IEEE P802.11  
Wireless LANs

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| IEEE 802.11bf – Teleconference Minutes February – Mars 2022 | | | | |
| Date: 2022-02-20 | | | | |
| 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) |
| Sang Kim | LGE |  |  |  |

Abstract

This document contains minutes for the TG 802.11bf teleconferences in February – Mars 2022.

Rev 0: Minutes for TG 802.11bf teleconference on the 7th, 8th, 10th, 14th, and 15th of February 2022.

Rev 1: List of attendees for 15th of February 2022 added.

Rev 2: Minutes for TG 802.11bf teleconference on the 17th of February 2022 added.

**Monday, February 7, 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/21/11-22-0232-00-00bf-tgbf-meeting-agenda-2022-02-03>

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 9:01am 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).
2. The Chair presents slide 19, Call for contributions.
3. The Chair presents the teleconference times (slide 20).
4. Presentations:

**11-22/0009r10, “TGbf D0.1 Writing Status”, Claudio da Silva (Meta Platforms, Inc):** The Editor thanks POC and TTT members for their hard works to submit PDT documents. One PDT document on Trigger frame is still under discussion, but the Editor asks the POC to upload a baseline text even with blank content and with summary of discussion. Referring to “Guidelines for Text Drafting (2007r0), the Editor pointed out there is no need to have agreed on everything. The Editor emphasized that the document should be uploaded at least 3 days prior to presentation. The Editor hoped this time next week to have a text discussion. In addition, the Editor said that, in numbering of Figures, Tables, and Subclauses, it is strongly recommended to follow REVme and 802.11-2024 Amendments as reference. No further question/comment was raised.

**11-22/0125r2, “Measurement Setup ID Setting in SBP Case”, Pei Zhou (OPPO):**  This contribution discusses how to assign Measurement Setup ID for the SBP Requesting STA. Two methods are considered for Measurement Setup ID Setting: Method 1 - AP assigns the Measurement Setup ID for SBP requesting STA after successful Measurement Setup, Method 2 - AP shares the Measurement Setup ID in its SBP Response frame ahead of time.

Q: Do we need SBP Confirmation frame if SBP initiating STA participates as responder? What is the purpose of Confirmation frame? Commenter indicated that he prefers Method 1.

A: It is used to notify that the setup is completed or failed with Setup ID.

C: We need termination message regardless. No need to complicate in addition to SBP process. Setup ID is no binding, but termination is necessary. Commenter indicated that he prefers Method 2.

Q: As an initiator, why not STA 3 setup Measurement Setup ID or dialog token?

A: STA 1 and STA 2 do not know Setup ID between AP and STA 3. In AP, when multiple dialog tokens are mapped to one Measurement Setup ID, it will be problematic. Further offline discussion will be followed.

C: When multiple measurement results are delivered in a single report, Method 2 is simple to work with.

Q: Commenter prefers Method 2 because sequence looks similar to regular measurement setup. Termination frame is “optional” in Method 2. Why is that?

A: The reason is that we can define implicit termination (“timeout”).

C: Commenter stated that Method 1 is too complicate. Setup ID should be chosen by AP. STA 3 does not know which Setup IDs are used. AP should control everything. Commenter prefers Method 2.

C: Commenter prefers Method 2. He suggested to remove “ahead of time” in Option 2 and delete Option 1in Straw poll because Option 1 is already included.

C: Based on current SFD text, Option 2 without “ahead of time” does not cover Option 1 in Straw poll.

C: To make it clear suggestion was made to add “Before Measurement Setup Procedure happens” in front of Option 2.

C: To make it simple removing “ahead of time” is enough.

Straw poll is modified based on feedback from the group.

**Straw Poll:**

Do you support the method of assigning Measurement Setup ID for the SBP Requesting STA in Sensing by proxy (SBP) procedure?

AP assigns the Measurement Setup ID in its SBP Response frame.

