IEEE P802.11
Wireless LANs

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|  TGbi Minutes Mixed Mode January Interim Sessions 202415-19 January 2024 |
| Date: 2024-01-25 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
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Abstract

This document contains the minutes for the IEEE 802.11bi task group meetings that took place during the IEEE 802.11 Mixed Mode Interim session 15-19 January 2024. The on-site location for the meeting was Panama city, Panama.

Note: Highlighted text are action items.

Q – proceeds a question

A - proceeds an answer

C - proceeds a comment

Yellow highlight - action point

**1rst slot : Monday January 15th 2024, 10:30 local time.**

**Chair: Carol Ansley, Cox Communications**

**Secretary: Stéphane Baron**

**Vice-chairs: Jerome Henry, Cisco; Stephen McCann, Huawei**

**Technical editor: Po-Kai Huang, Intel**

Chair calls meeting to order at 10:35 Local time.

Agenda slide deck: [11-23-2163r0](https://mentor.ieee.org/802.11/dcn/23/11-23-2163-00-00bi-january-interim-tgbi-agenda.pptx):

1. Reminder to do attendance

Reminder to register for the session and to not attend the virtual meeting without paying appropriate meeting fees.

1. Review of policies and procedures.
	1. IEEE individual process slides were presented.
2. The chair mentioned the call for essential patents
	1. No one responded to the call for essential patents
3. The chair covered the IEEE copyright policy and participation rules.
	1. No questions
4. **Discussion of agenda 11-23-2163r0 (slide #15)**
	1. Discussion on agenda

No discussion

* 1. Adoption of agenda by unanimous consent (30 participants online, 15 in the room).
1. **Administrative**
	1. Approval of Telecon minutes and Interim session minutes – Motion #35 (once all posted)
	2. Remaining Meetings:
* Tuesday AM2
* Wednesday PM2
* Thursday PM1
1. **Technical Submissions**
	1. 24/46r0: Privacy Protection for SAE Credentials**:** Jouni Malinen

Proposes a draft text to cover requirement 1. Avoiding an eavesdropper to distinguish that a device is using same SAE passwords, since those passwords are unfortunately passed in clear.

Propose to add one new element in the authentication frame.

* + 1. Discussion

Q: what are the different colors for track changes?

A: Those are coming from different co-authors.

Q: fundamental question: are we discussing the SAE password notification that is not accepted in REVme now?

A: Only corner cases are not accepted yet. Her we discuss a requirement for the 11bi amendment.

Q: your defining public keys for SAE pwd protection?

A: right.

Q: are they AP or stations specific? I mean the station assumes this is AP specific?

A: this is not mandating any direction for now.

Q: This public key update is difficult, how is it done? How to synchronize all the APs, for instance, and frequency of update. So, you can be off sync between APs.

A: for AP side, this is out of scope of this standard. Regarding the un-frequent update, this fully depend on AP vendors implementation and deployment. I don’t see any issue in the protocol design itself.

C: Still think we need further analysis for this contribution.

Q: this presentation reminds me the REVme’s one that received many technical comments. Is it the same presentation here?

A: This concept of protected public key for instance is new. The design is different from the one presented in REVme.

Q: Question on public key. In your proposal you propose to define a public key. We already have public keys, why do we need to define a new specific key here.

A: the reason, is that this key will be static for an extended period of time. This is a long term key.

Chair ask if this author request to add this document is the draft.

C: I would like to have a formal vote and some time to review.

C: I’d like to echo previous presenter.

Q: Chair ask if Author accept to have a SP on Wednesday?

Chair explained to have a motion on Thursday to create the first Draft D0.1.

A: Author is ok with the proposal.

Q: Do you have objection to have another Q&A session on this proposal.

A: OK, let’s discuss and straw poll it on Wednesday.

No more question.

Since there is no other contribution ready to present today or topics to discuss chair adjourn the meeting.

Chair reminds next meeting tomorrow AM2.

