IEEE P802.11  
Wireless LANs

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| IEEE 802.11bf – Teleconference Minutes February – Mars 2022 | | | | |
| Date: 2022-03-06 | | | | |
| Author(s): | | | | |
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| 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.

Rev 3: Minutes for TG 802.11bf teleconference on the 22nd of February 2022 added.

Rev 4: List of attendees for 17th of February added and minutes for 24th of February 2022 added.

Rev 5: Minutes for 28th of February and 1st of March 2022 added.

Rev 6: Minutes for 3rd of March 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
3. TGbf Timeline
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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:

**11-22/0251r0, “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.

**11-22/0328r0, “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.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 2/17 | Au, Oscar | Origin Wireless |
| TGbf | 2/17 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 2/17 | Berger, Christian | NXP Semiconductors |
| TGbf | 2/17 | Chayat, Naftali | Vayyar Imaging |
| TGbf | 2/17 | Dash, Debashis | Apple Inc. |
| TGbf | 2/17 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 2/17 | Eitan, Alecsander | Qualcomm Incorporated |
| TGbf | 2/17 | feng, Shuling | MediaTek Inc. |
| TGbf | 2/17 | Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 2/17 | Hsu, Ostrovsky | Xiaomi Inc. |
| TGbf | 2/17 | Huang, Lei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 2/17 | Jang, Insun | LG ELECTRONICS |
| TGbf | 2/17 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 2/17 | Kasher, Assaf | Qualcomm Incorporated |
| TGbf | 2/17 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 2/17 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 2/17 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbf | 2/17 | Motozuka, Hiroyuki | Panasonic Corporation |
| TGbf | 2/17 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 2/17 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 2/17 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 2/17 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |
| TGbf | 2/17 | Sun, Bo | ZTE Corporation |
| TGbf | 2/17 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 2/17 | Wei, Dong | NXP Semiconductors |
| TGbf | 2/17 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 2/17 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 2/17 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |

**Tuesday, February 22, 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/22/11-22-0232-07-00bf-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. Motions (61-64)
7. Presentation of submissions
8. Any other business
9. Adjourn
10. 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).
11. 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 22 ) and asks if there are any questions or comments on the agenda. Sang points out that he has sent a request for motion, but that is not in the motion list. Tony explains that he has missed this, and it is agreed that it will be run during the March Plenary instead.

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 23 and 24).
2. The Chair presents slide 25, Call for contribution.
3. The Chair presents the teleconference times (slide 26 and slide 27).

**PDT Straw Polls:**

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

* 22/0233r3: Proposed Draft Text for MLME

**Result:** Y/N/A: 30/0/5

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

* 22/0079r2: Proposed Draft Text for SENS Procedure Overview

**Result:** Y/N/A: 31/0/2

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

* 22/0172r3: PDT Sensing Measurement Instance: General

**Result:** Y/N/A: 26/0/7

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

* 22/0174r3: PDT Non-TB Sensing Measurement Instance

**Result:** Y/N/A: 25/0/10

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

* 22/0229r1: PDT for sensing measurement setup

**Result:** Deferred

1. Motions:

**Motions:**

**Motion 61:** Move to add the following to the TGbf SFD:

11bf shall define both public and protected action frames, which include sensing measurement setup request/response, sensing measurement report, sensing measurement setup termination, and SBP request/response/termination frames.

Note: Other public and protected action frames for sensing are TBD.

**Move:** Chaoming Luo

**Second:** Pei Zhou

**Result:** Motion passed by unanimous consent

**Note：**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 21/ 1828r4
* SP Result: 23Y/ 0N/ 8A
* This motion is the former deferred Motion 53.

**Motion 62:** Move to add the following to the TGbf SFD:

PASN for unassociated STA is used in sensing.

**Move:** Chaoming Luo

**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/ 0286r1
* SP Result: 18Y/ 3N/ 15A

**Motion 63:** Move to add the following to the TGbf SFD:

A new action category of robust ‘Protected Sensing Frame’ is defined to separate PN segment.

**Move:** Chaoming Luo

**Second:** Pei Zhou

**Result:** Motion passed by unanimous consent

**Note：**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 22/ 0286r1
* SP Result: 14Y/ 3N/ 18A

**Motion 64:** Move to add the following to the TGbf SFD:

The method of assigning Measurement Setup ID for the SBP Requesting STA in Sensing by proxy (SBP) procedure is that AP assigns the Measurement Setup ID in its SBP Response frame.

