IEEE P802.11
Wireless LANs

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| LB 271 CR for 9.4.2.316 QoS Characteristics element (Part 1) |
| Date: April 1, 2023 |
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 Abstract

This submission proposes resolutions for following CIDs received for TGbe LB271:

15011, 15012, 15024, 15378, 15807, 15808, 15809, 16079, 16134, 17646, 18014, 18041, 18042, 18043, 18045, 18046, 18047, 18048, 18049

**Revisions:**

* Rev 0: Initial version of the document.
* Rev 1: updated after presentation to TGbe
* Rev 2: corrected the “may” to “might” in the NOTE of #18048
* Rev 3: updated per Ming’s feedback on CIDs 15378 and 18045

***TGbe editor: The baseline for this document is 11be D3.0***

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** |
| 15011 | Thomas Derham | 9.4.2.316 | 297.23 | Direction subfield values described in the text for Downlink and Direct Link are not consistent with the table.While multiple resolutions are possible, the easiest is to swap B1 and B0 in the header of table 9-401r | In Table 9-401r header, replace "B0" and "B1", and replace "B1" with "B0" | Revised.Merge the B0 and B1 columns into one and label it as “Direction”. Then list 0, 1, 2, 3 as the values of the “Direction” column. **TGbe editor, please make the changes described above.** |
| 15012 | Thomas Derham | 9.4.2.316 | 298.18 | "TSF timer associated to the link specified in the LinkID field"Shouldn't this refer to the Service Start Time LinkID field?(since LinkID field is only used for Direct link direction, but Service Start Time refers to all directions | Replace "link specified in the LinkID field" with "link specified in the Service Start Time LinkID field" | Revised.Replace "link specified in the LinkID field" with "link specified in the Service Start Time LinkID field" and in lines 23/24 replace “This field is present only if the Service Start Time field is present.” with “This field is present if the Service Start Time field is present and is not present otherwise.”**TGbe editor, please make the changes described above.** |
| 15024 | Thomas Derham | 9.4.2.316 | 296.16 | Figure 9-1002au contains separate MSDU Delivery Ratio and MSDU Count Exponent fields.However per the text starting p298l43, a new field has been defined - MSDU Delivery Info - which encapsulates both subfields in a single octet. | In Figure 9-1002au, replace MSDU Delivery Ratio and MSDU Count Exponent fields with a single one-octet field called MSDU Delivery Info | Accepted. |
| 15378 | John Wullert | 9.4.2.316 | 297.06 | This text is confusing. It describes how the Presence Bitmap Of Additional Parameters indicates which fields are present, but then the second sentence in the paragaph says that all of the fields must be present because the value of 0 is reserved for all bits. | Clarify the langauge or add a note that explains the apparent contradiction | Revised.Agreed in principle. Removed the sentence “For each field starting from the Maximum MSDU Size field, the value 0 is reserved” and add “The value 0 is reserved” in the appropriate fields.**TGbe editor, please make the changes described below in this document.** |
| 15807 | Muhammad Kumail Haider | 9.4.2.316 | 298.19 | "The field represents the four lower order octets of the TSF timer associated to the link specified in the LinkID field at the start of the anticipated SP." Here it should be Service Start Time LinkID field instead of LinkID field, which is only applicable for direct link. Also "associated to"->"associated with" | as in comment | Revised.Replace “LinkID” with “Service Start Time LinkID” and replace “associated to” with “corresponding to”.**TGbe editor, please make the changes described above.** |
| 15808 | Muhammad Kumail Haider | 9.4.2.316 | 298.38 | Suggest to replace "Therefore, the MSDU transmitter may consider discarding such MSDU at the transmitter before it is transmitted over-the-air." to "Therefore, the sender may consider discarding such MSDU before it is transmitted over-the-air" | as in comment | Revised.Agreed in principle. Change the sentence to:"Therefore, the sender may consider discarding the MSDU before it is transmitted over-the-air"**TGbe editor, please make the changes described above.** |
| 15809 | Muhammad Kumail Haider | 9.4.2.316 | 297.09 | "For each field starting from the Maximum MSDU Size field, the value 0 is reserved." By this spec, value 0 for Service Start time is reserved. However, it is possible that the lower four octets of TSF for anticipated start time may be 0 if there is a rollover. Please clarify. | Please clarify and amend thespec if needed | Revised.Same resolution as that of CID 15378.**TGbe editor, please make the changes described above (same as the resolution of CID 15378).** |
| 16079 | Insun Jang | 9.4.2.316 | 296.17 | The Figure 9-1002au is not alinged with the desriptions of "MSDU Delivery Info field" | As in the comment, the Figure 9-1002au should be modified for the part of MSDU Delivery Info | Revised.Same resolution as CID 15024.**TGbe editor, this is the same as the resolution of CID 15024.** |
| 16134 | SunHee Baek | 9.4.2.316 | 296.16 | Figure 9-1002au (QoS Characteristic element format) includes MSDU Delivery Ratio field and MSDU Count Exponent field. But these two fields didn't have each 1 octet any more because they combined to one field(MSDU Delivery Info field) including two subfields; MSDU Delivery Ratio subfield and MSDU Count Exponent subfield. | The figure of QoS Characteristic element should be modified like that MSDU Delivery Ratio field and MSDU Count Exponent field are removed and MSDU Delivery Info field is added. | Revised.Same resolution as CID 15024.**TGbe editor, this is the same as the resolution of CID 15024.** |
