IEEE P802.11
Wireless LANs

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Abstract

This submission proposes CR for CID 10326, 12695, 12696, 12697 (LB266).

Revisions:

Rev 0: Initial version of the document.

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.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Pg/Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 10326 | Michael Montemurro | 533/40 | 35.17 | It would be good to provide a mode for EPCS that could be applied to a non-EHT, non-ML STA. Furthermore, different EPCS services could be allocated to different STAs, it would be good to provide the support for multiple NSEP services. | Commenter is willing to collaborate on a submission with a set of changes. | **Revised**.**TGbe editor please implement changes as shown in doc 11-22/1671r0 tagged as 10326** |
| 12695 | Arik Klein | 535 | 35.17.2 | There are multiple types of services that could be enabled using EPCS priority access. Some examples of these services could be: emergency voice services, video camera feeds, or real-time sensor feeds.Need to add the establishment of the EPCS Priority access operation per specific service type, including its own unique characteristics | The commenter will provide a contribution on this issue, as pointed in the comment | **Revised****TGbe editor please implement changes as shown in doc 11-22/1671r0 tagged as 12695.** |
| 12696 | Arik Klein | 535 | 35.17.2 | In the case of MLO, when the EPCS priority access is established - it applies for all setup links, though it might not be suitable to be used on all the links.Need to the capability for EPCS priority access to be enabled only on a specific subset of MLD links or alternatively to be prohibited on a specific subset of links. | The commenter will provide a contribution on this issue, as pointed in the comment | **Revised****TGbe editor please implement changes as shown in doc 11-22/1671r0 tagged as 12696.** |
| 12697 | Arik Klein | 535 | 35.17.2 | Need to add an option of unsolicited update of EPCS Parameters concurrently during the service duration, per specific service type, such as: EDCA Parameter set, enabled link set (in case of MLO) etc.(Note: this comments is in conjunction with previous comments on adding EPCS priority access service per specific service type and in case of MLD - also apply it for specific set of enabled /prohibited links) | The commenter will provide a contribution on this issue, as pointed in the comment | **Revised****TGbe editor please implement changes as shown in doc 11-22/1671r0 tagged as 12697.** |

## ***Discussion***

According to 802.11be D2.0, the EPCS priority access is established regardless of the specific service it should serve. Different EPCS services can be characterized by different network traffic characteristics. To prioritize traffic for a particular service, the EDCA parameter set would have to be associated with that service.

There are multiple types of services that could be enabled using EPCS priority access. Some examples of these services could be: emergency voice services, video camera feeds, or real-time sensor feeds.

Different types of devices might be authorized for different types of services. For instance, a mobile phone may be used for emergency voice but not as a temperature sensor. The mobile phone should be authorized for emergency voice whereas a temperature sensor should be authorized for temperature measurements.

Moreover, according to 802.11be D2.0, when EPCS priority access service is established – it applies for all setup links of an MLD, though it might not be suitable to be used on all the setup links. EPCS priority access cannot be enabled only on a specific subset of MLD links for a specific service type (or alternatively, it cannot be prohibited on a specific subset of links).

In addition, there is a need to add a mechanism to modify the parameters of an existing EPCS priority access during the service.

This document presents the concept of different services for EPCS Priority Access. Different EPCS services are defined and configured in the WLAN. Each service type is associated with an EDCA Parameter Set and a set of corresponding enabled links to utilize this service.

\*\*\* End of Discussion \*\*\*

*TGbe editor: Please note baseline is 11be D2.1.1 and REVme D1.3*

# Management and Extension frame body components

* + 1. **Fields that are not elements**

(#10326, #12695, #12696)

***TGbe editor: Please insert a new subclause after 9.4.1.74, as follows:***

**9.4.1.X EPCS Control field**

The EPCS Control field is defined in [Figure 9-XXX (EPCS Control field format)](#bookmark94)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0 B3 | B4 | B5 B20 | B21 B31 |
|  | EPCS Service Type | All Enabled Links Flag | EPCS Link Bitmap | Reserved |
| Bits: | 4 |  0 or 1 | 0 or 16 | 28 or 27 or 11 |

**Figure 9-XXX—EPCS Control field format**

The value of the EPCS Service Type indicates a type of the service for which an EPCS priority access procedure is established. The EPCS Service Type is set by a higher layer function and is conveyed by an SME using the MLME-EPCSPRIACCESSENABLE.request primitive. The mapping of a service type to a specific service is beyond the scope of this standard.

The service type is set to a value between 1 and 15. A value of 0 indicates that the EPCS priority access service is not mapped to a specific service (i.e. any service type).

The All Enabled Links Flag subfield indicates whether all enabled link that were setup between the non-AP MLD and the AP MLD can be used for the established EPCS Service Type. The All Enabled Links Flag subfield is set to 1 to indicate that any of the enabled links can be used for the EPCS Service Type. Otherwise – it is set to 0 and the specific subset of enabled links that can be used for the established EPCS Service Type are indicated in the EPCS Link Bitmap subfield.