1. Chair recessed the meeting at 11:28 EDT

**2nd slot : Tuesday January 16th 2024, 10:30 local time.**

**Chair: Carol Ansley, Cox Communications**

**Secretary: Stéphane Baron**

**Vice-chairs: Jerome Henry, Cisco; Stephen McCann, Huawei**

**Technical editor: Po-Kai Huang, Intel**

Chair calls meeting to order at 10:52 Local time.

20 minutes delay due to audio connection technical issue.

Agenda slide deck: [11-23-2163r1](https://mentor.ieee.org/802.11/dcn/23/11-23-2163-01-00bi-january-interim-tgbi-agenda.pptx):

1. Reminder to do attendance

Reminder to register for the session and to not attend the virtual meeting without paying appropriate meeting fees.

1. Review of policies and procedures.
	1. IEEE individual process slides were presented.
2. The chair mentioned the call for essential patents
	1. No one responded to the call for essential patents
3. The chair covered the IEEE copyright policy and participation rules.
	1. No questions
4. **Discussion of agenda 11-23-2163r1 (slide #15)**
	1. Discussion on agenda

C: a people in the room wants to run a SP (SP#1) sent by email to the chair.

A: (chair) OK, I will put it on top of the agenda.

* 1. Adoption of agenda by unanimous consent (39 participants online, 15 in the room).
1. **Administrative**
	1. Approval of Telecon minutes and Interim session minutes – Motion #35

List of minutes.

**Motion#35** **: Moved** By Stephane Baron **seconded** by Antonio de la Oliva

“Approve the minutes for:

2023 November 802.11 Plenary: 11-23/2073r0,

TGbi Teleconferences: 11-23/2172r0 (07 December), 11-23/2191r0 (14 December), 11-24/18r0 (04 January), 11-24/60r0 (11 January)”

**Motion#35 result** : Approved by unanimous consent (43 participant online and 15 in the room)

* 1. Remaining Meetings:
* Wednesday PM2
* Thursday PM1
1. SP regarding the PMKey ID computation:

**SP#1** requested by Dan Harkins:

**SP#1 initial text**:

*Proposal A:*

*The PMKID shall be recomputed as defined in 12.7.1.3 (Pairwise key hierarchy) and 12.7.1.6.3 (PMK-R0) except that*

* *AA is replaced with Anonce and SPA is replaced with Snonce*
* *when the negotiated AKM is 00-0F-AC:8 or 00-0F-AC:24 or 00-0F-AC:25, the PMKID is recomputed as*

*PMKID = Truncate-128(HMAC-Hash(PMK, “PMK Name”||Anonce||Snonce))*

*where Hash is the hash algorithm specified in 12.4.2 (Assumptions on SAE).*

* *when FILS authentication is used, the PMKID is recomputed as*

*PMKID = Truncate-128(HMAC-Hash(PMK, “PMK Name”||Anonce||Snonce))*

*where Hash is the hash algorithm specific to the negotiated AKM (see Table 9-188 (AKM suite selectors))*

*Proposal B:*

*The PMKID shall be recomputed as:*

*PMKID = Truncate-128(HMAC-Hash(PMK, “PMK Name” || Anonce || Snonce)*

*Where:*

 *Hash is the hash algorithm used by the AKM that generated the PMKSA*

 *PMK is the key stored as PMK in the PMKSA (see 12.6.1.1.2)*

*Which do you prefer? Proposal A or Proposal B?*

**SP#1 Discussion :**

C: PMKID contributor in indicates that he presented doc #... and in this document ASPA was used. During the discussion at that time and during offline discussion the usage of Anonce / Snonce, has been proposed. The author indicate he has no strong opinion and will follow the group opinion.

Q: Do we change the PMKID for everything?

A: No, we change the computation when recalculate it. We do not change the general way to initially compute it.

Q: I do not see the difference between the A and B proposals.

A: The difference is on the Hash definition, and the key you use.

