IEEE P802.11  
Wireless LANs

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| --- | --- | --- | --- | --- |
| 802.11bc LB255 – Resolution for CIDs assigned to Antonio for sections 9.4.5.100 | | | | |
| Date: January 29, 2021 | | | | |
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| Others |  |  |  |  |

This submission proposes resolutions for the following CIDs submitted during LB252 for 11bc D1.0. regarding section 9.4.5.100 and 9.6.7.102

To facilitate the work of the TGbc editor, I have based this resolution on the previous resolution of CIDs 1612, 1515, 1514, 1505, 1501, 1500, 1499, which can be found in <https://mentor.ieee.org/802.11/dcn/21/11-21-0079-03-00bc-lb252-resolution-to-cids-assigned-to-antonio.docx>. The resolutions in this document are marked in blue, while the new resolutions for the CIDs in this document are marked in red.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Clause Number(C)** | **Page(C)** | **Line(C)** | **Comment** | **Proposed Change** | **Resolution** |
| 1012 | 9.4.5.100 | 30 | 4 | There are several fields and subfields in the rest of the element that apply only to an eBCS AP (transmitter). | The spec text needs to clarify which fields are applicable to an eBCS receiver. Otherwise reserved or not present. | Revise: Text explaining the content of the Enhanced Broadcast Service ANQP Element when the request is received in an AP STA and a non-AP STA has been added, as per resolution marked as [CID 1012] in https://mentor.ieee.org/802.11/dcn/21/11-21-0175-00-00bc-lb252-resolutions-to-cid-in-clauses-9.5.4.100.docx. |
| 1046 | 9.4.5.100 | 30 | 2 | The transmit capability subfield is for a non-AP STA and not a STA or AP STA | Change STA to non-AP STA | Revised: The element has been changed, adding the Tx/Rx information in the Control field of the Enhanced Broadcast Services Tuple field. The text now clearly states the usage of the new EBCS TxRx. This field can be used by any STA. Modified text as per resolution marked as [CID 1046] in https://mentor.ieee.org/802.11/dcn/21/11-21-0175-00-00bc-lb252-resolutions-to-cid-in-clauses-9.5.4.100.docx. |
| 1047 | 9.4.5.100 | 30 | 4 | The receive capability subfield is for a non-AP STA. Not a STA or AP STA. | Change STA to non-AP STA | Revised: The element has been changed, adding the Tx/Rx information in the Control field of the Enhanced Broadcast Services Tuple field. The text now clearly states the usage of the new EBCS TxRx. This field can be used by any STA. Modified text as per resolution marked as [CID 1047] in https://mentor.ieee.org/802.11/dcn/21/11-21-0175-00-00bc-lb252-resolutions-to-cid-in-clauses-9.5.4.100.docx. |
| 1069 | 9.4.5.100 | 30 | 4 | It is not clear the use of the Receive Capability bit to indicate the services received by a non-AP STA | Will provide a contribution addressing this. | Revised: The element has been changed, adding the Tx/Rx information in the Control field of the Enhanced Broadcast Services Tuple field. The text now clearly states the usage of the new EBCS TxRx. This field can be used by any STA. Modified text as per resolution marked as [CID 1069] in https://mentor.ieee.org/802.11/dcn/21/11-21-0175-00-00bc-lb252-resolutions-to-cid-in-clauses-9.5.4.100.docx. |
