IEEE P802.11
Wireless LANs

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| Proposed Comment Resolutions for 14 NSEP-Related CIDs (CC36) |
| Date: 2021-10-21 |
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Abstract

This document proposes comment resolutions for the following 15 CIDs related to support for NSEP priority access from the IEEE 802.11be D1.0 comment collection 36 (CC36): 6168, 7530, 5227, 7093, 5630, 7356, 5597, 5598, 6622, 7347, 7528, 5284, 6031, 6039, 7522

The proposed resolutions shown below use Draft 1.3 as a basis.

Revisions:

- Rev 0: Initial version of the document.

- Incorporated 12 additional CIDs

- Rev 1: added CID 7522

- Rev 2 : Removed comment’s information

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** | **Clause Number** | **Page/****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 6168 | 11 | 183. 01 | NSEP looks like an interworking procedure (at least that's how its described in clause 4. There should be at least a cross reference within interworking that references the specification text in clause 35 | Update clause 11.22.5 with at least a reference to clause 35. | RejectedIdentical comment was submitted in CC34.  Resolution (in document 510r5) was to reject that comment.Reason is that changes associated with EHT are described in clause 35.15 and Clause 35.15.1 does refer to Clause 11.22.5.3 |
| 7530 | 35.11.2.2.1 | 306. 38 | "NOTE--The teardown operation follows the similar procedure except it does not require a response." Similar procedure with the setup operation. | Change it to read "NOTE--The teardown operation follows the similar procedure with the setup oeration except it does not require a response." | RevisedThe note was eliminated in response to CID #4436 in document 1238/r5.No further changes are required. |
| 5227 | 35.11.2.2.2.1 | 307. 15 | Missing the procedure of AP MLD or AP initiated terminating the NSEP Priority Access requested by the non-AP STA | Please add the procedure in spec text. | RevisedCurrent text describes teardown process twice, once being initiated by non-AP device and once being initiated by AP device. Added comments to clarify that those processes do not depend on which device initiated the enable process.Editor: Please reflect the changes in Clauses 35.15.2.2.2 and 35.15.2.2.3 labelled as #5227 |
| 7093 | 35.11.2.2 | 309. 06 | Does current section 35.11.2.2 belong in the MAC section or should it be in the MLME section (Clause 11) instead? Looks a lot like Clause 11 material. | See comment | RejectedSince NSEP negotiation is performed at the MLD level, the procedures must be described in EHT MAC Clause.  |
| 5630 | 43.11.3.3 | 311. 40 | The NSEP priority access procedure described in this section operates under contention-based access, but does nothing to provide priority under triggered access | Define functionality to enable AP MLD to prioritize triggered-access resource allocation for non-AP MLDs that have NSEP priority access enabled. | RejectedNo such technical contribution has been proposed at this time.  |
| 7356 | 9.6.35.5 | 163. 33 | When a non-AP STA transmits an NSEP Priority Access Enable Request frame, the frame should not contain an EDCA Parameter Set element. Only an AP can assign EDCA Parameters. | Change the "EDCA Parameter Set element" in Table 9-526t to optional. Add an additional final sentence to the paragraph at P163L21: "The EDCA Parameter Set element is only transmitted by an AP". | Accepted |
| 5597 | 9.6.35.5 | 163. 46 | Need to clarify that EDCA Parameter Set element is optional - it is only sent by the AP MLD, not by the non-AP MLD | Expand description | Revised This comment is resolved by the change proposed in #7356. No further change is required. |
| 5598 | 9.6.35.6 | 163. 19 | Need to clarify that EDCA Parameter Set element is optional - it is only sent by the AP MLD, not by the non-AP MLD. Given that it is optional, should move it to the end, after the status code. | Expand description and reorder elements | RevisedAgree in principle. Editor: Please reflect the changes in Clause 9.6.35.6 labelled as #5598 |
