IEEE P802.11
Wireless LANs

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| IEEE 802.11 TGbqPlenary Meeting Minutes March 2025 |
| Date: 2025-04-10 |
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Abstract

This document contains the IEEE 802.11 TGbq minutes for the March Pleneary 2025.

Revision history:

R0: initial version

R1: Revised version of the Q&A section for the contributions presented on Thursday AM2, March 13, with editorial improvements and updates

Abbreviations:

Q Question

A Answer

C Comment

# Wednesday AM2, March 12, 2025, 10:30am - 12:30pm (EDT)

TGbq Chair: Edward Au (Huawei)

TGbq secretary: Jonghoe Koo (Samsung)

**Opening formalities**

1. The IEEE 802.11 TGbq meeting was called to order at 10:30am EDT by the Chair.
2. Chair reminded the meeting registration.
3. Chair presented the TGbq meeting agenda [IEEE 802.11-25/0205r2](https://mentor.ieee.org/802.11/dcn/25/11-25-0205-02-00bq-tgbq-agenda-2025-march-plenary.xlsx) and reviewed the agenda items.
4. Chair designated Robert Stacey (Intel) as a co-host of Webex for slido setup.
5. Chair reviewed the meeting agenda and the agenda was approved by unaminous consent.

**[Administrative items]**

1. Chair presented TGbq supplementary materials [IEEE 802.11-25/0417r0](https://mentor.ieee.org/802.11/dcn/25/11-25-0417-00-00bq-supplementary-material-for-march-2025-plenary.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.

## General buisness

**Meeting minutes**

1. Motion: (Procedural) Move to approve the 26 February 2025 teleconference call meeting minutes ([25/0330r2](https://mentor.ieee.org/802.11/dcn/25/11-25-0330-02-00bq-tgbq-february-26-2025-teleconference-call-meeting-minutes.docx))
	1. Motion: Tuncer Baykers (Offino)
	2. Seconded: Cheng Chen (Intel)
	3. Discussion: No discussion
	4. Result: Approved by unaminous consent

**Task Group leadership**

1. There was one editor candidate and there were four vice-chair candidiates. The candidates' self-introductions were followed by a discussion and straw poll on the appropriate number of vice-chairs.
2. The editor candidate introduction: Cheng Chen (Intel) introduced himself remotely.
3. Vice-chair candidate introduction: three candidates, Rui Cao (NXP), Abhishek Patil (Qaulcomm), and Sang Kim (LG Eletronics) introduced themselves as vice-chair candidates in order.
4. The introduction of fourth vice-chair candidate, Micky Mehta (Pharrowtech BV), was skipped since he had introduced himself at the last telecon meeting.
5. Chair wanted to listen any opinion from members on the preferred number of vice-chairs before running the straw poll for the preferred number of vice-chairs.
6. Q: what is the role and responsibilities for each vice-chair?
7. A: It depends on the number of vice-chairs. We can set the roles for them later, e.g., chairing and leading teleconference call on behalf of chair and managing separate MAC/PHY ad-hoc calls if there are lots of technical contributions in the future.
8. C: For the case of TGbn, we have three vice-chairs. Having an adequate number of vice-chairs is particularly beneficial when dealing with ad-hoc meetings.
9. C: The workload may depend on the number of contributions we receive. Furthermore, we cannot predict the exact number of contributions. In brief, I propose that we have three vice-chairs.
10. C: Supportive of having three vice-chairs
11. Straw Poll: Please identify your preference on the number of vice chairs for the task group.

a) 1

b) 2

c) 3

d) Abstain

Result: 3 (50%, 107 votes), 2 (43%, 92 votes), 1 (6%, 13 votes), abstain (1%, 2 votes)

1. On Thursday AM2 session, vice-chair election would take place.

**Contributions**

**Presentation of** [**IEEE 11-25/0238r**](https://mentor.ieee.org/802.11/dcn/25/11-25-0238-01-00bq-immw-system-reuses.pptx)**1, IMMW System Reuses (Yanchun Li, Huawei)**