**Results:** Y/N/A: 20/2/17

**11-21/2011r1, “Sensing NDP Announcement”, Don Wei (NXP):** This contribution discusses the NDP Announcement for sensing in order to avoid introducing significant changes compared with 11az. Three options were proposed and two options are to utilize Ranging NDP Announcement for Sensing (Option 1 and Option 2) and one option is to define new subtype for Sensing NDP Announcement was proposed (Option 3). For Option 1, the change is small compared to 11az. For Option 2, the changes in 11az are more than Option 1, but it was stated that it is preferred. For Option 3, it is a cleaner design, but the change in 11az is more than Option 2, thus it was stated that it is not preferred. No Straw poll is prepared for this contribution to facilitate the discussion.

C: Commenter stated that when parameters in Ranging and Sensing NDPA are more different, then no difference between Option 1 and Option2.

C: Commenter stated that it is fine with Option 1.1, but Option 2 only will not work. Cobination of Option 1 and Option 2 will work.

A: We need to consider if needed.

Q: Why do we need “control frame extension”?

A: Since there is a concern to use reserved bits, a new subtype value is considered for control frame extension. Offline discussion will be followed.

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 11:01am ET.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 2/7 | Aboulmagd, Osama | Huawei Technologies Co., Ltd |
| TGbf | 2/7 | Au, Oscar | Origin Wireless |
| TGbf | 2/7 | Aygul, Mehmet | VESTEL; IMU |
| TGbf | 2/7 | Berger, Christian | NXP Semiconductors |
| TGbf | 2/7 | Dash, Debashis | Apple Inc. |
| TGbf | 2/7 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 2/7 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 2/7 | feng, Shuling | MediaTek Inc. |
| TGbf | 2/7 | Gao, Ning | Guangdong OPPO Mobile Telecommunications  Corp.,Ltd |
| TGbf | 2/7 | HAN, Xiao | Huawei Technologies Co., Ltd |
| TGbf | 2/7 | Hsu, Ostrovsky | Xiaomi Inc. |
| TGbf | 2/7 | Jang, Insun | LG ELECTRONICS |
| TGbf | 2/7 | Kain, Carl | USDOT; Noblis |
| TGbf | 2/7 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 2/7 | Kasher, Assaf | Qualcomm Incorporated |
| TGbf | 2/7 | katla, satyanarayana | InterDigital, Inc. |
| TGbf | 2/7 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 2/7 | Luo, Chaoming | Beijing OPPO telecommunications  corp., ltd. |
| TGbf | 2/7 | McCann, Stephen | Huawei Technologies Co., Ltd |
| TGbf | 2/7 | Namboodiri, Vamadevan | SAMSUNG ELECTRONICS |
| TGbf | 2/7 | NANDAGOPALAN, SAI SHANKAR | Synaptics |
| TGbf | 2/7 | Ozbakis, Basak | Vestel Electronics Corp. |
| TGbf | 2/7 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 2/7 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 2/7 | Rantala, Enrico-Henrik | Zeku |
| TGbf | 2/7 | Sahoo, Anirudha | National Institute of Standards and  Technology |
| TGbf | 2/7 | Sand, Stephan | German Aerospace Center (DLR) |
| TGbf | 2/7 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 2/7 | Sun, Bo | ZTE Corporation |
| TGbf | 2/7 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 2/7 | Wang, Chao Chun | MediaTek Inc. |
| TGbf | 2/7 | Wei, Dong | NXP Semiconductors |
| TGbf | 2/7 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 2/7 | Yano, Kazuto | Advanced Telecommunications Research  Institute International (ATR) |
| TGbf | 2/7 | Zhang, Jiayi | Ofinno |
| TGbf | 2/7 | Zhou, Pei | Guangdong OPPO Mobile  Telecommunications Corp.,Ltd |

**Tuesday, February 8, 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/21/11-22-0232-01-00bf-tgbf-meeting-agenda-2022-02-03>

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 9:01am ET (about 25 persons are on the call).
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.

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 18 and 19).
2. The Chair presents slide 20, Call for contributions.
3. The Chair presents the teleconference times (slide 21).