| 6622 | 9.4.2.295c.2 | 136. 51 | if NSEP can only be used by MLD, then the capabilty needs to be moved to MLD capability. | if NSEP can only be used by MLD, then the capabilty needs to be moved to MLD capability. | RejectedNSEP priority access is negotiated at the MLD level, but the individual links must support the prioritization. Therefore, we must keep the capability at the EHT MAC level.  |
| 7347 | 4.5.11a | 49. 01 | The NSEP feature is independent of the rest of EHT and could be moved from the 11be draft into REVme. This would then provide the ability to use NSEP with existing technology such as 11ax. | Remove NSEP from the draft (clauses 4.5.11a, 6.3.126, 9.6.35, 35.11 and MIB definitions in C.3), placing them in a submission for REVme. | Rejected: NSEP priority access for any STA other than EHT STA should be addressed outside of TGbe. (A similar resolution is available in CC34 /510r5).  |
| 7528 | 35.11.2.1 | 0.00 | "An MLD or non-AP EHT STA shall only send NSEP Priority Access Enable Request and NSEP Priority Access Teardown frames to an associated peer MLD or non-AP EHT STA if both are management frame protection capable (see 12.2.7 (Requirements for management frame protection) and 12.6 (RSNA security association management))." Then the AP and the STA that set the NSEP Prority Access Supported subfield should set the field according to those MIB attributes, too. | Revisit the setting condition of NSEP Priority Access Supported subfield in 9.4.2.295c.2. | RevisedEditor: No further changes are required since this comment was addressed by the resolution of #7525 in document 1197.  |
| 5284 | 3.1 | 37.09 | The "National" in NSEP is not a suitable label for this feature. Firstly, 802.11 is an international standard and this feature is not limited to national jurisdictions and Secondly, although the authors of this feature may have intended to only enable a particular service, it is better to not limit the name of a technical feature to a particular service. Propose to change "National  Security  and  Emergency  Preparedness" to a more generic and accurately descriptive name. | Change "National Security  and  Emergency  Preparedness" to "Priority On-Demand Access" or PODA or some other generic and functionally descriptive name. | **Revised**Editor:  Please change “National Security and Emergency Preparedness (NSEP)” to “Emergency Preparedness Communications Service (EPCS)” and change “NSEP” to “EPCS” throughout the draft. |
| 6031 | 10 | 165.01 | The QMF is introduced by NSEP. The duplication detection of QMF should be added under MLD. | As in comment | RevisedAgree with comment. Updated text and tables in Clauses 10.3.2.14.2 and 10.3.2.14.3 to include sequence number spaces for QMF frames sent by MLDsEditor: Please reflect the changes in Clauses 10.3.2.14.2 and 10.3.2.14.3 labelled #6031 |
| 6039 | 11.24 | 207.01 | since QMF is added, the MLD level seuence, duplication detection for QMF needs to be added. | As in comment | RevisedAgree with comment. Addressed in conjunction with CID #6031. |
| 7522 | 35.11 | 0.00 | The NSEP priority access here in 35.11 is described with an AP being always affiliated with an AP MLD. I would support how it is described in 4.5.11a, where it is not limited to an AP MLD. You can first make an excuse at the beginning of 35.11 that the NSEP priority access can be applied between MLDs and in such case, the STAs and APs in the following description are read in terms of non-AP MLDs and AP MLDs, and then describe using just STAs and APs. | As in comment. | Revised NSEP priority access negotiation occurs at the MLD level. Text in clause 4.5.13 was updated accordingly in D1.2 (Ref: 510/r5) In addition, Clause 35.14 in D1.2 was cleaned up to make it consistent with the changes made in 510/r5 (1907/02). However, an Editors’ note is still remains in Clause 4.5.13. Editor: please remove the following note in Sub clause 4.5.13: “Editor’s Note: Support for NSEP priority access in case of non-AP EHT STA is pending Task Group consensus on handling of single link non-AP STAs. “ labelled as #7522 |

