Minutes IEEE P802.11  
Wireless LANs

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| IEEE 802.11 TGbh Plenary Meeting Minutes, November 12-17, 2023  Randomized and Changing MAC addresses (RCM) | | | | |
| Date: 2023-11-17 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Peter Yee | NSA-CSD | Mountain View, CA, US |  | [peter@akayla.com](mailto:peter@akayla.com) |

Abstract

This document contains the minutes of the IEEE 802.11bh plenary meeting of November 12-17, 2023.

Note: Highlighted text are action items.

Q- proceeds a question asked at the meeting

A- proceeds an answer

C- proceeds a comment

**Meeting November 14th, 2023, 8:00 a.m. to 10:00 a.m. HST**

**Chair: Mark Hamilton (Ruckus/CommScope)**

**Vice Chair: Peter Yee (NSA-CSD/AKAYLA)**

**Vice Chair: Stephen Orr (Cisco)**

**Secretary: Peter Yee**

**Editor: Carol Ansley (Cox Communications)**

**The mixed-mode meeting was called to order by the Chair at 8:xx a.m. HST.**

Agenda slide deck [11-23/1719r02](https://mentor.ieee.org/802.11/dcn/23/11-23-1719-02-00bh-agenda-tgbh-2023-november-plenary.pptx)

1. **Policies and procedures were presented by Chair Mark Hamilton. (Slides 4 to 15)**

There were no Patent declarations.

Copyright policy slides were presented (Slides 11 and 12)

1. **Agenda:**

* **Attendance, noises/recording, meeting protocol**
* **Policies, duty to inform, participation rules**
* **Organization topics:**
  + November Plenary meetings: Tuesday, 8:00-10:00; Tuesday, 13:30-15:30; Wednesday 10:30-12:30; Thursday 8:00-10:00
  + Approve September Interim and teleconference minutes (next slide)
  + Timeline reminder (slide 18)
  + Motions record: [11-22/0651r29](https://mentor.ieee.org/802.11/dcn/22/11-22-0651-29-00bh-tgbh-motions-list.pptx)
* **Motion to approve LB274 resolutions (Motions: #23 of motion deck)**
* **Discussion on response to WBA liaisons (was due Sept):** [**11-21/0703r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-0703-00-0000-2021-april-liaison-from-wba.docx)**,** [**11-21/1141r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-1141-00-00bh-excerpts-of-wba-document-wi-fi-id-scope.pptx)**,** [**11-22/0668r0**](https://mentor.ieee.org/802.11/dcn/22/11-22-0668-00-0000-liaison-statement-from-wba-re-wi-fi-devices-identification-group.pdf)**,** [**11-22/0653r0**](https://mentor.ieee.org/802.11/dcn/22/11-22-0653-00-0000-2022-march-wba-whitepaper-re-device-identification.pdf)
  + [11-23/0888r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0888-00-00bh-wba-liaison-discussion.pptx) Stephen Orr
* **Comment Resolution**
  + Comment resolution document: [11-23/1152r27](https://mentor.ieee.org/802.11/dcn/23/11-23-1152-27-00bh-ieee-802-11bh-lb274-comments.xlsx)
  + Comment resolution queue (slide 19)

The agenda was approved with unanimous consent.

1. **Approval of Minutes**

The minutes of the September interim meeting ([11-23/1616r1](https://mentor.ieee.org/802.11/dcn/23/11-23-1616-01-00bh-minutes-tgbh-interim-meeting-september-2023.docx)), and the following teleconferences of Sept. 26 ([11-23/1674r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1674-00-00bh-802-11bh-telecon-minutes-september-26-2023.docx)), October 10: ([11-23/1858r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1858-00-00bh-802-11bh-telecon-minutes-october-10-2023.docx)), October 24 ([11-23/1829r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1829-00-00bh-telecon-minutes-october-24-2023.docx)), October 31 ([11-23/1867r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1867-00-00bh-802-11bh-telecon-minutes-october-31-2023.docx)), and November 7 ([11-23/1978r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1978-00-00bh-802-11bh-telecon-minutes-november-7-2023.docx)) were approved by unanimous consent on a motion made by Carol Ansley (Cox Communications) and seconded by Jay Yang (ZTE).

1. **Timeline Review**

The current timeline shows a recirculation letter ballot (for a Draft 2.0) to be initiated coming out of this meeting. The hope is to wrap up all approvals by September 2024.