1. Yanchun presented IEEE 11-25/0238r1, IMMW System Reuses.
2. Q: 11be PHY may not be proper if we investigate 11ac OFDM and phase noise model on this PHY.
3. A: 11be PHY automatically has the backward compatibility with the legacy including 11ac OFDM PHY. In addition, 11ac has wider subcarriers spacing. Uplocking OFDM would be useful.
4. Q: It is generally good direction to reuse the existing one. In slide 4, there are several things missing, e.g., channel access and so on; we need to add more consideration points not to lose any essential consideration and parameters for the candidate design.
5. A: For 11ad/11ay, SP-based channel access is used. We can reuse various 11be features such as TWT SP, improved EDCA and etc.
6. Q: How can we synchronize with TGbn? If TGbn work is delayed or finishes much faster, then do we have such a plan?
7. A: There is minimal dependency on the TGbn timeline. Although TGbn offers features like QEM, which provide a slight improvement, its impact on TGbq timeline may be negligible. The majority of the baseline features come from 11be, so we do not have a dependency on TGbn.
8. Q: Agree with the general approach of reusing. Features to be considered (sub-7GHz, mmW) described in Slide 7 need further clarification.
9. A: For the synchronization, we can use the lower band. We need to simplify the design. The first answer can cover your question. Synchronization on the sub-7GHz can make simple for mmW synchronization operation. Short ranging media streaming and high throughput take advantage of higher bandwidth, e.g., TDLS, P2P.
10. Q; Slide 5, some clarification. PPDU structure of OFDM, what does the RTS/CTS-based mean?
11. A: As an initial thought for mmW. Not omnidirectional. It’s directional. So we can use RTS only to one direction. Then receiver cannot receive RTS in the other direction.
12. Q: It’s just an initial control frame. No change on ICF correct?
13. Q: In slide 4, regarding the beam tracking, what is the expected performance that you have in mind or expected ranging?
14. A: We may assume an indoor scenario. No more operation on the system may be required. A link is prepared and then quickly switch to secondary beam if needed. Simple scheme can be considered.

**Presentation of** [**IEEE 11-25/261r2**](https://mentor.ieee.org/802.11/dcn/25/11-25-0261-02-00bq-immw-for-consumer-device-and-tgbq-timeline.pptx)**, IMMW for Consumer Device and TGbq timeline (Jonghoe Koo, Samsung)**

1. Jonghoe presented [IEEE 11-25/261r2](https://mentor.ieee.org/802.11/dcn/25/11-25-0261-02-00bq-immw-for-consumer-device-and-tgbq-timeline.pptx).
2. Q: Option 3 with big feature set may not be appropriate if you want to consider to put a big feature set for 11bq since our scope is not to put a big feature.
3. A: Putting a big feature is not the intention. Just give an example that option 3 with longer timeline is typically used for TG developing a big feature.
4. Q: We may need enough time to have many discussions with big audience since a big group is expected. The current timeline is very tough. It is a good starting point to revisit the timeline. For the second point, everything is okay but we need to further talk about a single antenna described in slide 5.
5. Q: We are going to reuse sub-7GHz and people had an optimistic view on the initial timeline. So may not require more time to complete the 11bq timeline.
6. A: It is expected that there will be so many contributions to be discussed. We need sufficient time to have open discussions with various contributions even though TGbq will develop a solution with a small change on top of sub-7GHz.
7. Q: Short timeline is good I think.
8. A: There are various points of view on what is the realistic, practical and reasonable timeline.
9. Q: We need to talk about the real use cases since we already had 11ad/11ay so we need to show the nice use cases of 11bq with the benefit of using sub-7GHz.

**Presentation of** [**IEEE 11-25/0372r0**](https://mentor.ieee.org/802.11/dcn/25/11-25-0372-00-00bq-proposed-selection-procedure-for-ieee-802-11bq.pptx)**, Proposed Selection Procedure for IEEE 802.11bq (Abhishek Patil, Qualcomm)**

1. Abhishek Patil presented [IEEE 11-25/0372r0](https://mentor.ieee.org/802.11/dcn/25/11-25-0372-00-00bq-proposed-selection-procedure-for-ieee-802-11bq.pptx). There is no question.