| 1215 | 9.4.5.100 | 30 | 14 | Figures 9-bc14 optionally includes Time "to" Termination subfield, however, its notation is different with that ("To") in Figure 9-bc10. | Please make consistent the notation of the subfield if this difference is not intentional. | Revised. All instances of Time To Termination have been made consistent, using To in uppercase. |
| 1451 | 9.4.5.100 | 31 | 22 | Table 9-bc3 defines for the Request Method subfield values for 0 to 3, but the Request Method subfield is an octet according to Fig. 9-bc14. Hence values 4-255 should be reserved. | Add a row at the end of Table 9-bc3. In the Negotation Method subfield Value column place "4-255" and in the Meaning column "Reserved" | Accept |
| 1452 | 9.4.5.100 | 32 | 17 | Table 9-bc4 defines for the Content Destination Address Type subfield values for 0 to 7, but the subfiels is an octet according to Fig. 9-bc14. Hence, the last row first column in Table 9-bc4 should range from 4 to 255. Replace "7" with "255" | As in com  ment | Accept |
| 1453 | 9.4.5.100 | 33 | 6 | Fig. 9-bc18 caption reads "Content Destination Address subfield format for UDP/hostname (CID 53)" | Remove "(CID 53)" | Accept |
| 1456 | 9.4.5.100 | 32 | 17 | Table 9-bc9 defines for the Content Destination Address Type subfield values for 0 to 7, but the subfiels is an octet according to Fig. 9-bc29. Hence, the last row first column in Table 9-bc9 should range from 4 to 255. Replace "7" with "255" | As in comment | Accept |
| 1011 | 9.4.5.100 | 30 | 4 | What is the usefulness of the Receiver Capability subfield? In other words, when would an eBCS receiver transmit this element? | As in comment | Revised: The element has been changed, adding the Tx/Rx information in the Control field of the Enhanced Broadcast Services Tuple field. The text now clearly states the usage of the new EBCS TxRx. This field can be used by any STA. Modified text as per resolution marked as [CID 1011] in https://mentor.ieee.org/802.11/dcn/21/11-21-0175-00-00bc-lb252-resolutions-to-cid-in-clauses-9.5.4.100.docx. |
| 1495 | 9.4.5.100 | 30 | 14 | Figure 9-bc14 is poorly formatted | The "Content ID" subfield is not alligned correctly and needs to be centred within it's cell. | Accept |
| 1512 | 9.4.5.100 | 33 | 4 | Subfield definitions usually occur beneath Figures. | Move the definitions of the "Hostname Length" and "Hostname" subfields below Figure 9-bc18. | Accept |
| 1513 | 9.4.5.100 | 33 | 4 | Subfield definitions usually occur beneath Figures. | Move the definition of the "MAC Address" subfield below Figure 9-bc19. | Revised. Figure was deleted per the resolution of CID 1514, so no change is required. |
| 1531 | 9.4.5.100 | 30 | 1 | There is a glitch in Figure 9-bc13 | Make sure graphic is placed on one page | Revised. Figure was deleted per the resolution of previous CIDs, so no change is required. |
| 1532 | 9.4.5.100 | 31 | 1 | Glitch in Figure 9-bc15 | Remove first Column (most left) | Accept |
| 1562 | 9.4.5.100 | 30 | 20 | "Figure 9-bc15a:" There is no Figure 9-bc15a, but Figure 9-bc15. And I think we don't need to use colon here. | Change it to "Figure 9-bc15." | Accept |
| 1602 | 9.4.5.100 | 31 | 1 | empty cell in Figure 9-bc15 | remove empty cell | Accept (same as 1532) |
| 1494 | 9.4.5.100 | 31 | 1 | Figure 9-bc15 is poorly formatted | There is an extra box above "Bits" on the left hand side of the figure which should be removed. | Accept (same as 1532 and 1602) |