**Move:** Pei Zhou

**Second:** Chaoming Luo

**Result:** Motion passed by unanimous consent

**Note：**

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 22/ 0125r3
* SP Result: 20Y/ 2N/ 17A

1. Presentations:

**11-22/0328r0, “Discussion on Threshold-based Sensing”, Rui Yang (Interdigital):** This presentation is a continuation from the last teleconference. The purpose is to discuss things that are believed needs some kind of definition.

Q: Comment on slide 5, also the upper is support

A: Agree.

Q: I wonder if it would not be better to just have the mandatory approach.

Q: Referring to the SP, I am not sure I see the meaning with having this defined algorithm if it is not mandatory.

A: The idea is really to have a reference.

**Straw Poll:**

Do you agree that TGbf should define “CSI variation” based on an algorithm as a reference in the threshold-based measurement and reporting procedure?

- The algorithm is not mandatory

- The algorithm is TBD

**The SP is deferred.**

**11-22/0339r0, “STA-STA sub7GHz WLAN sensing support by leveraging SBP”, Enrico Rantala (Zeku):** In this contribution it is proposed to enable STA-STA sensing by leveraging the SBP framework. The target is sub 7 GHz.

Q: About the SP, would it be OK to replace sensing with sounding?

A: I need to think about this. Maybe we can take it offline.

Q: How does a STA know about other STAs?

The SP is deferred.

The chair asks about future plans. Enrico explains that he will try to collect feedback offline.

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 | 2/22 | Aygul, Mehmet | VESTEL; IMU |
| TGbf | 2/22 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 2/22 | Chayat, Naftali | Vayyar Imaging |
| TGbf | 2/22 | Dash, Debashis | Apple Inc. |
| TGbf | 2/22 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 2/22 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 2/22 | Du, Rui | Huawei Technologies Co., Ltd |
| TGbf | 2/22 | Eitan, Alecsander | Qualcomm Incorporated |
| TGbf | 2/22 | Erkucuk, Serhat | Ofinno |
| TGbf | 2/22 | feng, Shuling | MediaTek Inc. |
| TGbf | 2/22 | Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 2/22 | Huq, Kazi Mohammed Saidul | Ofinno |
| TGbf | 2/22 | Jang, Insun | LG ELECTRONICS |
| TGbf | 2/22 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 2/22 | katla, satyanarayana | InterDigital, Inc. |
| TGbf | 2/22 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 2/22 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbf | 2/22 | Ozbakis, Basak | Vestel Electronics Corp. |
| TGbf | 2/22 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 2/22 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 2/22 | Rantala, Enrico-Henrik | Zeku |
| TGbf | 2/22 | Ryu, Kiseon | Ofinno |
| TGbf | 2/22 | Sand, Stephan | German Aerospace Center (DLR) |
| TGbf | 2/22 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 2/22 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 2/22 | Tsai, Tsung-Han | MediaTek Inc. |
| TGbf | 2/22 | Varshney, Neeraj | National Institute of Standards and Technology |
| TGbf | 2/22 | Wei, Dong | NXP Semiconductors |
| TGbf | 2/22 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 2/22 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 2/22 | Zhang, Jiayi | Ofinno |
| TGbf | 2/22 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |

**Thursday, February 24, 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/22/11-22-0232-09-00bf-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 (slide 23) 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 requested that the straw polls for two contributions (0173r4 and 0229r1) are deferred. It was also commented that 3 PDT presentation requests were not reflected in the agenda. Chair will update the agenda after the call. No change in timeline and teleconference times was made. Chair stated that the time slots in May Interim meeting will be discussed after CAC meeting. No objection from the group so the agenda is approved.

1. The Chair presents the TGbf timeline (slide 24).
2. The Chair presents slide 26, Call for contributions.
3. The Chair presents the teleconference times (slide 27 and slide 28).
4. Presentations:

**11-22/0223r1, “Proposed Draft Text: SBP frames”, Chaoming Luo (OPPO):** This submission contains the draft text for sensing by proxy frames to help the creation of TGbf draft D0.1.

Q: Protected Dual of Public Action frame is for associated STA. How to support un-associated STA?

A: We may define a new category, but this PDT is not for that.

C: We may extend Protected Dual of Public Action frame to support STA 1A or define a new category.

More offline discussion will follow.

