IEEE P802.11  
Wireless LANs

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| IEEE 802.11 TGbq  Teleconference Minutes February 2025 | | | | |
| Date: 2025-03-05 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Jonghoe Koo | Samsung Electronics |  |  | jh89.koo@samsung.com |

Abstract

This document contains the IEEE 802.11 TGbq minutes for the teleconferences, February 26, 2025.

Revision history:

R0: initial version

R1: updated with some editorial corrections

R2: Removed the names and the affiliations of the commenters for technical contribution Q&A

Abbreviations:

Q Question

A Answer

C Comment

# Wednesday, February 26 2025, 09:30am - 11:00am (EDT)

**Opening formalities (09:30am EDT)**

1. The IEEE 802.11 TGbq meeting was called to order at 09:30 EDT by the Chair, Edward Au (Huawei)
2. Chair appointed Jonghoe Koo (Samsung Electronics) as a temporal secretary at this particular meeting to get the minutes from the beginning of the meeting.
3. Chair presented the TGbq meeting agenda IEEE 802.11-25/0190r1 (<https://mentor.ieee.org/802.11/dcn/25/11-25-0190-01-00bq-tgbq-agenda-26-february-2025.xlsx>) and reviewed the agenda items.
4. Micky Metha (Pharrowtech) requested a time slot during this meeting to introduce himself as a TGbq vice-chair candidate due to his unavailability in attending the Wednesday AM2 meeting in the 2025 March plenary.
5. Chair added a time slot for Micky at the end of the agenda.
6. Chair designated Jon Rosdahl (Qualcomm) as a co-host of Webex teleconference meeting.
7. Approved the meeting agenda.

**[Administrative items]**

1. Chair presented TGbq supplementary materials IEEE 802.11-25/0191r0 (<https://mentor.ieee.org/802.11/dcn/25/11-25-0191-00-00bq-tgbq-supplementary-materials-for-meetings.pptx>) slides.
2. Chair reviewed IEEE 802 required notices (emphasizing to ensure to announce name and affiliation at the first time to speak, anti-trust compliance, IEEE 802 WG rules and policies, etc.), IEEE SA meeting guidelines, IEEE Codes of Ethics and Conduct, IEEE individual process, and IEEE-SA standards activities with the fair and equitable consideration.
3. Chair remineded all to record their attendance in IMAT and other meeting reminders.
4. Chair asked if there were press in the call. None.

## TGbq leadership

**Secretary appointment**

1. Motion: Confirm Jonghoe Koo as an IEEE 802.11 Task Group bq secretary
   1. Motion: Sang Kim (LG)
   2. Seconded: Volker Jungnickel (Fraunhofer HHI)
   3. No discussion
   4. Approved by unaminous consent

### Reminder: March 7 is the deadline for Vice Chair(s) and Editor nomination/self-nomination

1. We will have the candidate introduction on Wedneday AM2 and will have an election or appointment on Thursay AM2.
2. The Deadline for the nomination for vice chair(s) and editor is Friday, 7 March 2025 (no matter which time zone).

**Preparation for the March 2025 plenary**

1. Chair emphasized that chair will give priority to contributions that focus on the first three among the following items.
2. Scope of work of our task group given our PAR requires us to leverage or reuse existing PHY and MAC specifications defined for the operation in sub-7.25 GHz bands
3. Timeline of the P802.11bq amendment development
4. Any operations topics, e.g., policies and procedures in selecting technical contributions for draft amendment development
5. Technical contributions
6. Chair noted that before having technical discussion we should make sure the scope of our task group work and encouraged the task group participants to share thoughts, e.g., what MAC/PHY features of existing sub-7 GHz we can leverage or reuse, in Altanta meeting.
7. Chair encouraged the task group participants to share thoughts or comment (e.g., we do not need to wait for 11bn to be ready, or we may wait for whole 11bn PHY to be stabilized before speed-up) so that we can have a consensus about our timeline either in March or in May.
8. Chair also encouraged the task group participants to discuss any idea about SFD or a functional requirement document.

