IEEE P802.11
Wireless LANs

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| [Draft text of BRP Request and Response frame transmission in mmWave Distribution Networks] |
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Abstract

This document proposes amendment to the transmission rules for Beam Refinement Request and Response in accordance with 18/0121r0 (BRP in mmWave Distribution Network).

-Rev 1: co-author list update

**10.38.3 Beam Refinement Protocol (BRP) Phase**

***Add the following text***

A beam refinement response is separated from a preceding beam refinement request by at least a SIFS interval and at most a BRPIFS interval provided sufficient time is available for the complete transmission of those frames within the SP allocation that is not a TDD SP or TXOP. Similarly, a beam refinement request, if any, is separated from a preceding beam refinement response by at least a SIFS interval and at most a BRPIFS interval provided sufficient time is available for the complete transmission of the beam refinement request within the SP allocation that is not a TDD SP or TXOP.

In a TDD SP, a non-AP and non-PCP STA transmits a beam refinement response to a preceding beam refinement, at the start of the earliest occurring TDD slot the non-AP and non-PCP STA is assigned to, with access permission of the TDD slot set to simplex RX TDD slot, and with slot category of the TDD slot set to Basic TDD slot, as indicated in the TDD Slot Schedule element (see 9.4.2.268).

In a TDD SP, an AP or PCP transmits a beam refinement response to a preceding beam refinement request from a non-AP and non-PCP STA, at the start of the earliest occurring TDD slot the non-AP and non-PCP STA is assigned to, with access permission of the TDD slot set to simplex TX TDD slot, and with slot category of the TDD slot set to Basic TDD slot, as indicated in the TDD Slot Schedule element (see 9.4.2.268).

When performing BRP outside of a TDD SP allocation, if a responding STA requires longer than SIFS to transmit a BRP frame as a response for beam refinement training request from a requesting STA, the responding STA should keep the IFS not longer than SIFS by transmitting one or more PPDUs to the requesting STA.

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A beam refinement transaction is complete when one of the following conditions is met:

a) the initiator determines that it does not need further training and it has received a BRP frame with no training requests from the beam refinement responder.

b) when performing BRP outside of a TDD SP allocation, a duration equal to BRPIFS plus aSlotTime has elapsed since the last transmission from the beam refinement initiator to the refinement responder without a response from the beam refinement responder.

c) when performing BRP in a TDD SP allocation, a response from the beam refinement responder is not received in the earliest occurring TDD slot that allows for its transmission.

In Figure 10-64 (An example of a beam refinement transaction outside of a TDD SP allocation), the first packet (from the initiator) has TXTRN-REQ=1, the L-RX field has a value greater than zero and TRN-T subfields are appended to the packet. The second packet (from the responder) has a value greater than zero in the L-RX field, the TX-train-response field set to 1, the RX-train-response field set to 1, and TRN-R subfields are appended to the packet. The last packet (from the initiator) has RX-train-response set to 1 and TRN-R subfields are appended to the packet.

Figure10-64—An example of a beam refinement transaction outside of a TDD SP allocation

**10.38.6.4 BRP phase execution**

**10.38.6.4.1 General**

***Add the following text***

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In a beam refinement transaction outside of a TDD SP allocation, a~~A~~ STA that has transmitted a BRP frame with the Initiator field set to 1 and has not received a response BRPIFS after the transmission may retransmit the frame

In a beam refinement transaction in a TDD SP allocation, a non-PCP and a non-AP STA that has transmitted a BRP frame with the Initiator field set to 1 and has not received a response in the earliest occurring TDD slot the non-AP and non-PCP STA is assigned to, with access permission of the TDD slot set to simplex TX TDD slot, and with slot category of the TDD slot set to Basic TDD slot as indicated in the TDD Slot Schedule element (see 9.4.2.268), after the transmission may retransmit the frame, according to the TDD channel access rules (10.36.6.2.2).

In a beam refinement transaction in a TDD SP allocation, a PCP or AP that has transmitted a BRP frame with the Initiator field set to 1 and has not received a response in the earliest occurring TDD slot the non-AP and non-PCP STA is assigned to, with access permission of the TDD slot set to simplex RX TDD slot, and with slot category of the TDD slot set to Basic TDD slot as indicated in the TDD Slot Schedule element (see 9.4.2.268), after the transmission may retransmit the frame, according to the TDD channel access rules (10.36.6.2.2).

A STA may request a TXSS ….

References:

1. 11-18-0121-00-00ay- BRP-in-mmwave-distribution-networks.pptx
2. IEEE P802.11ay/D1.0, Nov 2017