C: I am afraid in some case we do not have Anonce and Snonce. For instance, if you have no 4-way handshake. So, this can be a challenge.

C: My preference goes to proposal B because in this proposal it is clear we recompute in anycase. But FT is not using PMKID but PMKR0, so I this technical issue in some cases. But I prefer the option B direction anyway.

A: Here we refer to chapter 12.6.1.1.2 that define the PMKSA.

Q: I know where to find the MAC@, but is the Snonce and Anonce are available for the Station?

A: The Anonce and Snonce are carried in the authentication frames.

C: I would appreciate a clarification on how to get those values (Snonce and Anonce).

Chair: is it related to contribution 11-24/0046 we will review tomorrow?

A: no there is no document only related to this.

Q: Is it to be used for CPE?

A: This is for PMKID re-computation, so since they use PMK, I assume this applies to CPE.

Q: Do you want run the SP now?

A: (Author) let’s run it now.

C: Seems Format A or B are very similar, but format B seems simpler, so looks better.

C: Nonces are just random values, so no issue there

SP is run without text modification

Q: I think this is premature to run this SP now, can we add the need more info in the possible answers?

A: OK. Corresponding option is added.

Q: I don’t see the benefit nor how nonce are computed.

A: nonces are random values and each side computes a random value combined.

No more questions

**SP#1 results:** Proposal A:1 / Proposal B:14 / Abstain 10 /need more info 13

1. **Technical Submissions**
	1. [11-24/0079r0](https://mentor.ieee.org/802.11/dcn/24/11-24-0079-00-00bi-edp-epoch-operation-normative-text-for-11bi.docx): EDP Epoch operation normative text for 11bi: Stéphane Baron

This document, presented by Stéphane, is a spec text proposal to cover EDP Epoch operations (Epoch negotiation and setup)

* + 1. Discussion

Q: How the individual and Group Epoch can work together?

A: Preference is to prioritize individual on group Epoch. But we are open to have both.

Q: What happens if an AP refuses an individual Epoch request?

A: it is possible to refuse but the AP must respond, then AP may propose alternative parameters, or the STA may send a new request.

Q: Is it possible to use beacon frame for advertisement?

A: Yes, it could be another possibility. More details are presented in a previous contribution (11-23/1983r1).

Q: What is the duration of Epoch?

A: This is a point that is still under discussion. First proposal is to be in minutes order of magnitude, let say 10 minutes. But other proposals are much shorter. This time will likely be different between Group and Individual Epochs.

Q: Need a definition of Epoch interval.

A: OK, I will add it in the r1.

Q: Protected action frames for Group EDP Epoch is difficult to set up. It is also related to protect info in beacon frame. It is difficult to protect multicast frames

A: We can use unicast protected action frame to inform group members. For the beacon, we could use encrypted IE as proposed by previous contributions.

C: Welcome submission. Individual Epoch need more details but in good direction. Group Epoch need more discussion.

Q: Should we have both Individual and Group Epoch? Group Epoch not really needed. Individual Epoch happens much more often.

A: Both individual and Group Epoch have their own benefits. Group Epoch allows a STA to hide itself in a mass of other STA.

Q: Separate SP needed to decide on the usage of each type of Epoch.

A: I already ran some separated SP last year on individual and group Epoch and both show good feedbacks (23-11/1876).

C: Protected action frames is the most efficient mechanism to define Epoch interval. For Group Epoch, it is important to not provide the number of STAs in the group.

C: Adding info in beacon frame is not a good idea. Just unicast frame is preferable.

C: Group Epoch is only due to the response of the AP to a request from a STA.

A: I think this is rather the AP that propose a STA to enter a group. Only the AP can know the characteristics of the STA registered and the settings of the group.

Q: 10.y.1 first bullet: Can you modify “acknowledged” by “send a response”.

A: OK will do it in r1.

Q: I don’t understand need for individual Epoch. Why a STA must signal a change of CPE parameters? The concept of Epoch is only applied to Group of STAs.

