IEEE P802.11
Wireless LANs

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| IEEE 802.11bf - November 2021 Plenary Meeting Minutes |
| Date: 2021-11-15 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Leif Wilhelmsson | Ericsson AB | Mobilvägen 1, 22632 Lund, Sweden | +46-706-216956 | leif.r.wilhelmsson@ericsson.com |

Abstract

Rev 0: This document contains the meeting minutes of IEEE 802.11bf teleconferences held during the November 2021 IEEE 802.11 Plenary meeting.

Rev 1: Typo corrected in the abstract.

**Tuesday, November 9, 2021, 9:00-11:00 am (ET)**

**Meeting Agenda:**

The meeting agenda is shown below, and published in the agenda document:

<https://mentor.ieee.org/802.11/dcn/21/11-21-1597-01-00bf-tgbf-meeting-agenda-2021-11-plenary.pptx>

1. Call the meeting to order
2. Patent policy and logistics
3. Approve TGbf meeting minutes
4. TGbf Timeline
5. Call for contribution
6. Teleconference Times
7. Presentation of submissions
8. Any other business
9. Recess
10. The chair, Tony Xiao Han, calls the meeting to order at 9:00am (about 170 persons are on the call after 10 minutes of the meeting).
11. The chair goes through “Meeting Protocol, Attendance, Voting &Documentation Status” (slide 4), “Registration for the November 802 electronic Plenary session” (slide 5), “Participants have a duty to inform the IEEE” (slide 7), and “Ways to inform IEEE” (slide 8).

The chair makes a Call for Potentially Essential Patents. No potentially essential patents reported, and no questions asked.

The chair goes through “Other Guideline for IEEE WG meetings” (slide 9), “Patent-related information” (slide 10), “ IEEE SA Copyright Policy” (slides 11 and 12), “Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct” (slide 13), “Participants in the IEEE-SA “individual process” shall act independently of others, including employers”(slide 14), and “IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints” (slide 15), and “Required notices” (slide 16).

The chair goes through the agenda (slide 17) and asks if there are any questions or comments on the agenda. No response from the group.

The chair asks if there is any objection to approve the agenda by unanimous consent. No objection from the group so the agenda is approved.

1. **Motion: Approve TGbf meeting minutes:**

Move to approve TGbf minutes of meetings and teleconferences from September 2021 meeting to today:

* + September Interim: <https://mentor.ieee.org/802.11/dcn/21/11-21-1567-03-00bf-ieee-802-11bf-september-2021-interim-meeting-minutes.docx>
	+ Teleconferences September - November: https://[mentor.ieee.org/802.11/dcn/21/11-21-1674-05-00bf-802-11bf-teleconference-minutes-september-november-2021.docx](https://mentor.ieee.org/802.11/dcn/21/11-21-1674-05-00bf-802-11bf-teleconference-minutes-september-november-2021.docx)

**Move:** Leif Wilhelmsson

**Second:** Claudio da Silva

**Result:** Motion passed by unanimous consent.

1. The Chair presents the TGbf Timeline (slide 19 and slide 20).
2. The Chair presents slide 21, Call for contributions.
3. The Chair presents the teleconference times, (slide 22).
4. Presentation of submissions:

**11-21/1445r2, “Requirements for Sensing Transmitters”, Dong Wei (NXP):**

The contribution has already been presented and some time has been spent on Q&A. The Q&A was not finalized in the last session and the SP was not run so this is to give chance for more Q&A as well as running the SP.

Q: With respect to that no beamforming should be applied to sensing NDPs, I think there are situations like monostatic sensing where it makes sense to apply beamforming. I believe we should not require this in the spec by using the word “shall”.

A: I agree with your point.

Q: This is for sub 7 GHz?

A: Yes.

