IEEE P802.11
Wireless LANs

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| Proposed Draft Text for D0.1: Threshold-based Sensing Procedure |
| Date: 2022-01-21 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Mengshi Hu | Huawei |  |  | humengshi@huawei.com |
| Rui Du | Huawei |  |  |  |
| Naren Narengerile | Huawei |  |  |  |
| Yan Xin | Huawei |  |  |  |

Abstract

This submission provides the proposed draft text on **threshold-based sensing procedure** for 802.11bf D0.1.

The following Motions are reflected in this PDT:

[Motion 18] (Motion passed, See 11-20/1874r40)

**Move to add the following to 11bf SFD:**

The 11bf amendment defines an optional threshold-based measurement and reporting procedure in which

* The difference between the current measured CSI and the previous measured CSI is quantified. The difference is referred to as CSI variation.
* A threshold value to be used by the sensing receiver in the threshold-based procedure is defined.
* By comparing the CSI variation with the threshold, the sensing receiver can send a feedback resulting from the large CSI variation to the sensing transmitter.
* Whether the threshold is predefined, or defined by the sensing receiver, transmitter, initiator or responder is TBD.
* The threshold-based procedure is not always required (Procedure A in 21/0351r5 is not always required).

[Motion 33] (Motion passed, See 11-20/1874r40)

**Move to add the following to 11bf SFD:**

In the threshold-based measurement instance, the threshold for each responder to be compared with the CSI variation value is determined by the initiator.

**Version history:**

Rev 0: Initial PDT

**Discussion**:

1. The sentences below colored with blue are added to make the threshold-based sensing procedure reasonable and understandable. We can further discuss whether these sentences are needed in the PDT for draft 0.1.
2. The sentences without an additional color reflect the above two motions (Motion 18 and Motion 33).
3. The words colored with yellow indicate TBD.

**The PDT is shown as follows:**

xx.xx.xx Threshold-based sensing procedure

The threshold-based sensing procedure provides an additional selection procedure before the measurement report procedure in the reporting phase of a measurement instance shown in Figure xx1. The threshold-based sensing procedure is optional, and only applicable to a TB sensing measurement instance where the initiator can be a transmitter. (Motion 18)

Figure xx1. Threshold-based procedure in a sensing measurement instance (example)

The selection procedure in the threshold-based sensing is used to reduce the number of receivers being triggered in the Measurement Report procedure, by setting a threshold for the CSI variation by the initiator when it is acting as a transmitter. (Motion 18, 33)

The CSI variation indicates the quantified difference between the current measured CSI and the previous measured CSI at a receiver, and is fed back by the receiver through the Threshold-based Report frame triggered by the Threshold-based Subvariant Sensing Trigger frame. (Motion 18)

The details of how to calculate and quantify the CSI variation at the receivers are TBD.

The threshold for each responder to be compared with the CSI variation value is determined by the initiator, and is transmitted to each receiver through a TBD frame. Different receivers may have different threshold values set by the initiator. (Motion 33)

At the receiver side, if the CSI variation is less than the threshold, there is no need for this receiver to send a Measurement Report frame. If the CSI variation is greater than or equal to the threshold, the receiver will send a Measurement Report frame if it is triggered by the initiator. (Motion 18)

The initiator shall not send a Feedback Subvariant Sensing Trigger frame to a receiver that reports a CSI variation that is less than the threshold, while the initiator should send a Feedback Subvariant Sensing Trigger frame to a receiver that reports a CSI variation that is greater than or equal to the threshold.