IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Resolution of EPCS-related CIDs (SA Ballot) | | | | |
| Date: 2024-02-13 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| John Wullert  Subir Das | PERATON LABS |  |  | <jwullert@peratonlabs.com>  <sdas@peratonlabs.com> |
| An Nguyen  Frank Suraci | DHS/CISA/ECD |  |  | (an.p.nguyen, frank.suraci) @cisa.dhs.gov |

Abstract

This submission proposes resolutions for 6 comments related to EPCS that were submitted during initial SA ballot on P802.11be D5.0.

CIDs: 22181, 22182, 22183, 22184, 22185, 22197

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: MOdified based on comments during initial presentation
* Rev 2: Update based on additional feedback (REVISIONS)
* Rev 3: Changes to language related to Rev 2 changes based on comments received during presentation. (REVISIONS)

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.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Pg/Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 22181 | 35.16.3.2 | 656.39 | The text of the following sentence is awkward due to the repitition of the word "state": "If the EPCS priority access state is in the enabled state…" | Rephrase as "If EPCS priority access is in the enabled state…" | **Accepted** |
| 22182 | 35.16.2.2.1 | 651.45 | The statement "The AP MLD or non-AP MLD may send an EPCS Priority Access Enable Request frame…" only applies to EPCS AP MLDs and EPCS non-AP MLDs | Change to "The EPCS AP MLD or EPCS non-AP MLD may send an EPCS Priority Access Enable Request frame…" | **Accepted** |
| 22183 | 35.16.1 | 650.60 | The statement "An AP MLD that successfully obtains permission…" applies only to EPCS AP MLDs | Change to "An EPCS AP MLD that successfully obtains permission…" | **Accepted** |
| 22184 | 35.16.1 | 650.49 | The statement "An AP MLD that has dot11SSPNInterfaceActivated equal to true may use the interworking procedures described in 11.22.5 (Interworking procedures: interactions with SSPN) to retrieve permission for a non-AP MLD to use the EPCS priority access..." applies only to EPCS AP MLDs. | Change to "An EPCS AP MLD that has dot11SSPNInterfaceActivated equal to true may use the interworking procedures described in 11.22.5 (Interworking procedures: interactions with SSPN) to retrieve permission for a non-AP MLD to use the EPCS priority access..." | **Accepted** |
| 22185 | 35.16.1 | 650.48 | The statement "During the (re)association process, the AP MLD obtains…" applies only to EPCS AP MLDs | Change to "During the (re)association process, the EPCS AP MLD obtains…" | **Accepted** |
| 22197 | 35.16.3.2 | 656.39 | In addition to serving as a response to the EPCS Priority Access Enable Request frame, an EPCS Priority Access Enable Response frame can be sent in an unsolicited manner by an AP MLD via an affiliated STA in order to modify the EDCA parameters assigned to a devices with EPCS priority access in the enabled state. | Revise the table to capture the fact that the EPCS Priority Access Enable Response frame (described in clause 9.6.35.6 EPCS Priority Access Enable Response frame format) can also be used as a Type 3. (Note: as described in Clause 35.16.3.3.1, this behavior is initiated by the MLME-EPCSPRIACCESSENABLE.response primitive.) | **Revised**  Agree with comment. Implemented changes as suggested  **TGbe editor please implement changes as shown in doc 11-24/0291r4 tagged as 22197.** |

Discussion

To address the CID 22197, changes are required in two places:

* Table 6-1 needs to be updated to provide an additional MLME SAP interface that enables the use of the EPCS Priority Access Response frame as a Type 3 form of MLME SAP primitive (with no response or confirmation).
* The text in Clause 35.16.3.3.1 needs to be updated to reflect the use of the separate MLME SAP interface to initiate the transmission of the EPCS Priority Access Response frame when an AP MLD uses it to update EPCS EDCA parameters.
* Received offline comments that just adding the MLME SAP is not sufficient. We need to add the capability that will allow EPCS AP MLDs and EPCS non-AP MLDs to indicate their support for the EPCS priority access update functionality. Therefore, we added this in this version which requires updates to the EHT MAC Capabilities Information field and additional text in Clause 35.16.3.3.1.

These changes are reflected in the edits shown below.

6.4 Table of MLME SAP interfaces

Insert the following entries into Table 6-1 (not all entries are shown):

Table 6-1— MLME SA interface

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service Name** | **MLME-XXX** | **Type** | **References** | **Comments** |
| EPCS priority access | EPCSPRIACCESSENABLE | 1 | 9.6.35.5 (EPCS Priority Access Enable Request frame format), 9.6.35.6 (EPCS Priority Access Enable Response frame format) | 9.4.2.312.6 (EPCS Priority Access Multi-Link element) and 35.16 (EPCS priority access) |
| [22197]EPCSPRIACCESSPARAUPDATE | 3 | 9.6.35.6 (EPCS Priority Access Enable Response frame format) |
| EPCSPRIACCESSTEARDOWN | 3 | 9.6.35.7 (EPCS Priority Access Teardown frame details) |

