IEEE P802.11
Wireless LANs

|  |
| --- |
| D1.0 Comment resolution part3  |
| Date: 15 January 2011 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Solomon Trainin | Intel Corporation |  | 972547885738 | solomon.trainin@intel.com |
| Carlos Cordeiro | Intel Corporation |  |  | carlos.cordeiro@intel.com |

Abstract

This document provides several text improvements in relation to CID177 referring to the Draft P802.11ad\_D1.0 and the data base 11-10-1220-07-00ad-lb168-comment-database

*Discussion: In BACK and BAR frames, an ACK policy subfield set to 0 is irrelevant because the delayed BA is not supported in the DBand*

*.11 Editor in the subclause 7.2.1.7.1, in Table Table 7-6h add new line after ”See 9.16.1.7”*

The value 0 is not used for data sent in DBand.

*.11 Editor in the subclause 7.2.1.8.1, in Table 7-6j add new line after “The value 0 is not used for data sent under HT-delayed BlockAck during a PSMP sequence.”*

The value 0 is not used for data sent in DBand.

*Discussion: As result of the previous comments TxOP rule appears in the SP section 9.23.6.1 Service period (SP) allocation:*

“At the beginning of a TXOP, a TXOP holder shall transmit a frame to the TXOP responder using the DBand Control modulation class before it uses any other modulation class for transmission if the heartbeat field in the TXOP responder’s DBand STA Capability Information element (7.3.2.91.1) is set to one. The frame sent by the STA may be an RTS or a DBandCTS-To-Self”.

*Editor Note - move the paragraph just before paragraph “Channel access during a CBP shall follow the rules described in 9.23.5.” in “9.23.6.2 Contention-based period (CBP) allocation”*

Editor note: *in “9.23.6 Time division based channel access in DTT” after paragraph that ends with “…the TSCONST field of the associated Extended DBand TSPEC element.” Add new paragraph:*

When scheduling a non-pseudo static SP or changing the start time of an existing pseudo-static SP which has a non-PCP/non-AP STA as a source DBand STA or as a destination DBand STA of the SP, a PCP/AP shall set the start time of the SP to no less than aMinAllocationDeliveryTime after the last Extended Schedule element containing this SP is transmitted by the PCP/AP.

NOTE – This rule does not apply to the case when a PCP/AP schedules a new pseudo-static SP.

*In the Table 68 – MAC sublayer parameters append line*

|  |  |
| --- | --- |
| aMinAllocationDeliveryTime | 300 usec |

*Discussion: Parsing of the Extended Schedule element is time sensitive, so the predictable position of the element is highly desirable, suggest to place it as first information element in the Announce frame***.**

*Editor note: In the subcaluse “7.4.13.2 Announce” change the table 32 and the text as follows:*

Table – Announce

|  |  |
| --- | --- |
| **Order**  | **Information** |
| 1 | Category |
| 2 | Action |
| 3 | Timestamp |
| 4 | Beacon Interval |
| 5 | SSID (optional) |
| 6 | Extended Schedule element (optional) |
| Last - 1 | Several information elements can appear in this frame. These information elements follow all other information elements that are not vendor-specific information elements and precede all other information elements that are vendor-specific information elements.  |
| Last | Vendor Specific (optional)  |

The Category field is set to the category for DBand, specified in .

The Action field is set to the value corresponding to Announce specified in .

The Extended Schedule element is defined in 7.3.2.95

Any number of information elements can be included within an Announce frame.

##### *Discussion: The More Data Field is used in “* *11.2.3.1.3 Power management mode operation of a non-PCP/non-AP STA with or without a wakeup schedule” but it is not adequately described in  7.1.3.1.7 More Data field. Fix definition of the field to make it clear that the field is used by non-AP, non-PCP DBand STAs.*

The More Data field is 1 bit in length and is used to indicate to a STA in PS mode that more MSDUs or MMPDUs are buffered for that STA at the AP. The More Data field is valid in directed data or management type frames transmitted by an AP to a STA in PS mode. A value of 1 indicates that at least one additional buffered MSDU or MMPDU is present for the same STA.

In the OBand, the More Data field may be set to 1 in directed data type frames transmitted by a CF-Pollable STA to the PC in response to a CF-Poll to indicate that the STA has at least one additional buffered MSDU available for transmission in response to a subsequent CF-Poll.

In the OBand, the More Data field is set to 0 in all other directed frames.

The More Data field is set to 1 in broadcast/multicast frames transmitted by the AP when additional broadcast/multicast MSDUs or MMPDUs remain to be transmitted by the AP during this beacon interval. The More Data field is set to 0 in broadcast/multicast frames transmitted by the AP when no more broadcast/multicast MSDUs or MMPDUs remain to be transmitted by the AP during this beacon interval. In the OBand, the More Data field is set to 0 in all broadcast/multicast frames transmitted by non-AP STAs.

In the OBand, for a non-AP STA that has the More Data Ack subfield set in its QoS Capability information element and also has APSD enabled, an AP may set the More Data field to 1 in ACK frames to this non-AP STA to indicate that the AP has a pending transmission for the non-AP STA.

In the DBand, a non-PCP/non-AP STA may set the More Data field to 1 when additional MSDUs remain to be transmitted upon the end of a scheduled SP. The More Data field is set to 0 when no additional MSDUs remain to be transmitted upon the end of a scheduled SP.