When used in an EPCS Priority Access Teardown frame, the All Enabled Links Flag subfield is reserved.

The EPCS Link Bitmap subfield indicates the subset of the enabled links that is used by the peer MLDs for establishing the EPCS priority access service for the service type defined in the EPCS Service Type subfield. The bit position i of the EPCS Link Bitmap subfield corresponds to the link with the Link ID equal to i and is set to 1 to indicate that the link is used by the originating and responding MLDs for the EPCS priority access service for the service type defined in the EPCS Service Type subfield; otherwise, the bit position i of the EPCS Link Bitmap subfield is set to 0.

The EPCS Link Bitmap subfield is present if the All Enabled Links Flag subfield is set to 0 and is absent if the All Enabled Links Flag subfield is set to 1.

When used in EPCS Priority Access Teardown frame, the EPCS Link Bitmap subfield is reserved.

NOTE 1—As an example, when a non-AP MLD enables three links and the first link has a Link ID equal to 0, the second link has a Link ID equal to 1, and the third link has a Link ID equal to 2, and the two links with the Link ID equal to 1 and Link ID equal to 2 are used for the EPCS priority access service for the service type defined in the EPCS Service Type subfield; the two bit positions, the second bit and the third bit positions of the EPCS Link Bitmap subfield are set to 1, while the other bit positions are set to 0.

* + - 1. **EPCS Priority Access Enable Request frame format**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

The EPCS Priority Access Enable Request frame is an Action frame of category Protected EHT. It is trans- mitted by a requesting MLD to request that EPCS priority access be enabled. The Action field of the EPCS Priority Access Enable Request frame contains the information shown in [Table 9-623g (EPCS Priority](#bookmark233) [Access Enable Request frame Action field format)](#bookmark233).

**Table 9-623g—EPCS Priority Access Enable Request frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 1 | Category |
| 2 | Protected EHT Action |
| 3 | EPCS Control (#10326, #12695, #12696) |
| 4 | Dialog Token |
| 5 | Priority Access Multi-Link element |

The Category field is defined in [9.4.1.11 (Action field)](#bookmark81).

The Protected EHT Action field is defined in [9.6.35.1 (Protected EHT Action field)](#bookmark228).

(#10326, #12695, #12696) The EPCS Control field is defined in 9.4.1.X (EPCS Control field)

The Dialog Token field is defined in 9.4.1.12 (Dialog Token field) and set by the requesting MLD.

The Priority Access Multi-Link field is defined in [9.4.2.312.6 (Priority Access Multi-Link element)](#bookmark172).

* + - 1. **EPCS Priority Access Enable Response frame format**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

The EPCS Priority Access Enable Response frame is an Action frame of category Protected EHT. It is trans- mitted in response to an EPCS Priority Access Enable Request frame. The Action field of the EPCS Priority Access Enable Response frame contains the information shown in [Table 9-623h (EPCS Priority Access](#bookmark234) [Enable Response frame Action field format)](#bookmark234).

**Table 9-623h—EPCS Priority Access Enable Response frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 1 | Category |
| 2 | Protected EHT |
| 3 | EPCS Control (#10326, #12695, #12696) |
| 4 | Dialog Token |
| 5 | Status Code |
| 6 | Priority Access Multi-Link element |

The Category field is defined in [9.4.1.11 (Action field)](#bookmark81).

The Protected EHT Action field is defined in [9.6.35.1 (Protected EHT Action field)](#bookmark228).

(#10326, #12695, #12696) The EPCS Control field is defined in 9.4.1.X (EPCS Control field)

The Dialog Token field value is copied from the Dialog Token field in the corresponding EPCS Priority Access Enable Request frame.

The Status Code field values are defined in [Table 9-78 (Status codes)](#bookmark80).

The Priority Access Multi-Link field is defined in [9.4.2.312.6 (Priority Access Multi-Link element)](#bookmark172).

* + - 1. **EPCS Priority Access Teardown frame details**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

The EPCS Priority Access Teardown frame is an Action frame of category Protected EHT. It is transmitted by an MLD to disable EPCS priority access. The Action field of the EPCS Priority Access Teardown frame contains the information shown in [Table 9-623i (EPCS Priority Access Teardown Action field format)](#bookmark235).

**Table 9-623i—EPCS Priority Access Teardown Action field format**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 1 | Category |
| 2 | Protected EHT |
| 3 | EPCS Control (#10326, #12695, #12696) |

The Category field is defined in [9.4.1.11 (Action field)](#bookmark81).

The Protected EHT Action field is defined in [9.6.35.1 (Protected EHT Action field)](#bookmark228).

