IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IEEE 802.11bf - September 2021 Interim Meeting Minutes | | | | |
| Date: 2021-09-20 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Leif Wilhelmsson | Ericsson AB | Mobilvägen 1, 22632 Lund, Sweden | +46-706-216956 | [leif.r.wilhelmsson@ericsson.com](mailto:leif.r.wilhelmsson@ericsson.com) |

Abstract

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

**Tuesday, September 14, 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/21/11-21-1304-01-00bf-tgbf-meeting-agenda-2021-09-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. Presentation of submissions
8. Any other business
9. Recess
10. The chair, Tony Xiao Han, calls the meeting to order at 9:00am (about 80 persons are on the call after 30 minutes of the meeting).
11. The chair goes through “Meeting Protocol, Attendance, Voting &Documentation Status” (slide 4), “Registration for the September 802 electronic 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 July 2021 meeting to today:

* + July Plenary: <https://mentor.ieee.org/802.11/dcn/21/11-21-1306-00-00bf-ieee-802-11bf-july-2021-plenary-meeting-minutes.docx>
  + Teleconferences July - September: [https://](NULL)[mentor.ieee.org/802.11/dcn/21/11-21-1314-04-00bf-ieee-802-11bf-teleconference-minutes-july-september-2021.docx](https://mentor.ieee.org/802.11/dcn/21/11-21-1314-04-00bf-ieee-802-11bf-teleconference-minutes-july-september-2021.docx)

**Move:** Leif Wilhelmsson

**Second:** Rojan Chitrakar

Motion passed by unanimous consent.

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

**11-21/1431r0, “A framework for (E)DMG multi/bistatic radar”, Assaf Kasher (Qualcomm):**

The contribution discusses a framework for a framework for the PHY and lower MAC of a bistatic/multi-static radar/sensing in DMG and EDMG. Bi-static sensing only requires minor changes, whereas multi-static sensing requires more changes and may potentially be more efficient in some cases.

Question/Comment(Q): The main purpose is to reuse what we have?

Answer(A): Yes, but to modify the procedure where necessary.

Q: What is the difference between multi BI-static and Multi-Static?

A: In Multi-static sensing, there is only one transmission. In Multi BI-static there are several transmissions.

The chair asks about the next steps. Currently no specific plans.

**11-21/1409r0, “Channel Models for WLAN Sensing Systems”, Yi Lv (Huawei)**

This is a continuation of the presentation in the last teleconference before the Interim meeting, where there was not enough time for Q&A.

Q: What software is used to collect the data?

A: Volcano

**Straw Poll:**

Do you agree to modify the initial official channel model document IEEE 802.11 (21-0782r2) as IEEE 802.11 (21-1409r1) by adding the chapter 5 – Channel Model - Data-driven Hybrid Channel Model’ and chapter 7 - Appendix?

**Result:** Y/N/A: 22/2/24

**11-21/1438r0, “Discussion on reporting procedure”, Chaoming Luo (OPPO):**

The contribution is concerned with the reporting of the measurement results, and in particular what can be done to make this more efficient.

Q: Which device decides if one should send one or more reports?

A: I believe it is reasonable that the initiator decides, but I don’t have a strong opinion.

Q: I assume aggregation is in time domain and also applies to the delayed reporting, correct?

A: Yes.

**Straw Poll:** (The SP text is slightly updated based on feedback from the group)

Do you agree to add the following into 11bf SFD?

In reporting phase, a sensing responder is allowed to include the measurement results from multiple measurement instances in a single report for delayed reporting.

**Result:** Y/N/A: 19/25/16

1. The Chair asks if there is any other business and points out that there is only one more submission and that we therefore may cancel the session on Monday.
2. The meeting is recessed without objection at 11.55 am (ET).

**Friday, September 17, 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/21/11-21-1304-02-00bf-tgbf-meeting-agenda-2021-09-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. Recess
9. 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).
10. The chair goes through “Meeting Protocol, Attendance, Voting &Documentation Status” (slide 4), “Registration for the September 802 electronic 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 22) and asks if there are any questions or comments on the agenda. Solmon announces that he has one motion he wants to run, but the corresponding document is not uploaded. Therefore, it is decided to not run any motions today and instead do all motions on Monday.

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 23).
2. The Chair presents slide 24, Call for contributions.
3. The Chair presents the teleconference times, (slide 25).
4. Presentation of submissions

**11-21/1445r0, “Requirements for Sensing transmitters”, Dong Wei (NXP):**

CSI fluctuation caused by changes to transmitter configurations can degrade WLAN sensing performance if not properly taken into account. To avoid this performance degradation, requirements for transmit power and transmit beamforming at a sensing transmitter are discussed.

Q: Why not include the transmitter settings so that the sensing receiver can take potential changes into account?

A: I agree that is an alternative direction.

Q: NDP is typically not beamformed, can you explain what you mean?

A: NDP is only one example. The point is to keep the beamforming the same.

Q: Is it better to say “keep the same TX configuration” rather than saying “the same beamforming”?  
A: We thought of it, but believe it may be harder to actually test.

