IEEE P802.11
Wireless LANs

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| LB 200 comment resolutions for clause 9.48.5 & 8.4.2.170q |
| Date: 2014-03-30 |
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Abstract

This submission proposes comment resolutions of the CID 1547,1929,1930,1931,2051,2089,2787 for subclause 9.48.5 and CIDs 1139,1140,1141,1142,1143,1435 for subclause 8.4.2.170q

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.***

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1547 | 210.1 | 9.48.5 | A non-AP STA that performs active scanning may use the Probe Request frame with Relay Discovery element when Relay discovery procedure is implemented.  | change it to : "A non-AP STA that performs active scanning may use the Probe Request frame with a Relay Discovery element when Relay discovery procedure is implemented." | Accepted-TGah editor to make changes shown in 11-14-xxxxr0 under the heading for CIDs from 1547 to 2787.  |
| 1929 | 231.57 | 9.48.5 | What has the scan got to do with a single hop? Surely a single hop is between two STAs irrespective if they are performing scanning? I don't understand what these two opening sentences are trying to say. I understand that scanning is part of discovery but if so why open with 'hops"? | Explain why scanning is mentioned here and clarify what a single hop and two-hop is. | Revised- A single hop is the link between the non-AP STA and the root AP.TGah editor to make changes shown in 11-14-xxxr0 under the heading for CIDs 1547 to 2787 |
| 1930 | 232.07 | 9.48.5 | "formula" is plural | Add 's' to "formula" | Accepted-TGah editor to make changes shown in 11-14-xxxr0 under the heading for CID 1547 to 2787 |
| 1931 | 232.19 | 9.48.5 | "Probe Responses received," should be "are received" | Add 'are' in front of 'received' | Accepted-TGah editor to make changes shown in 11-14-xxxr0 under the heading for CID 1547 to 2787 |
| 2051 | 210.11 | 9.48.5 | short probe response can also include the same relay related information such as Relay Discovery element as Probe Response and it can be also used for relay discovery | Change "Probe Response" to "(short) Probe Response" in the clause | Accepted-TGah editor to make changes shown in 11-14-xxxr0 under the heading for CID 1547 to 2787 |
| 2089 | 232.11 | 9.48.5 | SSID is not enough, supported rates and other parameters should also be included. | Add that 802.11 capability parameters must also match. | Revised-TGah editor to make changes shown in 11-14-xxxr0 under the heading for CID 1547 to 2787 |
| 2787 | 209.57 | 9.48.5 | "A single-hop direct link" should be "A single hop direct link". | As in comment, "single-hop" and "single hop" need to be same. | Accepted-TGah editor to make changes shown in 11-14-xxxr0 under the heading for CID1547 to 2787 |

CIDs 1547,1929,1930,1931,2051,2089,2787

***TGah editor: Modify the sub-clause 9.48.5 as follows (Page243Line 63~ Page244Line 24 ) :***

**9.48.5 Relay discovery procedure**

A single ~~-~~ hop direct link is a one-hop link between a non-AP STA ~~performing an active scan for Relays,~~ and the root AP.

A relay link is a two-hop link between a non-AP STA performing an active scan for Relays, and the root AP through the Relay.

A non-AP STA that performs active scanning may use the Probe Request frame with a Relay Discovery element when Relay discovery procedure is implemented. A non-AP STA with dot11RelayDiscoveryOptionImplemented set to true may transmit a Probe Request frame including a Relay Discovery element with link budget information for the single ~~-~~ hop direct link and additional QoS requirements for the relay link. This information shall be conveyed using the Relay Discovery element as defined in subclause 8.4.2.170q (Relay Discovery element) if present. The formulas for calculating link budget and QoS requirements are implementation specific.

A Relay with dot11RelayDiscoveryOptionImplemented set to true that receives a Probe Request frame becomes eligible to be a Relay for this non-AP STA if the link budget and QoS requirements are met and the SSID and other capability parameters matches. If these requirements are met, a Relay may respond to the non-AP STA with a (Short) Probe Response frame as a Relay candidate for this non-AP STA. When a non-AP STA uses Relay Discovery element to indicate DL/UL maximum/minimum/mean data rates of direct link or the Delay Bound Requirement of connection through Relay in Probe Request frame, the Relay may also use those parameters as the criteria of responding the Probe Request frame. ~~A Relay may optionally include link budget information between the Relay and its associated AP in a Probe Response frame or a Beacon frame.~~ The principle for this operation is to reduce the number of (Short) Probe Responses sent from Relays. A Relay may optionally include link budget information along with other information in Relay Discovery elements such as DL/UL maximum/minimum/mean data rates, Relay STA Count or Channel Utilization information in a (Short) Probe Response frame or a Beacon frame. This information is used for the non-AP STA, when multiple (Short) Probe Responses are received, to select a Relay amongst multiple Relay candidates.

