IEEE 802.11  
Wireless LANs

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| Comment Resolution for CIDs on Clause 6.3.3.2.2, 6.3.3.3.2, and 10.1.4.3.2 | | | | |
| Date: 2013-09-15 | | | | |
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Abstract

This document provides resolution for CIDs on Clause 6.3.3.2.2, 6.3.3.3.2, and 10.1.4.3.2

(CIDs 509, 522, CIDs 380, 510, 511, 623, 764, 765, CIDs 837, 920)

The changes are in the following subclauses: 6.3.3.2.2, 6.3.3.3.2, and 10.1.4.3.2.

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| **CID** | **Comment** | **Proposed Change** | **Proposed Resolution** |
| 509 | (If Relay function is not removed) MLME-SCAN. Request optionally require Relay Discovery parameter for active scanning for Relay. | Add Relay Discovery as optional primitive parameter. Details are TBD. | Revised.  Since S1G STA can optionally include Relay Discovery in the Probe Request, they should be included in the MLME-SCAN.request().  TGah editor to make changes shown in 11-13-1201-00-00ah under the heading for CID 509. |
| 522 | MLME-SCAN.request optionally require S1G Capabilities parameter for S1G STA. | Add S1G Capabilities as optional primitive parameter. | Revised.  Since S1G STA can optionally include S1G Capabilities in the Probe Request, they should be included in the MLME-SCAN.request().  TGah editor to make changes shown in 11-13-1201-00-00ah under the heading for CID 522. |

**Discussion:**

Since S1G STA can optionally include Relay Discovery and S1G Capabilities in the Probe Request, they should be included in the MLME-SCAN.request().

***Proposed changes:***

***Modify the following paragraphs of 6.3.3.2.2 as shown in this document (802.11ah D0.2)***

* Semantics of the service primitive

***:***

The primitive parameters are as follows:

MLME-SCAN.request(

BSSType,

BSSID,

SSID,

ScanType,

ProbeDelay,

ChannelList,

MinChannelTime,

MaxChannelTime,

RequestInformation,

SSID List,

ChannelUsage,

AccessNetworkType,

HESSID,

MeshID,

RelayDiscovery,

ProbeResponseOption,

S1GCapabilities,

VendorSpecificInfo

)

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| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| RelayDiscovery | As defined in 8.4.2.170r (Relay Discovery element) | As defined in 8.4.2.170r (Relay Discovery element) | Indicates link budget information and QoS requirements for Relay discovery.  This element is optionally present if dot11 RelaySupport is true. |
| ProbeResponseOption | As defined in 8.4.2.170u (Probe Response Option element) | As defined in 8.4.2.170u (Probe Response Option element) | Indicates which optional information is requested to be included in the Short Probe Response frame. This element is optionally present if dot11S1GOptionImplemented is true. |
| S1GCapabilities | As defined in 8.4.2.170k (S1G Capabilities element) | As defined in 8.4.2.170k (S1G Capabilities element) | Indicates S1G capabilities of a S1G STA.  S1G Capabilities element is present if dot11S1GOptionImplemented is true. |

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| **CID** | **Comment** | **Proposed Change** | **Proposed Resolution** |
| 764 | Short Probe Response frame format is already defined in 8.3.4.15c and there is no more TBD field. | Remove the note 'Other optional fields and IEs of short probe response frame are TBD' | Accept.  Since Short Probe Response frame format has been already defined in 8.7.5.3 in D0.2 (Short Probe Response frame format) and there is no more TBD field now. The note on TBD in page 8 should be removed from the Draft.  TGah editor to make changes shown in 11-13-1201-00-00ah under the heading for CID 764. |
| 380 | TBD on short probe response | TBD | Revised.  Since Short Probe Response frame format has been already defined in 8.7.5.3 in D0.2 (Short Probe Response frame format) and there is no more TBD field now. The note on TBD in page 8 should be removed from the Draft.  TGah editor to make changes shown in 11-13-1201-00-00ah under the heading for CID 380. |

**Discussion:**

Since Short Probe Response frame format has been already defined in 8.7.5.3 in D0.2 (Short Probe Response frame format) and there is no more TBD field now. The note on TBD in page 8 should be removed from the Draft.