**\*\*\*\* Editor: Please update the following Clauses as shown below: \*\*\*\***

**Source text is document 1.3**

**4.5.13** **NSEP priority access**

Existing national security and emergency preparedness (NSEP) communications services1 in multiple coun­tries provide priority for voice and data exchanges on public networks. NSEP priority access is intended to provide capabilities to support such priority services on IEEE 802.11-based networks2.

NSEP priority access provides prioritized access to system resources for authorized devices (#6480) to increase their probability of successful communication during periods of network congestion. (#1722)(#1820)Priority access involves treating the NSEP traffic with a higher priority, as described in 35.15.3 (NSEP priority access procedure) in obtaining channel access and in allocation of network resources. The service is only available to designated, authorized devices who normally represent a small fraction of the overall number of devices operating in the area.

(#1110)(#2264)(#1721)AP MLDs that have NSEP priority access activated advertise this capability in Bea­con and Probe Response frames. AP MLDs authorize non-AP MLDs to use NSEP priority access based on locally available information or through a service provider’s authorization infrastructure via an SSPN inter­face (see 11.22.5 (Interworking procedures: interaction with SSPN))(#4132). The AP MLD might cache authorization information locally to enable subsequent verification and use it to confirm authority during (re)association.

(#7522) ~~Editor’s Note: Support for NSEP priority access in case of non-AP EHT STA is pending Task Group con­sensus on handling of single link non-AP STAs.~~

**9.6.35.6 NSEP Priority Access Enable Response frame format(#1119)(#1488)**

The NSEP Priority Access Enable Response frame is an Action frame of category Protected EHT. It is transmitted in response to an NSEP Priority Access Enable Request frame. The Action field of the NSEP Priority Access Enable Response frame contains the information shown in Table 9-526u (NSEP Priority Access Enable Response frame Action field format).

**Table 9-526u—NSEP Priority Access Enable Response frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 1 | Category |
| 2 | Protected EHT |
| 3 | Dialog Token |
| 4 | Status Code [#5598] |
| 5 | EDCA Parameter Set element (optional)(#1709) [#5598] |

The Category field is defined in 9.4.1.11 (Action field).

The Protected EHT Action field is defined in 9.6.35.1 (Protected EHT Action field).

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

 [#5598]The Status Code field values are defined in Table 9-50 (Status codes).

(#1709)The EDCA Parameter Set element is defined in 9.4.2.28 (EDCA Parameter Set element). The EDCA Parameter Set element is only transmitted by an AP. [#5598]

**35.15.2.2.2 Procedures at the originating non-AP MLD (#4173)**

…

When instructed to do so by a higher layer function and upon receipt of an MLME-NSEPPRIACCESSTEARDOWN.request primitive, a non-AP MLD or non-AP EHT STA with dot11EHTNSEPPriorityAccessActivated set to true and with NSEP priority access (#5856) in an enabled state shall use the following procedure for changing the NSEP priority access to a torn down state.

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 NSEP priority access. [#5227]

**35.15.2.2.3 Procedures at the originating AP MLD (#4173)(#1706)**

…

(#5856)(#5622) When triggered via an external interface, and upon receipt of an MLME-NSEPPRIACCESSTEARDOWN.request primitive, an AP MLD with dot11EHTNSEPPriorityAccessActivated equal to true shall use the following procedure for changing the NSEP priority access state to torn down.

Note: An AP MLD can initiate the teardown procedure regardless of whether a non-AP MLD or the AP MLD initiated the process to enable NSEP priority access. [#5227]

**10.3.2.14 Duplicate detection and recovery**

**10.3.2.14.2 Transmitter requirements**

***Change the first paragraph as follows:***

A STA maintains one or more sequence number spaces that are used when transmitting a frame to determine the sequence number for the frame. (#2751) An MLD maintains one or more sequence number spaces that are used when a STA (#4840) affiliated with the MLD transmits an individually addressed QoS Data frame to a STA (#4840) affiliated with an associated MLD to determine the sequence number for the frame. (#2496) An MLD with dot11QMFActivated equal to false maintains a single (#6679) sequence number space that is used when a STA affiliated with the MLD transmits an individually addressed Management frame (except the frames that are excluded in 35.3.13 (Multi-link device individually addressed Management frame delivery(#2496)) ) to a STA affiliated with another MLD to determine the sequence number for the frame. (#6031) An MLD with dot11QMFActivated equal to true maintains multiple sequence number spaces, one for each AC, that are used when a STA affiliated with the MLD transmits an individually addressed QMF Management frame to a STA affiliated with another MLD to determine the sequence number for the frame. When multiple sequence number spaces are supported, the appropriate sequence number space is determined by information from the MAC control fields of the frame to be transmitted. Except as noted below, each sequence number space is represented by a modulo 4096 counter, starting at 0 and incrementing by 1, for each MSDU or MMPDU transmitted using that sequence number space. If dot11MACPrivacyActivated is true, the counter in each sequence number space shall be set to a random number modulo 4096 when the STA’s MAC address is changed.

***Change the fourth paragraph as follows:***

A transmitting STA shall support the applicable sequence number spaces defined in Table 10-5 (Transmitter sequence number spaces). An MLD shall support the applicable sequence number spaces defined in Table 10-5 (Transmitter sequence number spaces). (#2751) A STA affiliated with an MLD shall support SNS9 maintained by the MLD (#6680) instead of SNS2 in Table 10-5 (Transmitter sequence number spaces) to determine the sequence number of an individually addressed QoS Data frame that is transmitted to a STA affiliated with the associated MLD.(#2496) A STA affiliated with an MLD shall support SNS10 maintained by the MLD (#6681) instead of SNS1 in Table 10-5 (Transmitter sequence number spaces) to determine the sequence number of an individually addressed Management frame (except the frames that are excluded in 35.3.13 (Multi-link device individually addressed Management frame delivery(#2496))) that is transmitted to a STA affiliated with another MLD.(#6651) An AP affiliated with an AP MLD shall support SNS11 maintained at the MLD level, instead of SNS1 maintained at the link level, in Table 10-5 (Transmitter sequence number spaces) to determine the sequence number of a group addressed Data frame that is transmitted to a STA associated to the AP, where the same group addressed Data frame transmitted over multiple links of the AP MLD shall use the same sequence number for transmission on each link. A STA affiliated with an MLD shall support SNS12 maintained by the MLD instead of SNS4 in Table 10-5 (Transmitter sequence number spaces) to determine the sequence number of an individually addressed QMF Management frame that is transmitted to a STA affiliated with the associated MLD.(#6031) Applicability is defined by the Applies to column. The Status column indicates the level of support that is required if the Applies to column matches the transmission. The Multiplicity column indicates whether the sequence number space contains a single counter, or multiple counters and in the latter case identifies any indexes. The Transmitter requirements column identifies requirements for the operation of this sequence number space. The referenced requirements are defined at the end of the table.