1. **9.4.5.100 Enhanced Broadcast Service~~s~~ ANQP-element**
2. The Enhanced Broadcast Service~~s~~ ANQP-element provides a list of one or more enhanced broadcast
3. services that are available from the STA transmitting this element. The format of the Enhanced Broadcast
4. Service~~s~~ ANQP-element is defined in Figure 9-bc12.
5. When an ANQP request containing the Enhanced Broadcast Service ANQP-element is received by an AP, the corresponding Enhanced Broadcast Service ANQP-element in the ANQP response contains the list of EBCS [streams] being transmitted by the AP. When an ANQP request containing the Enhanced Broadcast Service ANQP-element is received by a non-AP STA, the services included in the ANQP response contains the list of EBCS [streams] being received by the STA. [CID1012]

***TGbc Editor: Remove Broadcast Control field from Figure 9-bc12***

### 12

|  |  |  |  |
| --- | --- | --- | --- |
| Info ID | Length | ~~Broadcast Control~~ | Enhanced Broadcast Service~~s~~ Tuples |

Octets: 2 2 ~~1~~ variable

**Figure 9-bc12 - EBCS Response Info Control subfield format**

### 13

1. The Info ID and Length fields are defined in 9.4.5.1 (General).

***TGbc editor: Remove lines below [CID 1046/1047/1011]***

1. ~~The Broadcast Control field is defined in Figure 9-bc13~~

~~B0 B1 B2 B3 B7~~

|  |  |  |  |
| --- | --- | --- | --- |
| ~~Transmit Capability~~ | ~~Receive Capability~~ | ~~Service Advertisement~~ | ~~Reserved~~ |

~~Bits: 1 1 1 5~~

**~~Figure 9-bc13 Enhanced Broadcast field format~~**

### 16

1. ~~The Transmit Capability subfield is set to 1 by a STA to indicate that it supports the transmission of EBCS.~~
2. ~~This subfield is set to 0 to indicate that there is no support for the transmission of EBCS.~~
3. ~~The Receive Capability subfield is set to 1 by a STA to indicate that it supports the reception of EBCS.~~
4. ~~This subfield is set to 0 to indicate that there is no support for the reception of EBCS. When the Enhanced~~
5. ~~Broadcast Services ANQP-element is transmitted by a non-AP STA, this bit set to 1 indicates that the~~
6. ~~information in the Enhanced Broadcast Services Tuples refers to EBCS being received by the non-AP STA.~~
7. ~~The Service Advertisement subfield is set to 1 by a STA to indicate that the Enhanced Broadcast Services~~
8. ~~Tuples subfield contains information about the EBCS(s) transmitted by the STA. This subfield is set to 0 to~~
9. ~~indicate that there are no Enhanced Broadcast Services Tuples subfields at the time of transmission from~~
10. ~~the STA.~~
11. The Enhanced Broadcast Service~~s~~ Tuples field contains one or more Enhanced Broadcast Service~~s~~ Tuple
12. fields as shown in Figure 9-bc14.

***TGbc Editor: Use this version of the Figure 9-bc14, which solves some formatting issues [CID 1495]***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Control | Content ID | Request Method | Broadcaster MAC Address (Optional) | Next Tx Schedule (Optional) [CID1612] | Time To Termination (Optional) [CID 1215] |
| Octets | 1 | 1 | 1 | 0 or 6 | 0 or 8 | 0 or 2 |

### 14

|  |  |  |  |
| --- | --- | --- | --- |
| Content Destination Address Type (Optional) | Content Destination Address (Optional) | Title Length (Optional) | Title (Optional) |

Octets: 0 or 1 variable 0 or 1 variable

### 15

1. **Figure 9-bc14 - Enhanced Broadcast Service~~s~~ Tuple field format**

### 17

1. The Control field defines which of the optional fields are present in the Enhanced Broadcast Service~~s~~ Tuple
2. field and is defined in Figure 9-bc15~~a:~~[CID 1562]

### 20

***TGbc Editor: Makes sure Figure 9-bc15 fits completely in a single page and does not have a first empty column.***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 | B1 | B2 | B3 | B4 | B5 | B6 | B7 |
|  | Broadcaster MAC Address Present | Next Tx Schedule Present [CID1612] | Time To Termination Present | Content Destination Address  Present | Title Present | Association Required | EBCS TxRx | Reserved |
| Bits | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**Figure 9-bc15 Control field format**

