IEEE P802.11
Wireless LANs

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| Comment resolution for CID 1673 |
| Date: 2023-07-10 |
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|  |  |  |  |  |

Abstract

This submission resolves CID 1673.

Revisions:

* Rev 0: Initial version of the document.

# CID

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| **CID** | **Commenter** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 1673 | Chaoming Luo | 191.06 | Add support for using opportunistic sensing by SBP to utilize legacy STAs. | Add one bit in SBP request to indicate using of opportunistic sensing, and add corresponding procedure. | Revised.Agree with the commenter in principle.*TGbf editor to make the changes shown in Https://mentor.ieee.org/802.11/dcn/23/11-23-1219-00-00bf-lb272-cid-1673.docx under all headings that include CID 1673.*  |

**Discussion:**

As discussed in 11-23/1218r0, utilizing legacy HE STAs would be beneficial in the marketing of sensing. Hence, I propose to add opportunistic sensing as a complementary way to the TB and SBP procedure:

1. Local sensing application in an AP may ask the AP to obtain CSI on regular UL HE PPDUs from sensing responders and/or legacy HE STAs.
2. Add one bit in SBP Request frame to ask the SBP responder to obtain CSI on regular UL HE PPDUs from sensing responders and/or other associated legacy HE STAs. The corresponding SBP report may be delivered outside of the AVW or delay to the next AVW.
3. Note: To keep the report structure and the ‘numerical’ the same, AP may only include CSI of UL when it schedules UL transmission using 2xLTF having the same Ng, etc.
4. Note: this requires no change in legacy HE STAs.

# Resolution

**11.55 WLAN sensing**

**11.55.1 Sensing procedure**

**11.55.1.1 Overview**

**…**

An AP acting as a sensing initiator shall limit each non-AP STA acting as a sensing receiver to participate either in a single NDPA sounding phase or in a single SR2SR variant of a TF sounding phase during each sensing availability window of a given Measurement Session ID(#2151).

*TGbf Editor: Please insert the following paragraph and note at P129L53 of 11bf D1.2:*

An AP acting as a sensing initiator may additionally perform sensing measurement on an UL HE PPDU from an HE STA that may or may not be a sensing responder outside the sensing availability window of a given sensing Measurement Session ID. (#1673)

*Note—To keep the CSI report structure and the ‘numerical’ the same, AP may only perform sensing measurement on the UL HE PPDUs when it schedules the UL transmissions using 2xLTF having the same BW, NTX, Ng, etc.* (#1673)

In a sensing procedure, an associated non-AP STA is identified by its AID and an unassociated non-AP STA is identified by its USID(#1064). The AID and USID assignment shall be non-conflicting and shall have the same size and valid range (as defined in 9.4.1.8 (AID field)). The USID usage shall follow the same rules as that of AIDs specified in 9.4.1.8 (AID field)(#1067).

**9.4.2.321 SBP Parameters element**

*TGbf Editor: Please add a ‘Opportunistic’ field in Figure 9-1002be at P76L33 of 11bf D1.2 as follows:*

The format of the SBP Parameters Control field is defined in Figure 9-1002be (SBP Parameters Control

field format).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | B0 | B1 B4 | B5 | B6 B9 | B10 | B11 |
|  | SBP Request | SBP ProcedureExpiryExponent | SensingResponder | Number ofSensingResponders | MandatoryNumber ofResponders | PreferredResponderList |
| Bits: | 1 | 4 | 1 | 4 | 1 | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B12 B15 | B16 | B17 | B18 B23 |
|  | Number ofPreferredResponders | MandatoryPreferredResponder | Opportunistic (#1673) | Reserved |
| Bits: | 4 | 1 | 1 | 6 |

**Figure 9-1002be—****SBP Parameters Control field format**

The SBP Request field is set to 1 to indicate that the SBP Parameters element is carried within an SBP

Request frame, and it is set to 0 to indicate that the SBP Parameters element is carried within an SBP Response frame or an SBP Termination frame.

If the SBP Request field is equal to 1(\*0626),

**…**

— The Mandatory Preferred Responder field indicates whether the set of preferred sensing responders is interpreted as mandatory by the SBP responder if the Preferred Responder List field is set to 1. A value of 1 indicates that the SBP responder is requested to only include STAs listed in the Sensing Responder Addresses field within the SBP Request frame in the sensing procedure used to satisfy the SBP request. A value of 0 indicates that the SBP responder may include STAs that are not listed in the Sensing Responder Addresses field within the SBP Request frame in the sensing procedure used to satisfy the SBP request. It is reserved if the Preferred Responder List field is 0.

