IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SR2SI and SR2SR variants in TF Sounding Phase | | | | |
| Date: 2022-01-13 | | | | |
| Author(s): | | | | |
| Name | Company | Address | Phone | email |
| Dong Wei | NXP |  |  | dong.wei@nxp.com |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This document proposes a unified TF sounding phase with SR2SI and SR2SR variants.

R0: initial

**Introduction**

The addition of the SR2SR sounding phase, which is parallel to the TF sounding phase, to the current draft requires significant text changes. Since the SR2SR sounding phase (as characterized by the measurement exchange sequence “SR2SR TF + HE Ranging NDP”) and the TF sounding phase (as characterized by the measurement exchange sequence “SR2SI TF + HE TB Ranging NDP”) share some similarities, we propose that they be two variants of a unified TF sounding phase.

**Proposed Text Changes**

*TGbf Editor: Please revise the first paragraph of Clause 11.55.1.5.2.1 (General) of D0.51 as follows.*

11.55.1.5.2.1 General(#288)

TB sensing measurement instance is the trigger-based variant of a sensing measurement instance. It is applicable to scenarios where an AP is the sensing initiator, and one or more non-AP STAs are the sensing responders. A TB sensing measurement instance includes polling phase, NDPA sounding phase, Trigger frame (TF) sounding phase, and reporting phase with relevant combinations as shown in Table 11-29b (Combinations of different phases present in a TB sensing measurement instance(#153, #154))(#153, #154). The TF sounding phase has two variants: the sensing-responder-to-sensing-initiator (SR2SI) variant, as described in 11.55.1.5.2.4 (TF sounding phase – SR2SI variant), and the sensing-responder-to-sensing-responder (SR2SR) variant, as described in 11.55.1.5.2.5 (TF sounding phase – SR2SR variant).

If the TF sounding phase is the only sounding phase present in a TB sensing measurement instance, and if the polling phase is also present, the TF sounding phase shall start a SIFS after the polling phase. If both NDPA sounding phase and TF sounding phase are present in a TB sensing measurement instance, the TF sounding phase shall start a SIFS after the NDPA sounding phase(#95, #756, #496, #541, #791).

*TGbf Editor: Please revise the paragraph starting from P162L34 of Clause 11.55.1.5.2.1 (General) of D0.51 as follows.*

TB sensing measurement The TB sensing measurement instance initiated by an AP optionally allows at least one sensing responder to perform a sensing measurement based on an NDP transmitted by another sensing responder, as described in 11.55.1.5.2.5 (TF sounding phase – SR2SR variant)(#156, #615, #155, #272, #755).

*TGbf Editor: Please revise Clause 11.55.1.5.2.4 (TF sounding phase) of D0.51 as follows.*

11.55.1.5.2.4 TF sounding phase – SR2SI variant

In the SR2SI variant of a TF sounding phase, the AP, which is a sensing receiver, solicits NDP transmissions from one or more STAs, on which to perform sensing measurement(#864). The SR2SI variant of a TF sounding phase shall be present in a TB sensing measurement instance if at least one STA that is a sensing transmitter in this TF sounding phase and that is not assigned to be polled or has responded in the polling phase(#622, #623, #764).

The AP shall transmit a Sensing Sounding Trigger frame to one or(#865) more STAs that are sensing transmitters in the SR2SI variant of this TF sounding phase and that are not assigned to be polled or have responded in the polling phase to solicit SR2SI NDP transmission(s)(#622, #623, #764). The Sensing Sounding Trigger frame shall allocate spatial resources for one or more SR2SI NDP transmissions covering the full bandwidth(#136, #194, #477). The SR2SI NDP may be transmitted with more than one spatial stream(#136, #194, #477). Any STA addressed by a User Info field in a Sensing Sounding Trigger frame shall transmit an SR2SI NDP a SIFS after receiving the Sensing Sounding Trigger frame(#866).

If the number of available sensing transmitters exceeds the available uplink resources, the AP may perform the frame exchange of transmitting a Sensing Sounding Trigger frame and soliciting the SR2SI NDP transmission(s) multiple times during the TF sounding phase in a TB sensing measurement instance (see Figure 11-75g (Example of multiple frame exchanges of Sensing Sounding Trigger frame and SR2SI NDP transmission(s) during the TF sounding phase(#274, #348)))(#274, #348).

**Figure 11-75g—Example of multiple frame exchanges of Sensing Sounding Trigger frame and SR2SI NDP transmission(s) during the TF sounding phase(#274, #348)**

When a PPDU bandwidth is less than or equal to 160 MHz, the format of the SR2SI NDP in the TF sounding phase of a TB sensing measurement instance shall be an HE TB Ranging NDP, as described in 27.3.18a.2 (HE TB Ranging NDP)(Motion 189).

NOTE—In the SR2SI variant of a TF sounding phase, 320 MHz operation is not supported(Motion 189).

*TGbf Editor: Please revise Clause 11.55.1.5.2.5 (SR2SR sounding phase) of D0.51 as follows.*

11.55.1.5.2.5 TF sounding phase – SR2SR variant

In the SR2SR variant of a TF sounding phase, the AP transmits a Sensing SR2SR Sounding Trigger frame to solicit NDP transmission from one non-AP STA, on which one or more non-AP STAs perform sensing measurement. The SR2SR variant of a TF sounding phase may be present in a TB sensing measurement instance if

* one non-AP STA that is an SR2SR sensing transmitter in this SR2SR variant of the sounding phase and that is not assigned to be polled or has responded in the polling phase, and
* at least one non-AP STA that is an SR2SR sensing receiver in this SR2SR variant of the sounding phase and that is not assigned to be polled or has responded in the polling phase.

Implementation of the SR2SR variant of a TF sounding phase is optional. When supported, the AP shall transmit a Sensing SR2SR Sounding Trigger frame to one non-AP STA that is an SR2SR sensing transmitter and one or more non-AP STAs that are SR2SR sensing receivers, and are not assigned to be polled or have responded in the polling phase of the TB sensing measurement instance to solicit SR2SR NDP transmission. The Sensing SR2SR Sounding Trigger frame shall allocate spatial resources for the SR2SR NDP transmission covering the full bandwidth. The SR2SR NDP may be transmitted with more than one spatial stream. The non-AP STA indicated as an SR2SR sensing transmitter by a Transmitter User Info field in a Sensing SR2SR Sounding Trigger frame shall transmit an SR2SR NDP a SIFS after receiving the Sensing SR2SR Sounding Trigger frame. Any non-AP STA indicated as an SR2SR sensing receiver by a Receiver User Info field in the Sensing SR2SR Sounding Trigger frame shall perform sensing measurement on the SR2SR NDP sent by the SR2SR sensing transmitter.

Note - The AP may be one of the sensing receivers and perform sensing measurement on the SR2SR NDP.

When a PPDU bandwidth is less than or equal to 160 MHz, the format of the SR2SR NDP in the TF sounding phase of a TB sensing measurement instance is an HE Ranging NDP, as described in 27.3.18a.1 (HE Ranging NDP).

Note - In the SR2SR variant of a TF sounding phase, 320 MHz operation is not supported.