IEEE P802.11
Wireless LANs

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| IEEE 802.11bf – Teleconference Minutes March-May 2022  |
| Date: 2022-03-21 |
| Author(s): |
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| Sang Kim | LGE |  |  |  |

Abstract

This document contains minutes for the TG 802.11bf teleconferences in March - May 2022.

Rev 0: Minutes for TG 802.11bf teleconference on the17th of March 2022.

Rev 1: Minutes for TG 802.11bf teleconference on the 21st of March 2022 added.

Rev 2: Minutes for TG 802.11bf teleconference on the 22nd of March 2022 added + list of attendance for 17th and 21st of March added + some typos corrected.

**Monday, March 17, 2022, 11:00 pm-01:00 am (ET)**

**Meeting Agenda:**

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

<https://mentor.ieee.org/802.11/dcn/22/11-22-0502-00-00bf-tgbf-meeting-agenda-2022-03-teleconference.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 Han, calls the meeting to order at 11:00 pm ET (about 50 persons are on the call after a few minutes of the meeting).
10. The Chair goes through “Meeting Protocol, Attendance, Voting & Documentation Status” (slide 4), “Participants have a duty to inform the IEEE” (slide 6), and “Ways to inform IEEE” (slide 7).

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

The Chair goes through the agenda (slide 16) and asks if there are any questions or comments on the agenda.

The Chair asks if there is any objection to approve the modified agenda. No objection from the group so the agenda is approved.

1. The Chair presents the TGbf timeline (slides 17 and 18) and highlights the update that was done during the March Plenary. Claudio announces that he will release D0.01 so the group can help reviewing what currently has been included in the draft. We are not asking for formal comments, but instead save the comments for the formal review of D0.1. Claudio explains that D0.01 has been sent to Robert Stacey this Monday and that we currently wait for this to be uploaded. If someone wants to have the document for review already now, he or she may send an email to Claudio to request this.

Q: Is there a Word version of the draft?

A: Not at the moment. We are using Framemaker, but I will look into generating a Word version.

1. The Chair presents slide 19, Call for contributions.
2. The Chair presents the teleconference times (slide 20).
3. Presentations:

**11-22/0327r1, “DMG Bi Static Sounding and BRP Frame”, Assaf Kasher (Qualcomm):**

Revision 0 of the paper has been reviewed and Assaf goes through the changes that have been made.

Q: What is the meaning of the instance number?

A: For example, if a device reports several measurements at a time, this is to distinguish these.

**PDT Straw Poll:**

**Straw Poll:** Do you support including the text proposed in the following document into the IEEE802.11bf draft amendment?

* 22/0327r1: PDT for Bi-Static Sounding and BRP Frame

**Result:** Supported by unanimous consent.

**11-22/0401r1, “Sensing Security”, Michael Montemurro (Huawei):**

Mike has prepared a table to collect feedback from the group on various aspects related to security and privacy.

Q: How is the privacy achieved?

A: I am not an expert, change of MAC address is one approach. There is also related work in other TGs.

Q: Related to SBP authentication, I believe the initiator and the responder also need to know of one another.

Q: Related to PHY security, are there similar attacks for sensing as there are for secure ranging? I believe we need to have a discussing about if there are similar attacks that we expect.

Q: I believe it may be better if it covered in the TGs that are working on security related things.

A: I agree, the purpose is not to redo what is done elsewhere but to identify whether there may be things we need that is not covered in the other groups.

Q: I think it would be very valuable to have some kind of brainstorm and get input from sensing customers.

Tony suggests having a dedicated off-line discussion on this subject.

**11-22/0370r0, “PDT-DMG-Multi-Static-Instance”, Assaf Kasher (Qualcomm):**

The document presents the PDT draft text for DMG Multi-Statis Sensing Instance. The first part of the paper has already been presented. The focus today is on multi-static sensing.

Q: Do you suggest that multi-static sensing is closely related to TDD?

A: No, I am just reusing the frames.

Q: You mention the response field, but I can’t find it in the figure

A: It is an error. The sentence will be removed.

**11-22/0414r1, “Fraction Scaling Factor for Sensing Measurement Report”, Steve Shellhammer (Qualcomm):** Two methods for scaling the CSI report have been presented, namely real-value scaling and power-of-two scaling. The present contribution shows a scaling that is in between these two both in terms of complexity and performance.

Tony asks about future plans. Steve proposes that off-line discussion will be arranged. Steve also explains that he is working on a more comprehensive presentation that also will include a straw poll.