1. **Motion #23**

Jouni Malinen (Qualcomm) made a motion (#23 in [11-22/0651r29](https://mentor.ieee.org/802.11/dcn/22/11-22-0651-29-00bh-tgbh-motions-list.pptx)) reading:

Approve the resolutions to CIDs listed below, per the resolutions recorded in [11-23/1152r25](https://mentor.ieee.org/802.11/dcn/23/11-23-1152-25-00bh-ieee-802-11bh-lb274-comments.xlsx) marked “Ready for motion”, and incorporate the text changes into the latest TGbh draft:

CIDs: 31, 82, 133, 232, 233, 234, 235, 245

The motion was seconded by Carol Ansley. The motion was passed by unanimous consent.

1. **CIDs 18 and 111 (and 162?) (client to client)**

Okan Mutgan (Nokia) had previously offered [11-23/1427r02](https://mentor.ieee.org/802.11/dcn/23/11-23-1427-02-00bh-cid18-and-cid111-resolution-for-lb274.pptx) as a resolution to CIDs 18 and 111. These CIDs deal with TDLS scenarios, which don’t involve an AP on a continuous basis. Based on subsequent discussion and a straw poll, he has changed his position on the resolution of these CIDs and would prefer to reject them since the group does not support having a feature that allows two non-AP STAs to identify each other. CID 162 could be accepted or rejected and in both cases, it would leave the text as logically correct. The resolution could also be revised, either to do the change in the first sentence (non-AP STA transmitting to anything) and skip the other part of the change (AP to non-AP STA). The proposed resolution is to reject the comment since we do not define non-AP STA to non-AP STA communication, so the behavior that the comment attempts to address would not occur.

1. **CID 112**

Mutgan then reviewed CID 112. He believes that FILS (IEEE 802.11ah) does cover the concern raised (protection of Association Request/Response elements after the FILS Session element), so he asks (as the original commenter) that the CID be rejected.

1. **CID 113**

Mutgan next presented [11-23/1925r00](https://mentor.ieee.org/802.11/dcn/23/11-23-1925-00-00bh-lb274-cr-for-cid113.docx) to address CID 113. This CID asks for a means to provide the identification result when using IRM in PASN so that the non-AP STA knows whether it has been identified.

1. **Revisit CIDs 84, 85, 87, 212, 283**

Mutgan then revisited resolutions on PASN-related CIDs 84, 85, 87, 212, and 283 (see [11-23/1726r03](https://mentor.ieee.org/802.11/dcn/23/11-23-1726-03-00bh-lb274-cid-resolutions-for-pasn.docx)). This latest revision to the comment resolutions in the document adds a modified KEK definition for use in PASN protection. CID 283 is also brought in scope of the resolutions. There is some text marked in bold face to indicate areas for discussion. The resolution is going to need to be further revised, because of the use of a hashing algorithm for encryption. The pairwise cipher in RSNE is probably not the right algorithm to use either; an AES key wrap or some other mechanism might make more sense and should be spelled out. Additional details are needed in the new 12.2.11.3 text as well, including whether fields are encrypted separately or combined into a containing element for all elements that need to be encrypted. Work will continue on the resolution for this set of CIDs on the mail reflector with the hope that suitable resolution text can be readied this week.

1. **FT case (CIDs 131, 136, 274)**

Yan Li (ZTE) offered [11-23/2050r00](https://mentor.ieee.org/802.11/dcn/23/11-23-2050-00-00bh-cr-for-cids-relevant-to-ft.docx), which will be augmented with CID 122 during an upcoming time slot. For this time slot, only the original set of 3 CIDs will be addressed.

All 3 CIDs ask for support for ID/MAC address change during Fast BSS Transition. Specific text was not offered by the commenters, but Li supplies text that should make ID/address change in FT possible. From previous discussion around [11-23/1852r01](https://mentor.ieee.org/802.11/dcn/23/11-23-1852-01-00bh-cr-for-ft-case.pptx), the group seems to prefer “option 2”, which reuses PMK-R1s rather than generating new ones.

A point was raised that changing the MAC address would mess with IP address resolution. An IP address distribution service (as discussed in TGbi) might be a solution. Care needs to be taken that the solution does not exceed the scope of IEEE 802.11bh. We seem to be revisiting the previous discussion and creating a complex solution.

**Meeting recessed at 10:00 a.m.**

**Meeting November 14th, 2023, 1:30 p.m. to 3:30 p.m. HST**

**Chair: Mark Hamilton (Ruckus/CommScope)**

**Vice Chair: Peter Yee (NSA-CSD/AKAYLA)**

**Vice Chair: Stephen Orr (Cisco)**

**Secretary: Peter Yee**

**Editor: Carol Ansley (Cox Communications)**

**The mixed-mode meeting was called to order by the Chair at 1:33 p.m. HST.**

Agenda slide deck [11-23/1719r04](https://mentor.ieee.org/802.11/dcn/23/11-23-1719-04-00bh-agenda-tgbh-2023-november-plenary.pptx)

1. **Policies and procedures were presented by Chair Mark Hamilton. (Slides 4 to 15)**

There were no Patent declarations.