***Proposed changes:***

***Remove the note in page 8, line 17 (802.11ah D0.2)***

**6.3.3.3.2 Semantics of the service primitive**

***~~Other optional fields and IEs of short probe response frame are TBD.~~***

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| **CID** | **Comment** | **Proposed Change** | **Proposed Resolution** |
| 510 | (If Relay function is not removed) MLME-SCAN. Confirm optionally require Relay Discovery parameter for active scanning for Relay. | Add Relay Discovery as optional primitive parameter. Details are TBD. | Revised.  Since Relay Discovery and Relay element can be optionally included in the (short) Probe Response or (short) Beacon, they should be included in the BSSDescription Set.  TGah editor to make changes shown in 11-13-1201-00-00ah under the heading for CID 510. |
| 511 | (If Relay function is not removed) MLME-SCAN. Confirm optionally require Relay parameter. | Add Relay as optional primitive parameter. Details are TBD. | Revised.  This CID is the same as CID 393.  See the resolution of CID 393 in 11-13-975-02-00ah. |

**Discussion:**

Since Relay Discovery and Relay element can be optionally included in the (short) Probe Response or (short) Beacon, they should be included in the BSSDescription Set. CID 511 is the same as CID 393, so see the resolution of CID 393 in 11-13-975-02-11ah. For CID 510, see the proposed changes below:

***Proposed changes:***

***Modify Table on the various elements of BSSDescriptionSet by inserting the following rows***

***:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Type** | **Valid Range** | **Description** | **IBSS adoption** |
| Relay Discovery | As defined in frame format | As defined in 8.4.2.170r (Relay Discovery element) | The values from the Relay Discovery element. The parameter is optionally present if dot11RelaySupport is true and a Relay Discovery element was present in the (short) Probe Response or (short) Beacon frame from which the BSSDescription was determined, and not present otherwise. More description is provided in  9.32n.3.4 (Relay discovery procedure). | Do not adopt |

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| **CID** | **Comment** | **Proposed Change** | **Proposed Resolution** |
| 623 | Compressed SSID is 32-bit CRC; what is the probability of collision, and what are the consequences? |  | Reject  The comment is asking a question and it is not proposing any specific change in the draft.  See the rationale in 11-13-1201-00-00ah under the heading for CID 623. |

**Discussion:**

The comment is asking a question and it is not proposing any specific change in the draft.

32-bit CRC can provide roughly 4 billion possible hashes. Assuming uniform distribution of the SSID, it has 1 in 4 billion chance of collision in compressed SSID. Since FCS is used to detect errors for packets up to 11 KBytes in 11ac and SSID is only 32 Bytes at most, the probability of collision in compressed SSID between adjacent BSS is very rare in practice.

Even though in the very rare case, the collision of the compressed SSID will not cause problems.

In short beacons, when the collision of compressed SSID between two adjacent APs happens, the STA still receives full beacons from each AP and then it knows the full SSID of the APs from the full beacons after then, and it can distinguish two different APs.

When the short probe response is used for scanning, the STA can request to the AP whether to include compressed SSID or full SSID in the short probe response when it transmits probe request frame to it. If the STA has prior knowledge of the BSS such as full SSID that it wants to be associated with, then it may request to the AP compressed SSID to be included in the short probe response, or it may request full SSID to be included in the short probe response.

If the STA has prior knowledge of the BSS, such as full SSID of the AP, that it wants to be associated with, usually the STA transmits probe request frame with the specific full SSID in the probe request. In that case, only the AP with the exact full SSID will transmit short probe response and the collision problem will not happen even though the compressed SSID is used in the short probe response from the AP. In other case, if the STA requests to the responding AP to include full SSID in the short probe response when it does not have the prior knowledge of the BSS, then there will be no such collision problem.

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| **CID** | **Comment** | **Proposed Change** | **Proposed Resolution** |
| 765 | TBD in the table | TBD | Revised.  Since short beacons may be also used in IBSS, TBDs in the BSSDescriptionSet table for Compressed SSID and Next TBTT have to be changed to ‘Adopt’.  TGah editor to make changes shown in 11-13-1201-00-00ah under the heading for CID 765. |

**Discussion:**

Since short beacons may be also used in IBSS, TBDs in the BSSDescriptionSet table for Compressed SSID and Next TBTT have to be changed to ‘Adopt’.