**Contributions (09:55am EDT)**

**Presentation of IEEE 11-25/0179r0, 802.11ac waveform transmission over mmWave carrier (Micky Mehta (Pharrowtech BV))**

1. Micky presented the contribution IEEE 11-25/0179r0 (<https://mentor.ieee.org/802.11/dcn/25/11-25-0179-00-00bq-802-11ac-waveform-transmission-over-mmwave-carrier.pptx>).
2. Q: Request to share phase noise profile used for the test. The phase noise or the impairment designed for 11ad/11ay may not be optimized for 11bq. We need to share phase noise models that you have used, compare them, and optimize the models.
3. A: We can share some real measurements of the phase noise in addition to the phase noise model used for this contribution.
4. Q: In slide 7, it is strange that there is sudden drop for gamma value 3 in the figure EVM vs. gamma.
5. A: I wanted to highlight the fact that gamma values 4 and 5 gave slightly inferior results. We may need further follow-up investigation of this result.
6. Q: In slide 7, in figure PER vs. gamma, what is the reason that different MCSs have almost the same PER performance?
7. A: That’s because SNR is very high. The range is at one meter. For both of the metrics, EVM and PER, value 8 gives a good turning point. However, since there is slightly puzzling on the results so it needs further investigation.
8. Q: It would be nice if you share the phase noise model since we also find that EVM improvement highly depends on the phase noise model. If there are results with larger bandwidth, e.g., 320 or 640 MHz, then it would be better to discuss since 11bq may consider bandwidth larger than 160 MHz.
9. A: We have done 40 MHz x 8, which is 320 MHz, but we didn’t include that result because 320 was not a valid mode. I will get back to you with the reason why we haven’t included 320 case. We have not tried beyond 40 yet. Regarding the phase noise model, we used the phase noise measurement measured at the transceiver so it might include some garbages. If we use the phase noise mask in a controlled simulation environment, then we might be able to isolate the various factors affecting to EVM.
10. Q: Why do you choose 11ac instead of 11ax, or 11be as the baseline?
11. A: There are two motivations. Having a wider subcarrier spacing of 312 and a half kilohertz as opposed to 78.125, it’s four times tigher at 11ax/11be. Secondly, during the study group, there was some contributions recommending that 11ac as a good starting point.
12. Q: There may be pros and cons between using 11ac and using 11ax/be. We need to think about more technical reason before having which version of MAC/PHY as the baseline of 11bq.
13. A: We just considered a subcarrier spacing of 312 as a good starting point.
14. C: An upclocking rate can be also considered in addition to the subcarrier spacing. We need further discussion on this.
15. Q: In slide 7, for the case of gamma equal to 2 or 3, why the PER result for gamma value equal to 2 or 3 is pretty high even though EVM for these gamma values is less than -18 dB, which is good?
16. A: PER curves are derived from these histogram curves in slide 12. We ran 50,000 packets per point on that curve and drew how many packet failures were there. ADC PLL is not locked with a down converter on the radio. So, there’s going to be several occasions when the CFO is beyond control, resulting in a packet failure. We wanted to pick a gamma value that predominantly gives us a reliable link both from the PER point of view and from the EVM point of view.
17. Q: In slide 7, EVM has a big drop gamma equal to 3 and goes up from 3, as already raised by other members.
18. A: It was difficult to explain at this moment since it was the experimental measurement not a simulation result. Accordingly, we need to investigate how these curves look like when we have a locked clock architecture, e.g., a better PLO synthesizer.
19. Q: In slide 13, I’m wondering it makes sense that the results of Set #2 and Set #3 are the same.
20. A: What we wanted to do is not to change the EIRP so the output power and the linearity, i.e., the PA output backoff point. We wanted to make sure that we’re comparing outputs with outputs and see if there was the same Tx power for an ideal receiver, what would be the EVM? In addition, if we had an ideal transmitter with the same output power, what would be the EVM? We need to figure out a dominant impairment that makes shades of gray hidden within the measurement.
21. Q: In slides 8-11, the EVM measurements, EVM variation trend is inconsistent with MCS level variation, i.e., EVM measurement increases or decrease as MCS level increases. In addition, there is a referernce for the EVM requirement specified in 11ay (EDMG).
22. A: We haven’t tried to analyse any synergies between two because we were focused on starting with a clean slate and just started with a representative OFDM waveform of the 11ac.
23. Q: In slide 13, the experiment used a single carrier so it was not optimized for OFDM waveform. Do you think we can have much better waveform for 11bq with a specific optimization?
24. A: I think arriving at the realistic and widely accepted RF impairments is one of our big tasks and we can learn from existing WiGig radios. With the simulation, it’s not always achievable with the same level of statistical margins on realistic silcon.

