IEEE P802.11
Wireless LANs

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| LB 205 MAC Comment Resolution on Short Probe Response frame (Clause 8.4.2.170t and 8.8.5.3) |
| Date: 2015-01-09 |
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Abstract

This submission proposes comment resolutions on Short Probe Response frame (Clause 8.4.2.170t and 8.8.5.3).

* CIDs: 5195, 5196, 5075, 5076, 5077, 5078, and 5079 (7 CIDs)

Changes in the text refer to: Draft P802.11ah/D3.1

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGah Draft. This introduction is not part of the adopted material.

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

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

**CID 5195**

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| **CID** | **Clause** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 5195 | 8.4.2.170t | 169 | 36 | Because of Probe Response Group bitmap field, Probe Response Option bitmap x should beoptional in Short Probe Response Option element. | As in comment | Revised –Agree with the commenter in principle.TGah Editor to make changes shown in 15/0136r1 |

**Proposed Remedy:**

***Instructions to TGah Editor: Modify the following sentence in Subclause 8.4.2.206 of D3.1 as follows:***

8.4.2.206 Short Probe Response Option element……

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|  | Element ID | Length | Probe Response Group bitmap(Optional) | Probe Response Option bitmap 0(Optional) | Probe Response Option bitmap 1(Optional) | ... | Probe Response Option bitmap n(Optional) |
| Octets: | 1 | 1 | 0 or 1 | 0 or 1 | 0 or 1 |  | 0 or 1 |

Figure 8-575a48—Short Probe Response Option element format

***….***

One or more Probe Response Option bitmaps are optionally included in the Short Probe Response option element. Each Probe Response Option bitmap indicates which optional information is requested to be included in the Short Probe Response frame by the responding STAs. Setting a bit in a Probe Response Option bitmap to 1 indicates that the corresponding information is requested to be included in the Short Probe Response frame if the responding STA supports the indicated information.The bit is set to 0 to indicate that the information is not requested.

**CID 5196**

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| **CID** | **Clause** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 5196 | 8.4.2.170t | 170 | 4 | This minor optimization makes the element complex. either make Probe Response Option bitmap 0 immediately after Length field or make the existance of Probe Response Option bitmap 0 always indicated by Probe Response Group bitmap field. | As in comment | Revised -Disagree with the commenter since the Probe Response Option bitmap 0 is not always necessary to be included by the STA.But the current text is not clear on whether to include Full SSID or Compressed SSID when the bitmap 0 is not included, so the current text is slightly modified. The size of the Short Probe Response Option element is added for clarity.See the discussion and make proposed changes in 15/0136r1. |

**Discussion on CID 5196:**

The commenter is proposing to make Probe Response Option bitmap 0 immediately after Length field or make the existance of Probe Response Option bitmap 0 always indicated to reduce complexity caused by omitting the Probe Response Group bitmap when only Probe Response Option bitmap 0 is used in the current frame format.

The proposal by the commenter makes the Probe Response Option bitmap 0 always be present in the Probe Response Option element, but there are cases where the Probe Response Option bitmap 0 is not required by a STA.

In NDP Probing, a STA may request a Short Probe Response to an AP, but the STA cannot indicate which optional information is required by the STA in the Probe Request since the NDP Probe Request frame cannot include Short Probe Response Option element. In this case, the AP responds with a Short Probe Response with information chosen by the AP and in some cases the Short Probe Response may not include some information required by the STA since the STA cannot explicitly request the information in the Probe Request.

For example, an AP may respond with a Short Probe Response frame with SSID, Next TBTT, S1G Beacon Compatibility, Supported Rates, S1G Capability, S1G Operation and some other information but STA may want to know more information on the BSS. Then, the STA has to wait for the next Beacon or it may transmit Probe Request frame with Short Probe Response Option element that explicitly indicates which information is additionally required the the STA. In this case, since the STA has already received information corresponds to the Probe Response Option bitmap 0, the STA does not need the information corresponds to the Probe Response Option bitmap 0 when it transmits the Probe Request. Including the Probe Response Option bitmap 0 with all 0s in the Probe Request is just a waste of one octet and it is better not to include the bitmap 0 in the Probe Request.

In passive scanning using a short beacon, the STA receives partial information on the BSS and it may poll additional information using a Probe Request with the Short Probe Response Option element. If the STA has already received information corresponding to the Probe Response Option bitmap 0, it does not need to include the Probe Response Option bitmap 0 in the Probe Request.

It is better to keep the Probe Response Option bitmap 0 as an optionally present field in the Short Probe Response element to optimize the size of the Probe Request frame.

When the Probe Response Group bitmap is omitted, the Short Probe Response Option element is 3 octets and it can be easilty decoded by checking the Length field in the Short Probe Response Option element, so it is not complex to decode it.

Hence I disagree with the commenter of changing the current format.

But, the current text does not cleary describe the behaviour on whether to include Full SSID or Compressed SSID in the Short Probe Response frame when the Probe Response Option bitmap 0 is not included in the Short Probe Response Optinon element, so the text should be slightly modified for clarity.

