IEEE P802.11
Wireless LANs

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| IEEE 802.11bf - May 2022 Interim Meeting Minutes |
| Date: 2022-05-21 |
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Abstract

Rev 0: This document contains the meeting minutes of IEEE 802.11bf teleconferences held during the May 2022 IEEE 802.11 Interim meeting.

**Tuesday, May 10, 2022, 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/22/11-22-0583-02-00bf-tgbf-meeting-agenda-2022-05-interim.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. Vice Chair/Secretary election/reaffirmation: Call for nominations
8. Presentation of submissions
9. Motion (96-98)
10. Any other business?
11. Recess
12. The chair, Tony Xiao Han, calls the meeting to order at 9:00am (about 50 persons are on the call after 10 minutes of the meeting).
13. The chair goes through “Meeting Protocol, Attendance, Voting &Documentation Status” (slide 4), “Registration for the May 802.11 interim 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 March 2022 meeting to today:
	* March Plenary: <https://mentor.ieee.org/802.11/dcn/22/11-22-0499-00-00bf-ieee-802-11bf-march-2022-plenary-meeting-minutes.docx>
	* Teleconferences March- May:

<https://mentor.ieee.org/802.11/dcn/22/11-22-0512-19-00bf-ieee-802-11bf-teleconference-minutes-march-may-2022.docx>

**Move:** Leif Wilhelmsson

**Second:** Alecsander Eitan

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

1. The Chair presents the TGbf Timeline (slide 22).
2. The Chair presents slide 23, Call for contributions.
3. The Chair presents the teleconference times (slides 24 and 25).
4. Vice Chair/Secretary election/reaffirmation: Call for nominations

The Chair presents slide 26

1. Presentation of submissions:

**11-22/0676r0, “Guidelines for Comment Resolution (D0.1)”, Claudio da Silva (Meta):**

Claudio goes through the guidelines and roles for PoC and volunteers. Claudio also explains that he has slightly update the list of topics in that some of them have been combined.

**11-22/0663r2, “Harmonization for TGbf NDPA”, Junghoon Suh (Huawei):** Different proposals for TGbf NDPA have been presented and this is an attempt to harmonize these proposals. Essentially, it is proposed to have two different NDPAs.

Q: I don’t think makes sense to have two different modes if we want to make things simple.

Q: Basically, I share the same view.

**Straw Poll 1:** Do you agree to support two modes of NDPA depending on the type of NDP PPDU?

* One mode of reusing the Ranging NDPA
* The other mode of the new NDPA Frame using the Control Frame Extension subtype in the Frame Control Field

**Result:** Y/N/A: 9/24/16

1. Motions

**Motion 96:** Move to add the following to the TGbf SFD:

* In the formatting of the Sensing Measurement report all the in-phase and quadrature components of each of the tones of the CSI from a given measurement instance for a given TX/RX antenna pair, shall be scaled with the same value.

**Move:** Steve Shellhammer

**Second:** Oscar Au

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

**Note：**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 22/0533r3
* SP Result: Unanimous consent

**Motion 97:** Move to add the following to the TGbf SFD:

* + If a STA supports the Sensing Measurement report, then the conditionally mandatory and optional supported values of Ng in the Sensing Measurement report shall depend on the number of transmit antennas and the NDP bandwidth according to the following table:

|  |  |  |
| --- | --- | --- |
| **Condition** | **Conditionally****Mandatory Ng Support** | **Optional Ng Support** |
| $$N\_{TX}\leq 4$$ | 4 | 16 |
| $$N\_{TX}\geq 5 and BW\leq 80 MHz$$ | 4 | 16 |
| $$N\_{TX}\geq 5 and BW=160 MHz$$ | 8 | 16 |

 • Note, this is relative to a 4x LTF

 • The indices for the Ng = 8 for a 160 MHz NDP are specified in the following table:

|  |  |  |
| --- | --- | --- |
| **Channel Width** | **Ng** | **Indices** |
| 160 MHz | 8 | -1012, -1004, … -20, -12, 12, 20, … 1004, 1012 |

 Note: The maximum number of transmit antennas is 8.