**Closing formalities**

1. Micky Mehta provided his vice-chair candidate introduction.
2. The next meeting will be from 10:30am to 12:30pm EDT on Wednesday, March 12.
3. Chair called for contribution again and noted that contribution should be uploaded one day before the presentation.

**Adjourn (10:40am EDT)**

1. The chair announced that the call was adjourned at 10:40am EDT.

**List of Attendees**

TGbq      02/26/2025         Chen, You-Wei                                      MediaTek Inc.  
TGbq      02/26/2025     Wilhelmsson, Leif                                        Ericsson AB  
TGbq      02/26/2025             Wei, Dong  Guangdong OPPO Mobile Telecommunications Corp....  
TGbq      02/26/2025          CHENG, yajun                    Xiaomi Communications Co., Ltd.  
TGbq      02/26/2025          Mehta, Mehul                                     Pharrowtech BV  
TGbq      02/26/2025     Di Taranto, Rocco                                        Ericsson AB  
TGbq      02/26/2025           Fan, Shuang                     Sanechips Technology Co., Ltd.  
TGbq      02/26/2025            Xiao, Tong                    Xiaomi Communications Co., Ltd.  
TGbq      02/26/2025            Wee, Gaius                     Panasonic Holdings Corporation  
TGbq      02/26/2025            Fang, Juan                           Intel; Intel Corporation  
TGbq      02/26/2025         Wang, Zisheng                                    ZTE Corporation  
TGbq      02/26/2025           Cho, Hangyu                                     LG ELECTRONICS  
TGbq      02/26/2025         Yamada, Ryota                                  SHARP CORPORATION  
TGbq      02/26/2025         Au, Kwok Shum                       Huawei Technologies Co., Ltd  
TGbq      02/26/2025           Chen, Cheng                                              Intel  
TGbq      02/26/2025        Byeon, Seongho                                SAMSUNG ELECTRONICS  
TGbq      02/26/2025         Bansal, Ankur                                SAMSUNG ELECTRONICS  
TGbq      02/26/2025          Yano, Kazuto  Advanced Telecommunications Research Institute...  
TGbq      02/26/2025         feng, Shuling                                      MediaTek Inc.  
TGbq      02/26/2025    Asterjadhi, Alfred                         Qualcomm Technologies, Inc  
TGbq      02/26/2025           Anwyl, Gary                                      MediaTek Inc.  
TGbq      02/26/2025    AbidRabbu, Shaima'                                        VESTEL, IMU  
TGbq      02/26/2025          Zheng, Xiayu                                 NXP Semiconductors  
TGbq      02/26/2025             Zhong, Ke                           Ruijie Networks Co.,Ltd.  
TGbq      02/26/2025         Zhou, Huixuan  Guangdong OPPO Mobile Telecommunications Corp....  
TGbq      02/26/2025              Chen, Xu                    Xiaomi Communications Co., Ltd.  
TGbq      02/26/2025       Grigat, Michael                                Deutsche Telekom AG  
TGbq      02/26/2025             Tian, Bin                              Qualcomm Incorporated  
TGbq      02/26/2025         Taori, Rakesh                              Infineon Technologies  
TGbq      02/26/2025        Quan, Yingqiao                                         Spreadtrum  
TGbq      02/26/2025             Qi, Yinan  Guangdong OPPO Mobile Telecommunications Corp....  
TGbq      02/26/2025   Pettersson, Charlie                                        Ericsson AB  