**Straw poll 1a:**

**For the NDP in 11bf, which of the following beamforming requirements do you agree?**

* 1. No beamforming steering matrix is applied to the waveform (i.e. the same as in 11az).
	2. The beamforming steering matrix shall be kept unchanged when transmitting multiple sounding NDPs during a sensing session.
	3. No restriction is imposed on the beamforming steering matrix being applied to the waveform.

Based on rather detailed discussions, it is decided to defer the SP.

**11-21/1701r0, “Measurement setup termination”, Solomon Trainin (Qualcomm):** There are several reasons why the Initiator or Responder may want to terminate the Measurement setup. This contribution proposes the basic rules for such a termination.

Q: This is different than Session termination?

A: Yes.

Q: Why do you need more than one Measurement set-up between two devices?

A: Could e.g., be used for different applications.

**Straw Poll:** Do you agree to append to the SFD the rules in slides 5 and 6?

**Result:** Y/N/A: 32/4/59

**11-21/1433r1, “Non-TB sensing measurement”, Cheng Chen (Intel):** The contribution has already been presented. Based on some feedback, the presentation and the SP has been updated.

Q: This proposal does not require any PHY change?

A: Correct.

**Straw Poll:**

Do you agree with the following?

* 11bf shall define a non-Trigger based (non-TB) sensing measurement instance as follows:
	+ One non-AP STA is the sensing initiator and one AP is the sensing responder.
	+ Once the non-AP STA obtains a TXOP, it shall initiate a non-TB sensing measurement instance by transmitting an NDPA frame to the AP followed by an Initiator-to-Responder (I2R) NDP SIFS after. SIFS after the I2R NDP, the AP shall transmit a Responder-to-Initiator (R2I) NDP to the non-AP STA.
	+ If the non-AP STA is only the sensing transmitter, then the R2I NDP should be transmitted with minimum possible length with one LTF symbol.
	+ If the non-AP STA is only the sensing receiver, then the I2R NDP should be transmitted with minimum possible length with one LTF symbol.
	+ The details of the NDPA frame are TBD.

**Result:** Y/N/A: 24/17/51

**11-21/1736r0, “Role Negotiation in WLAN Sensing Procedure”, Insun Jang (LGE):** The contribution proposes to clarify the details for how it is determined which one of the devices should take different roles.

Run out of time.

The chair will allocate 10 minutes in the next session for discussions on the SP.

1. The Chair asks if there is any other business. No response from the group.
2. The meeting is recessed without objection at 10.55 am (ET).

**Friday, November 12, 2021, 9:00-11:00 am (ET)**

**Meeting Agenda:**

The meeting agenda is shown below, and published in the agenda document:

<https://mentor.ieee.org/802.11/dcn/21/11-21-1597-02-00bf-tgbf-meeting-agenda-2021-11-plenary.pptx>

1. Call the meeting to order
2. Patent policy and logistics
3. TGbf Timeline
4. Call for contribution
5. Teleconference Times
6. Presentation of submissions
7. Any other business
8. Recess
9. The chair, Tony Xiao Han, calls the meeting to order at 9:00am (about 130 persons are on the call after 20 minutes of the meeting).
10. The chair goes through “Meeting Protocol, Attendance, Voting &Documentation Status” (slide 4), “Registration for the November 802 electronic Plenary session” (slide 5), “Participants have a duty to inform the IEEE” (slide 7), and “Ways to inform IEEE” (slide 8).

The chair makes a Call for Potentially Essential Patents. No potentially essential patents reported, and no questions asked.

The chair goes through “Other Guideline for IEEE WG meetings” (slide 9), “Patent-related information” (slide 10), “ IEEE SA Copyright Policy” (slides 11 and 12), “Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct” (slide 13), “Participants in the IEEE-SA “individual process” shall act independently of others, including employers”(slide 14), and “IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints” (slide 15), and “Required notices” (slide 16).

The chair goes through the agenda (slide 23) and asks if there are any questions or comments on the agenda. No response from the group.

The chair asks if there is any objection to approve the agenda by unanimous consent. No objection from the group so the agenda is approved.