**Presentation of** [**IEEE 11-25/310r0**](https://mentor.ieee.org/802.11/dcn/25/11-25-0310-00-00bq-new-cca-schemes-for-immw.pptx)**, New CCA Schemes for IMMW (Wei-Han Chen, MediaTek)**

1. Wei-Han presented [IEEE 11-25/310r0](https://mentor.ieee.org/802.11/dcn/25/11-25-0310-00-00bq-new-cca-schemes-for-immw.pptx).
2. Q: I have a concern about your SP, particularly the first technique. The AP performs CCAs with different directions in sequence using a single radio. I am generally concerned about ED detection on the preamble from other STAs.
3. A: For the preamble detection part, we need further consideration. Thanks for the comment.
4. Q: Is this to support D2D with IMMW? Would EDCA not be required?
5. A: First, it is AP to non-AP communication, so it is not necessary for D2D case. Secondly, regarding EDCA which is the default channel access mechanism right now. Therefore, we may develop a brand new mechanism. Otherwise, we will follow the EDCA rules.
6. Q: Why do you limit the case for STA-to-STA case?
7. A: mSTA can be either AP MLD or non AP MLD.
8. Q: A device has capability whether it can do entire CCA and management.
9. A: It is up to a device’s capability.
10. Q: The CCA capability has reciprocity and this may not be considered by the different devices. Different channel access capabilities are used for different use cases. The framework should consider the basic and fundamental use case first.
11. Q: It seems targeting D2D communication. In 11ad/ay, they use the SP-based scheduling. Then AP sends something when a non-AP STA is prepared to receive. Is there any signaling between AP STA and non-AP STA for beam preparation?
12. Q: In Slide 4, what do the multiple transmissions mean?
13. A: It’s multiple transmissions coming from different directions.
14. Q: There is only one backoff counter and timer indicating that channel is idle. We have only one couter so that we need to wait.
15. A: In slide 5, at a give time, for an example, STA performs CCA in direction 2 with green region. At this moment, the STA does not care about the other three directions.
16. Q: There are three proposed schemes and it is better to provide and clarify the use cases suitable for each scheme.
17. A: Proposal 1, we have a simplified CCA capability. For the proposals 2 and 3, we can take more for these approaches.

**Closing formalities**

1. The next meeting is scheduled from 10:30am to 12:30pm EDT on Thursday, March 13.
2. Chair called for contribution again and asked the participants to consider a best practice in uploading their contributions one day before the presentation.
3. The chair announced that the meeting is recessed at 12:26pm EDT.

# Thursday AM2, March 13, 2025, 10:30am - 12:30pm (EDT)

TGbq Chair: Edward Au (Huawei)

TGbq secretary: Jonghoe Koo (Samsung)

**Opening formalities**

1. The IEEE 802.11 TGbq meeting was called to order at 10:30am EDT by the Chair, Edward Au (Huawei)
2. Robert Stacy supported the meeting as administrator.
3. Registration reminder.

**[Administrative items]**

1. Chair presented TGbq supplementary materials [IEEE 802.11-25/0417r0](https://mentor.ieee.org/802.11/dcn/25/11-25-0417-00-00bq-supplementary-material-for-march-2025-plenary.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 reminded all to record their attendance in IMAT and other meeting reminders.

**Task Group leadership**

1. Motion: (Procedural) Confirm Cheng Chen as an IEEE 802.11 Task Group bq editor
	1. Motion: Sang Kim (LGE)
	2. Seconded: Abhishek Patil (Qualcomm)
	3. Discussion: No discussion
	4. Result: Approved by unanimous consent
2. Robert Stacey sets up a multiple choice poll with slide of Webex.
3. Guide for the poll is to choose up to 3. If you choose 4 then it goes invalid.
4. Vice Chair election – Vote for 1 individual (select up to 3 candidates)
	1. Total voters: 218
	2. Rui Cao (172 votes)
	3. Abhishek Patil (156 votes)
	4. Sang Kim (143 votes)
	5. Micky Mehta (64 votes)
5. Motion: (Procedural) Confirm Rui Cao as IEEE 802.11 Task Group bq co-vice chair
	1. Motion: Cheng Chen (Intel)
	2. Seconded: Stephen McCann (Huawei)
	3. Discussion: No discussion
	4. Result: Approved by unanimous consent
6. Motion: (Procedural) Confirm Abhishek Patil as IEEE 802.11 Task Group bq co-vice chair
	1. Motion: Yanchun Li (Huawei)
	2. Seconded: Cheng Chen (Intel)
	3. Discussion: No discussion
	4. Result: Approved by unanimous consent
7. Motion: (Procedural) Confirm Sang Kim as IEEE 802.11 Task Group bq co-vice chair
	1. Motion: HanGyu Cho (LGE)
	2. Seconded: Suhwook Kim (Samsung)
	3. Discussion: No discussion
	4. Result: Approved by unanimous consent

