IEEE P802.11
Wireless LANs

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| LB 205 Comment Resolution for 8.8.5 |
| Date: 2015-01-07 |
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Abstract

This submission proposes resolutions for comments in clause 8.8.5 of TGah Draft 3.0 with the following CIDs:

* 5203, 5204, 5438,

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 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** | **Commenter** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 5203 | Liwen Chu | 212.46 | 8.8.5.4 | It seems to me that SID for a group STAs is defined by mutlicast ID and Multicast Id is used for flexible multicast frame transmission. The resource allocation is used for RAW. Define SID with all 0 as broadcast SID for BA frame. | As in comment | Revised –Agree in principle with the comment (note that there is a typo in the comment: BA frame should be RA frame). Proposed resolution accounts for the suggested change in this subclause noting that the AID field is 0 while the other subfields of the SID field are reserved. TGah editor to make the changes shown in 11-14/0056r0 under all headings that include CID 5203. |
| 5204 | Liwen Chu | 211.07 | 8.8.5.4 | The definition of slot length for Slot Assignment Mode 1 and the start time of slot are missing. | Add the related definitions. | Revised –Agree in principle with the comment. Proposed resolution clarifies that all RAW slot durations are the same and calculated based on the RAW Duraiton field divided by the number of the RAW slots allocated for all STAs. In addition we clarify the start time calculation for the RAW slots based on indications in the Slot Assignment Bitmap subfield.TGah editor to make the changes shown in 11-14/0056r0 under all headings that include CID 5204. |
| 5438 | Mingguang Xu | 211.07 | 8.8.5.4 | Slot length for Slot Assignment Mode 1 and the start time of slot are not defined. | Add the definitions. | Revised –Agree in principle with the comment. Proposed resolution clarifies that all RAW slot durations are the same and calculated based on the RAW Duraiton field divided by the number of the RAW slots allocated for all STAs. In addition we clarify the start time calculation for the RAW slots based on indications in the Slot Assignment Bitmap subfield.TGah editor to make the changes shown in 11-14/0056r0 under all headings that include CID 5438. |

**Discussion:** *None.*

* **Resource Allocation frame format**

**TGah Editor: *Change the paragraphs below as follows (#Ed):***

The Resource Allocation (RA) frame is broadcasted to all non-AP STAs that belong to the RAW group identified by the RAW Group field of a previously transmitted RPS element with the RAW Type subfield indicating a Generic RAW and the RAW Type Options subfield indicating an RA frame (see 8.4.2.170b (RPS element)). The RA frame signals the presence of downlink buffered data for paged STAs and their assigned RAW slots for both uplink and downlink service periods. The Resource Allocation frame has two kinds of format depending on the slot assignment mode indicated in the Frame Control field.

The Resource Allocation frame formats are illustrated in Figure 8-722a11 (Resource Allocation frame format for Slot Assignment Mode 0) and Figure 8-722a12 (Resource Allocation frame format for Slot Assignment Mode 1).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | FrameControl | A1 | BSSID | RAW Group | RAWDuration | Slot Assignment 1 | ... | Slot Assignment N | FCS  |
| Octets: | 2 | 2 | 6  | 3 | 2 | 3 or 4 |  | 3 or 4 | 4  |
| **Resource Allocation frame format for Slot Assignment Mode 0**(#3941) |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | FrameControl | A1 | BSSID | RAWGroup | RAWDuration | Slot AssignmentIndication | FCS |
| Octets: | 2 | 2 | 6 | 3 | 2 | variable | 4 |
| * **Resource Allocation frame format for Slot Assignment Mode 1**(#3941)
 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0 | B1 B6 | B7 B22 | B23 |
|  | EOM Indicator | GID | Slot Start Offset | Reserved |
| Bits: | 1 | 6 | 16 | 1 |
| * **Slot Assignment field for MU group when Slot Assignment Mode is equal to 0 and the Group Indicator field is 1**(#3930)
 |
|  | B0 B8 | B9 B24 | B25 B31 |
|  | Partial AID | Slot Start Offset | Reserved |
| Bits: | 9 | 16 | B7 |
| * **Slot Assignment field for a STA when Slot Assignment Mode is equal to 0 and the Group Indicator field is 0**(#3930)
 |

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | Slot Assignment(#Ed) Bitmap | Pad |
| Bits: | RAW Group size x 4 bits for each STA | 0 or 4 |
| * **Slot Assignment Indication field when Slot Assignment Mode is equal to 1**
 |

**TGah Editor: *Change the paragraphs below as follows (#Ed):***

The Frame Control field of the Resource Allocation frame is shown in Figure 8-722a16 (Frame Control field format for Resource Allocation frame):

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0  B1 | B2 B4 | B5 B7 | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 |
|  | Protocol Version (1) | Type | PTID/Subtype | Slot Assignment Mode | More Fragments | Power Management | Group Indicator | ProtectedFrame | End ofServicePeriod | Relayed Frame | Ack Policy |
| Bits: | 2 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| * **Frame Control field format for Resource Allocation frame**
 |