| 17646 | Brian Hart | 9.4.2.316 | 297.09 | "For each field starting from the Maximum MSDU Size field, the value 0 is reserved." is in the wrong place or is spurious | 1) If the field is reserved, it should not be transmitted; instead it should just be omitted. 2) If we can't agree to that, instead 2a) Try "For each field starting from the Maximum MSDU Size field, the value 0 indicates that the field is reserved." and 2b) This definition should be moved and replicated for each subsequent field, since it does not specifically relate to this Presence subfield | Revised.Same resolution as that of CID 15378.**TGbe editor, please make the same changes as in the resolution of CID 15378.** |
| 18014 | Duncan Ho | 9.4.2.316 | 296.16 | The MSDU Delivery Ratio field and MSDU Count Exponent field in Figure 9-1002au are incorrect. | Rename the "MSDU Delivery Ratio" field to "MSDU Delivery Info" and remove the "MSDU Count Exponent" field from the figure. | Revised.Same resolution as CID 15024.**TGbe editor, this is the same as the resolution of CID 15024.** |
| 18041 | Binita Gupta | 9.4.2.316 | 296.01 | Simplify the text. | Modify to "The QoS Characteristics element format is definedin Figure 9-1002au (QoS Characteristics element format)." | Accepted.  |
| 18042 | Binita Gupta | 9.4.2.316 | 296.50 | Values for the Direction subfield in Table 9-401r does not align with the values in the text description. For example Direction value 1 is indicated as Direct Link in the Table (Bit 0 is set to 1), whereas value 2 is Direct Link in the text description. | Fixed the Bit numbering in the Table to match Direction values in the text description. | Revised.Same resolution as CID 15011.**TGbe editor, please make the same changes as in the resolution of CID 15011.** |
| 18043 | Binita Gupta | 9.4.2.316 | 296.23 | In Figure 9-1002au, the MSDU Delivery Ratio and the MSDU Delivery Exponent fields are listed as two separate 1 octet fields. However, in Figure 9-1002aw these two fields have been merged into a new MSDU Delivery Info field, each consisting of 4 bits. | Fix Figure 9-1002au to make it consistent with Figure 9-1002aw. | Revised.Same resolution as CID 15024.**TGbe editor, this is the same as the resolution of CID 15024.** |
| 18045 | Binita Gupta | 9.4.2.316 | 298.18 | Why can't the Service Start Time be specified w.r.t. the TSF of the current link where the QoS Characteristics element is being sent? Clarify why a separate Service Start Time LinkID field is needed. | Clarify as per the comment. If Service Start Time can be specified w.r.t. the current link, then remove the Service Start Time LinkID field.If keeping the Service Start Time LinkID field, then need to change "LinkID" field on line 18 to "Service Start Time LinkID". | Revised.The reason for this field is to allow the transmitter to select a link as the Service Start Time Link ID in advance so it has enough time to get the TSF corresponding to that link to form the QoS char element.Note the TSF values of each link could be different.**TGbe editor, this is the same as the resolution of CID 15012.** |
| 18046 | Binita Gupta | 9.4.2.316 | 298.28 | Change to make last part of sentence more precise | Change to "...for transport of MSDUs or A-MSDUs belonging to the traffic flow described by this element." | Accepted. |
| 18047 | Binita Gupta | 9.4.2.316 | 298.33 | Specify that Burst Size field is not present if Delay Bound is set to zero. | As per comment. | Rejected.Page 298 line 8 already specifies that the Delay bound is nonzero if the Burst Size field is present. |
| 18048 | Binita Gupta | 9.4.2.316 | 299.01 | The MSDU Delivery Ratio subfield is not defining MSDU loss requirement since it provides percentage of MSDUs which need to be delivered, not the requirement for allowed MSDU loss rate. | Revise text to make description for the MSDU Delivery Ratio more precise. Also clarify how the MSDU delivery requirement accounts for Delay Bound. Specify if the Delay Bound field needs to be nonzero when the MSDU Delivery Ratio field is present. If yes, then add that requirement under Delay Bound field. | Revised.Add clarifications to the definition of the MSDU Delivery Ratio. Please see the changes in this document below..**TGbe editor, please make the changes tagged as #18048 in this document.** |
| 18049 | Binita Gupta | 9.4.2.316 | 299.39 | For a direct link, why do we need a separate Medium Time parameter? Why can't an AP determine the service interval needed for direct link traffic transmission based on the parameters it receives in the QoS Characteristics IE for Direct Link (Min/Max service interval, service start time, data rate etc.), similar to UL or DL? Are additional parameters needed for AP to be able to do this? | Clarify the points as per comment (e.g. by adding a Note) and make any changes required to the QoS Characteristics IE for direct link. | Rejected.We need the medium time because the AP does not know the radio condition of the p2p link (which is a link between the non-AP MLD and another non-AP STA). The AP also does not know how much data is in the buffer, either on the non-AP MLD side or the non-AP STA side.  |

