IEEE P802.11
Wireless LANs

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| TGad sponsor ballot text changes p4 |
| Date: 2012-02-23 |
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Abstract

This document addresses comments provided by D5.0 sponsor ballot CID 6001

*Discussion:*

* *In the base 802.11 spec, a STA can determine the type of the BSS by either receiving a Beacon frame or Probe Response frame. This is achieved by the Capability Information field (8.4.1.4), which is present in both the Beacon and Probe Response frames.*
* *For the DBand, a DBand STA can only determine the type the BSS after receiving a DBand Beacon, since the BSS Type field is only present in the DBand Beacon. This does not create the same “experience” as 802.11 and will make the discovery & joining process slower.*

*Proposal:*

* *Redefine the Capability Information field (8.4.1.4) for the DBand and use this field in the DBand Beacon as well. Keep the size of the field, so that its position in the Probe/(Re)Association frames remain the same*

**8.3.4.1 DBand Beacon**

*Editor: In* **Table 8-33a – DBand Beacon frame body***, rename “*See below*” at order 5 by 8.4.1.46.*

*Replace the text in P139L5 through P140L31 with “*The DBand Parameters field is defined in 8.4.1.46.*”*

**8.4.1.4 Capability Information field**

*Editor: change the second paragraph as follows*

The length of the Capability Information field is 2 octets. The format of the Capability Information field is defined in Figure 8-38 when transmitted in the OBand and in Figure 8-38a when transmitted in the DBand. No subfield is supplied for ERP as a STA supports ERP operation if it includes all of the Clause 19 mandatory rates in its supported rate set.

*Editor: change the caption of Figure 8-38 from “***Capability Information field***” to “***Capability Information field when transmitted in the OBand***”*

*Editor: insert the following figure below Figure 8-38*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | B0-B7 | B8 | B9-B11 | B12 | B13-B15 |
|  | DBand Parameters | Spectrum Management | Reserved | Radio Measurement | Reserved  |
| Bits: | 8 | 1 | 3 | 1 | 3 |

Figure 8-38a Capability Information field when transmitted in the DBand

*Editor: insert the following text at the end of the subclause*

The DBand Parameters field is defined in 8.4.1.46.

*Editor: insert the following subclause*

**8.4.1.46 DBand Parameters field**

The DBand Parameters field is defined in Figure YY.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | B0-B1 | B2 | B3 | B4 | B5 | B6-B7 |
|  | BSS Type | CBAP Only  | CBAP Source | ECPAC Policy Enforced | DBand Privacy | Reserved  |
| Bits: | 2 | 1 | 1 | 1 | 1 | 2 |

Figure YY DBand Parameters field

The BSS Type subfield is defined in Table 5. An AP sets the BSS Type subfield to 3 within transmitted DBand Beacon, Probe Response or (Re)Association Response frames. A PCP sets the BSS Type subfield to 2 within transmitted DBand Beacon, Probe Response or (Re)Association Response frames. A STA within an IBSS sets the BSS Type subfield to 1 within transmitted DBand Beacon or Probe Response frames.

Table The BSS Type field

|  |  |  |  |
| --- | --- | --- | --- |
| **B0**  | **B1** | **BSS Type** | **Transmitted by DBand STA**  |
| 1  | 1 | Infrastructure BSS  | AP |
| 1  | 0 | PBSS | PCP |
| 0  | 1 | IBSS | Non-AP and non-PCP STA in an IBSS |
| 0  | 0 | Reserved |  |

The CBAP Only, CBAP Source and ECPAC Policy Enforced subfields are valid only when transmitted within a DBand Beacon, Probe Response or (Re)Association Response frames and are set as follows:

* The CBAP Only subfield indicates the type of link access provided by the STA sending the DBand Beacon frame in the DTT of the BI. The CBAP Only subfield is set to 1 when the entirety of the DTT portion of the BI is allocated as a CBAP for random access. The CBAP Only subfield is set to 0 when the allocation of the DTT portion of the BI is provided through the Extended Schedule element.
* The CBAP Source subfield is valid only if the CBAP Only subfield is 1. The CBAP Source subfield is set to 1 to indicate that the PCP/AP has higher priority to initiate transmissions during the CBAP than non-PCP/non-AP STAs. The CBAP Source subfield is set to 0 otherwise.
* The ECPAC Policy Enforced subfield is set to 1 to indicate that medium access policies specific to the centralized PCP/AP cluster are required as defined in 9.34.3.4 Centralized PCP/AP cluster MAC requirements. The ECPAC Policy Enforced subfield is set to 0 to indicate that medium access policies specific to the centralized PCP/AP cluster are not required.

The DBand Privacy subfield is set to 1 if dot11RSNAEnabled is true. Otherwise, this subfield is set to 0*.*

*Discussion: there is no need for the example, suggest to remove. It is an editorial change.*

**9.33.3 AT transmission rules**

*Editor; change at P272L23 as follows*

A non-PCP/non-AP STA shall transmit a response frame addressed …

*Discussion: there is no need to have control PHY at start of TxOP when distance between TxOPs is short.*

**9.33.5 Contention-based access period (CBAP) transmission rules**

*Editor: change at P274L12 as follows*

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 Capabilities element is equal to 1 and if the time elapsed since the last frame received from the TXOP responder is larger than or equal to the Heartbeat Elapsed Time value computed using the Heartbeat Elapsed Indication field within the TXOP responder’s DBand Capabilities element. Otherwise if the Heartbeat field in the TXOP responder’s DBand Capabilities element is equal to 1 and if the time elapsed since the last frame received from the TXOP responder is shorter than the Heartbeat Elapsed Time value computed using the Heartbeat Elapsed Indication field within the TXOP responder’s DBand Capabilities element, the TXOP holder may transmit a frame using a modulation class other than the DBand Control modulation class at the start of the TXOP . The frame sent by the STA at the beginning of the TXOP may be an RTS or a DBandCTS-To-Self.

*Editor: change* **Figure 8-401p** *(DBand STA Capability Information field format) at P161*

|  |  |
| --- | --- |
|  B57-B59  | B59-B63 |
| Heartbeat Elapsed Indication | Reserved |
| 3 | 4 |

*Editor: add text at end of subclause 8.4.2.130.2 (DBand STA Capability Information field)*

The Heartbeat Elapsed Indication field contains value in range 0-7 and is used to calculate Heartbeat Elapsed Time value according to following equation:

Heartbeat Elapsed Time=0; if Heartbeat Elapsed Indication =0

Heartbeat Elapsed Time = 2Heatbeat Elapsed Indication \*0.25 (ms); if Heartbeat Elapsed Indication >0

*Discussion: One issue was found in BA that the recipient may not be able to identify intentional hole in SN at start of A-MPDU or loss of MPDU at start of TxOP if the recipient is not aware of the TxOP start. The solution is to mandate Originator sending first A-MPDU in the TxOP under normal ACK policy or sending preceding frame that requires response.*

**9.21.7.7 Originator’s behavior**

*Editor: add at end of the subclause*

In the DBand, the Originator shall not start a new TxOP or SP with an MPDU or A-MPDU that has an ACK policy other than Normal ACK, if at least one frame transmitted by the Originator to the Recipient in the last PPDU did not require an immediate response.

**References:**

1. IEEE P802.11ad/D5.0, September 2011