(#10326, #12695, #12696) The EPCS Control field is defined in 9.4.1.X (EPCS Control field)

##### EPCS priority access operation

* + - 1. **General**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

EPCS priority access is established (#10326, #12695) for a specific service type at the MAC by the initiation of the SME. The EPCS priority access (#10326, #12695) for a specific service type between an AP MLD and its associated non-AP MLD can be in one of the following two states: enabled state or torn down state. The protocols to enable and tear down EPCS priority access are described in this subclause.

A non-AP STA affiliated with a non-AP MLD shall not send EPCS Priority Access Enable Request and EPCS Priority Access Teardown frames to an AP affiliated with the associated AP MLD unless RSNA with management frame protection (see 12.2.7 (Requirements for management frame protection) and 12.6 (RSNA security association management)) has been successfully negotiated and are capable of invoking EPCS priority access.

An AP affiliated with an AP MLD shall not send EPCS Priority Access Request and EPCS Priority Access Teardown frames to a non-AP STA affiliated with the associated non-AP MLD unless RSNA with management frame protection (see 12.2.7 (Requirements for management frame protection) and 12.6 (RSNA security association management)) has been successfully negotiated and are capable of invoking EPCS priority access.

##### Setup procedures for EPCS priority access 35.17.2.2.1 General

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

The EPCS priority access (#10326, #12695) for a specific service type shall be in a torn down state upon the completion of successful multi-link setup procedure (i.e., when a non-AP MLD associates with an AP MLD).

The procedures for enabling and tearing down the EPCS priority access (#10326, #12695) for a specific service type are described in the following subclauses. The procedure for enabling EPCS priority access (#10326, #12695) for a specific service type is illustrated in [Figure 35-38 (Enabling EPCS](#bookmark125) [priority access)](#bookmark125).

Originator Recipient

MLD SME MLD MAC MLD MAC MLD SME

MLME- EPCSPRIACCESSENABLE.request

EPCS Priority Access Enable Request frame

MLME-

EPCSPRIACCESSENABLE.indication

MLME- EPCSPRIACCESSENABLE.confirm

MLME-

EPCS Priority Access Enable Response EPCSPRIACCESSENABLE.response frame

##### Figure 35-38—Enabling EPCS priority access

As illustrated in [Figure 35-38 (Enabling EPCS priority access)](#bookmark125), an MLD supporting EPCS priority access capability invokes EPCS priority access (#10326, #12695) for a specific service type on demand when instructed to do so by a higher layer function. After successful invocation of EPCS priority access (#10326, #12695, #12696) for a specific service type and defined set of setup links, both the originator and the responder apply the priority access treatment to EPCS traffic (#10326, #12695) corresponding to that specific service type. The AP MLD and non-AP MLD may send a request on any enabled link between them and, if authorized, EPCS priority access treatment will be applied (#10326, #12695) for that specific service type on (#12696) the specified set of enabled links between the MLDs.

##### Procedures at the originating non-AP MLD

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

When instructed to do so by a higher layer function and upon receipt of an MLME-EPCSPRIACCESSENABLE.request primitive, an EPCS non-AP MLD with EPCS priority access in the torn down state (#10326, #12695) for a specific service type shall follow the procedure below to request a change to the EPCS priority access state to be enabled (#10326, #12695) for a specific service type.

A non-AP STA that is operating on an enabled link and is affiliated with the initiating non-AP MLD shall transmit an EPCS Priority Access Enable Request frame (9.6.35.5 (EPCS Priority Access Enable Request frame format)) to the corresponding AP affiliated with the associated EPCS AP MLD.

The destination of the EPCS Priority Access Enable Request frame is the MAC address of the AP with which the initiating non-AP EHT STA is associated or the MAC address of the AP that is affil- iated with the AP MLD with which the initiating non-AP MLD is associated and that is operating on the same link on which the EPCS Priority Access Enable Request frame is transmitted.

If a non-AP STA affiliated with the initiating non-AP MLD receives an EPCS Priority Access Enable Response frame (9.6.35.6 (EPCS Priority Access Enable Response frame format)) with matching (#10326, #12695) service type and dialog token and a value of SUCCESS in the Status Code field, then the initiating non-AP MLD shall issue an MLME-EPCSPRIACCESSENABLE.confirm primitive with a value of SUCCESS in the Status Code field indicating that EPCS priority access (#10326, #12695) for the specified service type is in an enabled state. The initiating non-AP MLD shall enable EPCS priority access (#10326, #12695, #12696) for the specified service type and set of EPCS links so that subsequently transmitted traffic (#10326, #12695) corresponding to that specific service type receives EPCS priority access treatment using the procedure defined in [35.17.3 (EPCS priority](#bookmark126) [access procedure)](#bookmark126).