**11-22/0235r5, “Proposed Draft Text for Sensing Measurement Report frame (excl. format)”, Claudio da Silva (Meta):** This document includes proposed draft text for the “Sensing Measurement Report frame” sub-clause as defined in TGbf’s SFD. Two technical changes were noted: Action No Ack is changed to Action or an Action No Ack, and No is changed to Yes in Table 9-128 – Element IDs.

No comment/question was noted.

Straw poll was run.

**Straw poll:** Do you agree to include PDT text in 11-22/0235r5 into the D0.1:

**Result:** Y/N/A: 28/0/8

**11-22/0134r4, “Proposed Draft Text for DMG sensing procedure”, Solomon Trainin (Qualcomm):**

This document proposes draft text for the “DMG sensing (SENS) procedure” subclause, defined in TGbf’s SFD by the 7.3 DMG sensing (SENS) procedure.

Q: Can burst/burst interval be over Beacon Interval (BI)? Is Scheduling related to BI?

A: Yes. Starting of the burst is offset to TBTT and burst interval can be over BI.

Q: TRN information is in Header. However, in sensing phase of Figure 11-x7, STA B only receives “Sync”, then how can STA B sense with no TRN information?

A: Question makes sense and further discussion will follow.

Q: Why do we need two Capabilities elements (DMG Sensing Short Capabilities element and the DMG Sensing Capabilities element)?

A: Contribution from Assaf will clarify this. DMG Sensing Short Capabilities element will be placed in Beacon and carry minimal set of information to establish agreement. DMG Sensing Capabilities element then will be carried in Probe Response frame and Association frame.

More time is needed for task group members to carefully read it. Straw poll will be taken next time.

**11-22/0337r1, “Partial Bandwidth NDP transmission in 11bf”, Dongguk Lim (LGE):**

This contribution investigates the method to indicate the preamble puncturing for the NDP transmission in the sensing measurement.

Q: Preamble puncturing is an indispensable feature. Agree with the rationale and support. However, design approaches and naming are needed to be considered.

A: Agree and will be considered later.

Q: How to support different STAs from different amendments? Partial Bandwidth Info is differently interpreted in 802.11ax and 802.11be.

A: Partial Bandwidth Info is defined in 802.11be. Detailed design can be discussed later.

Q: Preamble puncturing is an important feature even in 11bf. What is your intention? Do you propose to design NDPA with new puncturing pattern or to reuse what already defined in 11ax/11be?

A: Intention is to support reusing what is already defined.

Q: Selection of what NDP to use is needed. There are NDP in 11ax, NDP in 11be, and Ranging NDP in 11az. Ranging NDP has repetition mode that is beneficial in environment with reflections because it will enhance SNR on average. However, Ranging NDP does not support puncturing and thus there is a trade-off.

A: Wider bandwidth will enhance the performance. If we decide to support puncturing when using Ranging NDP, then that will be supportable by designing NDPA.

Q: We need to decide the NDP format first. When HE NDP and EHT NDPs are used, then there is no need to define puncturing because that is already supported. If puncturing is defined in Ranging NDP, then this will be a new NDP and possibly PHY change is needed.

A: If we decide to support puncturing in Ranging NDPA, then NDPA can carry that information.

More offline discussion will be needed. Chair stated that time for continuing straw poll discussion will be allocated next time.

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 11:59 pm EST.

