IEEE P802.11
Wireless LANs

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| LB 200 Comment Resolution for 9.48 |
| Date: 2014-05-10 |
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Abstract

This submission proposes resolutions for comments in clause 9.48 of TGah Draft 1.0 with the following CIDs:

1071, 1542, 1543, 1640, 1896, 2086, 2814, 2827, 1261, 2338, 2791, 2419, 2422, 2423, 1430, 1431, 1432, 1433, 1434, 2302

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** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1071 | 205.11 | 9.48 | I don't believe that the security properties of a relay have been adequately considered.In particular while an endpoint can enforce encryption on its link to the relay AP, it loses control of its data beyond that point. The relay AP might chose not to encrypt the data. | Describe an extension to RSNA policy wherein an endpoint STA can be assured that any data sent by it (or to it from the root AP) is encrypted on the second leg. | Reject:Comment failed to identify a real issue.Response to the commenter:This is the same thing today, after AP, the link may or may not be secure. The end to end security should be done at the Application layer if needed. |
| 1542 | 205.10 | 9.48 | Relay Security needs to be clear, how does the security work from an STA connecting to the Relay | Clarify how the Relay security is being done |  widthrawn |
| 1543 | 205.10 | 9.48 | Relay Operation is not flexible to be able to enabled/disabled by the Relay or its parent | Add a new Information element to handle enable/disbaleing the Relay Operation and add the required negotiation | Agree with the commenter. Proposed resolution is adopted.Revised:TGah editor to make changes shown in 11-14-0642r0 |
| 1640 | 205.10 | 9.48 | The description of Relay operation needs a diagram showing the various roles. | Add a diagram to section 9.48 that shows the various roles, including Relay STA, Relay AP, non-AP STA etc. | Agree with the commenter. Proposed resolution is adopted.Revised:TGah editor to make changes shown in 11-14-0642r0 |
| 1896 | 227.11 | 9.48 | The description in 4.12 line 30 onwards should be opening this Clause 9 description as the general introduction. Then the Relay AP, Relay STA and Root AP would make sense. | Move from P25 the text in 4.12 to be the opening description for Clause 9.48. Then in Clause 4.12 just have a general description as per previous comments. | Revised:TGah editor to make changes shown in 11-14-0642r0 |
| 2086 | 227.60 | 9.48 | This mechanism seems to add frame exchanges to the cell, reducing useful airtime. It makes sense only if we define that relays do not relay management frames (association etc) from relay client STAs, and implement a mechanism to avoid that this list be transmitted every time a client gets disassociated (for example, send the list when a message for a disconnected client gets sent to the relay) | Add context as to when this feature may be needed, for exemple only when relay do not relay management frames. Also include an option to update this table only at configurable intervals, not every time a client joins or leaves the cell. | Reject:Based on the text, it is clear that the management frames are not forwarded by the Relay since it specifically mentioned MSDUs. So I think there is no further indication for that. |
| 2814 | 205.10 | 9.48 | Relay Operation may need some clarification or explanation. | Add some diagrams, figures, text, etc. | Agree with the commenter in principal.Revised:TGah editor to make changes shown in 11-14-0642r0 |
| 2827 | 205.00 | 9.48 | Coordinaged transmission among Root AP BSS and Relay BSSes is necessary. Since Relays can extend physical coverage of the Root AP to the area where the Root AP could not reach originally, there will be more hidden node problems among Root AP, Relays and STAs associated with them. In order to prevent the hidden node problem within the extended BSS, Relay BSS operation has to be coordinated by Root AP. | Add coordinated transmission mechanism for Relay BSS in the draft.Details are TBD. | Reject:Comment failed to identify a real issue. |

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1261 | 206.01 | 9.48.1 | What is relayed is MSDUs. This is of critical importance because it means the relay entity sits above the MAC SAP. It means that reassembly, duplicate filtering, A-MSDU unpacking are done prior to relay. It means that TXOP sharing cannot be used to forward a partial MSDU, i.e. you can't start transmitting it on the 2nd hop until the whole MSDU has been received. It means that the forwarded MSDU is fragmented according to the settings at the second hop prior to transmission. | Change any description of relaying as relating to "frames" to "MSDUs".Including the following locations: 206.1, 206.50, 3.13, 3.18, 3.23, 3.33, 3.62.Also consider adding the list of characteristics in the comment to the intro at 9.48. |  Accept:TGah Editor to make the changes as proposed by the CID 1092 |

