IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LB257 Resolution for CID 2180 | | | | |
| Date: November 11, 2021 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | Email |
| Pei Zhou | OPPO |  |  | zhoupei1@oppo.com |
| Lei Huang |  |  | huang.lei1@oppo.com |
| Chaoming Luo |  |  |  |
| Liuming Lu |  |  |  |

Abstract

This submission proposes resolutions for CID 2180 received from LB257: P802.11bc D2.0 Working Group Recirculation Ballot.

Note: The changes shown are based on 802.11bc draft 2.0.

Revisions:

* Rev 0: Initial version of the document.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number(C)** | **Page(C)** | **Line(C)** | **Comment** | **Proposed Change** | **Resolution** |
| 2180 | Lei Huang | 11.55.2 | 18 |  | For EBCS DL service, if an unassociated EBCS STA transits across APs, the STA has to re-request the EBCS service from the new AP, and this can introduce high transition delay. | Utilize the GAS procedure and modify the Enhanced Broadcast Services Request ANQP-element and the Enhanced Broadcast Services Response ANQP-element to reduce the transition delay across APs for EBCS without association. | **Revised.**  Agree with the commenter. The corresponding signaling and descriptions are added.  TGbc editor to make the changes shown in 11-21/1850r0. |

*Editor:* *Please modify the Figure 9-839z and Figure 9-839aa as follows and insert the following content:*

**9.4.5.31 Enhanced Broadcast Services Request ANQP-element**

The Enhanced Broadcast Services Request ANQP-element transmits a register (or unregister) request from a STA to a peer STA to receive (or stop receiving) enhanced broadcast services that are available from the peer STA. The format of the Enhanced Broadcast Services Request ANQP-element is defined in Figure 9-839y (Enhanced Broadcast Services Request ANQP-element format).

|  |  |  |
| --- | --- | --- |
| Info ID | Length | Enhanced Broadcast Services Request Tuples |

Octets: 2 2 variable

**Figure 9-839y—Enhanced Broadcast Services Request ANQP-element format**

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

The Enhanced Broadcast Services Request Tuples field contains one or more Enhanced Broadcast Services Request Tuple fields as shown in Figure 9-839z (Enhanced Broadcast Services Request Tuple field format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Enhanced Broadcast Services Request Control | Broadcast Action | Content ID | Broadcaster MAC Address (optional) | Requested Time To Termination (optional) | (#2180) Target AP BSSID  (optional) |

Octets: 1 1 1 0 or 6 0 or 3 0 or 6

**Figure 9-839z—Enhanced Broadcast Services Request Tuple field format**

The format of the Enhanced Broadcast Services Request Control subfield is defined in Figure 9-839aa (Enhanced Broadcast Services Request Control format).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 | B1 | B2 |  | B3 B7 | |  |
| Broadcaster MAC Address Present | Requested Time To Termination Present | (#2180) Request Target AP Info | | | Reserved |
| Bits: | 1 | 1 | 1 |  | 5 | |

**Figure 9-839aa—Enhanced Broadcast Services Request Control format**

A value of 1 in the Broadcaster MAC Address Present subfield indicates that a Broadcaster MAC Address subfield is present in the Enhanced Broadcast Services Request Tuple field; otherwise, the Broadcaster MAC Address subfield is not present.

A value of 1 in the Requested Time To Termination Present subfield indicates that a Requested Time To Termination subfield is present in the Enhanced Broadcast Services Request Tuple field; otherwise the Requested Time To Termination subfield is not present.

(#2180) A value of 1 in the Request Target AP Info subfield indicates that a Target AP BSSID subfield is present in the Enhanced Broadcast Services Request Tuple field and the EBCS non-AP STA requests to obtain the target AP’s EBCS related information; otherwise, the Target AP BSSID Present subfield is not present and the EBCS non-AP STA does not request to obtain the target AP’s EBCS related information.

The Broadcast Action subfield values are defined in Table 9-340j (Broadcast Action field values):

**Table 9-340j—Broadcast Action field values**

|  |  |
| --- | --- |
| **Value** | **Description** |
| 0-1 | Reserved |
| 2 | Register to receive broadcast identified by Content ID |
| 3 | Unregister from receiving broadcast identified by Content ID |
| 4-255 | Reserved |

The Content ID subfield indicates the identifier of the content.

The Broadcaster MAC Address subfield includes the MAC address of the AP from which the EBCS traffic stream is currently being received.

The Requested Time To Termination subfield, if present, indicates the number of beacon intervals during which transmission of the EBCS traffic stream identified in the Content ID subfield is requested. The value 0 is reserved.

(#2180) The Target AP BSSID subfield indicates the BSSID of the Target AP.

*Editor: Please modify the Figure 9-839ac and add Figure 9-xx as follows, then insert the following content:*

**9.4.5.32 Enhanced Broadcast Services Response ANQP-element**

The Enhanced Broadcast Services Response ANQP-element provides a list of zero or more enhanced broadcast services that are available from a peer STA. The format of the Enhanced Broadcast Services Response ANQP-element is defined in Figure 9-839ab (Enhanced Broadcast Services Response ANQP-element format).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Octets: | 2 | 2 | variable |

|  |  |  |
| --- | --- | --- |
| Info ID | Length | Enhanced Broadcast Services Response Tuples  (Optional) |