**List of Attendees:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TGbf | 2/24 | Aboulmagd, Osama | Huawei Technologies Co., Ltd |  |
| TGbf | 2/24 | Beg, Chris | Cognitive Systems Corp. |  |
| TGbf | 2/24 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |  |
| TGbf | 2/24 | Dash, Debashis | Apple Inc. |  |
| TGbf | 2/24 | Dong, Xiandong | Xiaomi Inc. |  |
| TGbf | 2/24 | Du, Rui | Huawei Technologies Co., Ltd |  |
| TGbf | 2/24 | Eitan, Alecsander | Qualcomm Incorporated |  |
| TGbf | 2/24 | feng, Shuling | MediaTek Inc. |  |
| TGbf | 2/24 | HAN, Xiao | Huawei Technologies Co., Ltd |  |
| TGbf | 2/24 | Hsu, Ostrovsky | Xiaomi Inc. |  |
| TGbf | 2/24 | Huang, Lei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | | |
| TGbf | 2/24 | Jang, Insun | LG ELECTRONICS |  |  |
| TGbf | 2/24 | Kadampot, Ishaque Ashar | Qualcomm Technologies, Inc. |  |  |
| TGbf | 2/24 | Kamel, Mahmoud | InterDigital, Inc. |  |  |
| TGbf | 2/24 | Kim, Sang Gook | LG ELECTRONICS |  |  |
| TGbf | 2/24 | Lim, Dong Guk | LG ELECTRONICS |  |  |
| TGbf | 2/24 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |  |  |
| TGbf | 2/24 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |  |  |
| TGbf | 2/24 | Raissinia, Alireza | Qualcomm Incorporated |  |  |
| TGbf | 2/24 | Shellhammer, Stephen | Qualcomm Incorporated |  |  |
| TGbf | 2/24 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |  |  |
| TGbf | 2/24 | Sun, Bo | ZTE Corporation |  |  |
| TGbf | 2/24 | Trainin, Solomon | Qualcomm Incorporated |  |  |
| TGbf | 2/24 | Wei, Dong | NXP Semiconductors |  |  |
| TGbf | 2/24 | Xin, Yan | Huawei Technologies Co., Ltd |  |  |
| TGbf | 2/24 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) | | |
| TGbf | 2/24 | Zhang, Jiayi | Ofinno |  |  |
| TGbf | 2/24 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | | |

**Monday, February 28, 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/22/11-22-0232-10-00bf-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 9:01am 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 (slide 24) and asks if there are any questions or comments on the agenda. Solomon announces that he has a SP for PDT. The presentation was placed among the non-PDT presentations. The agenda is updated accordingly.

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 25 and 26).
2. The Chair presents slide 27, Call for contributions.
3. The Chair presents the teleconference times (slide 28 and slide 29).
4. Presentations:

**11-22/0229r3, ”Proposed Spec Text Sensing Measurement Setup”, Insun Jang (LGE)**

Q: Can you add “timeout ms” to the TBD to indicate that it is about a timeout.

As a result, the text is updated accordingly.

Also. some typo is corrected based on comments from the group. The document is updated to r4, which is the revision that the SP refers to.

**Straw Poll:** Do you support including the text proposed in the following document into the IEEE 802.11bf draft amendment

* 22/0229r4, PDT for sensing measurement setup

**Result**: Y/N/A: 22/0/15

**11-22/0223r3, “Proposed Draft Text: SBP frames”, Chaoming Luo (OPPO)**

**Straw Poll:** Do you support including the text proposed in the following document into the IEEE 802.11bf draft amendment

* 22/0223r3, PDT for SBP frames

**Result**: Y/N/A: 23/2/15

**11-22/0181r1, “Proposed Draft Text. Sensing Session Setup”, Chaoming Luo (OPPO)**

**Straw Poll:** Do you support including the text proposed in the following document into the IEEE 802.11bf draft amendment

* 22/0181r1, PDT for SBP frames

**Result**: No objection to accept this proposal

**11-22/0182r0, “Proposed Draft Text. Sensing Session Termination”, Chaoming Luo (OPPO)**

**Straw Poll:** Do you support including the text proposed in the following document into the IEEE 802.11bf draft amendment

* 22/0182r0, PDT for SBP frames

**Result**: No objection to accept this proposal

**11-22/0243r6, “Proposed Draft Text for DMG sensing procedure”, Solomon. Trainin (Qualcomm)**

**Straw Poll:** Do you support including the text proposed in the following document into the IEEE 802.11bf draft amendment

* 22/0243r6, PDT for DMG sensing procedure

**Result**: No objection to accept this proposal

**11-22/0337r2, “Partial Bandwidth NDP transmission in 11bf”, Dongguk Lim(LGE):**

A previous revision of this document has already been presented.

Q: You only exemplify with the DL, do you also want to do this for the UL?

A: Yes.

Q: Then I believe there is a problem, because that would require a PHY change.

**All SPs deferred.**

**11-22/0338r1, “STA Info field for the sensing NDPA frame”, Dongguk Lim(LGE):** The STA info field is considered in this contribution.

Q: I believe that some parameters, like Ng, should not be changed from one packet to the next but rather negotiated at set-up. The reason being that the sensing application may look for channel variations.

**Straw Poll 1:** Do you agree to add the following in the 11bf SFD?

* The STA info field in sensing NDPA includes the following information.
  + AID11 (11bits)
  + I2R NDP NSTS (3bits)
  + R2I NDP NSTS (3bits)
  + Whether Feedback type and Ng is included is TBD.