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 01:04am ET.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 3/17 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 3/17 | Berger, Christian | NXP Semiconductors |
| TGbf | 3/17 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 3/17 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 3/17 | feng, Shuling | MediaTek Inc. |
| TGbf | 3/17 | Huq, Kazi Mohammed Saidul | Ofinno |
| TGbf | 3/17 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 3/17 | Kasher, Assaf | Qualcomm Incorporated |
| TGbf | 3/17 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 3/17 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbf | 3/17 | Montemurro, Michael | Huawei Technologies Co., Ltd |
| TGbf | 3/17 | Motozuka, Hiroyuki | Panasonic Corporation |
| TGbf | 3/17 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 3/17 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 3/17 | Rantala, Enrico-Henrik | Zeku |
| TGbf | 3/17 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 3/17 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |
| TGbf | 3/17 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 3/17 | Wei, Dong | NXP Semiconductors |
| TGbf | 3/17 | Wilhelmsson, Leif | Ericsson AB |
| TGbf | 3/17 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 3/17 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 3/17 | Zhang, Jiayi | Ofinno |
| TGbf | 3/17 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |

**Monday, March 21, 2022, 10:00 am-12:00 pm (ET)**

**Meeting Agenda:**

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

<https://mentor.ieee.org/802.11/dcn/22/11-22-0502-00-00bf-tgbf-meeting-agenda-2022-03-teleconference.pptx>

1. Call the meeting to order
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7. Any other business
8. Adjourn
9. The Chair, Tony Han, calls the meeting to order at 10:00 am ET (about 55 persons are on the call after 15 minutes of the meeting).
10. The Chair goes through “Meeting Protocol, Attendance, Voting & Documentation Status” (slide 4), “Participants have a duty to inform the IEEE” (slide 6), and “Ways to inform IEEE” (slide 7).

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

The Chair goes through the agenda (slide 17) and asks if there are any questions or comments on the agenda. It is pointed out that the agenda is currently not on Mentor.

The Chair asks if there is any objection to approve the agenda. No objection from the group so the agenda is approved.

1. The Chair presents the TGbf timeline (slide 18) and reminds about the deadline for motion request.
2. The Chair presents slide 19, Call for contributions.
3. The Chair presents the teleconference times (slide 20 and 21).
4. Presentations:

**11-22/0415r2, “NDP Selection for 802.11bf”, Steve Shellhammer (Qualcomm):**

The TG needs to decide which NDP will be supported in 802.11bf. In this contribution a comparison between HE Ranging NDP and the EHT NDP.

Q: Is it correct that 11az does not support puncturing.

A: Yes, I believe so and the reason is that this makes it harder to determine the line-of-sight component in the time domain.

Q: I also believe the LTF repetition is an advantage.

Q: I am a bit reluctant to rely on what may be specified in a future TG like 11az+

**11-22/0421r0, “Discussion on the NDP format for sensing”, Yan Xin (Huawei):**

The NDP format for sensing in the sub-7 GHz systems should be chosen from the NDP formats specified in other amendments. This contribution discusses the different available options.

It is believed that the EHT sounding NDP format is the best one.

Q: I believe we need to address security first, before running this SP.

**11-22/0423r0, “DMG passive sensing based on A-BFT”, Narengerile (Huawei):**

Passive sensing based on beacons have been discussed already. In this contribution it is proposed to enable passive sensing based on A-BFT, i.e., in the UL.

Q: I believe the packet is subject to collisions, so I am not sure how useful this would be.

A: If there is a collision, it will compete for a new transmission. So I believe it can still be useful.

Q: I believe there are some issues with this contribution, so if you decide to run the SP, I will not be able to support you.

Q: I don’t agree that the changes are minor.

**Straw Poll:** Do you agree to add to the SFD:

**DMG passive sensing based on A-BFT is enabled by**

* + Capability bit in the Association Request, Reassociation Request, Probe Request
	+ Indication bit using one reserved bit in the SSW/Short SSW
	+ Sensing information request and response that will provide information about the SSW/Short SSW
		- Sensing information include:
			* + Azimuth and elevation for each sector ID of SSW/Short SSW
				+ Location information of the STA (Sensing transmitter)

**Result:** Y/N/A: 12/8/25

**11-22/0339r1, “STA-STA sub 7GHz WLAN sensing support by leveraging SBP”, Enrico Rantala (Zeku):** Revision 0 has already been presented, but without the SP.

Q: I am not sure if the initiating STA knows the location of the other STAs.

A: There are ways this can be achieved, but this is not really discussed here.