A: Epoch corresponds to an agreement between AP and STAs to be aligned on EDP parameters. A given STA may have a much more stringent requirement in term frequency of change, but need to check that the AP can afford it. So a negotiation to setup an individual Epoch is needed in addition to the Group Epoch.

C: I think that we don’t need to define time to change CPE parameters.

Q: (Chat) Can you to add definition of “Active Epoch”?

A: OK, Will be in r1.

Due to lack of time, remaining people in the queue are invited to contact the author offline.

Author will prepare an r1 based on the online modification.

Chair indicated that some time will be allocated during next session to review the document.

Chair reminds next meeting tomorrow AM2.

1. Chair recessed the meeting at 11:28 EDT

**3rd slot : Wednesday January 17th 2024, 16:00 local time.**

**Chair: Carol Ansley, Cox Communications**

**Secretary: Stéphane Baron**

**Vice-chairs: Jerome Henry, Cisco; Stephen McCann, Huawei**

**Technical editor: Po-Kai Huang, Intel**

Chair calls meeting to order at 16:02 Local time.

Agenda slide deck: [11-23-2163r2](https://mentor.ieee.org/802.11/dcn/23/11-23-2163-02-00bi-january-interim-tgbi-agenda.pptx):

1. Reminder to do attendance

Reminder to register for the session and to not attend the virtual meeting without paying appropriate meeting fees.

1. Review of policies and procedures.
	1. IEEE individual process slides were presented.
2. The chair mentioned the call for essential patents
	1. No one responded to the call for essential patents
3. The chair covered the IEEE copyright policy and participation rules.
	1. No questions
4. **Discussion of agenda 11-23-2163r2 (slide #15)**
	1. Discussion on agenda

No discussion

* 1. Adoption of agenda by unanimous consent (25 participants online, 11 in the room).
1. **Administrative**
	1. Remaining Meetings:
* Thursday PM1
1. **Technical Submissions**
	1. [11-24/0079r1](https://mentor.ieee.org/802.11/dcn/24/11-24-0079-01-00bi-edp-epoch-operation-normative-text-for-11bi.docx): EDP Epoch operation normative text for 11bi: Stéphane Baron

This is the second presentation following previous session’s presentation.

Author presents modifications on the r1 revision.

* + 1. Discussion

C: The figure 9 DDD and the transition periods are related to the receiver side. Need transmitter view of the Epoch. Please provide more details.

A: The Figure is related to both sides. Transmitter also need a transition period, since the retransmission at the beginning of a new Epoch uses the old parameters.

C: MAC header protection must be also taken into account as discussed in 11bn.

A: It is not possible to wait for 11bn to clarify those concepts before drafting 11bi spec, and remember than 11bn is not a baseline for 11bi

Q: Can you provide more details for transition period?

A: The document is just a skeleton on purpose. Of course, details must be added, I provided more details in previous contribution (11-23/1148r0) related to the transition period. But the goal here is to validate common agreement and create a starting point document.

Q: What is the length of Epoch?

A: This is not defined yet, but for Group Epoch it should be around 10 min in my mind. This can me much lower for individual Epochs.

Chair recalls that we must approve skeleton first and give details later one.

Q: I think I misunderstood the Epoch definition: is it constant length?

A: Nearly constant length. In fact, the duration is constant (EDP Epoch interval) plus a pseudo random part making the duration not constant.

Q: I think that Group Epoch keeps the same scheduling. So, no need for an advertisement.

A: Advertisement is needed for new members to be added to an ongoing EDP Group Epoch or for Epoch characteristics update.

C: I think Group Epoch should be negotiated between AP and STA. STA is the only side that knows what it wants to do. We need dynamicity.

A: AP must manage Group Epoch because it is the only side which knows the other members of a group, and the different requirements of those STA.

C: Group and individual Epoch makes sense but I am against Epoch length equals to a TXOP. Minimal Epoch length should be mentioned.