**Move:** Steve Shellhammer

**Second:** Cheng Chen

**Preliminary Result:** Y/N/A: 32/6/11, Motion passes

**Result\*:**

**Note：**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 22/0533r3
* SP Result: 45Y/ 13N/ 12A

**Motion 98:** Move to add the following to the TGbf SFD:

* The Sensing Measurement report shall support word size values for the in-phase and quadrature components of the scaled CSI of both Nb = 8 and Nb = 10 bits.

**Move:** Steve Shellhammer

**Second:** Oscar Au

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

**Note：**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 22/0533r3
* SP Result: Unanimous consent

Presentation of submissions, cont’d:

**11-21/1921r1, “Partial CSI Feedback”, Rojan Chitrakar (Panasonic):** Based on the observation that many applications do not need complex valued CSI, but only amplitude or phase, it is proposed to have alternatives for reporting CSI.

Q: I am a bit concerned of introducing optional methods at this point in time.

A: Would it be easier to support the SP if I remove the part related to SFD, and just run it for information.

As a result of this comment, the SP is updated accordingly.

**Straw Poll1:**

* Do you agree that the following two optional Sensing Measurement Report Type values are supported by 11bf :
	1. CSI\_Amplitude: Only the amplitude component of the CSI is reported.
	2. CSI\_Phase: Only the phase component of the CSI is reported.

**Result:** Y/N/A: 24/16/13

**11-22/0647r1, “Information Exchange of WLAN Sensing Link”, Rui Du (Huawei):** The topic of this contribution is the impact of AGC adjustments. Specifically, it is emphasized that there are non-linear effects which makes it hard to compensate for. The effect is that changes in the channel may be falsely detected.

Run out of time.

1. The Chair asks if there is any other business. No response from the group.
2. The meeting is recessed without objection at 11.01 am (ET).

**Wednesday, May 11, 2022, 10:00pm-12:00am (ET)**

**Meeting Agenda:**

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

<https://mentor.ieee.org/802.11/dcn/22/11-22-0583-03-00bf-tgbf-meeting-agenda-2022-05-interim.pptx>

1. Call the meeting to order
2. Patent policy and logistics
3. TGbf Timeline
4. Call for contribution
5. Teleconference Times
6. Vice Chair/Secretary election/reaffirmation: Motion 99
7. Presentation of submissions
8. Any other business?
9. Recess
10. The chair, Tony Xiao Han, calls the meeting to order at 10:00pm (about 60 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 May 802.11 interim 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 19) and asks if there are any questions or comments on the agenda. No response from the group. The chair mentions that the timeline, call for contributions, and teleconference times are unchanged and these are therefore not discussed explicitly.

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. Vice Chair/Secretary election/reaffirmation: Motion 99

**Motion 99:** Vice Chair/Secretary election/reaffirmation

Move to reaffirm Sang Kim and Assaf Kasher as TGbf Vice-Chairs, and reaffirm Leif Wilhelmsson as TGbf Secretary.

**Move:** Jinsoo Choi

**Second:** Oscar Au

**Result:** Motion passed by unanimous consent. (57 persons present)

1. Presentation of submissions:

**11-22/0647r1, “Information Exchange of WLAN Sensing Link”, Rui Du (Huawei):** This is a continuation from the last session.

The topic of this contribution is the impact of AGC adjustments. Specifically, it is emphasized that there are non-linear effects which makes it hard to compensate for. The effect is that changes in the channel may be falsely detected.

Q: I believe things may depend on how you implement the AGC.

Q: We have also seen similar behavior as you report.

Q: I believe SP1 is not in the scope of what we should standardize.

As a result of the comments from the group, the SPs are deferred and Rui will continue with off-line discussions.

**11-22/0649r2, “WLAN Two-Way Sensing Use Cases”, Oscar Au (Origin Wireless):** This contribution proposes that it should also be possible to perform sensing between two responders.

Q: I believe we need more details how to do this, just to understand how this fits to what we already have.

Q: Some STA may be able to do two-way, whereas others are not?

A: Yes, this is possible.

Q: I believe it is limiting to do two-way. I believe one can have many STAs to use a single packet for performing sensing.

