IEEE P802.11
Wireless LANs

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| Proposed Draft Text: SBP frames |
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Abstract

This submission contains the draft text for sensing by proxy frames to help the creation of TGbf draft D0.1.

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Add two options for request/response/termination frame format.
* Rev 2: According to the SP result, we’re going for option 2. Use ‘Protected Dual of Public Action’ for SBP request/response/termination frames.
* Rev 3: Add SBP frames under Class 1a.
* Rev 4: To address offline comments, switch back to option 1 of Rev 1 and update accordingly.
* Rev 5: editorial change by adding “Protected” in description of entries in Table 9-487

# Introduction

SBP request/response frames’ fomat are proposed.

SBP request/response frames are defind in the **SFD** as follows:

(Motion 38, 21/1692r4) A Sensing by Proxy Request frame, which allows a non-AP STA to invoke a sensing by proxy procedure, is defined.

* The format and contents of the Sensing by Proxy Request frame are TBD.

(Motion 38, 21/1692r4) A Sensing by Proxy Response frame, which allows an AP STA to accept or reject a request for a sensing by proxy procedure, is defined.

* The format and contents of the Sensing by Proxy Response frame are TBD.

(Motion 38, 21/1692r4) An optional sensing by proxy (SBP) procedure is defined in which:

* An “SBP request” consists of a non-AP STA sending an SBP Request frame to an SBP-capable AP STA.
	+ A STA that sends an SBP Request frame to invoke SBP (and, as a result, WLAN sensing) is denoted by “SBP requesting STA”.
* An AP STA that receives an SBP request shall send to the SBP requesting STA an SBP Response frame to accept or reject the request.
* An AP STA that accepts an SBP request shall initiate a WLAN sensing procedure with one or more non-AP STAs using operational parameters derived from those indicated within the SBP Request frame.
	+ Whether the SBP requesting STA participates or not in the WLAN sensing procedure as a sensing responder is TBD.
* Measurement results obtained in a WLAN sensing procedure resultant from an SBP request shall be reported to the SBP requesting STA.

(Motion 54, 21/1941r1) How the SBP Requesting STA identifies the Measurement Setup ID is TBD.

(Motion 61, 21/1828r4) The 11bf amendment shall define both public and protected action frames, which include Sensing Measurement Setup Request/Response, Sensing Measurement Report, Sensing Measurement Setup Termination, and SBP Request/Response/Termination frames.

* Other public and protected action frames for sensing are TBD.

(Motion 63, 22/0286r1) A new action category of robust “Protected Sensing Frame” is defined to separate PN segment.

(Motion 64, 22/0125r3) The method of assigning Measurement Setup ID for the SBP Requesting STA in Sensing by proxy (SBP) procedure is that AP assigns the Measurement Setup ID in its SBP Response frame

# Discussion

We may have two directions for the design of SBP frames:

Opt1 "SBP request/response/termination frames with different Action field values";

Opt2 "SBP request/response/termination frames share a same Action field value and are differentiated by an 'SBP subtype' field".

**SP1:**

Which option do you prefer to define the SBP frames?

Opt1: "SBP request/response/termination frames with different Action field values"

Opt2: "SBP request/response/termination frames share a same Action field value and are differentiated by an 'SBP subtype' field"

6 Opt1 / 11 Opt2 / 19 Abstain

***Editing instructions formatted like this are intended to be copied into the TGbf D0.1 Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGbf editor: Editing instructions preceded by “TGbf editor” are instructions to the TGbf editor to modify existing material in the TGbf draft. As a result of adopting the changes, the TGbf editor will execute the instructions rather than copy them to the TGbf Draft.***

# Text proposal – Editor instructions

9.6 Action frame format details

9.6.7 Public Action details

9.6.7.1 Public Action frames

***TGbf editor: Insert new entries in Table 9-447 of P802.11REVme\_D1.0 while maintianing the numerical order and updating the reserved range as shown below:***

**Table 9-364—Public Action field values**

|  |  |
| --- | --- |
| **Public Action field value**  | **Description**  |
| <ANA> | SBP request  |
| <ANA> | SBP response |
| <ANA> | SBP termination  |
| <ANA> | Reserved  |

9.6.7.X1 Sensing by Proxy (SBP) Request frame format

The Sensing by Proxy Request frame allows a non-AP STA to invoke a sensing by proxy procedure. The format of the SBP Request frame Action field is defined in Table 9-xxx1.