The Chair stated that Motion will be processed either on February 22nd or 24th and asks those who have motions to send motion request as soon as possible, especially for PDT.

1. Presentations:

**11-22/0153r1, “Parameters for sub-7 GHz Sensing NDPA”, Junghoon Suh (Huawei):**

The contribution tries to summarize what parameters are needed for the Sensing NDPA.

C: Commenter stated that he mostly disagrees with what proposed and that many fields are negotiable during measurement setup. Since the motion for TCIR is not passed, it would be better to take “Number of Taps for TCIR” field out. He also mentioned that no need to design a new NDPA frame type is needed and minimal change is desirable.

A: Sensing measurement setup phase is for operational parameter changes and TX Power field is individual STA dependent. Fields in purple color may go into a Special STA Info field.

C: Sensing measurement setup phase is mainly not for updating operational parameters.

A straw poll will be prepared based on the discussion and brought back next time.

**11-22/0286r0, “Discussion on PASN for sensing”, Chaoming Luo (OPPO):**

This contribution discusses whether PASN is mandatory for sensing and which categories of action frame are required accordingly.

C: Correct approach is to decide what requirements to resolve first and then design follows. It is premature to decide PASN as optional.

A: One use case requires low security level and IoT devices do not need PASN.

C: No idea on low level security and not understand why low-end devices do not need PASN.

Q: Why is secure LTF needed?

A: It was already introduced in 11az.

Q: Is 11az a baseline for 11bf?

A: It is so based on presenter’s understanding.

Q: If no need for secure LTF, then is replay counter needed?

A: No.

C: Then it is needed to separate secure LTF and replay counter.

A: It is so based on presenter’s understanding.

C: Even though PASN is optional in 11az, some program may need PASN. We need PASN enablement.

Straw poll texts were discussed and modified.

**Straw poll 1:** Do you agree to add to the SFD the following text:

* Do you agree to add the following into 11bf SFD?
  + PASN for unassociated STA is used in sensing.

**Result:** Y/N/A: 18/3/15

**Straw poll 2:** Do you agree to add to the SFD the following text:

* Do you agree to add the following into 11bf SFD?
  + A new action category of robust ‘Protected Sensing Frame’ is defined to separate PN segment.

**Result:** Y/N/A: 14/3/18

**11-22/0172r2, “Proposed Draft Text for Sensing Measurement Instance: General”, Cheng Chen (Intel):** This document includes proposed draft text for the “Sensing measurement instance: General” sub-clause as defined in TGbf’s SFD.

Based on feedback from the group the text is slightly updated and a new revision of the document will be uploaded.

**11-22/0173r2, “Proposed Draft Text for TB Sensing Measurement Instance”, Cheng Chen (Intel):**

This document includes proposed draft text for the “TB sensing measurement instance” sub-clause as defined in TGbf’s SFD.

Due to the lack of time, it will be revisited next conference call.

The Chair stated that offline discussion using the 11bf reflector or e-mail is needed because we have a long queue of contributions.

