IEEE P802.11
Wireless LANs

|  |
| --- |
| LB200 Proposed Resolutions for SST element |
| Date: 2014-05-10 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Matthew Fischer | Broadcom | 190 Mathilda Place, Sunnyvale, CA 94086 | +1 408 543 3370 | mfischer@broadcom.com |
| Alfred Asterjadhi | Qualcomm | San Diego, CA |  |  |

Abstract

This submission proposes resolutions for comments of TGah Draft 1.0, related to the SST element, with the following CIDs:

1428, 2301, 2576, 2582, 2734, 2895, 2896, 2940, 2941, 2140

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 “Instruction to 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.***

| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- |
| 1428 | 109 | 8.4.2.170l | It is not clear which is the selected primary channel for that given activity start time if multiple bits can be set to 1. Also there is mismatch for the Activity Start Time (in the format it is 19 bits while in line 36 of page 110 is 20 bits. | Clarify which is the primary channel per Activity schedule and solve Activity Start time field length inconsistency. | Revised –Agree in principle with the commenter. Proposed resolution is to clarify that only 1 bit can be set to 1 per activity start time and changed 20 to 19 bits.TGah editor to make changes shown in 14/0602r0 under the heading for CID 2662 and 2561. |
| 2301 | 109 | 8.4.2.170l | what does AP activity mean here? With UL, a STA can transmit frames also. | Clarify it. | Revised –Agree in principle with the commenter. Proposed resolution si to specify that in DL (suspect typo in the comment?) STAs are not restricted from sending immediate responses. TGah editor to make changes shown in 14/0602r0 under the heading for CIDs from 1428 to 2140. |
| 2576 | 110 | 8.4.2.170l | In the Table 8-191f (Mapping between Maximum Transmission Width field and maximum permitted PPDU bandwidth), the maximum bandwidth of 16MHz is mean less while a 16MHz PPDU requires full bandwidth of an S1G BSS. | Change the "16" in Mapping between Maximum Transmission Width field and maximum permitted PPDU bandwidth column by "Reserved". | Revised –Agree in principle with the commenter. Proposed resolution si to specify that the maximum transnmission cannot exceed the BSS operation width.TGah editor to make changes shown in 14/0602r0 under the heading for CIDs from 1428 to 2140. |
| 2582 | 111 | 8.4.2.170l | The unit and reference of the Sounding Start Time subfield is not defined. | Define the unit and reference. | Revised –Agree with the commenter. Proposed resolution si to better clarify how the start time is obtained from the Sounding Start Time subfield. TGah editor to make changes shown in 14/0602r0 under the heading for CIDs from 1428 to 2140. |
| 2734 | 109 | 8.4.2.170l | transmit the subfield? Also observe on P110L1 | Please clarify | Revised –Agree with the commenter. Proposed resolution clarifies this aspect by referring to “transmitting the frame containing the element”. TGah editor to make changes shown in 14/0602r0 under the heading for CIDs from 1428 to 2140. |
| 2895 | 109 | 8.4.2.170l | Even if UL Activity bit is set to zero, it is still possible that the STA will transmit Acknowledgement frame on the channel identified in return to the AP's DL transmission. Therefore, further clarification is needed. | As mentioned in the Comment. | Revised –Agree with the commenter. Proposed resolution si to clarify that the restriction does not apply to response frames.TGah editor to make changes shown in 14/0602r0 under the heading for CIDs from 1428 to 2140. |
| 2896 | 110 | 8.4.2.170l | The meaning of the term "next time" is not clear. Also, it is not clear how each SST STA can figure out the duration of the allowed SST activity. | As mentioned in the Comment. | Revised –Agree with the commenter. Proposed resolution si to better clarify how the start time is obtained from both Activity Start Time and Sounding Start Time subfields. TGah editor to make changes shown in 14/0602r0 under the heading for CIDs from 1428 to 2140. |
| 2940 | 109 | 8.4.2.170l | Minimum width channel' should be defined. | Add definition for 'minimum width channel'. | Revised –Agree with the commenter. Proposed change is to add the definition of the minimum width channel” in this resolution document.TGah editor to make changes shown in 14/0602r0 under the heading for CIDs from 1428 to 2140. |
| 2941 | 110 | 8.4.2.170l | Start time subfield now only has 19 bits, instead of 20. | Change the '20 least significant bits' to '19 least significant bits'. | Revised –Agree with the commenter. Proposed change is included in this resolution document.TGah editor to make changes shown in 14/0602r0 under the heading for CIDs from 1428 to 2140. |
| 2140 | 111 | 8.4.2.170l | change "sound NDP" to "sounding NDP" | change "sound NDP" to "sounding NDP" | Revised –Agree with the commenter. Proposed change is included in this resolution document.TGah editor to make changes shown in 14/0602r0 under the heading for CIDs from 1428 to 2140.  |

**Discussion:** *None.*

**Instructions to TGah Editor: *Change this subclause as follows:***

**8.4.2.170l Subchannel Selective Transmission element**

The Element ID and Length fields are defined in 8.4.2.1 (General).