**Table 9-xxx1 Sensing by Proxy Request frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Information** |
| 1 | Category |
| 2 | Public Action |
| 3 | Dialog Token |
| 4 | TBD |

The Category field is defined in 9.4.1.11 [802.11].

The Public Action field is defined in 9.6.7.1 [802.11].

The Dialog Token field is set to a nonzero value chosen by the STA sending the SBP request to

identify the request/response transaction.

Other fields are TBD.

9.6.7.X2 Sensing by Proxy (SBP) Response frame format

The Sensing by Proxy Response frame is transmitted by an AP STA to accept or reject a request for a sensing by proxy procedure. The format of the SBP Response frame Action field is defined in Table 9-xxx2.

**Table 9-xxx2 Sensing by Proxy Response frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Information** |
| 1 | Category |
| 2 | Public Action |
| 3 | Dialog Token |
| 4 | Status Code |
| 5 | Measurement Setup ID |
| 6 | TBD |

The Category field is defined in 9.4.1.11 [802.11].

The Public Action field is defined in 9.6.7.1 [802.11].

The Dialog Token field is set to the same value as the Dialog Token field of the corresponding SBP

Request frame.

The Status Code field is defined in 9.4.1.9. If the AP STA accepts the request, the status code is set to SUCCESS (see 9.4.1.9). Otherwise if the AP STA rejects the request, the status code is set to REQUEST\_REJECTED (TBD, see 9.4.1.9).

The Measurement Setup ID field is set to the Measurement Setup ID value corresponding to the measurement setup initiated by the AP STA that accepts the corresponding SBP request. The Measurement Setup ID field is present in an SBP Response frame only if the status code is equal to SUCCESS.

Other fields are TBD.

9.6.7.X3 Sensing by Proxy (SBP) Termination frame format

The Sensing by Proxy Termination frame allows a STA(TBD) to terminate a sensing by proxy procedure. The format of the SBP Termination frame Action field is defined in Table 9-xxx3.

**Table 9-xxx3 Sensing by Proxy Termination frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Information** |
| 1 | Category |
| 2 | Public Action |
| 3 | Measurement Setup ID |
| 4 | TBD |

The Category field is defined in 9.4.1.11 [802.11].

The Public Action field is defined in 9.6.7.1 [802.11].

The Measurement Setup ID field is set to the Measurement Setup ID value corresponding to the measurement setup that was initiated by the sensing by proxy procedure, which is intended to be terminated.

Other fields are TBD.

9.6.10 Protected Dual of Public Action frames

***TGbf editor: Insert new entries to Table 9-487 of P802.11REVme\_D1.0 while maintaining the numerical order and updating the reserved range:***

**Table 9-487 – Public Action field values** **defined for Protected Dual of Public Action frames**

|  |  |  |
| --- | --- | --- |
| **Public Action field value** | **Description** | **Defined in** |
| <ANA>  | Protected SBP request frame | 9.6.7.X1 Sensing by Proxy (SBP) request frame format |
| <ANA> | Protected SBP response frame | 9.6.7.X2 Sensing by Proxy (SBP) response frame format |
| <ANA> | Protected SBP termination frame | 9.6.7.X3 Sensing by Proxy (SBP) termination frame format |
| <ANA> | Reserved  |  |

11.3.3 Frame filtering based on STA states

***TGbf editor: Modify “Class 1a frames” text in subclause 11.3.3 (Frame filtering based on STA state) as defined in IEEE P802.11az/D4.0 (lines 13-15, page 113):***

In an infrastructure BSS when PTKSA from PASN authentication exists.

1) Protected Fine Timing frames (9.6.34)

2) Unicast SA Query (11.13) (#5303)

3) Protected Sensing frames (9.6.36)

4) Protected Dual of Public Action frame whose Public Action field value is one of the following: <ANA>(9.6.10), <ANA>(9.6.10), <ANA>(9.6.10).