Copyright policy slides were presented (Slides 11 and 12)

1. **Agenda:**

* **Attendance, noises/recording, meeting protocol**
* **Policies, duty to inform, participation rules**
* **Organization topics:**
  + November Plenary meetings: Tuesday, 8:00-10:00; Tuesday, 13:30-15:30; Wednesday 10:30-12:30; Thursday 8:00-10:00
  + Timeline reminder (slide 18)
  + Motions record: [11-22/0651r30](https://mentor.ieee.org/802.11/dcn/22/11-22-0651-30-00bh-tgbh-motions-list.pptx)
* **(WBA Liaison will be discussed on Wednesday, AM2)**
* **Comment Resolution**
  + Comment resolution document: [11-23/1152r28](https://mentor.ieee.org/802.11/dcn/23/11-23-1152-28-00bh-ieee-802-11bh-lb274-comments.xlsx)
  + Comment resolution queue

The agenda was approved with unanimous consent.

1. **Is Reassociation in Scope for TGbh?**

Graham Smith (SRT wireless) presented [11-23/1986r00](https://mentor.ieee.org/802.11/dcn/23/11-23-1986-00-00bh-resolution-cid-122-reassociation.docx). IEEE 802.11aq does not allow a MAC address to change over the life of an Association if there’s a desire to access the state associated with the MAC address. Thus, a Reassociation couldn’t change a MAC address (via IRM or Device ID update) and therefore there is no need to support IRM and Device ID in Reassociation. It was noted from the floor that FT does have encryption protection, which could protect a new MAC address exchange. That doesn’t change the IEEE 802.11aq prohibition. MAC address change during association is probably not within TGbh’s scope, although it is something that TGbi is looking at. A straw poll of the group asked, “Is changing a MAC address during a reassociation procedure (including, but not limited to FT) within the scope of TGbh?”. The result was 4/15/1/9 (Yes/No/Abstain/No response). On that basis, Smith’s presented his proposed changes to excise coverage of Reassociation from the text. Some changes to the proposed text were noted due to the text be overly aggressive in excising reassociation. After a long discussion of when Reassociation frames can be used, the group agreed to Smith’s revised text in [11-23/1986r01](https://mentor.ieee.org/802.11/dcn/23/11-23-1986-00-00bh-resolution-cid-122-reassociation.docx).

1. **FT case (CIDs 131, 136, 274)**

Based on the previous decision, Li presented [11-23/2050r01](https://mentor.ieee.org/802.11/dcn/23/11-23-2050-00-00bh-cr-for-cids-relevant-to-ft.docx). The group agreed that this means CIDs 131 and 274 are rejected. CID 136 is also rejected, but for a different reason. The group also agreed with that resolution.

1. **Numerous CIDs/topics, Part 2 (mostly Device ID)**

Jay Yang presented a document ([11-23/1353r06](https://mentor.ieee.org/802.11/dcn/23/11-23-1353-06-00bh-cr-for-cids-relevant-to-device-id-part-2.docx)) resolving a number CIDs, with a revisit of Figure 12-0a for CIDs 42, 99, 124, 125, 126, 127, 187, 188, 265, and 281; a revisit of CID 184 (PASN encryption); and continuation on CIDs 185, 186, and 227. Figure 12-0a has been revised. There are some dashed, grey ovals in the figure that need to be made darker because they aren’t particularly visible. The resolution for the CIDs that depend on Figure 12-0a also needs to be updated to indicate that there are also text changes that go with the revised figure. The group agreed to revised resolutions for CIDs 42, 99, 124, 125, 126, 127, 187, 188, 265, and 281, as given in [11-23/1353r07](https://mentor.ieee.org/802.11/dcn/23/11-23-1353-07-00bh-cr-for-cids-relevant-to-device-id-part-2.docx).

For CID 184, notes from a previous discussion indicated the CID needed to be revisited. Nobody recalls why it needed to be revisited.

In CID 186, the request is to delete “from the ESS” in “after deauthenticating” (as shown in Figure 12-0a as “Deauth”). Certainly, a PASN authentication is with a single BSS. The concept of “returning to an ESS” also doesn’t make much sense. The figure does show identifiers that are negotiated with one AP and used with another AP, so ESS might make sense as well, even though there is no association, this being PASN. A concern was raised that the device IDs in the figure are all sent in the clear. Because of this, that’s why the figure shows a different device ID for each PASN negotiation. But if the APs are in different ESSes, the device IDs sent won’t make sense because they are derived from an AP in one ESS but sent to an AP in a different ESS.