* If the Mandatory Preferred Responder fields is set to 1, the Number of Sensing Responders and Mandatory Number of Responders fields are reserved.

*TGbf Editor: Please insert the following bullet at P77L32 of 11bf D1.2:*

— The Opportunistic field is set to 1 if the SBP initiator requires the SBP responder to additionally perform sensing measurement on an UL HE PPDU from an HE STA that may or may not be a sensing responder, and is set to 0 otherwise. (#1673)

— The Sensing Responder Addresses field is present only if the Preferred Responder List field is set to

1. The Sensing Responder Addresses field contains one or more MAC addresses that indicate the set of preferred sensing responders to include in the sensing procedure used by the SBP responder to satisfy the request.

— The Sensing Responder IDs field is not present.

If the SBP Request field is equal to 0(\*0626),

**…**

— The Mandatory Preferred Responder field is set to the same value indicated in the Mandatory Preferred

Responder field in the SBP Parameters element of the SBP Request frame which initiated the SBP procedure.

*TGbf Editor: Please insert the following bullet at P78L9 of 11bf D1.2:*

— The Opportunistic field is reserved. (#1673)

— The Sensing Responder Addresses field is present only if the Preferred Responder List field is set to 1. The field contains one or more MAC addresses that indicate the set of preferred sensing responders used to satisfy the request.

**…**

**11.55.2 SBP procedure**

**11.55.2.2 Setup exchange**

**…**

If the StatusCode parameter within the MLME-SBP.response primitive is set to REJECTED\_WITH\_SUGGESTED\_CHANGES, the Number of Sensing Responders field within the SBPParameters parameter should indicate a suggested number of sensing responders.

NOTE—The method used by an SBP responder to select STAs to include in the sensing procedure used in response to an MLME-SBP.request primitive in which the Preferred Responder List field within the SBPParameters parameter is equal to 0 or in which the Preferred Responder List field and the Mandatory Preferred Responder field within the SBPParameters parameter are set to 1 and 0, respectively, is implementation dependent.

NOTE—Only TB sensing measurement exchanges (see 11.55.1.5.2 (TB sensing measurement exchange)) are used in sensing procedures initiated in response to an SBP request(#1251).

*TGbf Editor: Please insert the following paragraph at P156L30 of 11bf D1.2:*

If the SBP responder accepts an SBP request in which the Opportunistic field within the SBP Parameters Control field within the SBP Parameters element is equal to 1, the SBP responder may additionally perform sensing measurement on an UL HE PPDU from an HE STA that may or may not be a sensing responder in the sensing procedure used to satisfy the SBP request. (#1673)

The SBP initiator shall include one ISTA Availability Window element in the SBP request frame indicating its availability for SBP reporting and for TB sensing measurement exchange if the SBP initiator intends to be a sensing responder(#1656). The periodicity of the sensing availability windows requested by the SBP initiator is expressed in units of 10 TUs in the Count field in the ISTA Availability Information field of the ISTA Availability Window element. The value of the Count field in the ISTA Availability Information field of the ISTA Availability Window element shall be a multiple of the Beacon Interval of the SBP responder in units of 10 TUs. The requested sensing measurement periodicity shall be the same as the requested periodicity of the sensing availability windows(#1752).

**…**

**11.55.2.3 Reporting**

**…**

In the SBP reporting procedure, the SBP responder may transmit sequentially (i.e., a SIFS separated) one or more A-MPDUs, each carrying multiple SBP Report frames.

*TGbf Editor: Please insert the following paragraph at P158L1 of 11bf D1.2:*

If the SBP responder has additionally performed sensing measurement on an UL HE PPDU from an HE STA that may or may not be a sensing responder in the sensing procedure used to satisfy the SBP request, the SBP responder may also transmit the resulted SBP Report frame(s) within the assigned sensing availability window. (#1673)

An SBP responder which is a sensing receiver shall include the Reference Timestamp field in the Sensing

Measurement Report Control field and indicate its presence by setting the Timestamp Present field in the

Presence and Control Bitmap field to 1 if the SBP initiator set the Report Timestamp field to 1 in the SBP

Request frame(#1158).

# SP

Do you support resolutions to the following CID and incorporate the text changes into the latest TGbf draft: 1673, in 11-23/1219r0.

Y/N/A