N is the number of channel activity schedules being provided.

The format of the Channel Activity Schedule subfield is shown in Figure 8-401aj (Channel Activity Schedule subfield format (Sounding Option = 0)) and Figure 8-401ak (Channel Activity Schedule subfield format (Sounding Option = 1)).

The Sounding Option subfield is set to 0 to indicate that the Channel Activity Schedule field is the AP Activity schedule.

The Channel Activity Bitmap subfield contains a bitmap indicating on which channels there is expected or permitted to be transmission activity at a given time. Each bit in the bitmap corresponds to one minimum width channel for the band of operation with the LSB corresponding to the lowest numbered operating channel of the BSS. A value of 1 in a bit position in the bitmap means that the AP expects activity and/or permits transmissions with bandwidth less than or equal to Maximum Transmission Width and that include that channel, after the time indicated in the Activity Start Time subfield. Only one bit in the bitmap can be set to 1 within each channel activity schedule. The minimum width channel is equal to the SST Channel Unit field of the SST Operation element if such an element has been previously transmitted or is equal to 2 MHz if no such element has been previously received from the AP to which the SST STA is associated.

Note - transmissions need to comply with the channelization for the regulatory domain of operation.

The UL Activity bit indicates whether STAs associated with the SST AP that transmits the SST element are permitted to transmit frames that are not immediate response frames on the channel(s) identified by the Channel Activity Bitmap and Maximum Transmission Width at the time indicated in the Activity Start Time subfield.

The DL Activity bit indicates whether the AP that transmits the SST element intends to transmit frames that are not immediate response frames on the channel(s) identified by the Channel Activity Bitmap and Maximum Transmission Width at the time indicated in the Activity Start Time subfield.

The Maximum Transmission Width field indicates the maximum permitted PPDU bandwidth for a transmission on the indicated channel and cannot exceed the BSS operating channel width specified by the AP in a transmitted S1G Operation element. The maximum permitted PPDU bandwidth is in MHz and is determined based on the Maximum Transmission Width subfield as shown in Table 8-240h (Mapping between Maximum Transmission Width field and maximum permitted PPDU bandwidth).

The Activity Start Time subfield contains a value that defines a start time for when the AP expects frame transmissions to begin on the channel(s) indicated in the corresponding Channel Activity Bitmap. The start time is triggered when the 19 least significant bits of the TSF timer for the BSS match the value that is indicated in the Activity Start Time subfield of the SST element. The count down to the start time is intiated at the end of the transmission of the frame containing the SST element.

The Sounding Option subfield is set to 1 in order to indicate the Channel Activity Schedule field is the SST sounding schedule.

The Channel Activity Bitmap subfield contains a bitmap indicating on which channels there is an SST sounding transmission activity at a given time. Each bit in the bitmap corresponds to one minimum width channel for the band of operation with the LSB corresponding to the lowest numbered operating channel of the BSS. A value of 1 in a bit position in the bitmap means that the AP transmits one more PIFS-separated sounding NDP frames

The Sounding Start Time Present subfield indicates whether the Sounding Start Time subfield is present in the Channel Activity Schedule field. If the subfield is equal(#1185) to 1, the Sounding Start Time subfield is present. If this subfield is equal(#1185) to 0, the Sounding Start Time subfield is not present.

The Maximum Transmission Width subfield indicates the channel bandwidth of the sounding NDP and is shown in Table 8-240h (Mapping between Maximum Transmission Width field and maximum permitted PPDU bandwidth).

The Sounding Start Time subfield contains a value that defines a start time when the AP transmits one or more sounding NDP framess on the channel(s) indicated in the corresponding Channel Activity Bitmap. If the Sounding Start Time subfield is not present, the AP transmits one or more sounding PIFS-separated NDP frames starting after the transmission of the Beacon frame containing the SST element. If the Sounding Start Time subfield is present, the AP transmits one or more sounding PIFS-separated NDP framestarting at the time indicated in the Sounding Start Time field. The start time is triggered when the 19 least significant bits of the TSF timer for the BSS match the value that is indicated in the Sounding Start Time subfield of the SST element. The count down to the start time is intiated at the end of the transmission of the frame containing the SST element.