IEEE P802.11
Wireless LANs

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| LB168 Handover-SFS-CID342\_1066 |
| Date: 2010-11-07 |
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Abstract

This document proposes resoltions to CIDs 342 on Handover and 1066 on Spatial Frequency Sharing from LB168 on Draft 1.0 of TGad. For clarity, the proposed change are based on the most recent Draft 1.1 of TGad.

All resolution are based on the text in D1.1

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| 1066  | 288 | 25 | T | "The PCP/AP shall transmit a Directional Channel Quality Request to each spatial sharing capable STA involved in a Time-Overlapped and existing SP scheduled under spatial sharing" - when should it do this? | Either specify when this should happen (making it testable), or weaken the normative statement. |

Proposed Resolution: **Agree**.

**Discussion:**

Agree that the current requirement is not testable and should be weakened. It should be up to the PCP/AP to decide, based on its knowledge of the channel condition and ability to act on the measurement results, when a Directional Channel Quality Request need to be sent to the STAs involved in a Time-Overlapped and existing SP scheduled under spatial sharing. It also seems reasonable to recommend that this be done at regular intervals given the variations in channel conditions.

**Proposed Changes:**

*Modify P298L11 in 11.33.2 as shown:*

The PCP/AP ~~shall~~ should periodically transmit a Directional Channel Quality Request to each spatial sharing capable STA

involved in a Time-Overlapped and existing SP scheduled under spatial sharing.

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| 342 | 282 | 4 | T | AFAIK, the BSSID of the PBSS after handover is unspecified: a) Define this explicitly; b) If the BSSID is unchanged, if the PCP hasn't gone / has been blocked, we have two PBSSs with the same BSSID in the same region - very unsafe | Carefully define the BSSID behavior after handover |

Proposed Resolution: **Agree in Principle**.

**Discussion:**

The goal of Implicit Handover is to allow the member STAs of a PBSS to quickly form a new PBSS and resume previously scheduled pseudostatic SPs after the unannounced departure of the PCP.

The BSSID used by the ith Implicit candidate PCP during DBand Beacon generation shall be its own MAC address following the existing rule:

* 7.1.3.3.3 **BSSID field** states “The value of this field in a PBSS is the MAC address contained in the PCP of the PBSS”

No change is needed regarding the setting of the BSSID.

However, additional clarification is needed on how Implicit Handover will work. The current description does not clearly describe how and when the Candidate PCP will advertise its availability via the DBand Beacon, nor how the member STAs will identify the new PCP.

It is proposed that when its Handover LostBeacon threshold is reached, the ith candidate PCP will start transmitting its DBand Beacon for the next several BTI of the current PCP, and insert a PCP Handover IE into the DBand Beacons with a common initial Remaining BI field value. The number of BTIs to transmit such beacons should be at least (dot11MaxLostBeacon – i\*dot11ImplicitHandoverLostBeacons+1) so that other STA will start scanning for it. Each candidate PCP will also monitor for DBand Beacon transmissions and cease its own Beacon transmissions and behave as a member STA if the received DBand Beacon is from a lower indexed candidate PCPs. Member STAs, upon detecting that the PCP has gone, should attempt to associate with the PCP sending DBand Beacons in the current BTI which has the smallest Remaining BI field. After its Remaining BI field value expires, the sending candidate PCP takes over the role of the PCP and should resume the schedule of previous pseudostatic SPs.

In Annex D, it is noted that the default values of some MIB variables are wrong:

* The default values of the MIB variable dot11MaxLostBeacons is “4”, which is too small.
* The default value of the MIB variable dot11ImplicitHandoverLostBeacons is “8”, which is greater than that of dot11MaxLostBeacons, violating the recommended behavior.

**Proposed Changes:**

In 11.30.2.2, Change the 2nd paragraph as indicated:

Each Implicit candidate PCP shall set be able to recognize DBand Beacons sent by other Implicit candidate PCPs on the NextPCPList. The implicit handover process is triggered at the ith Implicit candidate PCP when the ith Implicit candidate PCP fails to receive a DBand Beacon or Announce frames from the PCP for (i \* dot11ImplicitHandoverLostBeacons) beacon intervals and no DBand Beacon is received from other Implicit candidate PCPs during the last dot11ImplicitHandoverLostBeacons BIs. When this happens, the ith Implicit candidate PCP sends a DBand Beacon during each of the next dot11MaxLostBeacons BTIs of the PCP containing a PCP Handover element with the Remaining BIs field initially set to dot11MaxLostBeacons and decremented by 1 at each TBTT. A member STA of the PBSS, after failing to receive a DBand Beacon or Announce frame for dot11MaxLostBeacons BIs, should associate with the PCP sending a DBand Beacon frame during the BTI of the PCP containing the PCP Handover element with the smallest Remaining BIs field value.

~~at the next BI to announce that it is taking over the responsibility as~~

~~the PCP of the PBSS. The DBand Beacon sent by i~~~~th~~ ~~Implicit candidate PCP repeats all information~~

~~carried in the last DBand Beacon sent by the former PCP.~~

In Annex D:

Change the default values of MIB variable dot11MaxLostBeacons from “4” to “16”.

Change the default value of MIB variable dot11ImplicitHandoverLostBeacons from “8” to “4”.