1. The Broadcaster MAC Address Present subfield is set to 1 by a STA to indicate that the Enhanced
2. Broadcast Service~~s~~ Tuple field contains a Broadcaster MAC Address field. This subfield is set to 0 to
3. indicate that there is no Broadcaster MAC Address field.
4. The Next Tx Schedule Present subfield is set to 1 by a STA to indicate that the Enhanced Broadcast
5. Service~~s~~ Tuple field contains a Next Tx Schedule field. This subfield is set to 0 to indicate that there is no Next Tx Schedule field. [CID 1612]
6. The Time To Termination subfield is set to 1 by a STA to indicate that the Enhanced Broadcast Service~~s~~
7. Tuple field contains a Time To Termination field. This subfield is set to 0 to indicate that there is no Time
8. to Termination field.[CID1215]
9. The Content Destination Address Present subfield is set to 1 by a STA to indicate that the Enhanced
10. Broadcast Service~~s~~ Tuple field contains Content Destination Address Type and Content Destination
11. Address fields. This subfield is set to 0 to indicate that there are no Content Destination Address Type and
12. Content Destination Address fields.
13. The Title Present subfield is set to 1 by a STA to indicate that the Enhanced Broadcast Service~~s~~ Tuple field
14. contains a Title Length field and a Title field. This subfield is set to 0 to indicate that there are no Title
15. Length and Title fields.
16. The EBCS TxRx field indicates if the service identified in this Enhanced Broadcast Service~~s~~ Tuple field is being transmitted (when set to 0) or received (when set to 1) by the STA sending this Enhanced Broadcast Service ANQP-element. ***[CID 1046/1047/1011]***
17. The Content ID subfield indicates the identifier of the content.
18. The Request Method subfield indicates the request method to solicit the transmission of an EBCS identified
19. by the content ID contained in the Content ID subfield. The encoding of the Request Method subfield is
20. defined in Table 9-bc3 (Request Method subfield encoding).
21. **Table 9-bc3—Request Method subfield encoding**

|  |  |  |
| --- | --- | --- |
| **Negotiation Method subfield value** | **Meaning** | **Notes** |
| 0 | No negotiation |  |
| 1 | Request using EBCS Request frames | EBCS request by STAs that are associated with the broadcaster |
| 2 | Request using EBCS Request ANQP-elements | EBCS request by STAs that are not associated with the broadcaster |
| 3 | Request using IP request | Out of band IP request |
| 4-255 | Reserved [CID 1451] |  |

### 22

1. The Broadcaster MAC Address field indicates the MAC Address of the AP broadcasting this channel, in
2. the case of a setup with multiple APs.
3. The Time Of Termination subfield indicates the number of TBTTs until the content identified by the
4. content ID contained in the Content ID subfield is terminated. A value of 0 indicates that the content
5. identified by the content ID in the Content ID subfield ~~will be~~ is terminated at the following TBTT. A value
6. of 65535 indicates that the content identified by the content ID in the Content ID subfield has no specific
7. termination time.
8. The Next Tx Schedule subfield indicates the number of TBTTs until the beacon interval in which the next frame
9. belonging to the EBCS traffic stream, identified by the Content ID subfield, is transmitted. A value of 0 indicates that
10. this transmission occurs in the beacon interval that starts at the next TBTT. A value of 1 indicates that it occurs in the
11. beacon interval that follows that beacon interval. A value of 65535 indicates that there is no specific transmission time.
12. [CID1612]
13. The Content Destination Address Type subfield is defined in Table 9-bc4 (Content Destination Address
14. Type subfield). The value of 2, indicating a UDP or hostname, shall only be used for EBCS UL frames.
15. The other values are used for both EBCS DL and UL frames.
16. **Table 9-bc4 Content Destination Address Type subfield**

|  |  |
| --- | --- |
| **Value** | **Higher Layer Protocol** |
| 0 | UDP/IPv4 |
| 1 | UDP/IPv6 |
| 2 | UDP/hostname (UL only) |
| 3 | MAC Address |
| 4-255 [CID1452] | Reserved |

### 15

1. The Content Destination Address subfield indicates the destination of the content.
2. If the Content Destination Address Type subfield is UDP/IPv4, the format of the Content Destination
3. Address subfield is shown in Figure 9-bc16 (Content Destination Address subfield format for UDP/IPv4).

Destination Port

Destination IPv4 Address

Octets 4 2

1. **Figure 9-bc16 Content Destination Address subfield format for UDP/IPv4**
2. The Destination IPv4 Address subfield indicates the IPv4 address used as destination (typically a
3. multicast IPv4 address) in the broadcast frames for the EBCS identified by the Content ID field. The
4. Destination Port subfield indicates the UDP port associated with the IPv4 address indicated in the
5. Destination IPv4 Address subfield.[CID 1501/1500/1499]
6. NOTE---The UDP port and IP address are encoded per the conventions defined in 9.2.2.
7. If the Content Destination Address Type subfield is UDP/IPv6, the format of the Content Destination
8. Address subfield is shown in Figure 9-bc17 (Content Destination Address subfield format for UDP/IPv6).