**TGah Editor: *Change the paragraphs below as follows (#5203, Ed):***

The subfields of the Frame Control field, except for the Slot Assignment Mode and the Group Indicator subfields, are defined in 8.8.3.1 (Frame Control field). The Slot Assignment Mode and the Group Indicator subfields are defined as follows:

* The Slot Assignment Mode subfield indicates the format of the Resource Allocation frame:
* If the Slot Assignment Mode subfield is equal to 0, the Resource Allocation frame format is as shown in Figure 8-722a13 (Resource Allocation frame format for Slot Assignment Mode 0).
* If the Slot Assignment Mode subfield is equal to 1, the Resource Allocation frame format is as shown in Figure 8-722a12 (Resource Allocation frame format for Slot Assignment Mode 1).
* The Group Indicator field indicates whether any subfield of MU group is included or no subfield of MU group exists in the Slot Assignment field if Slot Assignment mode field is equal to 0. Otherwise, it is reserved.

The A1 field is an SID field that contains the value 0 in the AID subfield. A3 Present, A4 Present and A-MSDU subfields (B13, B14, and B15) of the SID field are reserved.

**TGah Editor: *Change the paragraphs below as follows (#Ed):*** (#3941)

The BSSID field indicates the address of the AP transmitting the Resource Allocation frame.

The RAW Group fieldindicates the STA AIDs that are assigned the RAW as defined in 8.4.2.170b (RPS element). The AIDs in this RAW Group are identical to the AIDs in the RAW Group subfield with the value in the RAW Type subfield set to 0 and the value in the RAW Type Options subfield set to 1 in the RAW Control subfield within the RPS element. STAs that wake up and receive the Resource Allocation frame use this field to determine whether their AIDs are included within the RAW Group.

The RAW Durationfield is an unsigned integer expressed in TUs that indicates the duration of the current RAW where the Resource Allocation frame is broadcasted. The value indicated in this field is either identical to the value of the RAW duration deduced from the value in the RAW Slot Definition subfield (8.4.2.170b (RPS element)) or is modified from the value indicated in the RAW Slot Definition subfield of the RPS element (8.4.2.170b (RPS element)).

The Slot Assignmentfield indicates a partial AID for an STA or a GID for STAs in the corresponding MU Group and their corresponding slot(s) of medium access within the current RAW. Since MU MIMO is used for DL traffic, the first bit, as called end of multi-user (EOM) Indicator, for the MU group block indicates whether the following subfields are used for the last MU group when this bit is 1 or more MU groups exist after subfields for this MU group when the bit is 0. This field is of length 3 octets for each MU Group and 4 octets for each STA and the length is determined based on the value in the EOM subfield.

If Slot Assignment Mode is set to 0 and the value in the Group Indicator field is 1, the Slot Assignment field is used for either MU group of STAs or an assigned STA as shown in Figure 8-722a13 (Slot Assignment field for MU group when Slot Assignment Mode is equal to 0 and the Group Indicator field is 1) and Figure 8-722a14 (Slot Assignment field for a STA when Slot Assignment Mode is equal to 0 and the Group Indicator field is 0). If Slot Assignment Mode is 0 and the value in the Group Indicator field is 0, the Slot Assignment field is not used for MU group of STAs. The Slot Assignment field for MU group of STAs is located first at the beginning of the Slot Assignment fields, if exists.

The Partial AID subfield indicates a Partial AID for an assigned STA.

The Slot Start Offsetsubfield indicates the start time of a RAW slot, in TU, for a STA’s or MU MIMO group of STAs’ medium access, relative to the RAW Start Time field as defined in 8.4.2.170b (RPS element) and is of length 2 octets.(#4015)

The RA frame contains Slot Assignment Indication field to indicate to each of the STA in the RAW group the number of UL/DL slot allocations within the current RAW.

**TGah Editor: *Change the paragraphs below as follows (#5204, 5438):*** (#3941)

The Slot Assignment Bitmap subfield indicates the number of RAW slots allocated for all STAs in the RAW group in ascending order with each 4 bits corresponding to one STA. The decimal number represented by the 4 bits indicates the number of allocation units for a STA. E.g.,(#Ed) "0000" indicates no allocation for a STA. "0001" indicates one RAW slot for a STA. All RAW slots have equal duration, in TUs, which is calculated by dividing the value of the RAW Duration field with the number of RAW slots allocated to all STAs in the RAW group. The first RAW slot starts at the end of the Resource Allocation frame while the start times of the remaining RAW slots are equal to the end times of their immediately preceding RAW slots as indicated in the Slot Assignment Bitmap subfield.

The Slot Assignment Bitmap subfield is of variable length determined by the equation as below:

The length of Slot Assignment Bitmap = (RAW End AID- RAW Start AID+1) x 4 bits,

where the RAW End AID and RAW Start AID for the RAW group are defined in 8.4.2.170b (RPS element).

The Pad subfield contains 0 or 4 bits of zeros to make the total number of bits in the Slot Assignment Indication field equal to an integer number of octets.