If a non-AP STA affiliated with the initiating non-AP MLD receives an EPCS Priority Access Enable Response frame (9.6.35.6 (EPCS Priority Access Enable Response frame format)) with a matching (#10326, #12695) service type and dialog token and a value not equal to SUCCESS in the Status Code field, then the initiating non-AP MLD shall issue an MLME-EPCSPRIACCESSENABLE.confirm primitive with the status code from the response frame indicating the failure to change EPCS priority access (#10326, #12695) for the specified service type to an enabled state. In this case, the initiating non-AP MLD shall not apply the EPCS priority access procedure (#10326, #12695, #12696) for the specified service type and set of EPCS links. The higher layer function that triggers the EPCS priority access (#10326, #12695) for the specified service type is responsible for managing reattempts after receiving responses with a status code value other than SUCCESS.

When instructed to do so by a higher layer function and upon receipt of an MLME-EPCSPRIACCESSTEARDOWN.request primitive, an EPCS non-AP MLD with EPCS priority access in an enabled state (#10326, #12695) for a specified service type shall use the following procedure to change the EPCS priority access to a torn down state (#10326, #12695) for the specified service type.

NOTE—A non-AP MLD can initiate the teardown procedure regardless of whether the AP MLD or the non-AP MLD initiated the process to enable EPCS priority access.

1. A non-AP STA affiliated with the tearing down non-AP MLD shall transmit an EPCS Priority Access Teardown frame (9.6.35.7 (EPCS Priority Access Teardown frame details)) to an AP affiliated with the associated EPCS AP MLD. The destination of the EPCS Priority Access Teardown frame is the MAC address of the AP with which the tearing down non-AP EHT STA is associated or the MAC address of the AP that is affiliated with the AP MLD with which the tearing down non-AP MLD is associated and that is operating on the same link on which the EPCS Priority Access Teardown Request frame is transmitted. The tearing down non-AP MLD shall change the EPCS priority access (#10326, #12695) for the specified service type to the torn down state so that subsequently transmitted traffic does not receive EPCS priority access treatment (#10326, #12695, #12696) for the specified service type and set of EPCS links.

##### Procedures at the originating AP MLD

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

When instructed to do so by a higher layer function triggered via an external interface, and upon receipt of an MLME-EPCSPRIACCESSENABLE.request primitive, an EPCS AP MLD that supports this functionality shall follow the procedure below to request a change of the EPCS priority access for an associated non-AP MLD to the enabled state (#10326, #12695) for a specific service type.

NOTE 1—The definition of the external interface is out of the scope of this standard.

An AP MLD with dot11SSPNInterfaceActivated equal to true shall verify if the dot11EPCSPriorityAccessAuthorized for the non-AP MLD in the dot11InterworkingEntry is set to true.

NOTE 2—Successful verification is defined when the dot11EPCSPriorityAccessAuthorized for the non-AP MLD in the dot11InterworkingEntry is set to true. The verification by an AP MLD with dot11SSPNInterfaceActivated equal to false is out of scope of this standard.

If the verification is successful (see NOTE 2 above), an AP that is operating on an enabled link and is affiliated with the initiating AP MLD shall transmit an EPCS Priority Access Enable Request frame (9.6.35.5 (EPCS Priority Access Enable Request frame format)) to the corresponding non-AP STA affiliated with an associated EPCS non-AP MLD, with EPCS priority access (#10326, #12695) for a specific service type in the torn down state for that non-AP MLD. The destination of the EPCS Priority Access Enable Request frame is the non-AP EHT STA indicated by the value of the PeerSTAAddress parameter in the MLME- EPCSPRIACCESSENABLE.request primitive or the MAC address of the non-AP STA that is operating on the same link on which the EPCS Priority Access Enable Request frame is transmitted and is affiliated with the non-AP MLD whose MAC address value is indicated by the value of the PeerSTAAddress parameter in the MLME-EPCSPRIACCESSENABLE.request primitive.

If an AP affiliated with the initiating AP MLD receives an EPCS Priority Access Enable Response frame (9.6.35.6 (EPCS Priority Access Enable Response frame format)) with a matching (#10326, #12695) service type and dialog token and a value of SUCCESS in the Status Code field, then the initiating AP MLD shall issue an MLME-EPCSPRIACCESSENABLE.confirm primitive with a value of SUCCESS in the Status Code field indicating successful transition of EPCS priority access (#10326, #12695) for the specified service type to the enabled state. The initiating AP MLD shall change EPCS priority access (#10326, #12695) for the specified service type to the enabled state so that subsequently transmitted traffic (#10326, #12695, #12696) for the specified service type and set of EPCS links receives EPCS priority access treatment using the procedure defined in [35.17.3](#bookmark126) [(EPCS priority access procedure)](#bookmark126).

The initiating EPCS AP MLD may include the Priority Access Multi-Link element in the EPCS Priority Access Enable request frame to allow the destination EPCS non-AP MLD to employ priority access (#10326, #12695, #12696) for the specified service type and set of EPCS links using the included EDCA parameter set and/or MU EDCA parameter set on the corresponding links.