~~When multipleProbe Responses received, the non-AP STA selects a designated Relay among the Relay candidates.~~

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1139 | 113.52 | 8.4.2.170q | This figure is sqashed up | It can be improved by reducing the table cell margin to zero, and choosing a smaller font. | Accepted-TGah editor to make changes shown in 11-14-xxxxr0 under the heading for CIDs from 1139 to 1435. |
| 1140 | 113.57 | 8.4.2.170q | I cannot determine how a STA determines whether the Min PHY rate... field is present. There is not a bit for it in the .. Discovery Info field. | Indicate how the presence of this field is determined. | Revised- Modify the “Delay and Rate included field to “Delay and Min PHY Rate” to make it clear in the format.TGah editor to make changes shown in 11-14-xxxr0 under the heading for CIDs 1139 to 1435. |
| 1141 | 114.01 | 8.4.2.170q | "is one octet in length" - redundant | Remove redundant size specifiers from the text in this subclause. | Rejected-There are many instances such as ”1 octet in length” in baseline draft too. |
| 1142 | 114.44 | 8.4.2.170q | I don't see any text on how the "DL Max Data Rate field" is used.Is it a commitment by the AP, or a constraint on the non-AP STA? | Add behaviour in clause 9/10 that indicates how the values in this field affect AP and non-AP STA behaviour.Ditto for the other data rate fields of this structure. | Revised-Add a behavior description in Relay Discovery Procedure (subclause 9.48.5).TGah editor to make changes shown in 11-14- xxxr0 under the heading for CID 1139 to 1435 |
| 1143 | 114.58 | 8.4.2.170q | "with value "100" indicating 100% busy level and value "0" indicating idle (value "101" to "255" are reserved)."Typo. Also the double quotes are not needed when indicating values. | Change to: 'with value 100 indicating 100% busy level and value 0 indicating idle (values 101 to 255 are reserved).' | Accepted-TGah editor to make changes shown in 11-14- xxxr0 under the heading for CID 1139 to 1435. |
| 1435 | 113.39 | 8.4.2.170q | There is not any cumulative metric defined for Relay Discovery Procedure, that can be used directly at the STA side | Add a cumulative metric to the element | Revised-Add a behavior description at STA side about how to choose a Relay among multiples candidates in Relay Discovery Procedure (subclause 9.48.5)TGah editor to make changes shown in 11-14- xxxr0 under the heading for CIDs 1139 to 1435. |

CIDs 1139,1140,1141,1142,1143,1435

**8.4.2.170q Relay Discovery element**

***TGah editor: Change the figure 8-401dr ( page130 Line 32) by reducing the table cell margin to zero, and choosing a smaller font.***

***TGah editor: Change the following paragraph (Page 131, Lines 33~54) in the sub-clause 8.4.2.170q as follows:***

The Delay Bound Requirement/Channel Utilization field is zero or one octet in length and is an optional field. When included in the Relay Discovery element of a Probe Request frame and the Delay and Rate Requirement Included field in the Relay Discovery Info field of the Relay Discovery element set to 1, the Delay Bound requirement/ Channel Utilization field indicates the delay bound requirement of the connection through the Relay. When included in the Relay Discovery element that is included in a a Probe Response or a Beacon frame and the Utilization and Count Included field in the Relay Discovery Info field of the Relay Discovery element set to 1, the Delay Bound Requirement/Channel Utilization field denotes the ratio of time that relay observes the busy level on the relay link between the Relay and AP, with value ~~"~~100~~"~~ indicating 100% busy level and value ~~"~~0~~"~~ indicating idle (value ~~"~~101~~"~~ to ~~"~~255~~"~~ are reserved).

The Min PHY Rate Requirement/Relay Station Count field is zero or one octet in length and is an optional field. When included in the Relay Discovery element of a Probe Request frame and the Delay and Min PHY Rate Requirement Included field in the Relay Discovery Info field of the Relay Discovery element set to 1, the Min PHY Rate Requirement/Relay Station Count field indicates the minimum PHY data rate set required by the requesting STA. When included in the Relay Discovery element of a Probe Response or a Beacon frame and the Utilization and Relay Count Included field in the Relay Discovery Info field of the Relay Discovery element set to 1, the Min PHY Rate Requirement/Relay Station Count field denotes the number of non-AP STAs currently associated with the Relay.

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| Relay StationIndication | MinDataRateIncluded | MeanDataRateIncluded | MaxDataRateIncluded | Delay andMin PHY RateRequirementIncluded/UtilizationAnd Relay CountIncluded | InformationNotAvailable | OptionalInformationNotAvailable | Reserved |

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**Figure 8-401ds—Relay Discovery Info field format**