A: I agree to define minimal duration for Epochs. This can be discussed in a second step.

C: This document is not really spec text; it does not have the maturity for that. We need to work on this text before voting on this.

A: I Agree with Stephane document. So many presentations with many solutions have been proposed. A High-level text is the way to start and is a good solution for draft 0.1.

Several peoples share the same opinion as the last comments.

SP#2 is then run by the Chair:

SP#2 text: “Do you approve adding document 11-24/0079r1 to the d0.1 draft?”

SP#2 results: (Y/N/A): Yes: 22/ No: 17/ Abstain: 7, no Answer: 10

Two people couldn’t vote and indicate their choice in the chat. Those results reflect the final count including people who cannot vote using the tool.

Post SP#2 comments

C: I consider this SP failed.

A: SP cannot fail. This is only a view of the opinion of the group.

Chair recommends to have a motion to validate.

C: I notice that a lot of people do not indicate their voting status and affiliation in the webex. This will make things more difficult to validate their vote in case of motion.

No more question.

* 1. [11-23/0046r1](https://mentor.ieee.org/802.11/dcn/24/11-24-0046-01-00bi-privacy-protection-for-sae-credentials.docx): Privacy Protection for SAE Credentials**:** Jouni Malinen

Second presentation after minimal editorial changes.

* + 1. Discussion

Q: For this mechanism to work the station need the public key, and how it obtains it is not so clear.

A: the pwd is configured and for the very first time you can use the SAE. I may add a note clarifying the mechanism.

Q: Chair ask if the author would like to change anything to answer comments received.

C: Author Since there is no negative comment, I propose to push this is the spec.

C: I would like to have a straw poll on this

C: I need more details on how to update public keys. It’s too early to vote on this contrib.

C: not really familiar with this subject. Need more time to analyze

SP#3 : requested by Jouni

SP#3 text : “Approve adding the text in 11-24-0046r1 into the TGbi’s D0.1 ?”

SP#3: result 18/22/9/6

Post SP discussion:

C: I see many people voting against but didn’t ear them, so I would like to know the technical issue.

C: We have a requirement and this is the only proposal we have today. If there is another solution, please provide it.

Q: Is it just a text that we could explain in graphic form before having this document to make it easier to people to understand how it solves the problem.

A: This is a long history on this. A high-level presentation has been made but not in the 11bi group.

No more question.

* 1. [11-23/1664r3](https://mentor.ieee.org/802.11/dcn/23/11-23-1664-03-00bi-proposed-spec-texts-for-pmkid-requirement.docx): Proposed spec texts for PMKID requirement**:** Po-Kai Huang

Author explained that the document has been reworked a little with other member offline and present the modifications.

* + 1. Discussion

Q: I see an issue in not reusing the PMKID, and I don’t see how the computation is done.

A: Everytime you recalculate the PMKID, the snounce and Anounce are recalculated.

Q: I think we may have a legacy issue with this new computation mechanism

A: PMKID recomputation is specific to 11bi so there is no legacy issue. Other computation are unchanged.

Q: if the Anounce is spoofed since there is no protection on it, we have security issue

A: I don’t see security issue there since the snounce and Anounce are recomputed each time.

C: the first time a station calculate its PMKid , this is not using this new mechanism right ?

A: yes.

Q: I would like to see what re-computation means and when is it applied.

A: Do you request the usage scenario?

A: something like that. Let describe when do you do this re-computation and why.

C: The existing chapter indicate the generation of the PMKId and you add a re-computation here. Please clarify its usage here.

C: Please add a reference to the chapter 12.6.8.3 to the REVme that handle this part.

A: OK.

C: In Chapter 12.13.X you can add a little more informative text here to introduce the followings.

A: I am ok to write an introduction here.

Friendly online modification of the 12.13.x occurred to clarify when the PMKSA caching recomputing occurred.

Only the text on the PMKID text has been reviewed.