If an AP affiliated with the initiating AP MLD receives an EPCS Priority Access Enable Response frame (9.6.35.6 (EPCS Priority Access Enable Response frame format)) with a matching (#10326, #12695) service type and dialog token and a value not equal to SUCCESS in the Status Code field, then the initiating AP MLD shall issue an MLME-EPCSPRIACCESSENABLE.confirm primitive with the status code from the response frame indicating a failure to change EPCS priority access to the enabled state. The initiating AP MLD shall not apply the EPCS priority access procedure (#10326, #12695, #12696) for the specified service type and set of EPCS links. The external interface that triggers the EPCS priority access (#10326, #12695) for the specified service type is responsible for managing reattempts after receiving responses with a status code value other than SUCCESS.

When triggered via an external interface, and upon receipt of an MLME- EPCSPRIACCESSTEARDOWN.request primitive, an EPCS AP MLD shall use the following procedure for changing the EPCS priority access state to torn down (#10326, #12695) for the specified service type.

NOTE 3—An AP MLD can initiate the teardown procedure regardless of whether the AP MLD or the non-AP MLD initiated the process to enable EPCS priority access.

An AP affiliated with the tearing down AP MLD shall transmit an EPCS Priority Access Teardown frame (9.6.35.7 (EPCS Priority Access Teardown frame details)) to a non-AP STA affiliated with an associated EPCS non-AP MLD. The destination of the EPCS Priority Access Teardown frame is the non-AP EHT STA indicated by the value of the PeerSTAAddress parameter in the MLME- EPCSPRIACCESSTEARDOWN.request primitive or the MAC address of the non-AP STA that is operating on the same link on which the EPCS Priority Teardown frame is transmitted and is affiliated with the non- AP MLD whose MAC address value indicated by the value of the PeerSTAAddress parameter in the MLME-EPCSPRIACCESSTEARDOWN.request primitive. The tearing down AP MLD shall change the EPCS priority access state(#10326, #12695) for the specified service type to torn down.

NOTE 4—The definition of the external interface is out of scope of this standard.

##### Procedure at the receiving AP MLD

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

Upon receipt of an EPCS Priority Access Enable Request frame (9.6.35.5 (EPCS Priority Access Enable Request frame format)) (#10326, #12695, #12696) for the specified service type and set of EPCS links, an EPCS AP MLD shall use the following procedure to enable EPCS priority access for (#10326, #12695, #12696) for the specified service type and set of EPCS links corresponding to the requesting non-AP MLD.

The receiving AP MLD shall issue an MLME-EPCSPRIACCESSENABLE.indication primitive.

Upon receipt of the MLME-EPCSPRIACCESSENABLE.response primitive, the receiving AP MLD shall reply to the initiating non-AP MLD with an EPCS Priority Access Enable Response frame (9.6.35.6 (EPCS Priority Access Enable Response frame format)) (#10326, #12695, #12696) for the requested service type and set of EPCS links using the following procedure:

1. For an AP MLD with dot11SSPNInterfaceActivated equal to true, if the dot11EPCSPriorityAccessAuthorized for the requesting non-AP MLD in the dot11InterworkingEntry is set to true indicating the requesting non-AP MLD is verified for EPCS priority access, the AP MLD shall set the Status Code field to a value of SUCCESS.
2. For an AP MLD with dot11SSPNInterfaceActivated equal to true, if the dot11EPCSPriorityAccessAuthorized for the requesting non-AP MLD in the dot11InterworkingEntry is set to false, the AP MLD shall set the Status Code field to a value of EPCS\_DENIED\_UNAUTHORIZED.
3. If the receiving AP MLD cannot support EPCS priority access for (#10326, #12695, #12696) the requested service type and set of EPCS links for the initiating non-AP MLD for any other reason, the receiving AP MLD shall set the Status Code field with a value of EPCS\_DENIED\_OTHER\_REASON as defined in 9.4.1.9 (Status Code field).

NOTE 4—The verification for AP MLD with dot11SSPNInterfaceActivated equal to false is out of scope of this standard.

If the Status Code in the MLME-EPCSPRIACCESSENABLE.response primitive is equal to SUCCESS, the receiving AP MLD STA shall set the state of the EPCS priority access (#10326, #12695, #12696) for the requested service type and set of EPCS links to enabled for the requesting non-AP MLD.

The receiving AP MLD may include the Priority Access Multi-Link element in the EPCS Priority Access Enable Response frame to allow the requesting non-AP MLD to employ priority access (#10326, #12695) for the requested service type using the included EDCA parameter set and/or MU EDCA parameter set on the corresponding (#12696) set of EPCS links.

If the Status Code in the MLME-EPCSPRIACCESSENABLE.response primitive is equal to a value other than SUCCESS, the receiving AP MLD shall maintain EPCS priority access (#10326, #12695) for the requested service type in the torn down state for the requesting non-AP MLD.