**Contributions**

**Presentation of** [**IEEE 11-25/0366r0**](https://mentor.ieee.org/802.11/dcn/25/11-25-0238-00-00bq-immw-system-reuses.pptx)**, Simulation of Indoor Millimeter-Wave Signal Received Power Using an Omnidirectional Antenna Pattern (Ning Gao, OPPO)**

1. Ning Gao presented [IEEE 11-25/0366r0](https://mentor.ieee.org/802.11/dcn/25/11-25-0366-00-00bq-simulation-of-indoor-millimeter-wave-signal-received-power-using-an-omnidirectional-antenna-pattern.pptx).
2. Q: What is the use case of IMMW with an omnidirectional antenna?
3. A: It’s only targeting a short-range case such as P2P transmission. In this case, we may have the benefit of reduced latency than using congested sub-7GHz.
4. Q: Do you still think that we can leverage MIMO with an omnidirectional antenna?
5. A: When the distance between two IMMW devices is short, we can consider using it.
6. Q: In slide 5, as can be found in some papers, in a real room scenario, there are more areas with lower Rx power than expected due to penetration loss and reflection.
7. A: In this simulation, I only considered reflection effect and did not consider the penetration loss. We will further consider the effect of the penetration.
8. Q: Which MCS and bandwidth are used in the simulation? Is there any measurement-based parameter tuning?
9. A: In this simulation, no MCS and bandwidth have been considered. Only Tx power is considered. It's a pure simulation result.
10. Q: 11bq can use sub-7GHz link and hence the overhead might be reduced compared to the 11ad/11ay.
11. A: The intention is not to use MIMO with a directional antenna for IMMW, but to define an additional mode that can be suitable for the omnidirectional antenna case.

**Presentation of** [**IEEE 11-25/0360r0**](https://mentor.ieee.org/802.11/dcn/25/11-25-0360-00-00bq-high-level-thoughts-on-immw-phy-design.pptx)**, High-level thoughts on IMMW PHY Design (Rui Cao, NXP)**

1. Rui Cao presented [IEEE 11-25/0360r0](https://mentor.ieee.org/802.11/dcn/25/11-25-0360-00-00bq-high-level-thoughts-on-immw-phy-design.pptx).
2. Q: Why do we have separate IMMW DUP PPDU?
3. A: It can be used or leveraged in the MLO architecture for some control and management but for the immediate feedback, other method is required in order to handle delayed response in a congested session.
4. Q: What is your preferred one between 1x-based and 4x-based one?
5. A: We are open and as an initial investigation and we think VHT-based is useful.
6. Q: In slide 5, which IMMW PPDU format is used for 160 MHz SU MCS0? Is it IMMW SU PPDU or IMMW DUP PPDU? Since the SU PPDU and DUP PPDU formats are different so it is clarified which PPDU format is used.
7. A: In case of IMMW 160 MHz, which is derived by 8x uplocking 20 MHz, provides the longest range with SU MCS0. It’s SU PPDU.
8. Q: Regarding the data part, do you consider to enable different carrier-space similar to 5G-NR.
9. A: Not now and open to discuss if there is a use case.
10. Q: For two spatial streams, 11ad/11ay supports a pure RF analog beamforming. Do you assume to use beamforming used in 11ad/11ay or a different one, i.e., performing analog part first and then the device further use a digital part technique such as SVD as similar to sub-7 GHz case?
11. A: It’s related to the beam training and tracking. I think a digital part is also beneficial.
12. Q: What is the technical reason to define a new preamble design though reusing sub-7GHz features is a key point as described even in TGbq PAR? It may be also the same page to reuse a legacy preamble structure with U-SIG and L-SIG.
13. A: For the preamble part, the change proposed here is not big and it would be better to be optimized.