TGbq      02/26/2025    Patwardhan, Gaurav                         Hewlett Packard Enterprise  
TGbq      02/26/2025           Li, Jialing                         Qualcomm Technologies, Inc  
TGbq      02/26/2025             Li, Weiyi                  Spreadtrum Communication USA, Inc  
TGbq      02/26/2025               Li, Xin                       Huawei Technologies Co., Ltd  
TGbq      02/26/2025       Patil, Abhishek                              Qualcomm Incorporated  
TGbq      02/26/2025           Pan, Ju Yan                       Huawei Technologies Co., Ltd  
TGbq      02/26/2025           Li, Yanchun                       Huawei Technologies Co., Ltd  
TGbq      02/26/2025              Li, Yapu  Guangdong OPPO Mobile Telecommunications Corp....  
TGbq      02/26/2025         Lim, Dong Guk                                     LG ELECTRONICS  
TGbq      02/26/2025          Noh, Si-Chan                                      Newracom Inc.  
TGbq      02/26/2025    Motozuka, Hiroyuki                     Panasonic Holdings Corporation  
TGbq      02/26/2025          LIU, QINGLAI                     Panasonic Holdings Corporation  
TGbq      02/26/2025          Koo, Jonghoe                                SAMSUNG ELECTRONICS  
TGbq      02/26/2025          Rosdahl, Jon                        Qualcomm Technologies, Inc.  
TGbq      02/26/2025        Kim, Sang Gook                                     LG ELECTRONICS  
TGbq      02/26/2025              Ke, Wang  Guangdong OPPO Mobile Telecommunications Corp....  
TGbq      02/26/2025            Gu, Jaheon                      Samsung Electronics Co., Ltd.  
TGbq      02/26/2025          Gu, Xiangxin     Spreadtrum Communications (Shanghai) Co., Ltd.  
TGbq      02/26/2025         HUANG, CHIHAN                                      MediaTek Inc.  
TGbq      02/26/2025               Sun, Bo                                          Sanechips  
TGbq      02/26/2025          Singh, Aditi                             Charter Communications  
TGbq      02/26/2025        Huang, Qisheng                                    ZTE Corporation  
TGbq      02/26/2025      Hussein, Abdalla                       Huawei Technologies Co., Ltd  
TGbq      02/26/2025         Luo, Chaoming        Beijing OPPO telecommunications corp., ltd.  
TGbq      02/26/2025           Jang, Insun                                     LG ELECTRONICS  
TGbq      02/26/2025         Shi, Zhenpeng                       Huawei Technologies Co., Ltd  
TGbq      02/26/2025     Jeffries, Timothy                             Futurewei Technologies  
TGbq      02/26/2025    Jungnickel, Volker                Fraunhofer Heinrich Hertz Institute  
TGbq      02/26/2025   Kabbinale, Aniruddh                                            SAMSUNG  
TGbq      02/26/2025            Kain, Carl                                Noblis, Inc.; USDoT  
TGbq      02/26/2025  Schelstraete, Sigurd                                          MaxLinear  
TGbq      02/26/2025          Sadiq, Bilal                           Samsung Research America  
TGbq      02/26/2025       Silverman, Matt                                Cisco Systems, Inc.  
TGbq      02/26/2025           Kim, Youhan                        Qualcomm Technologies, Inc.  
TGbq      02/26/2025         Zhou, Renlong                     Sanechips Technology Co., Ltd.  
TGbq      02/26/2025             Zhou, Lei                      H3C Technologies Co., Limited