**Result:** Y/N/A: 22/6/18

SP 2 and SP 3 are deferred.

**11-21/2011r2, “Sensing NDP Announcement”, Dong Wei (NXP):** Compared to previous revision, a SP has been added.

**Straw Poll:** Do you agree with the following?

* The sensing NDP Announcement (NDPA) frame format has the following properties:
  + The NDPA Type subfield in the Sounding Dialog Token field (B0B1) is 10; i.e., the same as the Ranging NDPA frame format.
  + The reserved bits B26 and/or B31 of the STA Info field are used to indicate a sensing NDPA frame. The detailed encoding of B26 and/or B31 is TBD.
  + The definitions of the other bits of the STA Info field are TBD.

**Result**: Y/N/A: 15/14/9

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 11:02 am EST.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 2/28 | Aboulmagd, Osama | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | Au, Oscar | Origin Wireless |
| TGbf | 2/28 | Aygul, Mehmet | VESTEL; IMU |
| TGbf | 2/28 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 2/28 | Chayat, Naftali | Vayyar Imaging |
| TGbf | 2/28 | Dash, Debashis | Apple Inc. |
| TGbf | 2/28 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 2/28 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 2/28 | Du, Rui | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | Eitan, Alecsander | Qualcomm Incorporated |
| TGbf | 2/28 | Erkucuk, Serhat | Ofinno |
| TGbf | 2/28 | feng, Shuling | MediaTek Inc. |
| TGbf | 2/28 | Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 2/28 | Gong, Bo | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | HAN, Xiao | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | Hsu, Ostrovsky | Xiaomi Inc. |
| TGbf | 2/28 | Huang, Lei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 2/28 | Huq, Kazi Mohammed Saidul | Ofinno |
| TGbf | 2/28 | Jang, Insun | LG ELECTRONICS |
| TGbf | 2/28 | Kain, Carl | USDOT; Noblis |
| TGbf | 2/28 | katla, satyanarayana | InterDigital, Inc. |
| TGbf | 2/28 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 2/28 | Lanante, Leonardo | Ofinno |
| TGbf | 2/28 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 2/28 | lim, taesung | LG ELECTRONICS |
| TGbf | 2/28 | LIU, CHENCHEN | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbf | 2/28 | Montreuil, Leo | Broadcom Corporation |
| TGbf | 2/28 | narengerile, narengerile | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | Nikolich, Paul | self |
| TGbf | 2/28 | Omar, Hassan | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | Ozbakis, Basak | Vestel Electronics Corp. |
| TGbf | 2/28 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 2/28 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 2/28 | Sand, Stephan | German Aerospace Center (DLR) |
| TGbf | 2/28 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 2/28 | Stavridis, Athanasios | Ericsson AB |
| TGbf | 2/28 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | Sun, Bo | ZTE Corporation |
| TGbf | 2/28 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 2/28 | Wei, Dong | NXP Semiconductors |
| TGbf | 2/28 | Wilhelmsson, Leif | Ericsson AB |
| TGbf | 2/28 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 2/28 | Yu, Jian | Huawei Technologies Co., Ltd |
| TGbf | 2/28 | Zhang, Jiayi | Ofinno |
| TGbf | 2/28 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |

**Tuesday, March 1, 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/22/11-22-0232-12-00bf-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. Motions (65-66)
8. Any other business
9. Adjourn
10. The Chair, Tony Han, calls the meeting to order at 9:01am ET (about 70 persons are on the call after a few minutes of the meeting).
11. 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 25) and asks if there are any questions or comments on the agenda. (The two motions are added.)

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 26 and 27).
2. The Chair presents slide 28, Call for contributions.
3. The Chair presents the teleconference times (slide 29 and slide 30).
4. Presentations:

**11-22/0173r5, ”Proposed Draft Text: TB Sensing Measurement Instance”, Cheng Chen (Intel)**

Q: First paragraph page 3. It is not explicitly stated that the polling phase is one of the phases.

A: Actually, the polling phase may not be there.

**Straw Poll:** Do you support including the text proposed in the following document into the IEEE 802.11bf draft amendment

* 22/0173r5, PDT TB Sensing Measurement Instance

**Result**: Unanimously accepted

**11-21/1288r5, “Truncated Power Delay Profile – follow up”, Rui Du (Huawei):**

Q: My concern is that we have discussed several optional features and my feeling is that it would be better to treat them all at the same time.