1. The Chair presents the TGbf Timeline (slide 24 and slide 25).
2. The Chair presents slide 26, Call for contributions.
3. The Chair presents the teleconference times, (slide 27).
4. Presentation of submissions:

**11-21/1736r1, “Role Negotiation in WLAN Sensing Procedure”, Insun Jang (LGE):** This is a continuation from the last session. The contribution has been updated to r1.

Q: In the SP, I believe it should be more specific what roles mean.

Q: In SP3, there is also possibility that the initiator is neither transmitter nor receiver.

As a result of this comment the SP2 is modified and SP3 is removed.

**Straw Poll 1:**

* Do you agree that during a sensing measurement setup between STAs roles of the STAs shall be determined as one of the following?
* Sensing Receiver
* Sensing Transmitter
* Sensing Transmitter and Receiver
* Note: Neither case is TBD

**Result:** Y/N/A: 34/6/23

**Straw Poll 2:**

* Do you agree that the role(s) of a STA corresponding to a sensing measurement setup ID until the measurement setup is terminated shall be fixed as determined during the measurement setup?

**Result:** Y/N/A: 35/7/22

**11-21/1735r0, “Procedure of Sensing Measurement Setup”, Insun Jang (LGE):** The contribution proposes to clarify the details for the measurement setup.

Q: I wonder if we really need this negotiation.

Q: There is a typo on page 8. The element does not include the frame, it is the other way around.

The straw polls are deferred.

**11-21/1751r0, “Consideration for NDPA in 11BF”, Dongguk Lim (LGE):** In this contribution the design of the NDPA frame for WLAN sensing is considered.

Q: I want to understand what additional information we need to signal?

Q: If you try to keep NDPA as is, I believe you have a problem. I believe you need to do something. I propose to discuss this more and not decide at this moment.

The chair asks about future plans. Dongguk explains that the idea is to get feedback and update the presentation based on this.

1. The Chair asks if there is any other business. No response from the group.
2. The meeting is recessed without objection at 11.03 am (ET).

**Monday, November 15, 2021, 9:00-11:00 am (ET)**

**Meeting Agenda:**

The meeting agenda is shown below, and published in the agenda document:

[https://mentor.ieee.org/802.11/dcn/21/11-21-1597-06-00bf-tgbf-meeting-agenda-2021-11-plenary.pptx](https://mentor.ieee.org/802.11/dcn/21/11-21-1597-02-00bf-tgbf-meeting-agenda-2021-11-plenary.pptx)

1. Call the meeting to order
2. Patent policy and logistics
3. TGbf Timeline
4. Call for contribution
5. Teleconference Times
6. Motion (34-37)
7. Presentation of submissions
8. Any other business
9. Adjourn
10. The chair, Tony Xiao Han, calls the meeting to order at 9:00am (about 60 persons are on the call after 15 minutes of the meeting).
11. The chair goes through “Meeting Protocol, Attendance, Voting &Documentation Status” (slide 4), “Registration for the November 802 electronic Plenary session” (slide 5), “Participants have a duty to inform the IEEE” (slide 7), and “Ways to inform IEEE” (slide 8).

The chair makes a Call for Potentially Essential Patents. No potentially essential patents reported, and no questions asked.

The chair goes through “Other Guideline for IEEE WG meetings” (slide 9), “Patent-related information” (slide 10), “ IEEE SA Copyright Policy” (slides 11 and 12), “Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct” (slide 13), “Participants in the IEEE-SA “individual process” shall act independently of others, including employers”(slide 14), and “IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints” (slide 15), and “Required notices” (slide 16).

The chair goes through the agenda (slide 24) and asks if there are any questions or comments on the agenda. No response from the group.

The chair asks if there is any objection to approve the agenda by unanimous consent. No objection from the group so the agenda is approved.