**TGbe editor, for CID 15378, please make the following changes:**

Pg 297/line 6

—The Presence Bitmap Of Additional Parameters subfield contains a bitmap where the i-th entry of the bitmap is set to 1 if the i-th field starting from the Maximum MSDU Size field is present in this element. (#15378)

[…]

Pg 298/line 11

(#15378)The Maximum MSDU Size field contains an unsigned integer that specifies the maximum size, in octets, of MSDUs or A MSDUs belonging to the traffic flow described by this element. The value 0 is reserved.

[…]

The Mean Data Rate field indicates the average data rate specified at the MAC SAP rounded up to the nearest kilobit per second, in units of kilobits per second, for transport of MSDUs or A-MSDUs belonging to the traffic flow within the bounds of this element. (#15378)The value 0 is reserved.

The Burst Size field is 4 octets long and contains an unsigned integer that specifies the maximum burst, in octets, of the MSDUs or A-MSDUs belonging to the traffic flow that arrive at the MAC SAP within a time duration specified in the Delay Bound field. (#15378)The value 0 is reserved.

The MSDU Lifetime field contains an unsigned integer that specifies the maximum amount of time, in milliseconds, since the arrival of the MSDU at the MAC data service interface beyond which the MSDU is not useful even if received by the receiver. Therefore, the MSDU transmitter may consider discarding such MSDU at the transmitter before it is transmitted over-the-air. The amount of time specified in this field is larger than or equal to the amount of time specified in the Delay Bound field, if present. (#15378) The value 0 is reserved.

[…]

The Medium Time field contains an unsigned integer that specifies the medium time, in units of 256 microseconds per second, requested by the STA as the average medium time needed in each second. The four MSB of the Medium Time field are reserved. The values (#15378)0, 3906 to 4095 are reserved. This field is present only if the Direction subfield is set to 2 (Direct link).

**TGbe editor, for CID 18048, please make the following changes:**

(#18048)The MSDU Delivery Ratio subfield specifies the percentage of the MSDUs that are expected to be delivered successfully computed based on the total number of MSDUs indicated by MSDU Count Exponent subfield. The MSDU Delivery Ratio subfield is encoded as defined in Table 9-401s (MSDU Delivery Ratio subfield values).

(#18048)If the Delay Bound field included in the QoS Characteristics element is nonzero, an MSDU is considered delivered successfully for the purpose of the computation of the MSDU Delivery Ratio value only if the MSDU is delivered within the indicated delay bound.

(#18048)NOTE: the transmitter might discard an MSDU if the delay bound of the MSDU has been exceeded.

Do you agree to the resolution provided in doc 11-23/xxxxr0 for the following CIDs?

15011, 15012, 15024, 15378, 15807, 15808, 15809, 16079, 16134, 17646, 18014, 18041, 18042, 18043, 18045, 18046, 18047, 18048, 18049