Regarding CID 227, the resolution reason needs to be amended with a better explanation for why it is rejected.

**Meeting recessed at 3:30 p.m.**

**Meeting November 15th, 2023, 10:30 a.m. to 12:30 p.m. HST**

**Chair: Mark Hamilton (Ruckus/CommScope)**

**Vice Chair: Peter Yee (NSA-CSD/AKAYLA)**

**Vice Chair: Stephen Orr (Cisco)**

**Secretary: Peter Yee**

**Editor: Carol Ansley (Cox Communications)**

**The mixed-mode meeting was called to order by the Chair at 10:30 a.m. HST.**

Agenda slide deck [11-23/1719r05](https://mentor.ieee.org/802.11/dcn/23/11-23-1719-05-00bh-agenda-tgbh-2023-november-plenary.pptx).

1. **Policies and procedures were presented by Chair Mark Hamilton. (Slides 4 to 15)**

There were no Patent declarations.

Copyright policy slides were presented (Slides 11 and 12)

1. **Agenda:**

* **Attendance, noises/recording, meeting protocol**
* **Policies, duty to inform, participation rules**
* **Organization topics:**
  + November Plenary meetings: Tuesday, 8:00-10:00; Tuesday, 13:30-15:30; Wednesday 10:30-12:30; Thursday 8:00-10:00
  + Timeline reminder (slide 18)
  + Motions record: [11-22/0651r30](https://mentor.ieee.org/802.11/dcn/22/11-22-0651-30-00bh-tgbh-motions-list.pptx)
* **Discussion on response to WBA liaisons (was due Sept):** [**11-21/0703r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-0703-00-0000-2021-april-liaison-from-wba.docx)**,** [**11-21/1141r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-1141-00-00bh-excerpts-of-wba-document-wi-fi-id-scope.pptx)**,** [**11-22/0668r0**](https://mentor.ieee.org/802.11/dcn/22/11-22-0668-00-0000-liaison-statement-from-wba-re-wi-fi-devices-identification-group.pdf)**,** [**11-22/0653r0**](https://mentor.ieee.org/802.11/dcn/22/11-22-0653-00-0000-2022-march-wba-whitepaper-re-device-identification.pdf)
  + [11-23/0888r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0888-00-00bh-wba-liaison-discussion.pptx) Stephen Orr
* **Comment Resolution**
  + Comment resolution document: [11-23/1152r29](https://mentor.ieee.org/802.11/dcn/23/11-23-1152-29-00bh-ieee-802-11bh-lb274-comments.xlsx)
  + Comment resolution queue

The agenda was approved with unanimous consent.

1. **Response to WBA**

Stephen Orr (Cisco) discussed a pragmatic approach to completing generation of the task group’s response to the WBA’s liaisons to us. This will involve describing our approach and the use cases we do/do not address, as previously noted in [11-23/0888r00](https://mentor.ieee.org/802.11/dcn/23/11-23-0888-00-00bh-wba-liaison-discussion.pptx). This will be augmented with the approach we have taken in Draft 1.0. He will have a stab at that available for tomorrow morning’s time slot.

The plan will include attaching Draft 1.0 to our response to the WBA, despite Draft 2.0 nearing ballot.

We should probably point out for the use cases we don’t deal with that the WBA should find other solutions for as we either don’t believe we can solve them, or we believe that they are better solved through other (non-802.11) methods.

1. **Numerous misc CIDs**

Mark Hamilton presented resolutions for CIDs 50, 54, 55, 74, 117, 157, 165, 167, 190, 191, 209, 213, 215, 216, 217, 223, 230, 231, 242, 243, 267, 268, 273, 277, 278, 280, 284, 286, 292, and 293 in document [11-23/1855r01](https://mentor.ieee.org/802.11/dcn/23/11-23-1855-01-00bh-lb274-misc-cid-resolutions.docx).

CID 74 indicates that a Device ID KDE is only sent under certain circumstances. The revised resolution to this will include that point as well as a similar point for the IRM KDE.

CIDs 117, 223, 273, and 286 all ask for wording improvements in clause 4.5.4.10 (page 18, lines 18/19). Hamilton’s revised text addresses the first three CIDs, but part of the commenter’s proposed CID 286 resolution is rejected because it is clause 4 text. Additional changes to the resolution will be proposed during the next ballot to clarify the end of the sentence (“while mitigating the abilities of third parties to do traffic analysis.”)