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 11:01am ET.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 2/8 | Aboulmagd, Osama | Huawei Technologies Co., Ltd |
| TGbf | 2/8 | Au, Oscar | Origin Wireless |
| TGbf | 2/8 | Aygul, Mehmet | VESTEL; IMU |
| TGbf | 2/8 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 2/8 | Chayat, Naftali | Vayyar Imaging |
| TGbf | 2/8 | Dash, Debashis | Apple Inc. |
| TGbf | 2/8 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 2/8 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 2/8 | Du, Rui | Huawei Technologies Co., Ltd |
| TGbf | 2/8 | Erkucuk, Serhat | Ofinno |
| TGbf | 2/8 | feng, Shuling | MediaTek Inc. |
| TGbf | 2/8 | Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 2/8 | HAN, Xiao | Huawei Technologies Co., Ltd |
| TGbf | 2/8 | Hsu, Ostrovsky | Xiaomi Inc. |
| TGbf | 2/8 | Huq, Kazi Mohammed Saidul | Ofinno |
| TGbf | 2/8 | Kadampot, Ishaque Ashar | Qualcomm Technologies, Inc. |
| TGbf | 2/8 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 2/8 | katla, satyanarayana | InterDigital, Inc. |
| TGbf | 2/8 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 2/8 | Lanante, Leonardo | Ofinno |
| TGbf | 2/8 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 2/8 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbf | 2/8 | McCann, Stephen | Huawei Technologies Co., Ltd |
| TGbf | 2/8 | Montemurro, Michael | Huawei Technologies Co., Ltd |
| TGbf | 2/8 | NANDAGOPALAN, SAI SHANKAR | Synaptics |
| TGbf | 2/8 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 2/8 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 2/8 | Rantala, Enrico-Henrik | Zeku |
| TGbf | 2/8 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 2/8 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |
| TGbf | 2/8 | Wei, Dong | NXP Semiconductors |
| TGbf | 2/8 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 2/8 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 2/8 | Zhang, Jiayi | Ofinno |
| TGbf | 2/8 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |

**Thursday, February 10, 2022, 10:00 pm-12:00 am (ET)**

**Meeting Agenda:**

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

<https://mentor.ieee.org/802.11/dcn/22/11-22-0232-02-00bf-tgbf-meeting-agenda-2022-02-03.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 10:00pm ET (about 40 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 (slides 18) and asks if there are any questions or comments on the agenda.

The chair asks if there is any objection to approve agenda. Presentation of contributions 0079r1, 0233r1, and 0223r0 was requested to be delayed. No objection from the group so the agenda is approved.

1. The Chair presents the TGbf timeline (slide 19).
2. The Chair presents slide 21, Call for contributions.
3. The Chair presents the teleconference times (slide 22).
4. Presentations:

**11-22/0173r2, “Proposed Draft Text for TB Sensing Measurement Instance”, Cheng Chen (Intel):**

This document includes proposed draft text for the “TB sensing measurement instance” sub-clause as defined in TGbf’s SFD.

Q: MRU is mandatory in 11be. If 11bf is on top of 11be, MRU should not be excluded.

A: It depends on Trigger frame, but Trigger frame is not decided yet. If Trigger frame is a new variant of HE frame, then adding MRU is not good. If MRU is needed, then we can add it later.

Q: If MU is not supported, then we need multiple sequential Trigger frames, but the text is not flexible to describe multiple Trigger frames. Polling is not only needed for unassociated STAs, but also for STAs with no reporting capability.

A: Agree with polling argument. Presenter expressed his intention to keep “shall” statement.

Offline discussion will follow and then an updated revision will be uploaded.

**11-22/0174r1, “Proposed Draft Text for Non-TB Sensing Measurement Instance”, Cheng Chen (Intel):** This document includes proposed draft text for the “Non-TB sensing measurement instance” sub-clause as defined in TGbf’s SFD.

Q: In the Figure last NDP carries a different color. Why is it?

A: Intention is just to show that this NDP is from AP.

Q: In TB case, we have a separate reporting phase, but not in non-TB case.

A: No contribution yet on reporting in non-TB case. When it is available, then it will be added.

Q: Reporting should be integrated into both TB and non-TB cases.

A: No agreement yet. We just began and lots of works to do.

If no significant comment is received in a couple of days, then SP will be tried.

**11-22/0170r2, “PDT for TB sensing measurement instance: Reporting”, Rajat Pushkarna (Panasonic Corp):** This document includes proposed draft text for “Trigger based sensing measurement instance: Reporting” sub-clause as defined in TGbf’s SFD.

Q: In describing Motion 60, “when negotiated” part is not clear. The description should be expanded.

A: Will do that.

Q: Is Sensing Trigger Report frame defined?

A: In 11az, Ranging Report frame is defined, but not defined in 11bf. We will define later and it is better to place bracket with “TBD”.

Q: We need to be cautious to define “when negotiated”.