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2338 | 206.52 | 9.48.2 | If group addressed frames are forwarded in both directions, how are group addressed 'relfection' problems and source entity mobility resolved? This is effectively the same challenges as 11ak is trying to address; how is the 11ah Relay function different from the 11ak bridging function? | Clarify the handling of group addressed frames with respect to Relay operation. Clarify the relationship between 11ah Relay and 11ak bridging. |  Reject:The group address frames are forwarded up with the AP address and down with the Broadcast Address. This issue will not arised. |
| 2791 | 206.52 | 9.48.2 | 9.48.2 should include the ways to avoid Beacon collision and the collision of relayed Probe Request at Root AP. | Descibe the mitigation technique of Beacon Collision avoidance utilizing SST to allocate different sub-channel for each Relay station, which introduce an alternative sub-channel usage along with each hop of 2 hop Relay forwarding of group addressed frames. |  Reject:Comment failed to identify a real issue. |

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2419 | 135.07 | 8.5.25 | Why are Relay Actions separate from S1G Actions? Ditto Flow Control Actions | Make Reachable Address Updates and the Flow Control Actions S1G Actions. Or if the point is the difference in Robustness, at least merge Relay and Flow Control Actions |  Reject:To enable potential use of Relay function and Flow Controls outside 802.11ah. |
| 2422 | 135.12 | 8.5.25.1 | The usual Action field blurb is missing | Add the usual blurb (see e.g. 8.5.24.1) | Reject:The comment failed to identify a real issue.Response to the commenter:It is not clear what the blurb referred to. In the baseline there are many sub clauses defined similar to here, for example Revmc1.4: 8.6.17 (mesh Action) |
| 2423 | 136.01 | 8.5.25.2 | The reference to Reachable Address elements needs to be specific and should be more canonical | Something like "The RA field contains zero or more RA elements as specified in [...]." |  Reject:The Reachable address element is defined in 8.4.2.170p |

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1430 | 112.43 | 8.4.2.170o | a network may have a limit on the number of supporting Relays | Add a field to Relay Element "No More Relay is allowed" and when it sets by a STA, there cannot be any more Relay enabled or associated to that STA. |  Revised:TGah editor to make changes shown in 11-14-0642r0 |
| 1431 | 113.18 | 8.4.2.170p | use of Reachable Address is not efficient enough, every time a STA leaves or join the network, all the Addresses should be sent to the parent node. | Add a "Add/Remove" field to the Reachable Address frame | Revised:TGah editor to make changes shown in 11-14-0642r0 |
| 1432 | 113.18 | 8.4.2.170p | Initiated Recahable Address MAC address may be required to be added in the Reachable Address frame for some of the features to work fine | Add the "initiator MAC Address" field to the Reachable Address Frame | Revised:TGah editor to make changes shown in 11-14-0642r0 |
| 1433 | 113.18 | 8.4.2.170p | A root AP may want to know what are the STAs operating as a Relay in the network. | Add a "Relay Indicator" bit for each MAC address in the Reachable Address frame to indicate if that STA is a Relay Capable STA | Revised:TGah editor to make changes shown in 11-14-0642r0 |
| 1434 | 113.18 | 8.4.2.170p | Reachable Address maybe included in Probe Resuest and (RE)Association Request | Enable the Reachable Address IE to be included in Probe or (RE)Association Request | Accept:TGah editor to include the Reachable Address in Probe Request and (Re)Association Request as indicated in the CID 1434 |
| 2302 | 113.25 | 8.4.2.170p | When a STA leaves a relay STA, it is diffcult for the relay STA to indicate the new reachable STAs. | Allow a relay STA to describe the STA(s) that leave it. | Revised:Proposed resolution is the same as CID 1431. |