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

* Truncated Channel Impulse Response (TCIR) described as follows should be considered as an optional type of the sensing measurement results for sub-7GHz sensing.
* The CIR is defined as the output of IDFT of frequency domain CSI.
* The TCIR is a subset of CIR around the largest magnitude tap of the CIR.
* Note: the method of selecting TCIR taps from the CIR is TBD.

**Result**: Y/N/A: 39/16/16

**11-21/1896r3, “NDPA for Sensing”, Junghoon Suh (Huawei):** Different options for the NDPA packet format are discussed.

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

* The NDPA Frame format continues to use Type 01 and Subtype 0101 (the NDPA frame that VHT, Range, HE and EHT have been using) in the Frame Control field
* The first two bits in the Sounding Dialog Token field is set to 00 (to spoof legacy STAs as VHT variant)
* The Common field follows immediately after the Sounding Dialog Token field. The length of the Common field is a multiple of 2 bytes. Exact length TBD
  + Name of the Common field is TBD (e.g. Special STA Info field, NDPA Variant field, etc)
* B11 Disambiguation subfield of the first two byte of the Common field is set to 1 and plays a role of indicating this NDPA frame format as a new variant instead of VHT variant
  + In the Common field, B11 of every two bytes is disambiguation bit and is set to 1
* There will be an NDPA Version indication subfield in this Common field
* Size of the STA Info field is a multiple of two bytes and the exact length is TBD
  + In the common field, the B11 of every two bytes is disambiguation bit and is set to 1.
  + In each STA info field, the B11 of every two bytes except for the 1st two bytes is disambiguation bit and is set to 1

**Result**: Y/N/A: 18/36/15

Q: With respect to SP2, I don’t think there is a need to introduce this at this moment in time.

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

* The Control Frame Extension subtype in the Frame Control field shall set a TBD value in the Control Frame Extension subfield which is located immediately following the Subtype subfield in the Frame Control field to introduce a new NDPA Frame.
  + Name of the new NDPA Frame is TBD

**Result**: Y/N/A: 15/32/20

1. Motion

**Motion 65:** Move to include the text proposed in the following document into the IEEE 802.11bf draft amendment:

* 22/0170r3, Sensing Measurement Instance: Reporting

**Move:** Rajat Pushkarna

**Second:** Claudio da Silva

**Result:** Motion passed by unanimous consent

Note：

* \* Amended result accounts for removal of X votes of non-voting members.
* Related document 22/ 0170r3
* SP Result: 15Y/ 1N/ 10A

**11-21/1751r3, “Consideration for NDPA in 11bf”, Dongguk Lim (LGE):** The design of the NDPA frame for WLAN sensing is considered in this contribution.

After some discussions, all SPs are deferred.

**11-22/0126r3, “Proposed Draft Text for Sensing measurement setup termination”, Pei Zhou (OPPO):**

A minor typo corrected, and some minor changes are made based on comments from the group.

Run out of time.

1. The chair asks if there is AoB. No response from the group.
2. The meeting is adjourned without objection at 11:04 am EST.

