IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Some 802.11ax comment resolutions | | | | |
| Date: 2016-11-13 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Jarkko Kneckt | Apple Inc | Cupertino, CA |  | jkneckt@apple.com |
|  |  |  |  |  |

Abstract

This submission provides resolutions to the following CIDs: 22185, 22198, 22417, 22082, 22086.

R1: Comment resolution for CID 22082 is modified as discussed in WED AM1. Updated resolution text for CID 22185 based on feedback in WED AM1.

[place document body text here]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Comment** | **Proposed change** | **Comment resolution** |
| 22185 | 26.5.8 | Using Schedule=APSD=0 in the TSPEC to signal "not actually setting up a TS" breaks admission control (see 10.23.4.2 Contention based admission control procedures of the baseline) | In 26.5.8 change "A non-AP HE STA transmits an ADDTS Request with Schedule and APSD subfields set to 0 in the TSPEC  to signal its traffic characteristics and QoS requirements to the associated HE AP. An HE AP does not trans-  mit an ADDTS Response frame as a response to the ADDTS Request frame to an HE STA that transmitted  ADDTS Request with Schedule and APSD subfields of the TSPEC set to 0. The acknowledgment of the  ADDTS Request frame confirms the receipt of the TSPEC at the HE AP." to "A non-AP HE STA transmits an ADDTS Request frame with the No TS subfield set to 1 in the TSPEC element to signal its traffic characteristics and QoS requirements to the associated HE AP. An HE AP does not transmit an ADDTS Response frame as a response to the ADDTS Request frame to an HE STA that transmitted  such an ADDTS Request frame. The acknowledgment of the ADDTS Request frame confirms the receipt of the TSPEC element at the HE AP.". In Figure 9-299--TS Info field format of the baseline make b17 the No TS field and make the reserved bits go from b18. In 9.4.2.29 TSPEC element at the end of the bullets describing the fields add a bullet "The No TS field is set to 1 by an HE STA to indicate that a TS is not being set up. It is set to 0 otherwise." | Revised. The ADDTS signalling sets up a traffic stream and indicates traffic specific parameters. There is no change to this operation.  It is true, that admission control requires response from the AP. In the case when admission control is mandatory for an AC, the ADDTS signaling should be used for admission control.  The ADDTS use for EDCA and MU scheduling is clarified to be in use for the ACs that do not require admission control. TGax Editor, please implement the changes as shown in 19/1922r0. |
| 22198 | 26.9.1 | "Frame Control Power  Management subfield" -- no such subfield | Change the cited text to "Frame Control field Power Management subfield" | Accepted |
| 22417 | 26.9.2 | CID 20788. If the intent of the "should" is to address the transition period while an AP updates it STAs with the new OM, then that should be specified | Change "An OMI initiator that is an HE AP should be capable of receiving within an operating channel width and with NSS that are up to the values of the most recently transmitted Channel Width subfield and Rx NSS sub- field that the OMI initiator has successfully indicated in the OM Control subfield or in the Operating Mode field sent to any associated STA." to "While an OMI initiator that is an HE AP is communicating a new operating mode to its associated STAs, it should be capable of receiving within an operating channel width and with NSS that are up to the values of the most recently transmitted Channel Width subfield and Rx NSS subfield that it has successfully indicated in the OM Control subfield or in the Operating Mode field sent to any associated STA. After an OMI initiator that is an HE AP has successfully communicated a new operating mode to all its associated STAs, it shall be capable of receiving within an operating channel width and with NSS that are up to the values of the most recently transmitted Channel Width subfield and Rx NSS subfield that it has indicated in the OM Control subfield or in the Operating Mode field sent to its associated STAs." | Accepted |
| 22082 | 9.2.4.6a.2 | It should be N/A for "Interpretation by an AP that transmits a value of 0 in the OM Control UL MU Data Disable RX Support" when UL MU Disable is 0 and UL MU Data Disable is 1. | As in comment | Accepted |
| 22086 | 9.4.2.29 | In P156 L10, the change is this subclause is for MU operation. In P157L9, the change in this subclause can be applied to EDCA. It seems they are not in line. | Remove EDCA from P157L9. | Revised. The TSPEC is used to support APs’ scheduling with EDCA and MU access. TGax Editor, please make the changes as shown in 11-19-1922r0. |

The proposed normative text:

**9.2.4.6a.2 OM Control**

|  |  |  |  |
| --- | --- | --- | --- |
| **UL MU Disable subfield** | **UL MU Data Disable subfield** | **Interpretation by an AP that transmits a value of 0 in the OM Control UL MU Data Disable RX Support** | **Interpretation by an AP that transmits a value of 1 in the OM Control UL MU Data Disable RX Support** |
| 0 | 0 | All trigger based UL MU transmis- sions are enabled by the STA as defined in 26.5.2 (UL MU operation). | All trigger based UL MU transmis- sions are enabled by the STA as defined in 26.5.2 (UL MU operation). |
| 0 | 1 | ~~All trigger based UL MU transmis- sions are enabled by the STA as defined in 26.5.2 (UL MU operation).~~  N/A [#22082] | Trigger based UL MU Data frame transmissions in response to a Basic Trigger frame are suspended by the STA as defined in 26.9.3 (Transmit operating mode (TOM) indication).  Other trigger based UL MU transmis- sions remain enabled by the STA as defined in 26.9.3 (Transmit operating mode (TOM) indication). |
| 1 | 0 | All trigger based UL MU transmis- sions are suspended by the STA.  The STA will not respond to a received Trigger frame or MPDU con- taining a TRS Control subfield. | All trigger based UL MU transmis- sions are suspended by the STA.  The STA will not respond to a received Trigger frame or MPDU con- taining a TRS Control subfield. |
| 1 | 1 | Reserved | Reserved |

**9.4.2.29 TSPEC element**

***Change the 1st paragraph as follows:***

The TSPEC element contains the set of parameters that define the characteristics and QoS expectations of a traffic flow, in the context of a particular STA, for use by the HC or PCP and STA(s) or a mesh STA and its peer mesh STAs in support of QoS traffic transfer using the procedures defined in 11.4 (TS operation) and 11.22.16.3 (GCR procedures), or for use by HE STAs in support of HE APs' scheduling for contention based channel access (EDCA) or [#22082] MU operations (see 26.5 (MU operation)). The element information format comprises the items as defined in this subclause, and the structure is defined in Figure 9-298 (TSPEC element format).

**26.5.8 Use of TSPEC by HE STAs**

In addition to the TS Setup operations as described in 11.4.4 (TS setup), a non-AP HE STA may use a TSPEC contained in a Basic ADDTS Request frame to provide its traffic characteristics and QoS require- ments to an HE~~-~~AP that supports the reception of Basic ADDTS Request frame in order to facilitate efficient scheduling for HE APs' UL and DL MU operations. A TSPEC provided by a non-AP HE STA is used by a receiving HE AP to facilitate the creation of a schedule for contention based channel access (EDCA) or [#22082] MU operation. A TSPEC provided by a non-AP HE STA to an HE AP is uniquely identified by the TSID subfield and the MAC address of the non-AP HE STA. The method that a non-AP HE STA uses to collect traffic information and construct TSPECs is beyond the scope of this specification. The method how the HE AP uses the information provided by the non-AP HE STA is beoynd the scope of the specification. [#22082]

~~A~~ non-AP HE STA transmits an ADDTS Request frame with Schedule and APSD subfields set to 0 in the TSPEC element to signal its traffic characteristics and QoS requirements to the associated HE AP. An HE AP does not transmit an ADDTS Response frame as a response to such an ~~the~~ ADDTS Request frame ~~to an HE STA that transmitted ADDTS Request with Schedule and APSD subfields of the TSPEC set to 0~~, if any of the following conditions is true: [#22185]

* The AP has indicated value 0 in the ACM field of the ACI/AIFSN field of the EDCA Parameter Set element for the AC to which the TSPEC belongs [#22185]
* The ADDTS Request frame does not contain TCLAS element. [#22185]

Otherwise, the AP transmits a ADDTS Response frame to the STA. The acknowledgment of the ADDTS Request frame confirms the receipt of the TSPEC element at the HE AP. [#22185]

NOTE – When an HE AP has indicated value 1 in the ACM field for the AC to which the TSPEC belongs, then the ADDTS request frame is used for admission control as defined in 10.22.4(Admission control at the HC). [#22185]

**26.9 Operating mode indication**

**26.9.1 General**

NOTE 2—It might take a long time for a STA to change its operating mode following the transmission of the OM Con- trol subfield and during that time the STA might not be able to receive frames resulting in frame loss. If a non-AP STA cannot tolerate frame loss during that period it can set the Power Management subfield of the Frame Control field of the frame that carries the OM Control subfield to 1 to indicate that the STA has entered power save. When the non-AP STA has completed its operating mode change, it can send another frame (such as a QoS Null) with the Frame Control field [#22198] Power Management subfield set to 0 to indicate that the STA has exited power save.

**26.9.2 Receive operating mode (ROM) indication**

~~An OMI initiator that is an HE AP should be capable of receiving within an operating channel width and with N that are up to the values of the most recently transmitted Channel Width subfield and Rx NSS subfield that the OMI initiator has successfully indicated in the OM Control subfield or in the Operating Mode field sent to any associated STA.~~ [#22417]

While an OMI initiator that is an HE AP is communicating a new operating mode to its associated STAs, it should be capable of receiving within an operating channel width and with NSS that are up to the values of the most recently transmitted Channel Width subfield and Rx NSS subfield that it has successfully indicated in the OM Control subfield or in the Operating Mode field sent to any associated STA. After an OMI initiator that is an HE AP has successfully communicated a new operating mode to all its associated STAs, it shall be capable of receiving within an operating channel width and with NSS that are up to the values of the most recently transmitted Channel Width subfield and Rx NSS subfield that it has indicated in the OM Control subfield or in the Operating Mode field sent to its associated STAs. [#22417]