Q: Seems a bit tricky to keep the power constant for the trigger based sensing.

Q: For the static case I can see the point, but for dynamic situations one may simply need to do changes in the TX parameter settings.

**All SPs are deferred.**

**11-21/1035r2, “Sensing-specific feedback using NDPA and trigger frames”, Satyanarayana Katla (Interdigital):** This submission presents a sensing-specific feedback configuration for NDPA and trigger frame procedure for different sensing scenarios.

Q: I believe this is an interesting contribution, but it needs more discussion.

Q: I believe it is already possible to achieve this. By using different measurement IDs that corresponds to different measurement set-ups.

A: I believe it is possible that this approach is more efficient. Basically, we can do this without indicating it in the set-up.

Q: I believe we can use the TF report to achieve this.

Q: With respect to the SP, I believe we already have this so I don’t see how this SP changes anything.

Based on this comment, the SP is modified in that “measurement phases” is changed to “measurement instances”.

**Straw Poll 1:** Do you agree that a sensing session may have different sensing feedback types in different measurement instances?

**Result:** Y/N/A: 17/10/14

**11-21/1532r0, “TWT for WLAN Sensing Measurement”, Dong Wei (NXP):**

A broad range of wireless local area network (WLAN) sensing applications require long-term, periodic sensing measurement and reporting of measurement results.In these applications, low power consumption is a key requirement for battery-powered WLAN sensing devices.

This contribution attempts to address the issues of periodic sensing measurement and power saving.

We run out of time, so the chair explains that he will allocate some time for discussion in the next session.

1. The Chair asks if there is any other business. No response from the group.
2. The meeting is recessed without objection at 11.58 am (ET).

**Monday, September 20, 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/21/11-21-1304-04-00bf-tgbf-meeting-agenda-2021-09-interim.pptx>

1. Call the meeting to order
2. Patent policy and logistics
3. TGbf Timeline
4. Call for contribution
5. Teleconference Times
6. Motions
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 40 persons are on the call after 30 minutes of the meeting).
11. The chair goes through “Meeting Protocol, Attendance, Voting &Documentation Status” (slide 4), “Registration for the September 802 electronic 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 26) and asks if there are and 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 27).
2. The Chair presents slide 28, Call for contributions.
3. The Chair presents the teleconference times, (slide 29).
4. Presentation of submissions

**11-21/1532r0, “TWT for WLAN Sensing Measurement”, Dong Wei (NXP):**

Presented in the last session, but there was no time for Q&A.

Q: What do you think is specific for sensing that requires additions to TWT?

A: Maybe we don’t need anything new, but we need to study this. Also, some TWT features are only optional, so maybe we need to make these mandatory if sensing is supported.

**Straw Poll:** (The SP text is slightly updated based on feedback from the group)

Do you agree with the following?

* + Should 11bf study the Target Wake Time (TWT) mechanism specified in 11ax/be for sensing?

**Result:** Y/N/Need more info/A: 11/4/12/3

**11-21/1543r1, “WLAN sensing procedure convergency”, Solomon Trainin (Qualcomm):**

The document describes the proposed terminology and procedure for sensing sessions and sensing measurements.

This is the background to Motion 29.

**Motions:**

**Motion 28:** Move to modify the initial official channel model document IEEE 802.11 (21-0782r2) as IEEE 802.11 (21-1409r1) by adding the chapter 5 – Channel Model - Data-driven Hybrid Channel Model’ and chapter 7 - Appendix?

* + **Move: Yan Xin Second: Junghoon Suh**
  + **Preliminary Result: Y/ N/ A:** Passed by unanimous consent
  + **Result\*:**
  + Note：
    - \* Amended result accounts for removal of X votes of non-voting members.
    - Related document 21/1409r1

SP Result: 22Y/2N/24A

**Motion 29:** Motion to modify the SFD as defined in pages 5-7 of 11-21/1543r1 and to incorporate the figures in pages 2-3 of 11-21/1543r1 into the SFD.

* + **Move: Solomon Trainin Second: Cheng Chen**
  + **Preliminary Result: Y/ N/ A:** Passed by unanimous consent
  + **Result\*:**
  + Note：
    - \* Amended result accounts for removal of X votes of non-voting members.
    - Related document 21/1543r1

SP Result: Y/N/A

**Presentations, cont’d:**

**11-21/0876r1, “TGbf Evaluation Methodology and Simulation Scenarios”, Rui Du (Huawei):**

The purpose of this document is to summarize simulation scenarios and parameters that might be used when evaluating the performance of 60 GHz WLAN sensing.

Q: With respect to the formula for the RMSE, it is not clear how this would work combining different estimated parameters like position, speed, etc. One usually need some kind of weigh factor for the different parameters.

A: I agree, this was only meant as a high-level illustration.

We run out of time, so the chair suggests to continue the discussion off-line. He also explains that he will allocate some time for discussion in an upcoming teleconference.

1. The Chair asks if there is any other business. No response from the group.
2. The meeting is adjourned without objection at 12.02 pm (ET).