IEEE P802.11
Wireless LANs

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| LB 200 Comment Resolution for CIDs 2662, 2561 |
| Date: 2014-05-01 |
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Abstract

This submission proposes resolutions for comments of TGah Draft 1.0 with the following CIDs:

2662, 2561

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 TGah Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGah Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGah Editor: Editing instructions preceded by “TGah Editor” are instructions to the TGah editor to modify existing material in the TGah draft. As a result of adopting the changes, the TGah editor will execute the instructions rather than copy them to the TGah Draft.***

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2662 | 139.27 | 8.7.3.1 | TID is only defined for QoS STAs but not for non-QoS STAs; as such PTID/Subtype field can be TID only for QoS STAs. | "Change line 27 as follows:The PTID/Subtype field is 3 bits in length and for short data frames (type field set to 0 and 3) transmitted by QoS STAs, it contains the 3 LSBs of the TID subfield defined in 8.2.4.5.2 (TID subfield) while for short data frames (type field set to 0 and 3) transmitted by non-QoS STAs, this field is equal to zero." | Revised –The proposed change was added to the draft as part of 11-14/0211r3. However the proposed resolution in 11-14/0321r1 added the following qualification in suclause 4.3.10c: “An S1G STA is also a QoS STA but does not support HCCA”Hence, the proposed resolution is to remove the previously added sentence but also, to be consistent throughout the draft, add the required normative text that supports the qualification for an S1G STA added in subclause 4.3.12b (in TGah D1.3). TGah Editor to make changes shown in 14/0601r0 under the heading for CID 2662 and 2561. |
| 2561 |  | 8.4.2.31 | It is better to define Default TXOP limit values for an S1G STA in the Table 8-105 (Default EDCA Parameter Set element parameter values if dot11OCBActivated is false). | "Insert the subclause 8.4.2.31 (EDCA Parameter Set element), and change the Table 8-105 of IEEE P802.11af by adding a new column corresponding to the S1G STA (For PHY defined in Clause 24). The TXOP limit values are following: - 0 for AC\_BK and AC\_BE - 30.08ms for AC\_VI - 15.04ms for AC\_VO" | Revised –In 11ah two types of STAs have been defined: Sensor type STA and non-Sensor type STA. Proposed resolution is to use the baseline EDCA Parameter Set table for non-Sensor STAs and add a new EDCA Parameter Set table for Sensor STAs. In the new table the TXOP limits for each AC are 0 as Sensor traffic is expected to be sporadic with single access per PPDU transmission.TGah editor to make changes shown in 14/0601r0 under the heading for CID 2662 and 2561.  |

**Discussion:** *None.*

**Instructions to TGah Editor: *Change the paragraph below in subclause 8.8.3.1 as follows:***

The PTID/Subtype field is 3 bits in length and depending on the type of the Short frame it indicates:

- The 3 LSBs of the TID as defined in 8.2.4.5.2 (TID subfield) for Short Data frames (Type field equal to 0 and 3).

- The Subtype for Short Control frames (Type field equal to 2) as described in 8.7.4 (Short Control frames)

- The Subtype for Short Management frames (Type field equal to 1) as described in 8.7.5 (Short Management frames)

**9.21 HCF**

**9.21.1 General**

**Instructions to TGah Editor: *Change the last paragraph of this Subclause as follows:***

HCCA is not used by either DMG or S1G STAs.

**9.21.2.1 Reference implementation**

**Instructions to TGah Editor: *Insert the sentence below immediately after the 2nd paragraph of this subclause:***

An S1G STA shall be a QoS STA.

9.21.5.1 General

**Instructions to TGah Editor: *Change the sentence below of the 10th paragraph of this subclause as follows:***

After determining its channel access time slot assigned by the AP, the STA starts to access the channel not earlier than its assigned slot based on the S1G variant of EDCA (9.21.2.9a (EDCA channel access in an S1G BSS)(Ed)).

9.21.5.4 Slotted channel access procedure in RAW

**Instructions to TGah Editor: *Change the 1st paragraph of this subclause as follows:***

When the RAW is not restricted to STAs whose AID bits in the TIM element are equal(#1185) to 1 (the RAW Type field is equal(#1185) to 0 and the Bit 0 of the RAW Type Options field is equal(#1185) to 0),(#1981) all STAs that belong to a RAW group are allowed to access the medium in the RAW of the RAW group, an AP assigns a time slot for each STA that belongs to the RAW group (9.21.5.3). Each STA that belongs to the RAW group shall start to contend for the WM not earlier than the start of the assigned time slot. The channel access is based on EDCA.