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 3/1 | Aboulmagd, Osama | Huawei Technologies Co., Ltd |
| TGbf | 3/1 | Asterjadhi, Alfred | Qualcomm Incorporated |
| TGbf | 3/1 | Aygul, Mehmet | VESTEL; IMU |
| TGbf | 3/1 | Cao, Rui | NXP Semiconductors |
| TGbf | 3/1 | Chayat, Naftali | Vayyar Imaging |
| TGbf | 3/1 | Cheng, Xilin | NXP Semiconductors |
| TGbf | 3/1 | Choi, Jinsoo | LG ELECTRONICS |
| TGbf | 3/1 | Dash, Debashis | Apple Inc. |
| TGbf | 3/1 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 3/1 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 3/1 | Eitan, Alecsander | Qualcomm Incorporated |
| TGbf | 3/1 | Erkucuk, Serhat | Ofinno |
| TGbf | 3/1 | feng, Shuling | MediaTek Inc. |
| TGbf | 3/1 | Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 3/1 | Guo, Jing | NXP Semiconductors |
| TGbf | 3/1 | HAN, Xiao | Huawei Technologies Co., Ltd |
| TGbf | 3/1 | Hsu, Ostrovsky | Xiaomi Inc. |
| TGbf | 3/1 | Huang, Lei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 3/1 | Huq, Kazi Mohammed Saidul | Ofinno |
| TGbf | 3/1 | Jang, Insun | LG ELECTRONICS |
| TGbf | 3/1 | Kadampot, Ishaque Ashar | Qualcomm Technologies, Inc. |
| TGbf | 3/1 | Kakani, Naveen | Qualcomm Incorporated |
| TGbf | 3/1 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 3/1 | Kasher, Assaf | Qualcomm Incorporated |
| TGbf | 3/1 | katla, satyanarayana | InterDigital, Inc. |
| TGbf | 3/1 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 3/1 | Kim, Youhan | Qualcomm Incorporated |
| TGbf | 3/1 | Lanante, Leonardo | Ofinno |
| TGbf | 3/1 | Lee, Hong Won | LG ELECTRONICS |
| TGbf | 3/1 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 3/1 | Lou, Hui-Ling | NXP Semiconductors |
| TGbf | 3/1 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbf | 3/1 | McCann, Stephen | Huawei Technologies Co., Ltd |
| TGbf | 3/1 | Naik, Gaurang | Qualcomm Incorporated |
| TGbf | 3/1 | narengerile, narengerile | Huawei Technologies Co., Ltd |
| TGbf | 3/1 | Omar, Hassan | Huawei Technologies Co., Ltd |
| TGbf | 3/1 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 3/1 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 3/1 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbf | 3/1 | Ryu, Kiseon | Ofinno |
| TGbf | 3/1 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 3/1 | Shilo, Shimi | Huawei Technologies Co., Ltd |
| TGbf | 3/1 | Strauch, Paul | Qualcomm Incorporated |
| TGbf | 3/1 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |
| TGbf | 3/1 | Sun, Yanjun | Qualcomm Incorporated |
| TGbf | 3/1 | Tian, Bin | Qualcomm |
| TGbf | 3/1 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 3/1 | Tsai, Tsung-Han | MediaTek Inc. |
| TGbf | 3/1 | Varshney, Neeraj | National Institute of Standards and Technology |
| TGbf | 3/1 | Wei, Dong | NXP Semiconductors |
| TGbf | 3/1 | Wilhelmsson, Leif | Ericsson AB |
| TGbf | 3/1 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 3/1 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbf | 3/1 | Yu, Jian | Huawei Technologies Co., Ltd |
| TGbf | 3/1 | Zhang, Jiayi | Ofinno |
| TGbf | 3/1 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbf | 3/1 | Zhu, Peiying | Huawei Technologies Canada; Huawei Technologies Co., Ltd |

**Thursday, March 03, 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/22/11-22-0232-13-00bf-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

* The chair, Tony Han, calls the meeting to order at 10:01pm ET (about 35 persons are on the call after a few minutes of the meeting).

1. 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 26) and asks if there are any questions or comments on the agenda.

The chair asks if there is any objection to approve agenda. Question was raised on when motion will take place during the next week March Plenary. Chair responded that we will try to finish as many as possible motions during the 1st time slot for TGbf (next Tuesday) and next will be on 3/11 and/or 3/14. It was commented that preferred time slot is not to overlap with TGbe. At least 2 time slots will be allocated for motions. No objection from the group so the agenda is approved.

1. The Chair presents the TGbf timeline (slide 27).
2. The Chair presents slide 29, Call for contributions.
3. The Chair presents the teleconference times (slide 30).
4. The Chair presents the teleconference times (slide 31).
5. Presentations:

**11-22/0009r15, “TGbf D0.1 Writing Status”, Claudio da Silva (Editor - Meta):**

This submission contains the latest update on D0.1 writing status. Yellow highlighted items have already completed straw polls. Items marked with white need more discussion. Editor stated that he is convinced many of PDTs will be approved next week. After Plenary, we can discuss where we are. Any time before May meeting, we can publish D0.1. If we decide not to publish after March Plenary meeting, then we may consider to publish pre D0.1 version.

Q: Item #7 (sensing measurement setup) is already presented and straw polled.

A: Editor will change item #7 to “Motion Pending”.

Chair stated that statistics is included in WG11 opening plenary report so that TGbf proposals are increasing.

**11-22/0126r4, “****Proposed Draft Text for Sensing measurement setup termination”, Pei Zhou (OPPO):** This document includes proposed draft text for the “Sensing measurement setup termination” sub-clause as defined in TGbf’s SFD. Discussion 1 is deleted and Sensing Measurement Setup frame is changed to Sensing Measurement Setup Termination frame.