A: Will revise it.

Q: Depending on use cases, initiator may or may not needed report. “When negotiated” implies this.

C: Motion text is clearer than “when negotiated”. It is better not to write down text with implicit meaning.

More offline discussion will follow.

**11-22/0181r0, “Proposed Draft Text: sensing session setup”, Chaoming Luo (OPPO):**

This submission contains the draft text for sensing session setup to help the creation of TGbf draft D0.1.

Q: “A STA may participate in multiple sensing sessions either as an initiator or as a responder.” Are “both” cases possible?

A: No.

Q: Is SBP STA an initiator?

A: Not an initiator for measurement setup. There may be a sensing session between SBP STA and AP, but it is independent of measurement setup. Whether SBP STA will a responder or not will need more discussion and currently open.

**11-22/0182r0, “Proposed Draft Text: sensing session termination”, Chaoming Luo (OPPO):**

This submission contains the draft text for sensing session termination to help the creation of TGbf draft D0.1.

No question was raised.

**11-22/0229r0, “Proposed Spec Text Sensing Measurement Setup”, Insun Jang (LGE):**

This submission proposes spec text for sensing measurement setup procedure and frame format to be incorporated into 802.11bf D0.1

Q: Note before Section 9 is misleading.

A: We need to discuss this further offline.

Q: Agree with previous commenter. In addition, many places in normative texts needs to be rephrase and suggestion will be sent.

A: Will look at it.

Q: In Role subfield in Figure 9, one bit each is better for sensing transmitter and receiver.

A: Either is fine. It does not change the function.

Q: Description on Measurement Setup ID should be moved to normative behaviour.

Q: Immediate feedback may not be possible when CSI type of feedback due to time required to obtain CSI. Remove description on immediate feedback.

Q: It is somehow needed to mention this is for non-DMG STA.

A: Will think about it.

Offline discussion will follow, and document will be updated based on that.

**11-22/0312r0, “Collaborative WLAN Sensing – Example Operations”, Sang Kim (LGE):**

This contribution shows an example operation of collaborative sensing and provides answers for questions raised during previous presentation: How does a responder anticipate the transmission from another responder and corresponding information? How may security context for collaborative sensing be set up?

Since no time is left for Q&A, it will be revisited next call.

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 12:00 am EST.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 2/10 | Aygul, Mehmet | VESTEL; IMU |
| TGbf | 2/10 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 2/10 | Dash, Debashis | Apple Inc. |
| TGbf | 2/10 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 2/10 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 2/10 | Du, Rui | Huawei Technologies Co., Ltd |
| TGbf | 2/10 | Eitan, Alecsander | Qualcomm Incorporated |
| TGbf | 2/10 | feng, Shuling | MediaTek Inc. |
| TGbf | 2/10 | Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 2/10 | HAN, Xiao | Huawei Technologies Co., Ltd |
| TGbf | 2/10 | Hsu, Ostrovsky | Xiaomi Inc. |
| TGbf | 2/10 | Huang, Lei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 2/10 | Huq, Kazi Mohammed Saidul | Ofinno |
| TGbf | 2/10 | Kadampot, Ishaque Ashar | Qualcomm Technologies, Inc. |
| TGbf | 2/10 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 2/10 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 2/10 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 2/10 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbf | 2/10 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 2/10 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 2/10 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 2/10 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |
| TGbf | 2/10 | Wang, Chao Chun | MediaTek Inc. |
| TGbf | 2/10 | Wei, Dong | NXP Semiconductors |
| TGbf | 2/10 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 2/10 | Zhang, Jiayi | Ofinno |
| TGbf | 2/10 | Zhang, Yan | NXP Semiconductors |
| TGbf | 2/10 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |

**Monday, February 14, 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/22/11-22-0232-03-00bf-tgbf-meeting-agenda-2022-02-03.pptx>

1. Call the meeting to order
2. Patent policy and logistics
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7. Any other business
8. Adjourn
9. The Chair, Tony Han, calls the meeting to order at 9:00am ET (about 45 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 19) and asks if there are any questions or comments on the agenda. Rui Yang explains that he just submitted a contribution.