***Insert the following row into Table 10-5 (Transmitter sequence number spaces):***

**Table 10-5—Transmitter sequence number spaces**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sequence number space identifier** | **Sequence number space** | **Applies to** | **Status** | **Multiplicity** | **Transmitter requirements** |
| SNS12 (#6031) | QMF | A QMF MLD transmitting aQMF | Mandatory | Indexed by<Address 1, AC> | TR2 |

**10.3.2.14.3 Receiver requirements**

***Change the third paragraph as follows:***

A receiving STA shall implement the applicable receiver requirements defined in Table 10-6 (Receiver caches) with Status indicated as Mandatory. An MLD shall implement the applicable receiver requirements defined in Table 10-6 (Receiver caches) with Status indicated as Mandatory. (#2751) All STAs affiliated with an MLD shall implement RC14 (#6682), where the duplicate detection cache is maintained by the MLD, instead of RC2 in Table 10-6 (Receiver caches) to assist the MLD in discarding duplicate individually addressed QoS Data frames belonging to a TID without BA negotiation that are transmitted from the STAs affiliated with the associated MLD.(#2496) All STAs affiliated with an MLD with dot11QMFActivated equal to false shall implement RC15 (#6683), where the duplicate detection cache is maintained by the MLD, instead of RC1 in Table 10-6 (Receiver caches) to assist the MLD in discarding duplicate individually addressed Management frame (except the frames that are excluded in 35.3.13 (Multi-link device individually addressed Management frame delivery(#2496))) that are transmitted from the STAs affiliated with the associated MLD.(#6651) All STAs affiliated with an MLD with dot11QMFActivated equal to true shall implement RC16, where the duplicate detection cache is maintained by the MLD, instead of RC6 in Table 10-6 (Receiver caches) to assist the MLD in discarding duplicate individually addressed QMF Management frame that are transmitted from the STAs affiliated with the associated MLD. (#6031) An MLD shall implement RC16 maintained at the MLD level, instead of RC1 maintained at the link level, in Table 10-6 (Receiver caches) to discard duplicate group addressed Data that are delivered from the associated MLD. A group addressed Data frame received on any link shall be discarded using an implementation specific duplicate detention mechanism. A receiving STA should implement the applicable receiver requirements defined in Table 10-6 (Receiver caches) with Status indicated as Recommended. A receiving STA (#6651) and a receiving MLD may implement the applicable receiver requirements defined in Table 10-6 (Receiver caches) with Status indicated as Optional. Applicability is defined by the Applies to column. The Status column indicates the level of support that is required if the Applies to column matches the received frame. The Multiplicity / Cache size column indicates the indexes that identify a cache entry and the number of entries that shall be supported. The Receiver requirements column identifies requirements for the operation of this cache. The referenced requirements are defined at the end of the table. The requirements relate to caching information that identifies a cache entry and discarding duplicate MPDUs.

***Insert the following row into Table 10-6 (Receiver caches):***

**Table 10-6—Receiver caches**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sequence number space identifier** | **Cache Name** | **Applies to** | **Status** | **Multiplicity/Cache****size** | **Receiver****requirements** |
| RC16 (#6031) | QMF | A STA affiliated with an MLD receiving an individually addressed QMF | Mandatory | Indexed by: <Address 2, AC, sequence number, fragment number>The most recent cache entry per <Address 2, AC, sequence-number, fragment-number>. | RR7 |

Straw Poll:

Do you support incorporating the proposed draft text in this document (11-21/1911r2) into the next revision of TGbe to address the following CIDs: 6168, 7530, 5227, 7093, 5630, 7356, 5597, 5598, 6622, 7347, 7528, 5284, 6031, 6039, 7522 ?

Result: Yes/No/Abstain