**Straw Poll:** Do you agree to add the following to SFD and D0.1?

*“In the optional responder-to-responder sensing, a first sensing responder should be allowed to perform one-way sensing or two-way sensing with a second sensing responder. In the one-way sensing, an NDP is sent from the first responder to the second responder. In the two-way sensing, an NDP is sent from the first responder to the second responder followed by another NDP sent from the second responder to the first responder.”*

Based on the discussions, the SP is not run.

**11-22/0677r0, “Stopping a Particular Responder in SBP”, Oscar Au (Origin Wireless):**

The contribution suggests that it should be possible to pause a sensing session if for instance the conditions become worse for some time.

Q: I believe you are adding a lot of complexity. We already have the possibility to just terminate and start a new one.

**Straw Poll 1:** Do you agree to add the following to SFD (and/or D0.1)?

*“The SBP initiator should be able to request to, and the SBP responder (an AP) should be able to, stop a sensing procedure with a particular sensing responder.”*

*Note: This will not stop the SBP.*

**Result:** Y/N/A: 10/16/17

The remaining SPs are deferred.

**11-22/0556r4, “PN and SN for sensing”, Chaoming Liu (OPPO):** This has been presented already, but SP 2 was deferred to give the group more time for consideration.

**Straw Poll:** Do you agree to add the following into 11bf SFD?

* For a QMF STA, the ‘**SNS4**’ (SNS for QMFs) in ‘*Table 10-5 Transmitter sequence number spaces*’ and ‘**RC6**’ (RC for QMFs) in ‘*Table 10-6—Receiver caches*’ shall be used for sensing Management frames (both public and protected).
* **Two new entries** are added into ‘*Table 11-18 Default QMF policy*’ correspondingly as shown in slide 9. (The exact frame types are TBD)
* For a non-QMF STA, the ‘**SNS1**’ (SNS for Baseline) in ‘*Table 10-5 Transmitter sequence number spaces*’ and ‘**RC1**’ (RC for Not QoS Data) in ‘*Table 10-6—Receiver caches*’ shall be used for sensing Management frames (both public and protected).
* *Note: the referenced tables are in ‘P802.11REVme\_D1.2’*

**Result:** Y/N/A: 16/1/25

1. The Chair explains that he intends to cancel the meeting on Friday as there are few contributions in the queue. The Chair asks if there is any other business. No response from the group.
2. The meeting is recessed without objection at 00.03 am (ET).

**Monday, May 16, 2022, 9:00am-11:00am (ET)**

**Meeting Agenda:**

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

<https://mentor.ieee.org/802.11/dcn/22/11-22-0583-05-00bf-tgbf-meeting-agenda-2022-05-interim.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. Adjourn
9. The chair, Tony Xiao Han, calls the meeting to order at 9:00am (about 30 persons are on the call after 10 minutes of the meeting).
10. The chair goes through “Meeting Protocol, Attendance, Voting &Documentation Status” (slide 4), “Registration for the May 802.11 interim 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 21) and asks if there are any questions or comments on the agenda. .

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 22), which is unchanged. Claudio reminds that Friday is the end of the comment collection period.
2. The Chair presents slide 23, Call for contributions, whichis unchanged.
3. The Chair presents the teleconference times (slides 24 and 25), which is unchanged.
4. Presentation of submissions:

**11-22/0721r0, “Discussion on the length of Measurement Setup ID”, Pei Zhou (OPPO):** The length of the Setup ID is still TBD. This contribution discusses this subject.

After some discussion and feedback from the group, the SPs are deferred.

**11-22/0401r4, “Sensing Security”, Michael Montemurro (Huawei):** Mike provides a summary of the discussion and progress that have been made in off-line meetings.

**11-22/0781r1, “Changes in EDMG Multistatic PPDU”, Assaf Kashed (Qualcomm):** Based on feedback from the group and on off-line discussion a new PPDU structure is proposed.

**11-22/0464r4, “PDT EDMG Multi-Static PPDU Structure”, Assaf Kashed (Qualcomm):** This is the word document corresponding to 11-22/0781r1.

The SP is deferred after some discussion in the group.

1. The Chair asks if there is any other business. No response from the group.
2. The meeting is adjourned without objection at 10.49 am (ET).