**Figure 9-839ab—Enhanced Broadcast Services Response ANQP-element format**

The Info ID and Length fields are defined in 9.4.5.1 (General). The Enhanced Broadcast Services Response Tuples field, if present, contains one or more Enhanced Broadcast Services Response Tuple fields. The Enhanced Broadcast Services Response Tuple field is defined in Figure 9-839ac (Enhanced Broadcast Services Response Tuple format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (#2180) Enhanced Broadcast Services Response Control | Content ID | Broadcast Service Transmitting | | (#2180) Target AP Info  (optional) |
| Octets: | 1 | 1 | | 1 | variable |

**Figure 9-839ac—Enhanced Broadcast Services Response Tuple format**

(#2180) The Enhanced Broadcast Services Response Control subfield defines which of the optional fields are present in the Enhanced Broadcast Response Services Tuple field and is defined in Figure 9-839ad (Enhanced Broadcast Services Response Control field format):

B0 B1 B7

|  |  |  |
| --- | --- | --- |
|  | (#2180) Target AP Info Present | Reserved |
| Bits: | 1 | 7 |

**(#2180) Figure 9-839ad - Enhanced Broadcast Services Response Control field format**

(#2180) A value of 1 in the Target AP Info Present subfield indicates that the Enhanced Broadcast Services Response Tuple field contains a Target AP Info field. A value of 0 indicates that the Enhanced Broadcast Services Response Tuple field does not contain a Target AP Info field.

The Broadcast Service Transmitting field indicates whether the EBCS traffic stream referenced by the Content ID field is being transmitted. A value of 1 indicates that the traffic stream is being transmitted and a value of 0 indicates that the traffic stream is not being transmitted. All other values are reserved.

The Broadcast Service Transmitting field values are defined in Table 9-340k (Broadcast Service Transmitting field values).

**Table 9-340k—Broadcast Service Transmitting field values**

|  |  |
| --- | --- |
| **Value** | **Description** |
| 0 | A broadcast service is not being transmitted |
| 1 | A broadcast service is being transmitted |
| 2-255 | Reserved |

(#2180) The Target AP Info subfield indicates the time schedule and authentication information of the EBCS traffic streams from the target AP. The Target AP Info subfield is shown in 9-839ae (Target AP Info subfield format).

|  |  |  |
| --- | --- | --- |
| EBCS SP Duration | EBCS SP Interval | Authentication Info |

Octets: 1 1 variable

(#2180) **Figure 9-839ae –Target AP Info subfield format**

(#2180) The EBCS SP Duration and EBCS SP Interval subfields are defined in 9.4.1.69 (EBCS Response field).

(#2180) The Authentication Info subfield is used to authenticate an EBCS traffic stream and shown in Figure 9-xx (Authentication Info subfield format).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Content Authentication Algorithm | Content Information Control | Title Length | Title | Next TX Schedule (optional) | Allowable Time Difference (optional) | Certificate  Length  (optional) | Certificate  (optional) |

Octets: 1 1 1 variable 0 or 2 0 or 2 0 or 2 variable

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| HCFA Base Key (optional) | Previous Period HCFA Base Key 0 Sequence (optional) | Previous Period HCFA Base Key 0 (optional) | Previous Period HCFA Base Key 1 Sequence (optional) | Previous Period HCFA Base Key 1 (optional) | HCFA Key  Change Interval (optional) |

Octets: 0 or 32 0 or 1 0 or 32 0 or 1 0 or 32 0 or 1

|  |  |  |  |
| --- | --- | --- | --- |
| Number Of Instant Authenticators (optional) | Instant Authenticator List  (optional) | Service URL Length  (optional) | Service URL  (optional) |

Octets: 0 or 1 *n* x 33 0 or 1 variable

**(#2178) Figure 9-xx Authentication Info subfield format**

Each of the subfields, and the allowed combinations of subfields, are defined in 9.6.7.54 (EBCS Info frame format).

*Editor: Please insert the following subclauses into Clause 11.55:*

**11.55 Enhanced Broadcast Service procedures**

**(#2180) 11.55.2.8 EBCS DL Transition for unassociated EBCS STA**

(#2180) In mobility scenario, unassociated EBCS STA may move out of the coverage of the current EBCS AP. The EBCS DL Transition procedure allows an unassociated EBCS STA to perform fast transition between EBCS APs in order to ensure EBCS traffic streams continuity.

(#2180) The frame sequence for an unassociated EBCS STA is shown in Figure 11-61i (EBCS DL transition frame sequence for unassociated EBCS STA).



(#2180) **Figure 11-61i – EBCS DL Transition frame sequence for unassociated EBCS STA**

(#2180) The EBCS STA transmits an ANQP Request to request EBCS traffic streams provided by the current AP. Moreover, the ANQP element can also request to obtain the EBCS related information of the target AP. After receiving an ANQP Request from an EBCS STA, the current AP shall transmit a Query Request frame to the Advertisement Server to request EBCS related information provided by target AP. The Advertisement Server shall transmit a Query Response frame with these EBCS related information to the current AP. After receiving a Query Response from the Advertisement Server, the current AP shall transmit an ANQP Response to the EBCS STA. The ANQP Response can include an Enhanced Broadcast Services ANQP-element and an Enhanced Broadcast Services Response ANQP-element. The Enhanced Broadcast Services ANQP-element contains the EBCS related information provided by the EBCS current AP. The Enhanced Broadcast Services Response ANQP-element contains the EBCS related information provided by the target AP as indicated in the Target AP Info subfield.

(#2180) When an unassociated EBCS STA determines to transition to the target AP, it could receive the EBCS traffic streams provided by the target AP directly.

(#2180) NOTE—The Query Request and the Query Response are beyond the scope of this standard.