**IEEE P802.11
Wireless LANs**

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| **Neighbor and Beacon Report for S1G** |
| **Date:** 2025-07-22 |
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**Abstract**

Updates to Neighbor Report and Beacon Request/Beacon Report to support S1G. The edits are based on Draft P802.11REVme\_D7\_0.

Revision History:

R0: Initial version.

R1: Comments and changes from presentation during July plenary. An R2 is needed with comments addressed.

## Discussion

In reviewing the Neighbor Report and the Beacon Report Request/Beacon Report Response, some changes are needed to support the S1G PHY.

***Proposed change, update Figure 9-417 in 9.4.2.35 Neighbor Report element :***

***Note regarding Figure 9-417. B21 is used for Extremely High Throughput.***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | AP Reachability | Security | Key Scope | Capabilities | Mobility Domain | High Throughput | Very High Throughput | FTM |
| Bits: | 2 | 1 | 1 | 6 | 1 | 1 | 1 | 1 |
|  |  |  |  |  |  |  |  |  |
|  | B14 | B15 | B16 | B17 | B18 | B19 | B20 | B21 |
|  | High Efficiency | ER BSS | (#2210)Colocated AP | Unsolicited Probe Responses Active | Member Of ESS With 2.4/5 GHz Colocated AP(#2210) | OCT Supported With Reporting AP | (#2210)Colocated With 6 GHz AP | Reserved |
| Bits: | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|  |  |  |  |  |  |  |  |  |
|  | B22 | B23 | ~~B23~~B24       B31 |  |  |  |  |  |  |
|  | DMG Positioning | S1G | Reserved |  |  |  |  |  |  |
| Bits: | 1 | 1 | 9 |  |  |  |  |  |  |
| * **BSSID Information field format(11ax)(M149)**
 |

***Proposed change, in 9.4.2.35 Neighbor Report element add the following paragraph :***

(11ax)The Very High Throughput subfield(#291) is set to 1 to indicate that the AP represented by this BSSID is a VHT AP and that the VHT Capabilities element (or VHT Operation element), if included as a subelement in the report, is identical in content to the VHT Capabilities element (or VHT Operation element) included in the neighboring AP’s Beacon frame. Otherwise, the Very High Throughput subfield is set to 0.

The S1G subfield is set to 1 to indicate that the AP represented by this BSSID is an S1G AP and that the S1G Capabilities element (or S1G Operation element), if included as a subelement in the report, is identical in content to the S1G Capabilities element (or S1G Operation element) included in the neighboring AP’s Beacon frame. Otherwise, the S1G subfield is set to 0.

***Proposed change, update Table 9-212 :***

***Note: Subelement IDs 199-201 are used by Extremely High Throughput.***

|  |
| --- |
| * **Optional subelement IDs for Neighbor Report**
 |

|  |  |  |
| --- | --- | --- |
| **Subelement ID** | **Name** | **Extensible** |
|  |  |  |
| 198(#3005) | HE 6 GHz Band Capabilities | Yes |
| 199-201 | Reserved |  |
| 202 | S1G Capabilities | Yes |
| 203 | S1G Operation | Yes |
| ~~199~~204–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***Proposed change, in 9.4.2.35 Neighbor Report element update the format description of the Wide Bandwidth Channel subelement which is below Figure 9-423 :***

If the Operating Class field does not indicate an S1G band then ~~T~~the Channel Width, Channel Center Frequency Segment 0, and Channel Center Frequency Segment 1 subfields are defined in Table 9-214 (HT/VHT Operation Information subfields). Otherwise, the Channel Width and Channel Center Frequency Segment 0 subfields have the same definition, respectively, as the Channel Width and Channel Center Frequency subfields in the S1G Operation Information field, described in Table 9-363 - S1G Operation Information field. The Channel Center Frequency Segment 1 subfield is reserved.

***Proposed change, in 9.4.2.35 Neighbor Report element add the following paragraph at the end of 9.4.2.35 :***

The S1G Capabilities subelement has the same format as the S1G Capabilities element defined in [S1G Capabilities element].

The S1G Operation subelement has the same format as the S1G Operation element defined in [S1G Operation element].

The Vendor Specific subelement has the same format as the Vendor Specific element (see 9.4.2.24 (Vendor Specific element)). Zero or more Vendor Specific subelements are included in the list of optional subelements.

***Proposed change, update Table 9-142 in 9.4.2.19.7 Beacon request :***

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| --- |
| **Table 9-142–** **Optional subelement IDs for Beacon request**  |

| **Subelement ID** | **Name** | **Extensible** |
| --- | --- | --- |
|  |  |  |
| 0 | SSID | No |
| 1 | Beacon Reporting | Yes |
| 2 | Reporting Detail | Yes |
| 3-9 | Reserved |  |
| 10 | Request | No |
| 11 | Extended request | No |
| 12–50 | Reserved |  |
| 51 | AP Channel Report | No |
| 52–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Last Beacon Report Indication Request | No |
| 165–202 | Reserved |  |
| 203 | S1G Operation | Yes |
| ~~165~~204–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***First proposed change, in 9.4.2.19.7 Beacon request element update the following paragraph of the Wide Bandwidth Channel Switch subelement which is on page 929 :***

If the Operating Class field in the frame that contains this element does not indicate an S1G band then ~~I~~if the Wide Bandwidth Channel Switch subelement is included the fields in the Wide Bandwidth Channel Switch subelement indicate the channel for which the measurement request applies, and the Operating Class and Channel Number fields together specify the primary channel and primary 40 MHz channelwithin the channel identified by the Wide Bandwidth Channel Switch subelement. Otherwise, if the Wide Bandwidth Channel Switch subelement is included the fields in the Wide Bandwidth Channel Switch subelement indicate the channel for which the measurement request applies, and the Operating Class and Channel Number fields together specify the primary channel within the channel identified by the Wide Bandwidth Channel Switch subelement.

***Second proposed change, in 9.4.2.19.7 Beacon request element update the following paragraph of the Wide Bandwidth Channel Switch subelement which is after Table 9-144:***

If the Operating Class field in the frame that contains this element does not indicate an S1G band then ~~T~~the Wide Bandwidth Channel Switch subelement has the same format as the corresponding element(see 9.4.2.159 (Wide Bandwidth Channel Switch element)) with the constraint that the New Channel Width field indicates an 80 MHz, 160 MHz, or 80+80 MHz BSS bandwidth Otherwise, the subfields New Channel Width and New Channel Center Frequency Segment 0 have the same definition, respectively, as the Channel Width and the Channel Center Frequency in the S1G Operation Information field, described in Table 9-363 (S1G Operation Information field).

**References:**