CIDs 54, 55, 165, 167, 190, 267, 293, 268, and 292 all address text in subclause 12.2.11 (page 30, lines 8-19). CID 54 is essentially correct that random MAC address changes should not occur while associated, although the presented resolution needs a spelling correction. CID 55 and 165 are overtaken by the text rewrite from CID 49, etc. CID 167 can be covered by reusing text proposed for CIDs 156 and 240. CIDs 190, 267, and 293 are covered by the CID 49 rewrite, as is CID 268. CID 292 is resolved with the addition of “by third parties”. A suggestion was made to transfer some of the text proposed to resolve these comments to subclause 4.5.4.10 to maintain alignment. Another suggestion indicated that it would probably be more productive to wait until the SA ballot to modify clause 4 language.

CID 191 asks that associating with an AP/ESS be changed to associating with an AP. The proposed resolution would delete ESS where appropriate, but it also changes some of the AP/ESS usage to “APs in the ESS” or similar. The group further revised the text to clarify the sharing of the address across the ESS.

Hamilton will upload the revised version of [11-23/1855r01](https://mentor.ieee.org/802.11/dcn/23/11-23-1855-01-00bh-lb274-misc-cid-resolutions.docx) reflecting the changes made to his proposed resolutions.

1. **CIDs 250, 252, 256**

Joseph Levy (InterDigital) offered resolutions to CIDs 250, 252, and 256, as given in [11-23/2018r00](https://mentor.ieee.org/802.11/dcn/23/11-23-2018-00-00bh-proposed-resolution-of-tgbh-cids-250-252-256.docx). He suggests rejecting CID 250 because the comment is addressed by existing text in 12.2.11. Clause 12.7.6.1, to which the comment pertains, doesn’t seem like the right place to make that type of explanation. It was suggested that text in 12.2.11 doesn’t wholly address the concern raised in the comment, but as Levy was also the commenter for CID 250, the rejection ought to be fine. CID 252 asks for text to make it clear that the use of device ID is an opt-in feature. Replacement text in clause 12.2.11 is suggested, but it was noted that it drops reference to tracking and traffic analysis mitigation, which seems to be beyond the scope of the original comment. It was also pointed out that CID 49 (and possibly CID 42) has already changed the underlying text, so that will need to be considered in the resolution to CID 252. There’s also been some conflation between identifying a device and a user in Levy’s text that requires further thinking. Levy will further consider CID 252 before bringing back a revised resolution. CID 256 seems to be acceptably overtaken by the resolution to CID 191 in [11-23/1855r02](https://mentor.ieee.org/802.11/dcn/23/11-23-1855-02-00bh-lb274-misc-cid-resolutions.docx).

1. **Device ID/opaque identifier**

Graham Smith offered [11-23/1258r05](https://mentor.ieee.org/802.11/dcn/23/11-23-1258-05-00bh-comment-resolutions-draft-3-0-section-12-7.docx), which builds off Kurt Lumbatis’ (ZaiNar) previous work. It covers CIDs 8, 9, 52, and 53, all of which deal with device IDs and opaque identifiers and their sizes. The suggested sizes are 0-36 or 0-250 octets. After discussion, the size range was changed to 0-253, as limited by the information element. A different suggestion said the comments should be rejected because device IDs (and the resulting opaque IDs) are based on implementation and deployment choices. The group agreed to reject CID 52 because the use of variable fields in diagrams is common within IEEE 802.11. CIDs 8, 9, and 53 would be resolved by clarifying that the device ID identifier can be used optionally constructed as an opaque identifier. Smith will post the revised resolutions in [11-23/1258r06](https://mentor.ieee.org/802.11/dcn/23/11-23-1258-06-00bh-comment-resolutions-draft-3-0-section-12-7.docx).

**Meeting recessed at 12:31 p.m.**

**Meeting November 16th, 2023, 8:00 a.m. to 10:00 a.m. HST**

**Chair: Mark Hamilton (Ruckus/CommScope)**

**Vice Chair: Peter Yee (NSA-CSD/AKAYLA)**

**Vice Chair: Stephen Orr (Cisco)**

**Secretary: Peter Yee**

**Editor: Carol Ansley (Cox Communications)**

**The mixed-mode meeting was called to order by the Chair at 8:05 a.m. HST.**

Agenda slide deck [11-23/1719r07](https://mentor.ieee.org/802.11/dcn/23/11-23-1719-07-00bh-agenda-tgbh-2023-november-plenary.pptx)

1. **Policies and procedures were presented by Chair Mark Hamilton. (Slides 4 to 15)**

There were no Patent declarations.