*Discussion: It is not clear how the decision should be made which STA becomes the PCP when the STA sending and receiving DBand beacons with the discovery field set to 1. Propose to make the decision on top of the DBand STA Capability Information and DBand PCP/AP Capability Information advertized by the DBand STA.*

*Solution:*

**7.3.2.91.2 mmWave PCP/AP Capability Information field**

*Editor Note: change the definition of the Power Source field as indicated below*

The Power Source field is set to 0 if the STA is battery powered, and is set to 1 otherwise.

.11 Editor note: In the subclause 10.3.2.2.2 Semantics of the service primitive add to the Result Code valid range value “BSS\_ALREADY\_STARTED\_OR\_JOINED”

**11.1.3.3.1 Initializing a DBand BSS**

*Editor Note: add after last paragraph*

The SME may issue an MLME-START.request if the ResultCode of the last MLME-SCAN.confirm with the value of the ScanType parameter equal to ACTIVE and BSSType parameter equal to PBSS was equal to SUCCESS. In this circumstance, the MLME-START.request shall be issued no later than aMaxBIDuration since the reception of the MLME-SCAN.confirm. If the SME does not issue the MLME-START.request within aMaxBIDuration, the SME shall issue an MLME-SCAN.request before it can issue a MLME-START.request.

The SME shall not issue an MLME-START.request if the ResultCode of the last MLME-SCAN.confirm with the value of the ScanType parameter equal to ACTIVE and BSSType parameter equal to PBSS was equal to BSS\_ALREADY\_STARTED\_OR\_JOINED, and no more than aMaxBIDuration has elapsed since the reception of the MLME-SCAN.confirm.

*Editor Note: insert the following subclause*

11.1.3.2.2.1 PCP selection in a PBSS

The PCP selection procedure is performed either as a result of the reception of an MLME-SCAN.request with the value of the ScanType parameter equal to ACTIVE and BSSType parameter equal to PBSS or as part of a PCP handover (see 11.30.2).

The decision whether the STA performs in the role of PCP is done by comparing the value of the STA’s PCP Factor (self\_PCP\_factor) and the PCP Factor of the peer STA (peer\_PCP\_factor) that is indicated in the peer STA’s DBand Capabilities element.

The PCP Factor of a STA is constructed by concatenating the value of select fields present in the STA’s DBand Capabilities element defined in 7.3.2.91. The PCP Factor is defined in Figure z.

NOTE – According to the convention, the least significant bit is the leftmost bit (B0).

If the DBand STA’s value of self\_PCP\_factor is greater than the value of peer\_PCP\_factor or the values are equal and the NIC specific part (3 least significant bytes) of the MAC address of the STA is greater than the NIC specific part of the MAC address of the peer STA contained in the peer STA’s DBand Capabilities element, the DBand STA shall perform in the role of PCP, otherwise, the STA shall not perform in the role of PCP.

If the PCP selection is performed as a result of the reception of an MLME-SCAN.request, the STA responds as follows. If the STA becomes the PCP, the MLME shall respond with an MLME-SCAN.confirm with a ResultCode of SUCCESS. If the STA performs in the role of non-PCP STA it shall respond with an MLME-SCAN.confirm with a ResultCode of BSS\_ALREADY\_STARTED\_OR\_JOINED.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Reserved (set to zero) | MAXAssociatedSTANumber | Total Number of Sectors | Pseudo-static allocations | TDDTT | PCP/AP clustering | Power source | Reserved (set to zero) |
| Bit: | B0-B5 | B6-B13 | B14-B21 | B22 | B23 | B24 | B25 | B26-B31 |

Figure z – PCP Factor for a DBand STA

*In subclause 11.30.2 replace paragraph that starts with “In explicit PCP handover, the…” with following:*

In explicit PCP handover, the PCP shall use the value of the PCP Factor when selecting the candidate PCP (see 11.1.3.2.2.1).

*Discussion: several PHY characteristics that are not defined in the D1.0.3 should be defined*

*.11 editor in the subclause 9.2.3.1 modify as follows:*

The SIFS timing shall be achieved when the transmission of the subsequent frame is started at the TxSIFS Slot boundary as specified in 9.2.10. In the OBand an IEEE 802.11 implementation shall not allow the space between frames that are defined to be separated by a SIFS time, as measured on the medium, to vary from the nominal SIFS value by more than ±10% of aSlotTime for the PHY in use.

In the DBand an implementation shall not allow the space between frames that are defined to be separated by a SIFS time, as measured on the medium, to vary from the nominal SIFS value by more than +10% of aSlotTime.

*Editor Note: In the subclause 21.10.4 modify Table 95 as follows:*

Table 95 – DBand PHY Characteristics

|  |  |
| --- | --- |
| PHY Parameter | Value |
| aRIFSTime | 1usec |
| aSIFSTime | 3usec |
| aRxRFDelay | <<1usec |
| aRxPLCPDelay | <1usec |
| aRxTxTurnaroundTime | <1usec |
| aCCATime | <3usec |
| aRxTxSwitchTime | <1usec |
| aMACProcessingDelay | Implementation dependent as long as the requirements of aSIFSTime and aSlotTtime are met. |
| aTxPLCPDelay | Implementation dependent as long as the requirements of aRxTxTurnaroundTime are met. |
| aTxRampOnTime | Implementation dependent as long as the requirements of aRxTxTurnaroundTime are met. |
| aTxRFDelay | Implementation dependent as long as the requirements of aRxTxTurnaroundTime are met. |
| aDataPreambleLength | 1891ns  |
| aControlPHYPreambleLength | 4291ns  |
| aSBIFSTime | 1usec |
| aAirPropagationTime | <100ns |
| aDBandDetectionThres | -48 dBm |
| aBRPIFS | 40usec |
| aSlotTime | 5usec |