IEEE P802.11
Wireless LANs

|  |
| --- |
| 802.11bc LB 264 resolution for CIDs assigned to Abhi |
| Date: May 8, 2022 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Abhishek Patil | Qualcomm Inc. |  |  | appatil@qti.qualcomm.com |
| George Cherian |  |  |  |
| Jouni Malinen |  |  |  |

 Abstract

This submission proposes resolutions for the following 9 comments submitted during LB 264 for 11bc D3.0: 3144, 3021, 3175, 3150, 3115, 3030, 3073, 3090, 3141

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Live updates when the doc was presented during the TGbc call 5/10/22
	+ CID 3021 is deferred
* Rev 2:
	+ Updated resolution for CID 3021 (includes updating the definition of EBCS relaying STA)
* Rev 3: Live updates when the doc was presented during the TGbc call 5/11/22
* Rev 4: Added resolution for CIDs 3115, 3030 & 3073
* Rev 5: Editorial fix in clause 4.3.31 [higher layer payload 🡪 higher layer protocol]
* Rev 6: Added resolution for CIDs 3090 and 3141

**3.1 Definitions specific to IEEE Std 802.11**

***TGbc Editor, the (new) definition below is updated (track changes enabled) as a resolution to CID 3021***

***TGbc Editor: please add the following definitions in alphabetical order:***

[3144, 3150]**enhanced broadcast services (EBCS) relaying station (STA)**: An EBCS receiver[3021] that is affiliated with an EBCS proxy and provides a relaying service as described in 4.3.31.3 (EBCS relaying service) and 11.55.4 (EBCS UL procedure).

NOTE – An EBCS relaying STA can be an AP that has established its own infrastructure BSS or a STA that provides a relaying service without establishing an infrastructure BSS.

[3021]**enhanced broadcast service (EBCS) downlink (DL):** A broadcast from an EBCS access point (AP) carrying an EBCS traffic stream.

NOTE—This broadcast can be received by another EBCS AP.

[3021]**enhanced broadcast service (EBCS) uplink (UL):** A broadcast from an EBCS non-access-point (non-AP) station (STA) carrying higher layer protocol (HLP) payload intended to be relayed by one or more EBCS relaying STAs to a destination specified in the broadcast.

NOTE—There might not be an EBCS relaying STA in range.

**4.3.31 Enhanced broadcast services**

***4.3.31.1 General***

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

Enhanced broadcast services (EBCS) provides enhanced transmission and reception of broadcast data, both where there is an association between the transmitter and the receiver(s) in an infrastructure BSS and in cases where there is no association between transmitter and receiver(s). Further, EBCS provides a service in which an EBCS proxy affiliated with an EBCS relaying[3144, 3150] STA can relay the contents of a higher layer payload received from an EBCS non-AP STA to a destination typically within an external network. The relaying EBCS proxy can embed additional information.

* + - * 1. **EBCS proxy operation**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

[3144, 3150]An EBCS proxy is a logical component affiliated with an EBCS relaying STA, which might be collocated with the EBCS relaying STA, that can relay an HLP payload carried in an EBCS UL frame received by an EBCS relaying STA to a destination specified in the frame, typically within an external network.

***TGbc Editor: please update the following NOTE in this subclause as shown below:***

[3144, 3150]NOTE 1 —The communication between an EBCS relaying STA and its affiliated EBCS proxy and the communication between an EBCS proxy and a specified destination are out of scope of this standard.

***TGbc Editor: please update the following NOTE in this subclause as shown below:***

[3144, 3150]NOTE 3 – An operator can install one or more EBCS relaying STAs at a certain location with the intention of only providing relaying service. In such a deployment scenario, the EBCS relaying STAs will not beacon or establish an infrastructure BSS.

**4.5.12.3 Example configurations for EBCS proxy**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

[3144, 3150]The figures shown in this subclause illustrate EBCS APs affiliated with an EBCS proxy to provide relaying service. However, the same explanation would apply if any of the EBCS APs is replaced with an EBCS relaying STA without establishing an infrastructure BSS.

**6.3.127.3.1 Function**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

[3144, 3150]This primitive indicates that an EBCS UL frame was received. It is valid only at an EBCS relaying STA.

**9.4.2.26 Extended Capabilities element**

***TGbc Editor: please update the following entry in Table 9-153 as shown below:***

**Table 9-153—Extended Capabilities field**

|  |  |  |
| --- | --- | --- |
| **Bit** | **Information** | **Notes** |
| 91 | EBCS Relaying Supported | An EBCS relaying STA that has dot11EBCSRelayingServiceSupported equal to true sets the EBCS Relaying Supported field to 1. Otherwise, an EBCS relaying STA sets the field to 0. [3144, 3150] |

**11.55.1 Overview**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

EBCS can be instantiated as a downlink (EBCS DL) or uplink (EBCS UL) service, where EBCS DL means broadcast from an EBCS AP to one or more EBCS receivers[3021] (see 11.55.3 (EBCS DL procedures)) and EBCS UL means broadcast from an EBCS non-AP STA to one or more EBCS [3144, 3021, 3175, 3150]relaying STAs, for subsequent delivery to a specified destination (see 11.55.4 (EBCS UL procedure)). EBCS is not supported for MBSS or GLK.

**11.55.4.1 General**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

[3144, 3150]The EBCS UL procedure allows a non-AP STA to transmit an EBCS UL frame with the expectation that there exists at least one EBCS relaying STA that would relay the HLP payload carried in the frame to a destination specified in the frame. EBCS UL does not use Data frames and the EBCS DL Filtering block in Figure 5-1 does not apply.

**11.55.3.2** **EBCS UL operation at an EBCS relaying** **STA**[3144, 3150]

***TGbc Editor: please update the contents of this subclause as shown below:***

[3144, 3150]An EBCS relaying STA provides access to a relaying service (via its affiliated EBCS proxy) in which the HLP payload carried in an EBCS UL frame received from an EBCS non-AP STA is relayed to a destination specified in the frame (see 4.5.12.2 (EBCS proxy operation) and 11.55.3.4 (EBCS UL operation at an EBCS proxy)).

[3144, 3150]NOTE 1 – An EBCS relaying STA can be an AP that has established its own infrastructure BSS or a STA that provides a relaying service without establishing an infrastructure BSS.

NOTE 2 – An EBCS AP that relays an HLP payload to the specified destination via its EBCS proxy can be in an unassociated state with the non-AP STA that transmitted the EBCS UL frame carrying the HLP payload.

[3144, 3150]An EBCS relaying STA shall have dot11EBCSRelayingServiceSupported equal to true. Otherwise dot11EBCSRelayingServiceSupported shall not be true. Among all APs in a multiple BSSID set, only the AP corresponding to the transmitted BSSID may be affiliated with an EBCS proxy. Among all APs in a co-hosted BSSID set, only one AP may be affiliated with an EBCS proxy.

[3144, 3150]An EBCS relaying STA may filter traffic based on the value carried in the Address 3 field of a received frame to determine that the frame is an EBCS UL frame. An EBCS relaying STA may filter traffic based on the value carried in the Address 1 field of a received EBCS UL frame.

**C.3 MIB detail**

***TGbc Editor: please update the following entry in this subclause as shown below:***

dot11EBCSRelayingServiceSupported OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is a capability variable.

Its value is determined by device capabilities. This attribute when true, indicates that the [3144, 3150] STA is an EBCS relaying STA. The capability is disabled otherwise."

::= { dot11StationConfigEntry <ANA+10> }

-x-x-x-x-x- Start of changes for CID 3073 -x-x-x-x-x-

***TGbc Editor: The baseline for the changes below is approved doc 11-22/733r3***

**4.3.31.3.1 General**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

The EBCS relaying service facilitates EBCS UL operation by provides a mechanism for an EBCS non-AP STA to transmit an EBCS UL frame containing a higher layer protocol (HLP) payload that is intended to be relayed by one or more EBCS relaying STAs to a destination specified in the frame.

**11.55.4.1 General**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

The EBCS UL procedure allows a non-AP STA to transmit an EBCS UL frame containing an HLP payload that is intended to be relayed by one or more EBCS relaying STAs to a destination specified in the frame. EBCS UL does not use Data frames and the EBCS DL Filtering block in Figure 5-1 does not apply.

NOTE—The relaying service is best effort with no guarantee that the HLP payload will be delivered to the specified destination.