**Presentation of** [**IEEE 11-25/0294r0**](https://mentor.ieee.org/802.11/dcn/25/11-25-0294-00-00bq-a-service-period-based-integrated-mmwave-link-operation-scheme.pptx)**, A Service Period Based Integrated mmWave Link Operation Scheme (Shuling Feng, MediaTek)**

1. Shuling presented [IEEE 11-25/0294r0](https://mentor.ieee.org/802.11/dcn/25/11-25-0294-00-00bq-a-service-period-based-integrated-mmwave-link-operation-scheme.pptx).
2. Q: It seems that the contribution focuses on the communication between non-AP STAs.
3. Q: The Service Period in this contribution indicates a periodic service period such as TWT of which the schedule is broadcasted in the beacon or a broadcast frame?
4. A: This is a general idea rather than specifying a particular technique.
5. Q: Which traffic is served in a service period? Does the AP set up the mmWave link between mSTAs for P2P traffic?
6. A: Both traffic between mSTAs and traffic between non-AP STA and AP STA are possible.
7. Q: If this solution covers the P2P communication, we can leverage existing P2P framework and use cases for technical details, e.g., TXOP sharing for P2P communication.
8. A: Agreed to leverage them.
9. Q: Is this service period in slides 6 and 7 periodic like TWT?
10. A: It can be scheduled and it also be periodic and considered as R-TWT.
11. Q: We need to consider the mobility case and some of the configurations can be definitely changed and updated.
12. Q: In slide 4, does IMMW AP help establish a mwLink between mSTAs?
13. A: The information for mSTAs to prepare their beams can be exchanged between mSTAs and IMMW AP when they set up a mwLink.
14. C: It might be a little complex to have an AP to do a beam preparing.

**Presentation of** [**IEEE 11-25/0370r0**](https://mentor.ieee.org/802.11/dcn/25/11-25-0370-00-00bq-mlo-assisted-beam-training-protocols-in-immw.pptx)**, MLO assisted beam training protocols in IMMW (Xiayu Zheng, NXP)**

1. Xiayu presented [IEEE 11-25/0370r0](https://mentor.ieee.org/802.11/dcn/25/11-25-0370-00-00bq-mlo-assisted-beam-training-protocols-in-immw.pptx).
2. Q: Questions and concerns regarding beam refinement process. There may be a need for some modification on sub-7GHz links, e.g., PPDU format, which will incur additional cost.
3. A: We can improve the efficiency, and the additional cost may not be significant. Whether this is mantory or optional depends on how much weight we place on efficiency.
4. Q: In slide 5, why we do not consecutively perform NDPA transmission and actual measurement instead of having a delay between NDPA transmission in Sub-7GHz link and measurements in IMMW link?
5. A: If ther is a backoff time and without a predetermined IFS, 60GHz STA2 does not know when 60GHz AP2 transmits NDP.
6. Q: What is the delay? How much time does the transmitter swtich from non-mmWave link to mmWave?
7. A: There is a gap between different training PPDU and this is enough for the responder to switch the beam.
8. Q: In slide 6, could you clarify the statement in the last bullet?
9. A: A smaller bandwidth is used for SLS training. BRP training is simply detected by making the non-TRN field of the BRP training PPDU use the same bandwidth and preamble format as the SLS training PPDU. TRN field use the same bandwidth as the data PPDU to capture the more information.

**Closing formalities**

1. Chair announced the future teleconference call schedules
	1. 9:30am ET to 11:00am ET
	2. Tuesday, starting from 1 April, 8 April, 15 April, 22 April to finish the presentaiotn in the queue.
2. Chair announced the plan for the 2025 May interim meeting for TGbq.
3. Plan for the 2025 May wireless interim:
	1. a) Confirm the Task Group timeline.
	2. b) Confirm the selection procedure for draft development. Please review the uploaded contributions.
	3. c) Review and discuss technical contributions
4. Chair called for contribution again and asked the participants to consider a best practice in uploading their contributions one day before the presentation.

**Adjourn**

1. The chair announced that the call was adjourned at 12:30pm EDT.