Copyright policy slides were presented (Slides 11 and 12)

1. **Agenda:**

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  + Timeline reminder (slide 18)
  + Motions record: [11-22/0651r29](https://mentor.ieee.org/802.11/dcn/22/11-22-0651-29-00bh-tgbh-motions-list.pptx)
* **Comment Resolution (finalize):** [**11-23/1152r30**](https://mentor.ieee.org/802.11/dcn/23/11-23-1152-30-00bh-ieee-802-11bh-lb274-comments.xlsx)
* **Discussion on response to WBA liaisons (was due Sept):** [**11-21/0703r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-0703-00-0000-2021-april-liaison-from-wba.docx)**,** [**11-21/1141r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-1141-00-00bh-excerpts-of-wba-document-wi-fi-id-scope.pptx)**,** [**11-22/0668r0**](https://mentor.ieee.org/802.11/dcn/22/11-22-0668-00-0000-liaison-statement-from-wba-re-wi-fi-devices-identification-group.pdf)**,** [**11-22/0653r0**](https://mentor.ieee.org/802.11/dcn/22/11-22-0653-00-0000-2022-march-wba-whitepaper-re-device-identification.pdf)
  + [11-23/0888r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0888-00-00bh-wba-liaison-discussion.pptx) Stephen Orr
* **Motion to approve LB274 resolutions (Motion #xx of motion deck)**
* **Consider motion for Recirculation Letter Ballot on D2.0 (Motion #xx)**
* **Motion to liaise D1.0 to WBA (along with response, per above) (Motion #xx)**
* **Teleconference and January planning**

The agenda was approved by unanimous consent.

1. **WBA Liaison Response**

Stephen Orr presented his draft WBA liaison response ([11-23/2116r01](https://mentor.ieee.org/802.11/dcn/23/11-23-2116-01-00bh-wba-draft-liaison-response.docx)). The response lists the two mechanisms (Device ID and IRM) that are the heart of IEEE 802.11bh’s ability to deal with identifying returning non-AP STAs. The text of the response is primarily derived from other submissions and previous liaisons. The task group has not previously seen this response, so Orr walked the group through the text, accepting proposed modifications on the fly. The response lists the use cases that were found in WBA’s liaison to IEEE 802.11, separated by whether the use cases were treated as in scope of IEEE 802.11bh or out of scope. The revised response is found in [11-23/2116r02](https://mentor.ieee.org/802.11/dcn/23/11-23-2116-02-00bh-wba-draft-liaison-response.docx). Upon approval by the WG, it will be sent along with a copy of Draft 1.0.

1. **Revisit CIDs 84, 85, 87, 212, 283**

Okan Mutgan briefed his revised [11-23/1726r04](https://mentor.ieee.org/802.11/dcn/23/11-23-1726-04-00bh-lb274-cid-resolutions-for-pasn.docx), which covers the encryption of the Device ID IE and IRM IE in PASN frames. A discussion over the addition to Table 12-11 led to changes to the entry, which will list, for now, AES-SIV-256 as the key wrap algorithm. Text in 12.2.11.3 needs to be changed not to list the algorithm for encryption, but rather to use the negotiated key wrap algorithm, with a pointer to Table 12-11. The group agreed to the gist of the resolution of the listed CIDs, with some editorial changes to be made prior to posting of the revised resolutions.

1. **CID 227**

Jay Yang offered up [11-23/1353r07](https://mentor.ieee.org/802.11/dcn/23/11-23-1353-07-00bh-cr-for-cids-relevant-to-device-id-part-2.docx) to deal with CID 227. Small editorial changes were made by the group for subclause 12.2.11.1. With that, the group agreed to the resolution, as shown in [11-23/1353r08](https://mentor.ieee.org/802.11/dcn/23/11-23-1353-08-00bh-cr-for-cids-relevant-to-device-id-part-2.docx).

1. **CIDs 26 and 27**

Yang then presented [11-23/1842r00](https://mentor.ieee.org/802.11/dcn/23/11-23-1842-00-00bh-cr-for-misc-cids-relevant-irm.docx) with resolutions for CIDs 26 and 27. CID 26 is resolved by the resolution to CID 200, while the commenter’s proposed resolution for CID 27 is accepted.