**Straw Poll:** Do you support to add into SFD the following:

SBP initiator (non-AP STA) may request SBP responder capable AP to include ‘responder to responder NDP measurement’ as part of the sensing procedure

**Result:** Y/N/A: 21/5/17

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 11:58 am ET.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 3/21 | Au, Oscar | Origin Wireless |
| TGbf | 3/21 | Aygul, Mehmet | VESTEL; IMU |
| TGbf | 3/21 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 3/21 | Bredewoud, Albert | Broadcom Corporation |
| TGbf | 3/21 | Carney, William | Sony Group Corporation |
| TGbf | 3/21 | Chayat, Naftali | Vayyar Imaging |
| TGbf | 3/21 | Dash, Debashis | Apple Inc. |
| TGbf | 3/21 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 3/21 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 3/21 | Du, Rui | Huawei Technologies Co., Ltd |
| TGbf | 3/21 | Eitan, Alecsander | Qualcomm Incorporated |
| TGbf | 3/21 | Erkucuk, Serhat | Ofinno |
| TGbf | 3/21 | feng, Shuling | MediaTek Inc. |
| TGbf | 3/21 | Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 3/21 | Hu, Shengquan | MediaTek Inc. |
| TGbf | 3/21 | Huang, Lei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 3/21 | Huq, Kazi Mohammed Saidul | Ofinno |
| TGbf | 3/21 | Kadampot, Ishaque Ashar | Qualcomm Technologies, Inc. |
| TGbf | 3/21 | katla, satyanarayana | InterDigital, Inc. |
| TGbf | 3/21 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 3/21 | Lanante, Leonardo | Ofinno |
| TGbf | 3/21 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 3/21 | McCann, Stephen | Huawei Technologies Co., Ltd |
| TGbf | 3/21 | Mirfakhraei, Khashayar | Zeku |
| TGbf | 3/21 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 3/21 | Qi, Liu | Huawei Technologies Co., Ltd |
| TGbf | 3/21 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 3/21 | Rantala, Enrico-Henrik | Zeku |
| TGbf | 3/21 | Sahoo, Anirudha | National Institute of Standards and Technology |
| TGbf | 3/21 | Sand, Stephan | German Aerospace Center (DLR) |
| TGbf | 3/21 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 3/21 | Sosack, Robert | Molex Incorporated |
| TGbf | 3/21 | Sun, Bo | ZTE Corporation |
| TGbf | 3/21 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 3/21 | Tsai, Tsung-Han | MediaTek Inc. |
| TGbf | 3/21 | Unterhuber, Paul | German Aerospace Center (DLR) |
| TGbf | 3/21 | Wei, Dong | NXP Semiconductors |
| TGbf | 3/21 | Wilhelmsson, Leif | Ericsson AB |
| TGbf | 3/21 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 3/21 | Zhang, Jiayi | Ofinno |

**Tuesday, March 22, 2022, 10:00 am-12:00 pm (ET)**

**Meeting Agenda:**

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The Chair goes through the agenda (slide 18) and asks if there are any questions or comments on the agenda. No comments from the group.

The Chair asks if there is any objection to approve the agenda. No objection from the group so the agenda is approved.

1. The Chair presents the TGbf timeline (slides 19) and reminds about the deadline for motion request.
2. The Chair presents slide 20, Call for contributions.
3. The Chair presents the teleconference times (slide 21 and 22).

Claudio points out that it is possible to receive D0.01 by sending Claudio an email. Unfortunately, it has still not be uploaded to the members area.

1. Presentations:

**PDT Straw Poll:**

**Straw Poll:** Do you support including the text proposed in the following document into the IEEE802.11bf draft amendment?

* 22/0370r2: PDT-DMG-Multi-Static-Instance

**Result:** Y/N/A: 17/6/17

**11-22/0132r3, “PDT DMG sensing: monostatic configurations”, Rui Du (Huawei):**

Rui explains that the change compared to the previous revision is that he has added some example.

Q: Do we have agreement on the waveform for monostatic sensing? I don’t recall this.

A: I believe you are correct.

Q: To make sure we have agreement on what should be added, I suggest you propose the addition to D0.01. This would make it clear.

Q: The TRN-N, TRN-P and so on are not needed because in Monostatic we do not specify the waveform used by the responder.

**11-22/0506r1, “Differential Quantization for CSI Report”, Qinghua Li (Intel):**

This contribution discusses difference in performance on basing the CSI report on TCIR or on the channel estimated in the frequency domain. In addition, it discussed how differential quantization of the report in the frequency domain can be sent in a differential way. Basically, the statement is that frequency domain is preferred.

Q: On slide 24, what is the SNR setting in your simulations?

A: No noise, only quantization noise.

Q: Actually, when it comes to using TCIR it is possible to apply windowing to improve things, but we believe this is implementation dependents to we did not go into this. So I don’t think your conclusions are correct.

Q: On page 29, the conclusions, you argue for differential coding. We have to select one method to be mandatory, are you suggesting that your approach with differential decoding is what should be selected?

A: I would support Steve’s proposal as the base line. The important thing is that it is in the frequency domain.

Q: On page 26, it looks like TCIR and differential quantization are similar.

Q: On page 28, you only show Ng = 4. However, we have seen that the performance can be very poor for large values of Ng.

A: We believe Ng= 4 is the most interesting case.

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 12:03 pm ET.