1. The Chair presents the TGbf Timeline (slide 25 and slide 26). The chair points out that it is unchanged, but that in the next meeting it will be discussed.
2. The Chair presents slide 27, Call for contributions.
3. The Chair presents the teleconference times, (slide 28).
4. Presentation of submissions:

**11-21/1751r1, “Consideration for NDPA in 11BF”, Dongguk Lim (LGE):**

This contribution was presented in the last session, but there was not enough time to discuss the SPs.

Q: Would it be possible to defer the SP? I believe we need more time to consider this since I believe this also has impact on other amendments.

A: I want to check what the group thinks.

Q: I would also suggest deferring the SP. Things are not clear so I don’t think the result will help you in making any decision.

Q: In Approach 2 in SP1, would there be different versions for e.g., 11ax and 11be?

A: I think it would be possible to define one that can be used for all versions.

**Straw Poll 1:**

* Which approach do you prefer to design the sensing NDPA frame variant?
	+ Approach1: Reuse the defined NDPA frame variant
	+ Approach2: Define the sensing NDPA frame variant
	+ Abs
	+ NOTE: It is not for 11bf SFD.

**The SP is deferred.**

**Motions:**

**Motion 34: Move to add the following to 11bf SFD:**

* In reporting phase, the measurement results from multiple measurement setups of a sensing responder may be included in a single measurement report frame for delayed reporting.
	+ Support for obtaining more than one measurement results in a single measurement report frame sent by the responder is optional for the initiator.
	+ Support for buffering more than one measurement result and sending it in a single measurement report frame to the initiator is optional for the responder.

**Move:** Chaoming Luo

**Second:** Lei Huang

**Result:** Motion passed by unanimous consent.

**Note:**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 21/1438r1
* SP Result: 16Y/ 5N/ 13A

**Motion 35:**

* **Motion to incorporate the text on slides 5, 6 of 11-21-1701-01-00bf Measurement setup termination into the SFD.**

**Move:** Solomon Trainin

**Second:** Rajat Pushkarna

**Result:** Motion passed by unanimous consent.

**Note:**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 21/1701r1
* SP Result: 32Y/ 4N/ 59A

**Motion 36: Move to add the following to 11bf SFD:**

* During a sensing measurement setup, role(s) of a sensing responder shall be determined as one of followings:

– Sensing Receiver

– Sensing Transmitter

– Sensing Transmitter and Receiver

**Move:** Insun Jang

**Second:** Sang Kim

**Result:** Motion passed by unanimous consent.

**Note：**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 21/1736r2
* SP Result: 34Y/ 6N/ 23A

**Motion 37: Move to add the following to 11bf SFD:**

* The transmitter and receiver role(s) of a STA corresponding to a sensing measurement setup ID until the measurement setup is terminated shall be fixed as determined during the measurement setup.

**Move:** Insun Jang

**Second:** Dongguk Lim

**Preliminary Result:** Motion passed by unanimous consent.

**Note：**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 21/1736r2
* SP Result: 35Y/ 7N/ 22A

**Presentation of submissions:**

**11-21/1776r1, “Support for Sensing Measurement Instances”, Dong Wei (NXP):** The sensing may or may not require that a measurement report is sent, depending on whether the initiator is the sensing transmitter or sensing receiver. It is proposed that it should be mandatory to support the case where no report is required.

Q: I believe it is too early to discuss mandatory and optional as we are not even at D0.1.

**Straw Poll 1:**

Do you agree with the following?

* Support for sub-7 GHz sensing measurement which does not require measurement report is mandatory.
* Support for sub-7 GHz sensing measurement which requires measurement report is optional.

**Result:** Y/N/A: 24/20/13

**Straw Poll 2:**

Do you agree with the following?

* Support for sub-7 GHz sensing measurement which requires measurement report is optional.

**Result:** Y/N/A: 24/17/14

1. The Chair asks if there is any other business. No response from the group.
2. The meeting is adjourned without objection at 10.55 am (ET).