Q: What is the reason that “subtype” value is deleted and instead Public Action field value used? We need to check other frames are also design this way.

A: Will check.

Q: Is this also applicable to SBP?

A: SBP procedure will use its own termination frame, but current SFD had no description, we are OK to use this for SBP. We need further discussion on SBP. This PDT only considers the normal case.

Q: “Releasing resources” is not clear. What are the resources?

A: It can be parameters and time periods.

Q: What is the harm if not released?

C: We don’t need this paragraph and put it into a note with “should” be changed to “can”.

A: It is fine.

Q: Why does initiator carry “shall” and responder “should”?

A: It is OK to change to “shall”.

C: There may be a racing condition.

C: “Should” statement will be difficult to test.

A: We can leave it to comment resolution.

The document is updated and uploaded as 11-22/0126r5.

**Straw poll:** Do you agree to include PDT text in 11-22/0126r5 into the D0.1:

**Result:** Unanimous consent.

**11-22/0377r1, “On Sensing by Proxy”, Dong Wei (NXP):** This contribution discusses two issues of SBP procedure reporting which have not been addressed by TGbf.

Q: It seems proxy-AP decides parameters. SBP Request frame should carry these parameters and AP acts as a dummy.

A: Three options are provided and no strong opinion among these options.

C: Commenter stated that option 1 is preferred.

C: In issue #2, commenter stated that not less problem in TB ranging is disagreed.

C: Commenter thinks issue #1 is not an issue. Issue #2 can be resolved if “1” bit field is placed SBP Request frame denoting AP make sure that the results should from the same sets of STAs.

A: It makes sense.

C: We have protocol and methodology to handle these issues.

C: The intention for straw polls are not clear. We are contribution-driven organization and we can consider and discuss when the contribution comes.

Offline discussion will follow and then the contribution will be updated.

**11-22/0241r3, “DMG Passive Sensing”, Assaf Kasher (Qualcomm):** This document presents draft text for DMG Passive Sensing.

Q: In Figure 4, it is not clear when “Next Beacon” is 0.

A: Agreed to delete “Next Beacon” in Figure 4.

Q: Delete “in the beacon” in the first sentence of section 9.4.2.x1.

A: Agreed to delete.

Q: Question was raised on Information Request frame and Information Response frame.

A: Information Request frame carries element ID and Information Response frame carries all information.

Q: In Figure 2, when B3 is true, then B1 indicates beacon direction and location information. When B3 is false, B1 indicates beacon direction information. B3 seems superior to B1.

A: Location Available subfield is only for passive sensing.

C: DMG passive sensing and passive DMG sensing are both used. We should only use one of these terms.

A: Will correct this.

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

**List of Attendees:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbf | 3/3 | Aboulmagd, Osama | Huawei Technologies Co., Ltd |
| TGbf | 3/3 | Au, Oscar | Origin Wireless |
| TGbf | 3/3 | Beg, Chris | Cognitive Systems Corp. |
| TGbf | 3/3 | Chayat, Naftali | Vayyar Imaging |
| TGbf | 3/3 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 3/3 | da Silva, Claudio | Meta Platforms, Inc. |
| TGbf | 3/3 | Dong, Xiandong | Xiaomi Inc. |
| TGbf | 3/3 | feng, Shuling | MediaTek Inc. |
| TGbf | 3/3 | Hsu, Ostrovsky | Xiaomi Inc. |
| TGbf | 3/3 | Jang, Insun | LG ELECTRONICS |
| TGbf | 3/3 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbf | 3/3 | Kasher, Assaf | Qualcomm Incorporated |
| TGbf | 3/3 | Kim, Sang Gook | LG ELECTRONICS |
| TGbf | 3/3 | Lim, Dong Guk | LG ELECTRONICS |
| TGbf | 3/3 | Montemurro, Michael | Huawei Technologies Co., Ltd |
| TGbf | 3/3 | Motozuka, Hiroyuki | Panasonic Corporation |
| TGbf | 3/3 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbf | 3/3 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbf | 3/3 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGbf | 3/3 | Trainin, Solomon | Qualcomm Incorporated |
| TGbf | 3/3 | Wei, Dong | NXP Semiconductors |
| TGbf | 3/3 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbf | 3/3 | Zhang, Jiayi | Ofinno |
| TGbf | 3/3 | Zhou, Pei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |