response frames, the BSS Parameters Change Count subfield for each of the other AP(s) affiliated with the AP MLD shall be carried in the MLD Parameters subfield in the TBTT Information field of the Reduced Neighbor Report element corresponding to that AP where each of the other AP(s) is identified by the Link ID subfield of the MLD Parameters subfield (CID #6255 and 6294).

 •In the (Re)Association Response frame, 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 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 (CID #4453, 4457).

 •The BSS Parameters Change Count subfield for the AP shall be carried in the Common Info field of the Basic Multi-Link element where the AP is identified by the Link ID subfield of the Common Info field (CID #6255 and 6294).

 —( CID # 4454, 5755, 5756) set the Critical Update Flag subfield of the Capability Information field to 1 in Beacon and Probe Response frames up to and including the next DTIM Beacon frame on the link on which the AP is operat-ing if there is a change to a value carried in the BSS Parameters Change Count subfield of the MLD Parameters field in the Reduced Neighbor Report element for any AP affiliated with (CID #4456) the same AP MLD as the AP or a value carried in the BSS Parameters Change Count subfield in the Common Info field of the Basic Multi-Link element. Otherwise set the Critical Update Flag subfield of the Capability Information field to 0.

The Critical Update Flag subfield of the Capability Information field in Beacon and Probe Response frames shall also be set to 1 if a new affiliated AP is added to the AP MLD with which the reporting AP is affiliated following the procedure defined in 35.3.6.2.1 (Adding new affiliated APs) or if a Reconfiguration Multi-Link element is included by the reporting AP affiliated with an AP MLD, following the procedure defined in 35.3.6.2.2 (Removing affiliated APs). (CID #6296, 6297)

If an AP affiliated with an AP MLD is a nontransmitted BSSID in a multiple BSSID set, then the AP that corresponds to the transmitted BSSID in the same multiple BSSID set shall

 —include in Beacon and Probe Response frames it transmits a BSS Parameters Change Count subfield for each of all APs affiliated with the same AP MLD as the AP corresponding to the non-transmitted BSSID (CID #4457).

 •The BSS Parameters Change Count subfield value for each AP is initial-ized to 0, and shall be incremented (modulo 256) when a critical update occurs to the operational parameters for that AP as defined in 11.2.3.15 (TIM Broadcast).

 •The BSS Parameters Change Count subfield for each of the other AP(s) affiliated with the AP MLD shall be carried in the MLD Parameters subfield in the TBTT Information field of the Reduced Neighbor Report element corresponding to that AP where each of the other AP(s) is identified by the Link ID subfield of the MLD Parameters subfield (CID #6256 and 6295).

 •The BSS Parameters Change Count subfield for the nontransmitted BSSID shall be carried in (#6700) the Common Info field in the Basic Multi-Link element carried in Nontransmitted BSSID Profile subele-ment of the Multiple BSSID element where the AP is identified by the Link ID subfield of the Common Info field in the Basic Multi-Link element (CID #6256 and 6295).

 — (CID #4458, 5755, 5756) set the Critical Update Flag subfield of the Capability Information field in the Nontransmitted BSSID Capability element (for that nontransmitted BSSID) to 1 in Beacon and Probe Response frames up to and including the next DTIM Beacon frame of the nontransmitted BSSID if there is a change to a value carried in the BSS Parameters Change Count subfield of the MLD Param-eters field in the Reduced Neighbor Report element for any AP affiliated with (CID #4460) the same AP MLD as the AP corresponding to the nontransmitted BSSID or a value carried in the BSS Parameters Change Count subfield in the Common Info field of the (#6700)Basic Multi-Link element in the Non-transmitted BSSID Profile corresponding to the nontransmitted BSSID. Otherwise set the Critical Update Flag subfield of the Capability Information field to 0.

 •

The Critical Update Flag subfield of the Capability Information field in the Nontransmitted BSSID Capability element in Beacon and Probe Response frames shall also be set to 1 if a new affiliated AP is added to the AP MLD with which the nontransmitted BSSID is affiliated following the procedure defined in 35.3.6.2.1 (Adding new affiliated APs) or if a Reconfiguration Multi-Link element is included by the reporting AP in the Nontransmitted BSSID Profile corresponding to the nontransmitted BSSID affiliated with an AP MLD, following the procedure defined in 35.3.6.2.2 (Removing affiliated APs). (CID #6296, 6297)

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 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 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 carried in Nontransmitted BSSID Profile subele-ment of the Multiple BSSID element where the AP is identified by the Link ID subfield of the Common Info field in the Basic Multi-Link element (CID #4453, 4457)

A non-AP MLD shall maintain a record of the most recently received BSS Parameters Change Count subfield value for each AP in the AP MLD with which it has multi-link setup on each setup link (CID #5689).

**9.4.2.312.2.3 Link Info field of the Basic Multi-Link element(#7567)**

***TGbe editor: Please update the subclause as shown below*** (CID #4453, 4457)

The format of the STA Control field is defined in [Figure 9-1002k (STA Control field for-](#bookmark134) [mat(#1906)(#1907)(#1078)(#1475)(#2981))](#bookmark134).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 B15 |
|  | Link ID | Complete Profile | MAC Address Present | Beacon Interval Present | DTIM Info Present | NSTR Link Pair Present | NSTR Bitmap Size | BSS Parameters Change Count Present | Reserved |
| Bits: | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5 |

**Figure 9-1002k—STA Control field format(#1906)(#1907)(#1078)(#1475)(#2981)**

The Link ID subfield specifies a value that uniquely identifies the link where the reported STA is operating on. The usage of link ID is defined in 35.3.2.1 (General)(#1776).

(#2436)The Complete Profile subfield is set to 1 when the Per-STA Profile subelement of the Multi-Link element carries the complete profile as defined in 35.3.2.2 (Advertisement of complete or partial per-link information(#1859)). Otherwise the subfield is set to 0.

(#1035)(#2183)(#2451)(#1799)(#1050)(#1778)(#2165)The MAC Address Present subfield indicates the presence of the STA MAC Address subfield in the STA Info field and is set to 1 if the STA MAC Address subfield is present in the STA Info field; otherwise set to 0. (#5129)A STA sets this subfield to 1 when the element carries complete profile.

The Beacon Interval Present subfield indicates the presence of the Beacon Interval subfield in the STA Info field and is set to 1 if the Beacon Interval subfield is present in the STA Info field; otherwise set to 0. (#8286)A non-AP STA sets the Beacon Interval Present subfield to 0 in the transmitted (#6700)Basic Multi- Link element. An AP sets this subfield to 1 when the element carries complete profile.

The DTIM Info Present subfield indicates the presence of the DTIM Info subfield in the STA Info field and is set to 1 if the DTIM Info subfield is present in the STA Info field; otherwise set to 0. (#8287)A non-AP STA sets the DTIM Info Present subfield to 0 in the transmitted (#6700)Basic Multi-Link element. An AP sets this subfield to 1 when the element carries complete profile.

(#8287)(#1078)(#1475)(#2981)If the value of the Maximum Number Of Simultaneous Links subfield in the MLD Capabilities field is greater than 0, the NSTR Link Pair Present subfield in the STA Control field indi- cates if at least one NSTR link pair is present in the MLD that contains the link corresponding to that STA. It is set to 1 if there is at least one such link pair; otherwise it is set to 0.

(#8288)If the Complete Profile subfield is equal to 1 and the NSTR Link Pair Present subfield is equal to 1 in the STA Control field, then the STA Info field contains an NSTR Indication Bitmap subfield whose size is indicated in the NSTR Bitmap Size subfield; otherwise, the NSTR Indication Bitmap subfield is not pres- ent in the STA Info field. The NSTR Bitmap Size subfield in the STA Control field is set to 1 if the length of the corresponding NSTR Indication Bitmap subfield is 2 octets and is set to 0 if the length of the correspond- ing NSTR Indication Bitmap subfield is 1 octet. The NSTR Bitmap Size subfield in the STA Control field is reserved if the NSTR Link Pair Present subfield in that field is 0.

The BSS Parameters Change Count Present subfield indicates the presence of the BSS Parameters Change Count subfield in the STA Info field and is set to 1 if the BSS Parameters Change Count subfield is present in the STA Info field; otherwise set to 0. A non-AP STA sets the BSS Parameters Change Count Present subfield to 0 in the transmitted Basic Multi- Link element. If the Basic Multi-Link element carries complete profile and is carried in the (Re)Association Response frame, an AP sets this subfield to 1. Otherwise, an AP sets this subfield to 0

(#8288)(#6366)The format of the STA Info field is defined in [Figure 9-1002l (STA Info field for-](#bookmark135) [mat(#5044)(#6366))](#bookmark135).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | STA Info Length | STA MAC Address | Beacon Interval | DTIM Info | NSTR Indication Bitmap | BSS Parameters Change Count |
| Octets: | 1 | 0 or 6 | 0 or 2 | 0 or 2 | 0 or 1 or 2 | 0 or 1 |

**Figure 9-1002l—STA Info field format(#5044)(#6366)**

(#5044)The STA Info Length subfield indicates the number of octets in the STA Info field.

(#8170)The STA MAC Address subfield of the STA Info field carries the MAC address of the (AP or non- AP) STA that operates on the link identified by the Link ID subfield and is affiliated with the same MLD as the STA that transmitted the (#6700)Basic Multi-Link element.

(#6366)(#1035)The Beacon Interval subfield of the STA Info field is defined in 9.4.1.3 (Beacon Interval field) and carries the value of beacon interval for the reported AP.

The DTIM Info subfield of the STA Info field has the format as defined in [Figure 9-1002m (DTIM Info sub-](#bookmark136) [field format)](#bookmark136).

DTIM Period

DTIM Count

Octets: 1 1

**Figure 9-1002m—DTIM Info subfield format**

(#1035)The DTIM Count subfield and the DTIM Period subfield are as defined in [9.4.2.5 (TIM element)](#bookmark87) and carries the value of DTIM count and DTIM period, respectively, for the reported AP.

(#8288)Each bit B*j* *j*  *i* in the NSTR Indication Bitmap subfield included in the Per-STA Profile subele- ment with Link ID subfield equals to *i* (where 0  *i*  15 ) is set to 1 if the link pair corresponding to Link IDs equal to <*i*, *j>* is NSTR and the (#6700)Basic Multi-Link element contains a Per-STA Profile subele- ment with Link ID value equals to *j*; otherwise it is set to 0. Bit B*i* in the NSTR Indication Bitmap subfield included in the Per-STA Profile subelement with Link ID subfield value equals to *i* is reserved.

The BSS Parameters Change Count subfield of the STA Info field is defined in 9.4.2.170.2 (Reduced Neighbor Report element) and carries the value of BSS parameters change count for the reported AP.

(#4735)The contents of the STA Profile field are defined in 35.3.2.2 (Advertisement of complete or partial per-link information(#1859)).

(#1908)(#2159)(#2161)The Vendor Specific subelements have the same format as their corresponding ele- ments (see 9.4.2.25 (Vendor Specific element)). Zero or more Vendor Specific subelements are included in the list of optional subelements.