1. **CR for CIDs in subclause 9**

Yang’s [11-23/1369r04](https://mentor.ieee.org/802.11/dcn/23/11-23-1369-04-00bh-cr-for-cids-in-subclause-9.docx) resolves CIDs 30, 48, 90, 120, 143, 159, 162, 163, 258, 276, 290, and 291, but only CID 159 is covered here. Yang’s resolution for CID 159 would add coverage for Reassociation back into the document. Reassociation is removed in another CID 122, so the clash will need to be resolved. The group agreed to modify the agenda to permit a motion on CID 122 to adjudicate the clash. The motion reads “Approve the resolutions to CIDs listed below, per the resolutions recorded in 11-23/1152rXX marked “Ready for motion” and incorporate the text changes into the TGbh draft: - CIDs: 122”. The motion was made by Jouni Malinen and seconded by Carol Ansley. The result of the motion was 15/5/2/3 (Yes/No/Abstain/No Response), with voter status to be verified later. Yang requested posting of the individual positions on that motion[[1]](#footnote-2). On the basis of the motion result, Yang removed Reassociation from his CID 159 resolution. (See [11-23/1369r05](https://mentor.ieee.org/802.11/dcn/23/11-23-1369-05-00bh-cr-for-cids-in-subclause-9.docx).) The group then agreed to the proffered resolution.

1. **Use Case 4.8/randomized probes (CID 98)**

Yang next addressed CID 98 as shown in [11-23/1314r06](https://mentor.ieee.org/802.11/dcn/23/11-23-1314-06-00bh-cr-for-use-case-4-8.docx). He proposes to reject this CID although there are some who have a different view. Given the short time to complete the resolutions today, this is a topic that could be revisited during the Draft 2.0 recirculation ballot. The other option is to defer the letter ballot and await a resolution to the comment that is not a rejection. A motion to decide this point was made by Jay Yang and Jarkko Kneckt (Apple). The motion reads, “Rejected. This topic was discussed in 23/1453r1, but the group didn’t reach consensus. SP: The Device ID shall be added to 802.11 authentication frames to facilitate identification when an 802.11 state machine enters State 2. SP results: Y:8; N:8”. The motion (#25) will be taken as a recorded vote. The result of the motion was 15/2/4/4 (Y/N/A/NR). The recorded vote can be found as 1 on the last page of these minutes.

1. **CID 252**

The commenter withdrew comment 252, making resolution moot.

1. **Numerous misc. CIDs**

Mark Hamilton presented resolutions in the revised [11-23/1855r02](https://mentor.ieee.org/802.11/dcn/23/11-23-1855-02-00bh-lb274-misc-cid-resolutions.docx) starting with CID 209. CID 209 wants to condition 4-way handshake messages 2 and 3 with “includes an IRM KDE when dot1IRMActivated is true”, as already used in message 4. This seems reasonable. CIDs 213 and 280 both ask for restructuring the text for the EAPOL-Key frames, which are difficult to parse. Because TGme is already considering changing this text in the baseline, the comments will be rejected as TGbh needs to align with whatever TGme does. CID 215 asks for a clarification of when there will be a device identifier included. The resolution points to subclauses 12.2.11.1 and 12.2.11.2 for that information. There was no objection to that resolution. CID 216 is resolved by changing the title of subclause 12.2.11. A note will be added that the PICS change requested here are overtaken by the resolution to CID 110. This group didn’t object to the resolution. CID 217 is accepted as a reasonable simplification. The proposed resolution to CID 231 is rejection as the commenter’s proposed combination of fields would actually result in more bits on the wire. This resolution seems unobjectionable. CID 242 and 243 asks that Device ID and IRM be defined in Clause 3. Hamilton offered definitions that were then slightly modified by the group. With that, the resolution was accepted.

By agreement, the meeting was extended for several minutes beyond the original 10 a.m. HST ending time to allow completion of comment resolution.

CIDs 276, 277, and 278 will be resolved by deleting text on page 39. CID 284 is resolved by modest changes to the editing instructions, which the group accepted.

Without consensus for their resolution, CIDs 50, 157, and 230 will be rejected.

1. **Motion to approve comment resolutions**

A motion (#26) reading, “Approve the resolutions to CIDs listed below, per the resolutions recorded in [11-23/1152r30](https://mentor.ieee.org/802.11/dcn/23/11-23-1152-30-00bh-ieee-802-11bh-lb274-comments.xlsx) marked “Ready for motion”, and incorporate the text changes into the latest TGbh draft:

* CIDs: 18, 111, 162, 112, 113, 42, 99, 124, 125, 126, 127, 187, 188, 265, 281, 185, 186, 131, 136, 274, 191, 54, 55, 165, 167, 190, 267, 268, 292, 293, 117, 223, 273, 286, 74, 52, 8, 9, 53, 250, 256.