Author to generate a r4 removing the part that has not been discussed to review it tomorrow.

No More questions.

Chair indicate she will refresh member’s mind tomorrow about the rules we decided at the creation of the group.

Chair also indicate she is concerned by the fact that we may not have a D0.1 and we need a starting point to discuss.

1. Chair recessed the meeting at 17:58 EDT

**4th slot : Thursday January 18th 2024, 13:30 local time.**

**Chair: Carol Ansley, Cox Communications**

**Secretary: Stéphane Baron**

**Vice-chairs: Jerome Henry, Cisco; Stephen McCann, Huawei**

**Technical editor: Po-Kai Huang, Intel**

Chair calls meeting to order at 13:32 Local time.

Agenda slide deck: [11-23-2163r3](https://mentor.ieee.org/802.11/dcn/23/11-23-2163-03-00bi-january-interim-tgbi-agenda.pptx):

1. Reminder to do attendance

Reminder to register for the session and to not attend the virtual meeting without paying appropriate meeting fees.

1. Review of policies and procedures.
	1. IEEE individual process slides were presented.
2. The chair mentioned the call for essential patents
	1. No one responded to the call for essential patents
3. The chair covered the IEEE copyright policy and participation rules.
	1. No questions
4. **Discussion of agenda 11-23-2163r2 (slide #15)**
	1. Discussion on agenda

No discussion

* 1. Adoption of agenda by unanimous consent (25 participants online, 8 in the room).
1. **Administrative**
	1. Teleconferences Schedule:

Weekly Thursday at 10amET

Feb. 1, Feb. 8, Feb. 15, Feb. 22, Feb. 29, Mar. 7

* 1. Discussion

Q: Can we remove Feb 22th due to conflict with another meeting ?

A:OK

Feb 22th is removed from the list.

1. Way forward:

Suggest a D0.1 with already approved texts, plus an outline only structure for new EDP sections

No text, just outlines to be ready on Feb 1rst.

So that people can present text to fill that outline.

Consider also updating our timeline to have a draft 0.1 for letter ballot after

March meeting.

Discussion:

Q: We already have dome text that pass SP, like general intro, and so one, so can we put that in a D0.1 to stabilize things.

A: That is what I intend to ask the technical editor.

Q: Do the tech editor think we shouldn’t put the outline today?

A: (Tech Editor) I do not have the outline today, so if we agree of Feb 1rst on the outline I can update the draft to a D0.2.

C: I think we can work offline with people involved in this part of the document (Outline ) to converge an arrive in good conditions at the Feb 1rst meeting.

Q: Should we motion the content of D0.1?

A: Yes, I think we should.

Tech editor list the documents that are currently accepted

o 11-23/2098r3 before tag. Tag in 2098r3 is “<The text following this point as not been agreed>”

o 11-23/0031r4o 11-23-1214r4o 11-23-1160r4o 11-23/851r2o 11-23/1079r1o 11-22-1975r4

Discussion:

Q: can we pull 2098r3 out of the list.

A: OK, let’s have a dedicated motion for this one.

Q: Do we speak for 2098 only on the agreed part or the whole document?

A: Only the agreed part.

Q: Can we also remove 1214?

A: OK, we will have a separated motion for it.

**Motion#36** : **moved** by: Jerome Henry, **Seconded** by: Po-Kai Huang

**Motion#36 text** :

“The Technical Editor is instructed to create a Draft 0.1 with the following texts that have been approved for inclusion in earlier discussions.

o 11-23-0031r4

o 11-23-1160r4

o 11-23-0851r2

o 11-23-1079r1

o 11-22-1975r4”

Discussion :

Q:Motion text concern the creation of D0.1, can we add anything after.

A: the other motions will be added to the D0.1 if they pass.

Chair ask if anybody object to this motion or if the group can approve the motion by unanimous consent.

One member requested a count.

Motion is then run.