**TGbe Editor: Please apply the following updates to Clause 9.4.2.313.2 [22197]**

**9.4.2.313.2 EHT MAC Capabilities Information field**

The format of the EHT MAC Capabilities Information field is defined in Figure 9-1001ah (EHT MAC Capabilities Information field format).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B0 | B1 | B2 | B3 | B4 |
| EPCS Priority Access Support | EHT OM Control Support | Triggered TXOP Sharing Mode 1 Support | Triggered TXOP Sharing Mode 2 Support | Restricted TWT Support |
| 1  B5 | 1  B6 B7 | 1  B8 | 1  B9 | 1  B10 |
| SCS Traffic Description Support | Maximum MPDU Length | Maximum  A-MPDU Length Exponent Extension | EHT TRS Support | TXOP Return Support In Triggered TXOP Sharing Mode 2 |
| 1  B11 | 2  B12 B13 | 1  B14 | 1  B15 | 1 |
| Two BQRs Support | EHT Link Adaptation Support | Unsolicited EPCS Priority Access Parameter Update | Reserved |  |
| 1 | 2 | 1 | 1 |  |

The subfields of the EHT MAC Capabilities Information field are defined in Table 9-404m (Subfields of the EHT MAC Capabilities Information field).

**Table 9-404m—Subfields of the EHT MAC Capabilities Information field**

|  |  |  |
| --- | --- | --- |
| **Subfield** | **Definition** | **Encoding** |
| … |  |  |
| Unsolicited EPCS Priority Access Parameter Update | Indicates whether or not a STA that supports EPCS priority access is also capable of supporting the update of EPCS priority access parameters in the unsolicited mode | Set to 1 if dot11EHTEPCSPriorityAccessActivated is true and dot11EHTEPCSPriorityAccessParamUnsolicitedModeSupport is true. (see 35.16 (EPCS priority access)).  Set to 0 otherwise. |

**TGbe Editor: Please apply the following updates to Clause 35.16.1 [22197]**

**35.16 EPCS priority access**

**35.16.1 General**

…

A STA affiliated with an EPCS MLD shall set to 1 the EPCS Priority Access Support subfield of the EHT Capabilities element that it transmits. A STA affiliated with an MLD that is not an EPCS AP MLD or an EPCS non-AP MLD shall set to 0 the EPCS Priority Access Support subfield of the EHT Capabilities element that it transmits. [22197] A non-AP STA affiliated with an EPCS non-AP MLD that has dot11EHTEPCSPriorityAccessParamUnsolicitedModeSupport set to true shall set to 1 the Unsolicited EPCS Priority Access Parameter Update subfield of the EHT Capabilities element that it transmits. A non-AP STA affiliated with a non-AP MLD that is not an EPCS non-AP MLD or that is an EPCS non-AP MLD with dot11EHTEPCSPriorityAccessParamUnsolicitedModeSupport set to false shall set to 0 the Unsolicited EPCS Priority Access Parameter Update subfield of the EHT Capabilities element that it transmits.

**35.16.3.3 Maintenance procedures for EPCS priority access**

**35.16.3.3.1 Procedures at the initiating EPCS AP MLD**

When instructed to do so by a higher layer function triggered via an external interface, and upon receipt of an [22197] ~~MLME-EPCSPRIACCESSENABLE.response~~ MLME-EPCSPRIACCESSPARAUPDATE.request primitive, an EPCS AP MLD ~~that supports this functionality~~ with dot11EHTEPCSPriorityAccessParamUpdateSupport equal to true may distribute updated EDCA parameters to ~~shall follow the procedure below to update the parameters used by~~ an associated EPCS non-AP MLD that has indicated support for receiving an EPCS Priority Access Parameter Update in Unsolicited Mode and that has ~~with~~ EPCS priority access in the enabled state by using the following procedure:

* An AP that is operating on any of the setup links with the EPCS 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, containing updated values carried in the EPCS Priority Access Multi-Link element.

An EPCS AP MLD with dot11EHTEPCSPriorityAccessParamUpdateSupport set to false shall not distribute updated parameters to an associated EPCS non-AP MLD with EPCS priority access in the enabled state. An EPCS AP MLD shall not distribute updated parameters to an associated EPCS non-AP MLD that has sent an EHT Capabilities element with the Unsolicited EPCS Priority Access Parameter Update subfield equal to 0.

**35.16.3.3.2 Procedures at the receiving EPCS non-AP MLD**

Upon receipt of an EPCS Priority Access Enable Response frame (9.6.35.6 (EPCS Priority Access Enable Response frame format)), an EPCS non-AP MLD with EPCS priority access in the enabled state shall use the following procedure to update the EPCS parameters used by the EPCS non-AP MLD:

a)The non-AP MLD shall update the EDCA and MU EDCA parameters according to the rules in 35.16.3.2 (EDCA operation using EPCS EDCA parameters).

**TGbe Editor: Please apply the following updates to Clause C.3[22197]**

**C.3 MIB Detail**

…

Dot11EHTStationConfigEntry ::=

SEQUENCE {

…

dot11NSTRStatusUpdateImplementated TruthValue

dot11EHTEPCSPriorityAccessParamUnsolicitedModeSupport TruthValue

}

…

dot11EHTEPCSPriorityAccessParamUnsolicitedModeSupport OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable.

It is written by an external management entity or the SME. Changes take effect as soon as practical in the implementation.

This attribute, when true, indicates the ability of the MLD that supports the EPCS priority access capability to also support the unsolicited mode of updating the EPCS priority access parameters. If the attribute is false, the MLD does not support unsolicited mode of updating the EPCS priority access parameters."

DEFVAL { false }

::= { dot11EHTStationConfigEntry 17 }