8.4.2.28 EDCA Parameter Set element

**Instructions to TGah Editor: *Change the figure and insert the following paragraph at the end of this subclause as follows:***

|  |  |  |  |  |  |
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|  | B0 | B1 B2 | B3 B4 | B5 B6 | B~~5~~ B7 |
|  | Override | PS-Poll ACI | RAW AC | STA Type | Reserved |
| Bits:  | 1 | 2 | 2 | 2 | ~~2~~1 |
| Figure 8-238a -- Update EDCA Info |

The Override field is used by S1G APs to indicate to S1G STAs that this element overrides previously stored EDCA parameters as described in 9.2.4.2 (HCF contention-based channel access (EDCA)).

The PS-Poll ACI field is used by S1G APs to inform the S1G STAs of the access category for sending a PS-Poll frame. The mapping between the PS-Poll ACI and AC is identical to the one defined in Table 8-129(ACI-to-AC coding).

The RAW AC field is used by S1G APs to inform the S1G STAs of the access category for accessing the WM in the RAW as described in 9.21.5.5 (EDCA backoff procedure in Generic RAW or Triggering Frame RAW).(#14/0235r1)

The STA Type field indicates for which type of STA the information provided by this element is intended to. The S1G AP sets the STA Type field to:

* 0 to indicate that the information provided by this element is valid for both Sensor type STAs and non-Sensor type STAs
* 1 to indicate that the information is valid for Sensor type STAs
* 2 to indicate that the information provided by this element is valid for non-Sensor type STAs
* 3 to indicate a reserved value

NOTE – An S1G STA that transmits a (NDP) PS-Poll frame within a RAW uses the access category indicated by PS-Poll ACI subfield rather than the access category indicated by the RAW AC subfield.

**Instructions to TGah Editor: *Change Table 8-130 as follows:***

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| **Table 8-130 -- Default EDCA Parameter Set element parameter values if dot11OCBActivated is false and if dot11S1GOptionImplemented is true and the STA Type is 2** |
| **AC** | **CWmin** | **CWmax** | **AIFSN** | **TXOP limit** |
| **For PHYs defined in Clause 16 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications) and Clause 17 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification)** | **For PHYs defined****in Clause 18****(Orthogonal frequency****division multiplexing****(OFDM) PHY specification),****Clause 19 (Extended Rate****PHY (ERP) specification),****Clause 20 (High Throughput (HT)****PHY specification), Clause 22****(Very High Throughput****(VHT) PHY specification, and Clause 24 (Sub 1 GHz (S1G) PHY specification** | **Other PHYs** |
| AC\_BK | aCWmin | aCWmax | 7 | 0 | 0 | 0 |
| AC\_BE | aCWmin | aCWmax | 3 | 0 | 0 | 0 |
| AC\_VI | (aCWmin+1)/2 – 1 | aCWmin | 2 | 6.016 ms | 3.008 ms | 0 |
| AC\_VO | (aCWmin+1)/4 – 1 | (aCWmin+1)/2 – 1 | 2 | 3.264 ms | 1.504 ms | 0 |

***Instructions to TGah Editor: Insert a new table after Table 8-131 as follows:***

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| **Table 8-131a -- Default EDCA Parameter Set element parameter values if dot11S1GOptionImplemented is true and the STA Type is 1** |
| **AC** | **CWmin** | **CWmax** | **AIFSN** | **TXOP limit** |
| AC\_BK | aCWmin | aCWmax | 7 | 0 |
| AC\_BE | (aCWmin+1)/4 - 1 | aCWmin | 2 | 0 |
| AC\_VI | (aCWmin+1)/2 - 1 | aCWmin | 5 | 0 |
| AC\_VO | (aCWmin+1)/2 - 1 | aCWmin | 4 | 0 |