And, resolve CIDs 84, 85, 87, 212, 283 as shown in [11-23/1726r5](https://mentor.ieee.org/802.11/dcn/23/11-23-1726-05-00bh-lb274-cid-resolutions-for-pasn.docx), CID 227 as shown in [11-23/1353r8](https://mentor.ieee.org/802.11/dcn/23/11-23-1353-08-00bh-cr-for-cids-relevant-to-device-id-part-2.docx), CIDs 26 and 27 as shown in [11-23/1842r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1842-00-00bh-cr-for-misc-cids-relevant-irm.docx), CID 159 as shown in [11-23/1369r5](https://mentor.ieee.org/802.11/dcn/23/11-23-1369-05-00bh-cr-for-cids-in-subclause-9.docx), CID 98 as shown in [11-23/1314r6](https://mentor.ieee.org/802.11/dcn/23/11-23-1314-06-00bh-cr-for-use-case-4-8.docx) , and CIDs 50, 84, 85, 87, 157, 209, 212, 213, 215, 216, 217, 230, 231, 242, 243, 252, 276, 277, 278, 280, 283, 284 as shown in [11-23/1855r3](https://mentor.ieee.org/802.11/dcn/23/11-23-1855-03-00bh-lb274-misc-cid-resolutions.docx)” was made by Carol Ansley and seconded by Peter Yee. The motion was approved by unanimous consent.

1. **Motion to approve recirculation letter ballot**

A motion (#27) reading ‘Having approved comment resolutions for all of the comments received from LB 274 on P802.11bh D1.0 as contained in [11-23/1152r30](https://mentor.ieee.org/802.11/dcn/23/11-23-1152-30-00bh-ieee-802-11bh-lb274-comments.xlsx) and motions 23, 24, 25, and 26 of [11-22/0651r31](https://mentor.ieee.org/802.11/dcn/22/11-22-0651-31-00bh-tgbh-motions-list.pptx),

* Instruct the editor to prepare P802.11bh D2.0 incorporating those changes, and
* Approve a 20 day Working Group Recirculation Ballot asking the question “Should P802.11bh D2.0 be forwarded to SA Ballot?”’ was made by Peter Yee and seconded by Stephen Orr. This motion was also approved by unanimous consent.

1. **Motion to liaise D1.0 to WBA along with response**

A motion (#28) to “Request the IEEE 802.11 Working Group (WG) chair to send the liaison in [11-23/2116r2](https://mentor.ieee.org/802.11/dcn/23/11-23-2116-02-00bh-wba-draft-liaison-response.docx) to the WBA, attaching P802.11bh D1.0, and granting the WG chair editorial license.” was made by Stephen Orr and seconded by Joseph Levy. It was approved by unanimous consent.

1. **Teleconferences and January planning**

January’s meeting will have 5 slots to deal with recirculation ballot comments. The hope is to get a Draft 3.0 recirculation ballot out of the January meeting. A teleconference will be planned for January 9th at 9:30 a.m. EST to start sifting through the ballot comments and prepare for the January wireless interim meeting.

**The meeting was adjourned at 10:19 a.m. HST.**

1. **Results of Motion #25, CID 98.**

1.Approve the resolution to CID 98 as:

“Rejected. This topic was discussed in 23/1453r1, but the group didn’t reach consensus.

SP: The Device ID shall be added to 802.11 authentication frames to facilitate identification when an 802.11 state machine enters State 2.

SP results: Y:8; N:8”

A.Yes 15/25 ( 60%)

B.No 2/25 ( 8%)

C.Abstain 4/25 ( 16%)

No Answer 4/25 ( 16%)

A B C

----------------------------------------------

[V] Steve Rodriguez | Cisco | | | X |

[V] Carol Ansley Cox | X | | |

[V] Okan Mutgan, Nokia | X | | |

Stephen Orr | X | | |

[V] Dan Harkins | | X | |

[V] Javier Contreras | | X | |

[V] Antonio de la Oliva | X | | |

[V] Mark Hamilton, CommScope | X | | |

[V] Joseph Levy, Interdigital | X | | |

[V] Peter Yee, NSA-CSD | X | | |

[V] Peng Yan - Wi-Fi Alliance | X | | |

[V] Shuntaro Suzuki, Yamaha | | | X |

Brian Hart | | | |

[V] Federico Lovison, Cisco | | | |

[V] Binita Gupta, Cisco Systems | | | |

Jarkko Kneckt | X | | |

[V]Yan Li,ZTE | X | | |

[V] Jay Yang | X | | |

[V]Bo Xiao, ZTE | | | |

[V] Graham Smith SRT Wireless | X | | |

[V] Jerome Henry, Cisco | | | X |

[V] Jouni Malinen Qualcomm | X | | |

[V] Julien SEVIN Canon | X | | |

[V] Domenico Ficara, Cisco | | | X |

Nehru Bhandaru | X | | |

1. These vote results were lost due to some technical issue with WebEx (which is being investigated). [↑](#footnote-ref-2)