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 20 and 21).
2. The Chair presents slide 22, Call for contributions.
3. The Chair presents the teleconference times (slide 23). The chair also gives a heads-up (slide 24) that covers addition teleconferences as well as the May f2f meeting. The intention is to discussion this further in a later teleconference this week.
4. Presentations:

**11-22/0312r0, “Collaborative WLAN Sensing – Example Operations”, Sang Kim (LGE):**

This contribution was presented in the last teleconference, but there was no time for Q&A.

Q: I believe there are alternatives for instructing STA 1 to send a packet to STA2 (slide 9).

A: I agree, this is just for illustration and discussion about collaborative sensing.

Q: What if the STAs use different bandwidths?

A: This is why I assumed the STAs to be associated and that this was known by the AP.

Q: I don’t think you need the group key.

The Straw Poll is deferred.

**11-22/0079r1, “Proposed Draft Text for SENS Procedure: Overview”, Claudio da Silva (Meta Platforms Inc.):** Claudio goes through the proposed draft text and receives feedback from the group.

Claudio explains that he will update the document based on the feedback and then run a SP.

**11-22/0233r3, “Proposed Draft Text for MLME”, Claudio da Silva (Meta Platforms Inc.):** Claudio goes through the proposed draft text and receives feedback from the group.

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 10:56 am ET.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 2/14 | Aboulmagd, Osama | Huawei Technologies Co., Ltd |
| TGbf | 2/14 | Au, Oscar | Origin Wireless |
| TGbf | 2/14 | Aygul, Mehmet | VESTEL; IMU |
| TGbf | 2/14 | B, Hari Ram | NXP Semiconductors |
| TGbf | 2/14 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 2/14 | Chayat, Naftali | Vayyar Imaging |
| TGbf | 2/14 | Choi, Jinsoo | LG ELECTRONICS |
| TGbf | 2/14 | Dash, Debashis | Apple Inc. |
| TGbf | 2/14 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 2/14 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 2/14 | Erkucuk, Serhat | Ofinno |
| TGbf | 2/14 | feng, Shuling | MediaTek Inc. |
| TGbf | 2/14 | HAN, Xiao | Huawei Technologies Co., Ltd |
| TGbf | 2/14 | Hsu, Ostrovsky | Xiaomi Inc. |
| TGbf | 2/14 | Huq, Kazi Mohammed Saidul | Ofinno |
| TGbf | 2/14 | Jang, Insun | LG ELECTRONICS |
| TGbf | 2/14 | Kain, Carl | USDOT; Noblis |
| TGbf | 2/14 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 2/14 | katla, satyanarayana | InterDigital, Inc. |
| TGbf | 2/14 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 2/14 | Lanante, Leonardo | Ofinno |
| TGbf | 2/14 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 2/14 | Liu, Der-Zheng | Realtek Semiconductor Corp. |
| TGbf | 2/14 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbf | 2/14 | McCann, Stephen | Huawei Technologies Co., Ltd |
| TGbf | 2/14 | Montemurro, Michael | Huawei Technologies Co., Ltd |
| TGbf | 2/14 | NANDAGOPALAN, SAI SHANKAR | Synaptics |
| TGbf | 2/14 | Ozbakis, Basak | Vestel Electronics Corp. |
| TGbf | 2/14 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 2/14 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 2/14 | Ryu, Kiseon | Ofinno |
| TGbf | 2/14 | Sand, Stephan | German Aerospace Center (DLR) |
| TGbf | 2/14 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 2/14 | Stanley, Dorothy | Hewlett Packard Enterprise |
| TGbf | 2/14 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |
| TGbf | 2/14 | Sun, Bo | ZTE Corporation |
| TGbf | 2/14 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 2/14 | Tsai, Tsung-Han | MediaTek Inc. |
| TGbf | 2/14 | Wang, Chao Chun | MediaTek Inc. |
| TGbf | 2/14 | Wei, Dong | NXP Semiconductors |
| TGbf | 2/14 | Wilhelmsson, Leif | Ericsson AB |
| TGbf | 2/14 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 2/14 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 2/14 | Zhang, Jiayi | Ofinno |
| TGbf | 2/14 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |

**Tuesday, February 15, 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/22/11-22-0232-04-00bf-tgbf-meeting-agenda-2022-02-03.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 9:00am ET (about 45 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 20) and asks if there are any questions or comments on the agenda. Rajat mentions that 22/0170 was presented last week and after some offline discussion he believe he can just run the SP and does not need the full 30 minutes.

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 21 and 22).
2. The Chair presents slide 23, Call for contributions.
3. The Chair presents the teleconference times (slide 24 and slide 25).
4. Presentations:

**11-22/0312r1, “Collaborative WLAN Sensing – Example Operations”, Sang Kim (LGE):**

The contribution was presented last week, but there was no time for Q&A or for running the SP.

After some discussion, the SP is updated to read as below (and a revision 2 is uploaded)

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

* Enhance the sensing procedure initiated by an AP to optionally allow sensing responder to sensing responder sounding.

**Result:** Y/N/A: 26/2/10

**11-22/0223r1, “Proposed Draft Text: SBP frames”, Chaoming Luo (OPPO):**

Chaoming explains that the main purpose of this presentation is to get the groups feedback on two options and then based on this update the draft text accordingly. The two options are presented in some detail and discussed with the group.

**Straw Poll 1:** Which option do you prefer to define the SBP frames?

* Opt1: "SBP request/response/termination frames with different Action field values"
* Opt2: "SBP request/response/termination frames share a same Action field value and are differentiated by an 'SBP subtype' field"

**Result:** Opt1/Opt2/Abstain: 6/11/19

**11-22/0134r2, “Proposed Draft Text for D0.1: Threshold-based Sensing Procedure”, Mengshi Hu (Huawei):** Mengshi goes through the proposed draft text.

Q: What is actually the threshold? The CSI variations can be a lot of different things.

A: Basically, whatever CSI metric, I would like to normalize the variations to be between 0 and 1 and then this can be compared to a threshold.

Q: Is the sensing variations implementation specific?

A: It will be discussed more. It is not decided.

**11-22/0235r2, “Proposed Draft Text for Sensing Measurement Report frame (excl. format)”, Claudio da Silva (Meta Platforms Inc.):** Claudio goes through the proposed draft text and receives feedback from the group.

**11-22/0170r3, “PDT for TB sensing measurement instance: Reporting”, Rajat Pushkarna (Panasonic Corp):** The document was presented last week. After some discussion, the following SP is created.

**Straw Poll:** Do you agree to add the proposed text in 22/0170r3 to be added to 11bf D0.1?

**Result:** Y/N/A: 15/1/10

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 11:01 am ET.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 2/15 | Au, Oscar | Origin Wireless |
| TGbf | 2/15 | Aygul, Mehmet | VESTEL; IMU |
| TGbf | 2/15 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 2/15 | Chayat, Naftali | Vayyar Imaging |
| TGbf | 2/15 | Dash, Debashis | Apple Inc. |
| TGbf | 2/15 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 2/15 | Du, Rui | Huawei Technologies Co., Ltd |
| TGbf | 2/15 | Erkucuk, Serhat | Ofinno |
| TGbf | 2/15 | feng, Shuling | MediaTek Inc. |
| TGbf | 2/15 | Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 2/15 | Hsu, Ostrovsky | Xiaomi Inc. |
| TGbf | 2/15 | Huq, Kazi Mohammed Saidul | Ofinno |
| TGbf | 2/15 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 2/15 | katla, satyanarayana | InterDigital, Inc. |
| TGbf | 2/15 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 2/15 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 2/15 | Liu, Der-Zheng | Realtek Semiconductor Corp. |
| TGbf | 2/15 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbf | 2/15 | McCann, Stephen | Huawei Technologies Co., Ltd |
| TGbf | 2/15 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 2/15 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 2/15 | Rantala, Enrico-Henrik | Zeku |
| TGbf | 2/15 | Ryu, Kiseon | Ofinno |
| TGbf | 2/15 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 2/15 | Srivatsa, Veena | Synaptics |
| TGbf | 2/15 | Stavridis, Athanasios | Ericsson AB |
| TGbf | 2/15 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |
| TGbf | 2/15 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 2/15 | Wang, Chao Chun | MediaTek Inc. |
| TGbf | 2/15 | Wei, Dong | NXP Semiconductors |
| TGbf | 2/15 | Wilhelmsson, Leif | Ericsson AB |
| TGbf | 2/15 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 2/15 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 2/15 | Zhang, Jiayi | Ofinno |
| TGbf | 2/15 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |

**Thursday, February 17, 2022, 10:00 pm-12:00 am (ET)**

**Meeting Agenda:**

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

<https://mentor.ieee.org/802.11/dcn/22/11-22-0232-05-00bf-tgbf-meeting-agenda-2022-02-03.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 10:00pm ET (about 35 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 21) and asks if there are any questions or comments on the agenda.

The chair asks if there is any objection to approve agenda. It was commented that the time slot request for two contributions is missing and Chair stated it will be reflected after the call. No objection from the group so the agenda is approved.

1. The Chair presents the TGbf timeline (slide 22).
2. The Chair presents slide 24, Call for contributions.
3. The Chair presents the teleconference times (slide 25). The Chair presents the teleconference times (slide 26).

Teleconference times from March to early May and May Interim schedules were discussed. For teleconference times, it was commented that too many teleconferences are scheduled. Chair stated that the schedule is set assuming worst case scenarios and if there are not many contributions in the queue, then some teleconferences may be cancelled. It was also commented that when we are back to regular schedule, i.e., two calls per week, then cancelling Monday or Tuesday call is desirable to balance the time burden among TG participants. For May Interim, Chair stated that 6 slots are reserved for worst case. Worst case means that we are still working on D0.1 and many contributions are in the queue. If 6 slots are not needed, then some slots can be cancelled, while slots in green color will be tried to be kept. Comments were raised that we don’t need many time slots in May meeting. D0.1 will be ready by then and it is too early to consider the next target of D1.0 which is scheduled in September. It was commented that instead of having time slots in May Interim meeting, it is better to consider teleconference calls since there is a chance of no leaderships present in May meeting. Tony will ask to WG Chair what we can do if no leadership is available in May meeting. As a concluding decision, Chair stated that May 10 slot will be deleted, and May 9 and 11 slots will be maintained as alternatives if time slots in green color are not possible to hold.

1. Presentations:

**11-22/0251r1r0, “DMG Sensing Report IE”, Alecsander Eitan (Qualcomm):**

This submission presents the suggested IE formats that need to be added to support DMG Sensing Image Report and DMG Sensing Targets Report. In addition to the DMG Sensing Image Report IEs, there are additional IEs needed during the setup phase to define the axis interpretation.

Q: Header sub-element seems to be related to Target Report too. Why only for Image Report?

A: Header sub-element is for either of them.

C: Delete “Image” in DMG Sensing Image Report Header.

A: Will do that.

Q: In Figure 9-l, Azimuth velocity axis present is “1 bit”, not “4 bits”.

A: Will correct it.

Presenter prefers to wait a week to see if there are additional comments. After offline discussion taken into account potential comments, the straw poll text will be prepared.

**11-22/0328r1r0, “Discussion on Threshold-based Sensing”, Rui Yang (Interdigital):**

TGbf has made a few agreements on “Threshold-based measurement and reporting” based on the change of CSI. The purpose of this contribution is to highlight those issues in threshold-based measurement and reporting and discuss some alternatives.

No time is left for Q&A and Chair will allocate 10 minutes for this in the next call.

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 12:00 am EST.