***Proposed changes:***

***Modify Table on BSSDescriptionSet by updating the following rows***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Type | Valid range | Description | IBSS adoption |
| Compressed SSID | Integer | N/A | 32-bit CRC calculated as defined in 8.2.4.8 FCS field, wherein the calculation fields is the SSID field in the Probe Response frame or Beacon frame. This parameter is optionally present if dot11S1GOptionImplemented is true. | ~~TBD~~ Adopt |
| Next TBTT | Integer | N/A | Highest 3 bytes of the 4 least significant bytes of the next TBTT. This parameter is optionally present if dot11S1GOptionImplemented is true. | ~~TBD~~ Adopt |

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| **CID** | **Comment** | **Proposed Change** | **Proposed Resolution** |
| 837 | Text does not limit the use of short probes to S1G | Limit use of short probe to S1G APs/STAs | Revised.  Since short probe response is used only for S1G STA, it should be explicitly mentioned in the draft.  TGah editor to make changes shown in 11-13-1201-00-00ah under the heading for CID 837. |

**Discussion:**

Since short probe response is used only for S1G STA, it should be explicitly mentioned in the draft.

***Proposed changes: Modify the following paragraphs of 10.1.4.3.3. as shown in this document (802.11ah D0.2)***

* Sending a probe response

***Insert the following paragraph after the 4th paragraph of the sub-clause 10.1.4.3.3(#868):***

If the requesting STA is an S1G STA and a Probe Response Option element (see Clause 8.4.2.170u (Probe Response Option element)) is included in the Probe Request frame, and if the responding STA is an S1G STA and supports Short Probe Response, then the responding S1G STA shall respond with Short Probe Response frame. If a bit in a Probe Response Option bitmap in the Probe Response Option element is set to 1, it means that corresponding optional information is requested by the requesting S1G STA, and the responding S1G STA shall include the corresponding information in the Short Probe Response frame if the S1G STA supports it. If the Request full SSID bit in the Probe Response Option element is set to 1, then the responding S1G STA shall include its full SSID in the Short Probe Response frame. If it is set to 0, then it shall include its compressed SSID instead of the full SSID. In S1G BSS, the (Short) Probe Response frame shall have the same CH\_BANDWIDTH as the preceding Probe Request frame.(#868)

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| **CID** | **Comment** | **Proposed Change** | **Proposed Resolution** |
| 920 | As the use of Short Probe Response frame is an optional feature, it may not be true that "the responding STA shall respond with Short Probe Response frame". | Modify the sentence from "... and if the responding STA is an S1G STA and supports Short Probe Response, then the responding STA shall respond with Short Probe Response frame." to "... and if the responding STA is an S1G STA and supports Short Probe Response, then the responding STA may respond with Short Probe Response frame." | Reject  The “shall” in the current text is not mandating the usage of probe response. It implies that the short probe response is an optional feature, but the AP shall use the short probe response “if the STA and the AP support it, and the STA explicitly request it”. There is no reason for the AP not to response with short probe response if both the STA and the AP support the optional feature and the STA is explicitly requesting to use the optional feature to the AP.  See the rationale in 11-13-1201-00-00ah under the heading for CID 920. |

**Discussion:**

I agree with the commenter that the usage of the short probe response is an optional feature for S1G STA and AP, but the meaning of using “shall” in the above text is not mandating the usage of probe response. No need to modify the existing text.

The current text in Draft D0.2 is as follows:

In 10.1.4.3.3 Sending a probe response:

“If the requesting STA is an S1G STA and a Probe Response Option element (see Clause 8.4.2.170u (Probe Response Option element)) is included in the Probe Request frame, and if the responding STA is an S1G STA and supports Short Probe Response, then the responding STA shall respond with Short Probe Response frame.”

Short probe response is an optional feature for both STA and AP, and if the Probe Response Option element is included in the probe request from the S1G STA, it indicates that the STA is capable of short probe response feature (since it uses the Probe Response Option element) and it explicitly request to the S1G AP that it wants short probe response as a probe response if the responding S1G AP supports short probe response.

If the responding S1G AP supports short probe response, then it shall transmit short probe response since both the STA and the AP supports the feature and the STA is explicitly requesting short probe response. There is no reason for the AP not to response with short probe response if both STA and AP support the optional feature and the STA is explicitly requesting to use the optional feature to the AP.

The “shall” in the above text is not mandating the usage of probe response. It implies that the short probe response is an optional feature, but the AP shall use the short probe response “if both the STA and the AP support it, and the STA explicitly request it”.