Upon receipt of an EPCS Priority Access Teardown frame (9.6.35.7 (EPCS Priority Access Teardown frame details)), an EPCS AP MLD with EPCS priority access enabled state (#10326, #12695) for the specified service type shall use the following procedure to tear down EPCS priority access.

1. The receiving AP MLD shall issue an MLME-EPCSPRIACCESSTEARDOWN.indication primitive.
2. The receiving AP MLD shall change the EPCS priority access state (#10326, #12695) for the requested service type to torn down for the requesting non-AP MLD.

##### Procedures at the receiving non-AP MLD

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

Upon receipt of an EPCS Priority Access Enable Request frame (9.6.35.5 (EPCS Priority Access Enable Request frame format)) (#10326, #12695, #12696) for the specified service type and set of EPCS links, an EPCS non-AP MLD with EPCS priority access in the torn down state (#10326, #12695) for the requested service type shall use the following procedure to enable EPCS priority access.

The receiving non-AP MLD shall issue an MLME-EPCSPRIACCESSENABLE.indication primitive.

Upon receipt of the MLME-EPCSPRIACCESSENABLE.response primitive, a non-AP STA affiliated with the receiving non-AP MLD shall reply to the initiating AP MLD with an EPCS Priority Access Enable Response frame (9.6.35.6 (EPCS Priority Access Enable Response frame format)) (#10326, #12695, #12696) for the specified service type and set of EPCS links. The receiving non-AP MLD should set the Status Code field to a value of SUCCESS unless the non-AP MLD is unable to support EPCS priority access, in which case the non-AP MLD shall set the Status Code field with a value of EPCS\_DENIED\_OTHER\_REASON as defined in 9.4.1.9 (Status Code field).

If the Status Code in the MLME-EPCSPRIACCESSENABLE.response primitive is equal to SUCCESS, the receiving non-AP MLD shall change the state of the EPCS priority access to enabled (#10326, #12695) for the requested service type so that subsequently transmitted traffic (#10326, #12695) for the requested service type receives EPCS priority access treatment (#12696) on the set of EPCS links using the procedure defined in [35.17.3 (EPCS priority access procedure)](#bookmark126).

If the Status Code in the MLME-EPCSPRIACCESSENABLE.response primitive is equal to a value other than SUCCESS, the receiving non-AP MLD shall maintain the torn down state of the EPCS priority access (#10326, #12695) for the requested service type so it does not only apply to subsequently transmitted traffic.

Upon receipt of an EPCS Priority Access Teardown frame (9.6.35.7 (EPCS Priority Access Teardown frame details)), an EPCS non-AP MLD with EPCS priority access enabled (#10326, #12695) for the requested service type shall use the following procedure to tear down EPCS priority access.

1. The receiving non-AP MLD shall issue an MLME-EPCSPRIACCESSTEARDOWN.indication primitive.
2. The receiving non-AP MLD shall change the EPCS priority access state to torn down (#10326, #12695) for the requested service type so that subsequently transmitted traffic does not receive EPCS priority access treatment (#12696) on the set of EPCS links.

##### EPCS priority access procedure

* + - 1. **General**

EPCS priority access procedure allows EPCS non-AP MLDs with priority access in the enabled state (#10326, #12695) for the requested service type to gain priority access to medium (#12696) on the set of EPCS links. If the negotiation to enable EPCS priority access between an EPCS AP MLD and an EPCS non-AP MLD (#10326, #12695, #12696) for the specified service type and set of EPCS links is successful, then the STA affiliated with the non-AP MLD applies EPCS priority access to its EPCS traffic on all enabled (#12696) EPCS links using the procedure described below.

An EPCS non-AP MLD shall apply EPCS priority access procedures only when its EPCS priority access state is set to enabled (#10326, #12695) for the requested service type. An EPCS AP MLD may apply EPCS priority access to EPCS traffic using the procedure described below (#10326, #12695) for the requested service type prior to completion of the negotiation to enable EPCS priority access.

An EPCS AP MLD is an AP MLD with dot11EHTEPCSPriorityAccessActivated set to true.

An EPCS non-AP MLD is a non-AP MLD with dot11EHTEPCSPriorityAccessActivated set to true.

##### EDCA operation using EPCS EDCA parameters

As part of the EPCS priority access procedure, a STA affiliated with an EPCS non-AP MLD shall manage its EDCA parameter sets as follows:

* During the process of enabling EPCS priority access (#10326, #12695) for the requested service type, the STA affiliated with the EPCS non-AP MLD shall
	+ update its CWmin[AC], CWmax[AC], AIFSN[AC], and TXOP Limit [AC] state variables of each access category to
		- the values carried in the EDCA Parameters Set element in the Per-STA Profile corre- sponding to the AP to which the STA is associated (#12696) and which is operating on the link included in the set of EPCS links in Priority Access Multi-Link element contained in an EPCS Priority Access Enable action frame sent by the EPCS AP MLD, if the corresponding Per-STA Profile is present and contains an EDCA Parameters Set ele- ment or,
		- the default EDCA parameter values found in Table 9-155 (Default EDCA Parameter Set element parameter values if dot11OCBActivated is false or the STA is a non-sensor STA) otherwise.
	+ update the dot11MUEDCATable to respective values that correspond to fields in the MU EDCA Parameter Set element in the Per-STA Profile corresponding to the AP to which the STA is asso- ciated (#12696) and which is operating on the link included in the set of EPCS links in Priority Access Multi-Link element contained in an EPCS Priority Access Enable action frame sent by the EPCS AP MLD, if the corresponding Per-STA Profile is present and contains an MU EDCA Parameter Set element.
* While EPCS priority access is enabled, each STA affiliated with an EPCS non-AP MLD shall,
	+ use the latest EDCA parameter set, corresponding to the Link ID in the Priority Access Multi- Link element (#12696) and which is included in the set of EPCS links contained in a EPCS Priority Access Enable action frame sent by the EPCS AP MLD, if the Per-STA Profile corresponding to the AP to which the STA is associated is included in the Priority Access Multi-Link element, and
	+ ignore the part of the procedures defined in 10.2.3.2 (HCF contention based channel access (EDCA)) that concerns the update of the EDCA parameters and the part of the procedures defined in 26.2.7 (EDCA operation using MU EDCA parameters) that concerns the update of the MU EDCA parameters that are sent by the corresponding AP in its Beacon and Probe Response frames
	+ follow the rules defined in 26.2.7 (EDCA operation using MU EDCA parameters), except that
		- If the corresponding Per-STA Profile is present and contains an MU EDCA Parameter Set element, update the dot11MUEDCATable to respective values that correspond to fields in the MU EDCA Parameter Set element in the Per-STA Profile corresponding to the AP to which the STA is associated (#12696) and which is operating on the link included in the set of EPCS links in Priority Access Multi-Link element contained in an EPCS Priority Access Enable action frame sent by the EPCS AP MLD.
		- if the corresponding per-STA profile is con- tained in an EPCS Priority Access Enable action frame sent by the EPCS AP MLD and the Per-STA Profile contains an EDCA Parameter Set element, then if the MUEDCATimer[AC] of the STA reaches 0, either by counting down or due to a reset following the reception of an MU EDCA Reset frame, the STA shall update CWmin[AC], CWmax[AC], and AIFSN[AC] to the values that are contained in the EDCA Parameters Set element in the Per-STA Profile corresponding to its associated AP in the Priority Access Multi-Link element,.

After the EPCS priority access is torn down (#10326, #12695) for the requested service type, each STA affiliated with an EPCS non-AP MLD

* shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and TXOP Limit [AC] state variables following the procedures in 10.2.3.2 (HCF contention based channel access (EDCA)).
* shall update the dot11MUEDCATable following the procedures in 26.2.7 (EDCA operation using MU EDCA parameters).

An AP affiliated with an EPCS AP MLD manages the EDCA parameter set and the MU EDCA parameter set for EPCS non-AP MLD with the EPCS priority access (#10326, #12695) for the requested service type in the enabled state and non-EPCS non-AP MLDs as follows:

* If the EPCS priority access state is in the enabled state (#10326, #12695) for the requested service type by at least one associated EPCS non-AP MLD, then
	+ if the EDCA parameters previously sent out by an AP affiliated with an EPCS AP MLD in Man- agement frames it transmits (see 10.2.3.2 (HCF contention based channel access (EDCA))) do not result in higher priority for STAs that are affiliated with EPCS non-AP MLDs in the enabled state, that AP shall announce EDCA parameters in Management frames that result in higher pri- ority for those STAs with EPCS priority access in the enabled state;
* Otherwise,
	+ an AP affiliated with an EPCS AP MLD with its EPCS priority access state set to the torn down state (#10326, #12695) for the requested service type for all its associated STAs announces the EDCA parameter set corresponding to the link in Management frames (e.g., Beacon or Probe Response) that it transmits following the procedure in 10.2.3.2 (HCF contention based channel access (EDCA)).
		- 1. **MLME-EPCSPRIACCESSENABLE.response**
				1. **Function**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

This primitive is generated by the MLME to send a response. (#12697) This may in response to a (#12697) MLME-EPCSPRIACCESSENABLE.indication primitive or an unsolicited response to modify the parameters of an existing EPCS priority access service.