**9.2.4.2 HCF contention based channel access (EDCA)**

***Instructions to TGah Editor: Change Table 9-1 as follows:***

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| * **UP-to-AC mappings**
 |
| **Priority** | **UP (Same as 802.1D user priority)** | **802.1D designation** | **AC** | **Transmit queue (dot11Alternate-EDCAActivated false or not present) (11aa)** | **Transmit queue (dot11AlternateEDCAActivated true) (11aa)** | **Designation (informative)** |
| LowestHighest  | 1 | BK | AC\_BK | BK | BK | Background |
| 2 | — | AC\_BK | BK | BK | Background |
| 0 | BE | AC\_BE | BE | BE | Best Effort or Sensor Traffic(See NOTE) |
| 3 | EE | AC\_BE | BE | BE | Best Effort(See NOTE) |
| 4 | CL | AC\_VI | VI | A\_VI | Video (alternate) (11aa) |
| 5 | VI | AC\_VI | VI | VI | Video (primary)(11aa) |
| 6 | VO | AC\_VO | VO | VO | Voice (primary)(11aa) |
| 7 | NC | AC\_VO | VO | A\_VO | Voice (alternate) (11aa) |
| **NOTE – The AC\_BE has the highest priority when the STA Type of the S1G STA is 1 (i.e., Sensor type STA).** |

**Instructions to TGah Editor: *Change the 4th paragraph of this subclause as follows:***

The QoS AP shall announce the EDCA parameters in selected Beacon frames and in all Probe Response and (Re)Association Response frames by the inclusion of the EDCA Parameter Set element using the information from the MIB entries in dot11ECDATable. If no such element is received, a STA shall use the default values for the parameters. The fields following the QoS Info field in the EDCA Parameter Set element shall be included in all Beacon frames occurring within two (optionally more) delivery traffic indication map (DTIM) periods following a change in AC parameters, which provides all STAs an opportunity to receive the updated EDCA parameters. If any associated STAs are in WNM-Sleep or using FMS, these fields should be included by the AP for as many DTIM periods as needed to exceed the longest interval any STA is expected to not receive Beacon frames. A QoS STA shall update its MIB values of the EDCA parameters within an interval of time equal to one beacon interval after receiving an updated EDCA parameter set. An S1G STA that receives an EDCA Parameter Set element shall update its MIB values of the EDCA parameters if the value of the STA Type subfield in the EDCA Parameter Set element includes the STA Type of the STA (see 10.48 (Sensor only BSS)). QoS STAs update the MIB attributes and store the EDCA Parameter Set update count value in the QoS Info field. An AP may change the EDCA access parameters by changing the EDCA Parameter Set element in the Beacon frame, Probe Response frame, and (Re)Association Response frame. However, the AP should change them only rarely. A QoS STA shall use the EDCA Parameter Set Update Count Value subfield in the QoS Capability element of all Beacon frames to determine whether the STA is using the current EDCA Parameter Values. If the EDCA Parameter Set update count value in the QoS Capability element is different from the value that has been stored, the QoS STA shall query the updated EDCA parameter values by sending a Probe Request frame to the AP.

The S1G AP shall set the STA Type subfield of EDCA Parameter Set elements it transmits to:

* 1 if it indicates support for Sensor type STAs2 if it indicates support for Non-Sensor type STAs

The S1G AP may set the STA Type subfield of EDCA Parameter Set elements it transmits to any value that is less than 3 if it indicates support for both Sensor type STAs and non-Sensor type STAs as described in 10.48 (Sensor only BSS).

**9.21.2.1 Reference implementation**

**Instructions to TGah Editor: *Change the 3th paragraph of this subclause as follows:***

A DMG STA or an S1G STA that is a Sensor type STA may implement a single AC. If the DMG or S1G STA implements a single AC, all UP and frame types shall be mapped to AC\_BE.

10.48 Sensor Only BSS

**Instructions to TGah Editor: *Remove the last paragraph of this subclause as follows:***

***Change the following paragraph after the 10th paragraph of sub-clause 9.2.4.2:***

The S1G STA that is a non-Sensor type STA shall transmit the frame that is a PS-Poll, PS-Poll+SF or NDP PS-Poll frame using the access category AC\_VO by default, unless the overridden PS-Poll ACI subfield in the Update EDCA Info field in an EDCA Parameter Set element, received from the AP with which the S1G STA is associated, indicates a different access category for sending PS-Poll frames.(#1101) After reception of the EDCA Parameter Set element from the AP with which it is associated, an S1G STA shall transmit the frame using the access category indicated in the PS-Poll ACI subfield. An S1G STA that is a Sensor type STA transmits all the frames (including PS-Poll, PS-Poll+SF and NDP PS-Poll frames) using the same access category AC\_BE as described in 9.21.2.1 (Reference implementation).(#14/0021r1)