**4.3.31.1 General**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

Enhanced broadcast services (EBCS) provide enhanced transmission and reception of broadcast data, both where there is an association between the transmitter and the receiver(s) in an infrastructure BSS and in cases where there is no association between transmitter and receiver(s). Further, EBCS provides a service in which an EBCS proxy affiliated with an EBCS relaying STA can relay the contents of a higher layer protocol (HLP) payload received from an EBCS non-AP STA to a destination typically within an external network. The relaying EBCS proxy can embed additional information.

-x-x-x-x-x- End of changes for CID 3073 -x-x-x-x-x-

-x-x-x-x-x- Start of changes for CID 3115 -x-x-x-x-x-

***TGbc Editor: The baseline for the changes below is approved doc 11-22/733r3***

**11.55.4.2 EBCS UL operation at an EBCS relaying STA**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

An EBCS relaying STA may filter traffic based on the EBCS Content MAC address carried in the Address 3 field of a received frame to determine that the frame is an EBCS UL frame. An EBCS relaying STA may further filter traffic based on the value carried in the Address 1 field of a received EBCS UL frame.

NOTE – An EBCS relaying STA that is affiliated with an EBCS proxy can ignore an EBCS UL frame whose Address 3 field does not match the one or more EBCS Content MAC addresses that can be based on the relationship between the EBCS proxy and one or more destinations. Furthermore, an EBCS relaying STA can be configured to ignore EBCS UL frames based on the value carried in the Address 1 field.

**11.55.4.3 EBCS UL operation at an EBCS non-AP STA**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

An EBCS non-AP STA may transmit an EBCS UL frame without receiving a Beacon frame or a Probe Response frame with the EBCS Relaying Supported field of the Extended Capabilities element set to 1. The address fields are defined in 9.3.3.1 (Format of (PV0) Management frames) where the Address 1 field of the frame shall be set to a group address. The EBCS Content MAC address is formatted as described in 11.55.2 (EBCS Addressing).

NOTE—The group address value of the Address 1 field can be either set to a broadcast address or a multicast address to differentiate different types of EBCS UL traffic belonging to the same UL traffic stream. For example, an EBCS non-AP STA could transmit different EBCS UL frames, each carrying a different EBCS UL traffic and having the Address 1 field set to a different group address value. The Address 3 field is set to EBCS Content MAC Address which is unique to the UL traffic stream (see 11.55.2 (EBCS Addressing)).

**11.17 Public Action frame addressing**

***TGbc Editor: please add the following paragraph to this subclause as shown below:***

If a STA is transmitting an EBCS UL frame, the Address 3 field is set to the EBCS Content MAC address (see 11.55.4 (EBCS UL procedure) and 11.55.2 (EBCS Addressing)). If a STA is transmitting an EBCS Info frame, the Address 3 field is set to the EBCS Info MAC address (see 11.55.3 (EBCS DL procedures) and 11.55.2 (EBCS Addressing)).

***TGbc Editor: please remove all changes made to clause 9.3.3.1 from the TGbc draft***

-x-x-x-x-x- End of changes for CID 3115 -x-x-x-x-x-

-x-x-x-x-x- Start of changes for CID 3090 -x-x-x-x-x-

***TGbc Editor: The baseline for the changes below is approved doc 11-22/733r5***

**4.3.31.3 EBCS relaying service**

**4.3.31.3.1 General**

***TGbc Editor: please update the following paragraph in this subclause as shown below:***

The EBCS relaying service enables EBCS UL operation (as described in 11.55.4 (EBCS UL procedure)) by providing a mechanism in which an EBCS proxy relays the contents of an HLP payload carried in an EBCS UL frame to a destination specified in the frame and typically within an external network.

-x-x-x-x-x- End of changes for CID 3090 -x-x-x-x-x-

-x-x-x-x-x- Start of changes for CID 3141 -x-x-x-x-x-

***TGbc Editor: The baseline for the changes below is approved doc 11-22/733r5***

***TGbc Editor: please update the title and the content of following paragraph in this subclause as shown below:***

**4.3.31.2 EBCS DL service**

**4.3.31.2.1 General**

The EBCS DL service provides a mechanism for an EBCS AP to broadcast one or more EBCS traffic streams. The service also provides originator authenticity independent of whether an EBCS receiver is associated with the EBCS AP.

-x-x-x-x-x- End of changes for CID 3141 -x-x-x-x-x-