Destination Port

Destination IPv6 Address

Octets 16 2

1. **Figure 9-bc17 Content Destination Address subfield format for UDP/IPv6**
2. The Destination IPv6 Address subfield indicates the IPv6 address used as destination (typically a
3. multicast IPv6 address) in the broadcast frames for the EBCS identified by the Content ID field. The
4. Destination Port subfield indicates the UDP port associated with the IPv6 address indicated in the
5. Destination IPv6 Address subfield. [CID 1501/1500/1499]
6. NOTE---The UDP port and IP address are encoded per the conventions defined in 9.2.2.
   1. If the Content Destination Address Type subfield is UDP/hostname, the format of the Content
   2. Destination Address subfield is shown in Figure 9-bc18 (Content Destination Address
   3. subfield format for UDP/hostname). ~~The Hostname Length subfield indicates the length of the~~
   4. ~~Hostname subfield. The Hostname subfield is the hostname as a UTF-8 string.~~

|  |  |  |
| --- | --- | --- |
| Hostname Length | Hostname | Destination UDP Port |

Octets 1 variable 2

* 1. **Figure 9-bc18 Content Destination Address subfield format for UDP/hostname ~~(CID 53)~~** [CID1453]
  2. The Hostname Length subfield indicates the length of the Hostname subfield in octets. The
  3. Hostname subfield is the hostname as a UTF-8 string. [CID 1512]
  4. The Destination UDP Port subfield indicates the UDP port associated with the hostname address
  5. indicated in the Hostname subfield. [CID 1505]
  6. NOTE---The UDP port is encoded per the conventions defined in 9.2.2.

1. If the Content Destination Address Type subfield is MAC Address, the Content Destination Address
2. subfield contains a MAC address. [CID 1514].

***TGbc Editor: remove Fig 9-bc19 [CID 1514]***

~~MAC Address~~

~~Octets 6~~

1. **~~Figure 9-bc19 Content Destination Address subfield format for MAC Address~~**

***TGbc Editor: Change Table 9-bc5 as follows:***

1. **Table 9-bc5 – Broadcast Action field values**

|  |  |
| --- | --- |
| **Value** | **Description** |
| 0-1 | Reserved |
| 2 | Register to receive broadcast |
| 3 | Unregister from receiving broadcast |
| 4 | Register with Broadcast Service identified by Content ID |
| 5 | Unregister Broadcast Service~~s~~ identified by Content ID |
| 6-255 [CID 1456] | Reserved |

***TGbc Editor: Replace Time to Termination to Time To Termination as in the following for clause 9.4.2.301 [CID1215]***

|  |  |  |
| --- | --- | --- |
| EBCS  Request Info Control | Content ID | Requested Time T~~t~~o Termination |

Octets: 1 1 0 or 4

**Figure 9-bc7 - EBCS Request Info subfield format**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | B0 | B1 | B2 | B3 | B4-B7 |
|  | EBCS Request Status | Time T~~t~~o Termination Present | EBCS SP Duration Present | EBCS SP Interval Present | Reserved |
| Bits | 1 | 1 | 1 | 1 | 4 |

**Figure 9-bc11 - EBCS Response Info Control subfield format**

***TGbc Editor: Change Time to Termination to Time To Termination in clause 11.100.5 EBCS Termination Notice Procedure as follows [CID1215]***

1. NOTE—Which values of a received Time T~~t~~o Termination subfield are considered acceptable is
2. determined by the receiving STA and is beyond the scope of this standard.

***TGbc Editor: Change Enhanced Broadcast Services ANQP-element to Enhanced Broadcast Service ANQP-element in 11.22.3.3.100, as follows***

1. **11.22.3.3.100 Enhanced Broadcast Service procedures**
2. Enhanced Broadcast Services may be advertised using the Enhanced Broadcast Service~~s~~ ANQP-
3. element (see 9.4.5.100). The element provides a list of zero or more enhanced broadcast services that
4. are available from a peer STA. Each broadcast service advertisement may contain the time and duration
5. of transmission, together with an identifier of the broadcast service, a content ID, and other
6. information relevant to the broadcast service
7. A STA may use the Enhanced Broadcast Request ANQP-element to register (or de-register) from a
8. peer STA transmitting an enhanced broadcast service.