IEEE P802.11 Wireless LANs

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| Proposal of Relayed CCA mechanism |
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Abstract

This document proposes the Relayed CCA mechanism in TGbb.

# 1. Relayed CCA

Due to the nature of light communications, the CCA mechanism may not work on STA side. The relayed CCA mechanism could work with the assistance of the AP. In general, the AP could detect the transmission from any STA as described in 32.3.2.3.5.2 CCA requirements. Then, the AP may disseminate the channel occupation information among the STAs within its coverage.

When the AP receives a transmission from a STA or transmissions from multiple STAs, it may retransmit the received packet if it does not have any packet in its queue. The retransmission would be a broadcast to all the STAs within its range, so that the STAs may be able to obtain the occupation status of the uplink channel from the assistance of the AP. STAs that successfully receive the retransmission from the AP would mark the medium ‘busy’ as in the CCA mechanism, except the sender(s) who are using the uplink channel.

When the AP has a packet to transmit, it stops the retransmission in the relayed CCA mechanism, and switches to the transmission of the new packet immediately.

Figure 1 illustrates an example of channel access with relayed CCA mechanism. The AP may retransmit packet received from STA1 and STA2 on the downlink channel. Other STAs could mark the uplink channel as ‘busy’ in the CCA.indication in order to avoid the collisions on the uplink channel. The AP could switch from retransmission of received packet to its own queue as shown in the example of Packet 3 and 4’s switch.

Packet 4

**AP**

**STA1**

**STA2**

Packet 1

Retransmission

Packet 1

Backoff

Relayed CCA Busy

Packet 2

Packet 3

Retransmission Packet 3

Relayed CCA Busy

Delay (ns)

Delay (ns)

Delay (ns)

Figure 1 An example of channel access with relayed CCA mechanism