For Clarity, description on the size of the Short Probe Response Option element should be added

**Proposed Remedy:**

***Instructions to TGah Editor: Modify the following sentence in Subclause8.4.2.206 and 10.1.4.3.4c of D3.1 as follows:***

8.4.2.206 Short Probe Response Option element

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Only Probe Response Option bitmaps with at least one bit equal to 1 is included in the Short Probe Response Option element. The Probe Response Group bitmap field indicates which Probe Response Option bitmap is included in the Short Probe Response Option element. For example, if only Probe Response Option bitmap 0 and 2 have bits that are equal to 1, then these two Probe Response Group bitmaps are included in the Short Probe Response Option element and the Probe Response Group bitmap is set to 10100000 to indicate that only the Probe Response Option bitmap 0 and 2 are included in the Short Probe Response Option element. When the Probe Response Group bitmap is included in the Short Probe Response Option element, at least one bit of the Probe Response Group bitmap is equal to 1.

Probe Response Option bitmap 0 is defined to be a default bitmap that indicates most frequently requested information. If the default bitmap is the only Probe Response Option bitmap that is included in the Short Probe Response Option element, then the Probe Response Group bitmap is omitted. In that case, only Element ID, Length, and the default bitmap (Probe Response Option bitmap 0) are included in the Short Probe Response Option element and the Short Probe Response Option element is 3 octets. Otherwise, the Probe Response Group bitmap with at least one bit equal to 1 and at least one Probe Response Option bitmap are included and the Short Probe Response Option element is at least 4 octets.

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10.1.4.3.4c Active scanning using Short Probe Response

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An(#5101) S1G STA that responds with a Short Probe Response frame shall include the following information in the frame:

* The elements that are requested by the requesting STA as indicated in the Short Probe Response Option element contained in the received Probe Request frame.
	+ If a bit in a Probe Response Option bitmap in the Short Probe Response Option element is equal to 1, then the corresponding information element is requested and it shall be included in the Short Probe Response frame (see(#Ed) 8.4.2.206 (Short Probe Response Option element)).
	+ If the S1G Beacon Compatibility element is included in the Short Probe Response frame, then it shall be included as the first optional element and shall be generated no later than the Timestamp field of the frame and not earlier than 231 -1 microseconds.
* Either the SSID element or the compressed SSID field.
	+ If the Request Full(#Ed) SSID bit in the Short Probe Response Option element is equal to 1, then the SSID element shall be present in the Short Probe Response frame and the Compressed SSID shall not be present. If it is equal to 0 or is not present in the Short Probe Response Option element, then the Compressed SSID shall be present and the SSID element shall not be present.
* The 1 MHz Channel Primary Location field in the Frame Control field shall indicate the location of the 1 MHz primary channel within the 2 MHz primary channel.

**CIDs 5075, 5076, 5077, 5078, and 5079**

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| **CID** | **Clause** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 5075 | 8.8.5.3 | 210 | 1 | "The Change Sequence field is defined as an unsigned integer, initialized to 0, that increments when a critical update to the Beacon frame has occurred." -- when is an update critical? You have to specify which changes to the Beacon frame are doomed critical or always indicate a change in the Beacon | Delete "critical" | Revised –‘critical update’ is described in Clause 10.47 and the text has been updated to reference the Clause.TGah Editor to make changes shown in 15/0136r1 |
| 5076 | 8.8.5.3 | 210 | 52 | Value of bit important; not the act of changing it. | Change "It is set to 1 to indicate" to "A value of 1 indicates" | Rejected –Similar terminology is used in baseline document.If this change is really necessary, then it should be done globally to the whole 802.11 documents. |
| 5077 | 8.8.5.3 | 210 | 53 | Value of bit important; not the act of changing it. | Change "It is set to 0 to indicate" to "A value of 0 indicates" | Rejected –Similar terminology is used in baseline document.If this change is really necessary, then it should be done globally to the whole 802.11 documents. |
| 5078 | 8.8.5.3 | 210 | 57 | Value of bit important; not the act of changing it. | change "is set to" to "equals" | Rejected –Similar with CID 5083 and 5085 that have been already rejected. Similar terminology is used in baseline document.If this change is really necessary, then it should be done globally to the whole 802.11 documents. |
| 5079 | 8.8.5.3 | 210 | 63 | Value of bit important; not the act of changing it. | change "is set to" to "equals" | Rejected –Similar with CID 5083 and 5085 that have been already rejected. Similar terminology is used in baseline document.If this change is really necessary, then it should be done globally to the whole 802.11 documents. |

**Proposed Remedy on CID 5075:**

***Instructions to TGah Editor: Change the subclause 8.8.5.3 of D3.1 as follows:***

8.8.5.3 Short Probe Response frame format

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The Change Sequence field is defined as an unsigned integer, initialized to 0, that increments when a critical update to the Beacon frame has occurred (see 10.47 (System information update procedure)).