**Motion#36 result**: Y: 26/ No: 4/ Abstain :10: **Motion#36 passes**.

The chair then run the two separated motions;

**Motion#37** : **Moved** by Po-Kai, **Seconded** by Duncan Ho

**Motion#37:**

The Technical Editor is instructed to add to Draft 0.1 the following text that was approved for inclusion in earlier discussions.

o 11-23-1214r5

**Motion#37 result**: Y: 22/ No:3/ Abstain:11: **Motion#37 passes.**

**Motion #38: text:**

The Technical Editor is instructed to add to Draft 0.1 the following text that was approved for inclusion in earlier discussions.

o 11-23-2098r5

**Discussion:**

C: This document is a last-minute edition; I would rather recommend to provide a document combining Stephane’s document (24-11/0079) and this one and provide a combined version before March.

Q: Can the presenter present the document?

A:ok.

The presenter presents the doc r5 that only contains the introduction.

Q: Is there any value in voting for a non-normative text since this is only introduction text. So why should we motion this text now.

A: This is up to the group to request a motion or not. I think this is a starting point and is ok for D0.1.

C: I support the inclusion of this text;

**Motion#38:**  **Moved** by Duncan Ho, **Seconded** by Stéphane Baron

The Technical Editor is instructed to add to Draft 0.1 the following text that was approved for inclusion in earlier discussions.

o 11-23-2098r5

**Motion#38 result:** Yes: 14 / No: 20 / Abstain 7: **Motion#38 Fails**

Q: when will the official results be published?

A: The minutes are the official results.

Chair indicated the intention to run a new motion for the remaining part. On Feb 1rst telecon.

1. **Technical Submissions**
	1. 11-24/1984r1: Domenico’s doc

New revision of the document presented earlier in a previous telecon.

The document highlights the benefit of the mass rotation to ensure anonymity for a given STA.

* + 1. Discussion

Q: I start to see value for mass rotation; however, this is super difficult to quantifies (number of STA required for anonymity). This mainly depends on traffic. So, I think a more frequent change of MAC address would provide a better privacy.

A: I agree this is difficult to measure the gain in privacy, But I think both (Mass and Individual) mechanisms improve the situation.

Q: Do you consider the group address change can be repeating? I mean repeating Epoch start time without need of new signaling by the AP.

A: Interesting point, I think this is a good Idea. The periodicity yes, with a kind of randomicity as proposed in other proposals.

Q: On slide 9: There is quite a lot of signaling here. The AP has to signal each epoch, each station has to register etc. This creates a lot of frame exchanges. Can we reduce the signaling?

A: This is a good point; I can think of.

Q: Do you think there should be only one group, to serve different station requirement?

A: Good point, we can think having more than one group.

Q: I see a good point in cancelling the change if not enough people, and I also the see an interest in reducing the number of frame exchange.

A: I fully agree with that.

Q: You think we should support same mechanism for individual (the cancellation part)

A: I do not address individual change in this contribution.

Q: One important point is to consider the complexity from the AP point of view. The AP has to keep track of station registering to a given group to signal there is not enough people in this group.

A: I agree the cancellation is little more complex for the AP.

Q: What is the harm if only 2 stations changes.

A: In that case they do not have anonymity.

* **Initial test SP#4**: “Do you agree that both individual (single non-AP STA) and Mass (all STAs) rotations are needed to guarantee anonymity and privacy to non-AP STAs in the BSS?”

Question:

Q: Does it means that both rotations (individual, or group) are needed for a sta?

A: I do not target a single sta.

C: can you indicate group of sta instead of all STAs?

A: OK

Q: Can you divide it into 2 SPs for individual and group?

A: Considering the remaining time I prefer to run this one.

Q: What is the difference between group and individual here?

A: Group groups several STAs, while Individual concerns only on STA.

**SP#4 result**: Yes: 13/ No: 4/ Abstain: 8/ no answer :12

No more question.

1. Chair adjourned the meeting at 15:30 EDT