* + - * 1. **Semantics of the service primitive**

The primitive parameters are as follows:

MLME-EPCSPRIACCESSENABLE.response(

PeerSTAAddress, Dialog Token, Status Code, EDCAParameterSet

)

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid range** | **Description** |
| PeerSTAAddress | MAC address | Any valid individual MAC address | Specifies the address of the peer MAC entity with which the EPCS priority access procedure is performed. |
| Dialog Token | Integer | 0–255 | The dialog token to identify the EPCS priority access procedure. |
| Status Code | As defined in frame format | As defined in 9.4.1.9 (Status Code field) | Indicates the status of the request procedure |
| EDCAParameterSe t | EDCA Parameter Set element | As defined in9.4.2.28 (EDCAParameter Set element) | Specifies service parameters for the EPCS EDCA parameter set. |

* + - * 1. **When generated**

This primitive is generated by the SME as a response to an MLME-EPCSPRIACCESSENABLE.indication primitive (#12697) or a request to transmit a response in an unsolicited mode (i.e. unsolicited response).

* + - * 1. **Effect of receipt**

This primitive initiates transmission of an EPCS Priority Access Enable Response frame to the peer MAC entity that requested the change to EPCS priority access (#12697) or to a peer MAC entity with a EPCS priority access service to modify the parameters of the service.

* + - 1. **EPCS Priority Access Enable Response frame format**

***TGbe editor: Please update the contents of the following paragraph in this subclause as shown below:***

The EPCS Priority Access Enable Response frame is an Action frame of category Protected EHT. It is trans- mitted in response to an EPCS Priority Access Enable Request frame. (#12697) It can also be transmitted in an unsolicited mode by the AP MLD to modify parameters of an existing EPCS Priority Access service (for a specified Service Type). The Action field of the EPCS Priority Access Enable Response frame contains the information shown in [Table 9-623h (EPCS Priority Access](#bookmark234) [Enable Response frame Action field format)](#bookmark234).

**Table 9-623h—EPCS Priority Access Enable Response frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 1 | Category |
| 2 | Protected EHT |
| 3 | Dialog Token |
| 4 | Status Code |
| 5 | Priority Access Multi-Link element |

The Category field is defined in [9.4.1.11 (Action field)](#bookmark81).

The Protected EHT Action field is defined in [9.6.35.1 (Protected EHT Action field)](#bookmark228).

(#12697) When the EPCS Priority Access Enable Response frame is sent as a response to the EPCS Priority Access Enable Request frame, the Dialog Token field value is copied from the Dialog Token field in the corresponding EPCS Priority Access Enable Request frame. (#12697) When the EPCS Priority Access Enable Response frame is sent in unsolicited mode (i.e. to modify the parameters of an existing EPCS priority access service for a defined service type), the Dialog Token field value is set to 0.

The Status Code field values are defined in [Table 9-78 (Status codes)](#bookmark80).

The Priority Access Multi-Link field is defined in [9.4.2.312.6 (Priority Access Multi-Link element)](#bookmark172).

***TGbe editor: Please add the following subclause and its contents as shown below:***

(#12697)

##### Maintenance procedures for EPCS priority access

##### Procedures at the originating AP MLD

When instructed to do so by a higher layer function triggered via an external interface, and upon receipt of an MLME-EPCSPRIACCESSENABLE.request primitive, an EPCS AP MLD that supports this functionality shall follow the procedure below to update the parameters of an existing EPCS priority access for a specified service type on a specified set of EPCS links with an associated non-AP MLD.

An AP that is operating on any of the EPCS links corresponding to the established EPCS priority access for the specified service type with the non-AP MLD and is affiliated with the initiating EPCS AP MLD shall transmit an EPCS Priority Access Enable Response frame (9.6.35.6 (EPCS Priority Access Enable Response frame format)) to the corresponding non-AP STA affiliated with an associated EPCS non-AP MLD, with updated value carried in EPCS Control field and/or in Priority Access Multi-Link element (if present). The destination of the EPCS Priority Access Enable Response frame is the non-AP EHT STA indicated by the value of the PeerSTAAddress parameter in the MLME- EPCSPRIACCESSENABLE.request primitive or the MAC address of the non-AP STA that is operating on the same link on which the EPCS Priority Access Enable Request frame is transmitted and is affiliated with the non-AP MLD whose MAC address value is indicated by the value of the PeerSTAAddress parameter in the MLME- EPCSPRIACCESSENABLE.request primitive.

##### Procedures at the receiving non-AP MLD

Upon receipt of an EPCS Priority Access Enable Response frame (9.6.35.6 (EPCS Priority Access Enable Response frame format)) (#10326, #12695, #12696) with matching service type and dialog token, an EPCS non-AP MLD with EPCS priority access in the enabled state (#10326, #12695) for the requested service type shall use the following procedure to update the parameters of the existing EPCS priority access.

The non-AP MLD shall update the set of the EPCS links using the All Enabled Links Flag subfield if it is set to 1 or using the EPCS Link Bitmap field if the All Enabled Links Flag subfield if it is set to 0.

The non-AP MLD shall update the EDCA parameters according to the rules in 35.17.3

Straw Poll:

Do you support to incorporate the proposed draft text in this document 11-22/1671r0 to the next revision of TGbe Draft 2.1, for addressing the following CIDs: 10326, 12695, 12696, 12697?

Result: Yes/No/Abstain