IEEE P802.11  
Wireless LANs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TGbe January to March 2022 teleconference minutes | | | | | |
| Date: 2022-02-09 | | | | | |
| Author(s): | | | | | |
| Name | Affiliation | Address | Phone | email |
| Dennis Sundman | Ericsson |  |  | dennis.sundman@ericsson.com |
|  |  |  |  |  |

Abstract

This document contains the minutes for January to March 2022 TGbe teleconferences.

Revisions:

* Rev 0: First version of the document.
* Rev 1: Added minutes from the 11th joint call (16th of Feb). Added references to ad-hoc meetings 9th to 10th.

# 5th Conf. Call: Jan 26 (10:00–12:00 ET)-MAC

Only MAC.

1. MAC: [https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx](https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx%20)

# 6th Conf. Call: Jan 27 (10:00–12:00 ET)-MAC

Only MAC.

1. MAC: [https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx](https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx%20)

# 7th Conf. Call: Feb 07 (19:00–21:00 ET)-PHY/MAC

PHY and MAC.

1. MAC: [https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx](https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx%20)
2. PHY: <https://mentor.ieee.org/802.11/dcn/22/11-22-0309-01-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-february-march-2022.docx>

# 8th Conf. Call: Feb 09 (10:00–12:00 ET)-JOINT

1. The Chair, Alfred Asterjadhi (Qualcomm) calls the meeting to order at 10:01 AM. The agenda can be found in [110r7](https://mentor.ieee.org/802.11/dcn/22/11-22-0110-07-00be-jan-mar-tgbe-teleconference-agenda.docx) .
2. IEEE 802 and 802.11 IPR policy and procedure
   1. Patent Policy: Ways to inform IEEE:
      1. Cause an LOA to be submitted to the IEEE-SA ([patcom@ieee.org](mailto:patcom@ieee.org)); or
      2. Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      3. Speak up now and respond to this Call for Potentially Essential Patents

If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair.

The Chair asks if anyone is aware of any potentially essential patent. **Nobody speaks up.**

* 1. Copyright Policy: Participants are advised that
     1. IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
     2. Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy
  2. Patent, Participation, Copyright and policy related subclause:
     1. **The Chair goes through the “Patent And Procedures” section in** [**110r7**](https://mentor.ieee.org/802.11/dcn/22/11-22-0110-07-00be-jan-mar-tgbe-teleconference-agenda.docx)**.** The Chair encourages the group to go through the remainder of those parts in details.

1. Attendance reminder.
   1. Participation slide: <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0180-05-00EC-ieee-802-participation-slide.pptx>
   2. Please record your attendance during the conference call by using the IMAT system:
      1. 1) login to [imat](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   3. If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Dennis Sundman ([dennis.sundman@ericsson.com](mailto:dennis.sundman@ericsson.com)) and Alfred Asterjadhi
   4. Please ensure that the following information is listed correctly when joining the call:
      1. "[voter status] First Name Last Name (Affiliation)"
   5. Attendances list:  
      Ajami, Abdel Karim Qualcomm Incorporated

Akhmetov, Dmitry Intel Corporation

Ansley, Carol Cox Communications Inc.

Au, Kwok Shum Huawei Technologies Co., Ltd

Bankov, Dmitry IITP RAS

baron, stephane Canon Research Centre France

Bredewoud, Albert Broadcom Corporation

Cao, Rui NXP Semiconductors

Carney, William Sony Group Corporation

CHAN, YEE Facebook

Chemrov, Kirill IITP RAS

Chitrakar, Rojan Panasonic Asia Pacific Pte Ltd.

Choi, Jinsoo LG ELECTRONICS

CHUN, JINYOUNG LG ELECTRONICS

Chung, Chulho SAMSUNG

Coffey, John Realtek Semiconductor Corp.

Das, Subir Peraton Labs

Dong, Xiandong Xiaomi Inc.

Duan, Ruchen SAMSUNG

Erkucuk, Serhat Ofinno

Fan, Shuang ZTE Corporation

Fang, Yonggang Mediatek

Fischer, Matthew Broadcom Corporation

Gu, Xiangxin Unisoc

Haider, Muhammad Kumail Facebook

Handte, Thomas Sony Corporation

Ho, Duncan Qualcomm Incorporated

Hsu, Ostrovsky Xiaomi Inc.

Huang, Lei Guangdong OPPO Mobile Telecommunications Corp.,Ltd

Huang, Po-Kai Intel Corporation

Huq, Kazi Mohammed Saidul Ofinno

Ibrahim, Ahmed Samsung Research America

Inohiza, Hirohiko Canon

Jung, Insik LG ELECTRONICS

Kasher, Assaf Qualcomm Incorporated

Khorov, Evgeny IITP RAS

kim, namyeong LG ELECTRONICS

Kim, Sang Gook LG ELECTRONICS

Kim, Sanghyun WILUS Inc

Kim, Yongho Korea National University of Transportation

Kim, Youhan Qualcomm Incorporated

Klein, Arik Huawei Technologies Co., Ltd

Ko, Geonjung WILUS Inc.

Kumari, Warren Google

Lanante, Leonardo Ofinno

Lee, Hong Won LG ELECTRONICS

Levesque, Chris Qorvo

Levitsky, Ilya IITP RAS

Levy, Joseph InterDigital, Inc.

Li, Jialing Qualcomm Technologies, Inc.

li, yan ZTE Corporation

Li, Yapu Guangdong OPPO Mobile Telecommunications Corp.,Ltd

Liu, Jianhan MediaTek Inc.

Lorgeoux, Mikael Canon Research Centre France

Lou, Hanqing InterDigital, Inc.

Lu, kaiying MediaTek Inc.

Lu, Liuming Guangdong OPPO Mobile Telecommunications Corp.,Ltd

McCann, Stephen Huawei Technologies Co., Ltd

Montemurro, Michael Huawei Technologies Co., Ltd

Moon, Juseong Korea National University of Transportation

Naik, Gaurang Qualcomm Incorporated

Namboodiri, Vamadevan SAMSUNG ELECTRONICS

NANDAGOPALAN, SAI SHANKAR Synaptics

Nayak, Peshal Samsung Research America

Ng, Boon Loong Samsung Research America

noh, yujin Senscomm

Ozbakis, Basak VESTEL

Pare, Thomas MediaTek Inc.

Park, Eunsung LG ELECTRONICS

Patil, Abhishek Qualcomm Incorporated

Patwardhan, Gaurav Hewlett Packard Enterprise

Pushkarna, Rajat Panasonic Asia Pacific Pte Ltd.

Ratnam, Vishnu Samsung Research America

Rosdahl, Jon Qualcomm Technologies, Inc.

Schelstraete, Sigurd MaxLinear

Shafin, Rubayet Samsung Research America

Shirakawa, Atsushi SHARP CORPORATION

Stanley, Dorothy Hewlett Packard Enterprise

SUH, JUNG HOON Huawei Technologies Co., Ltd

Sun, Bo ZTE Corporation

Sundman, Dennis Ericsson AB

Taori, Rakesh Infineon Technologies

Varshney, Prabodh Nokia

Wang, Chao Chun MediaTek Inc.

Wang, Hao Tencent

Wang, Qi Apple, Inc.

Wei, Dong NXP Semiconductors

Wullert, John Peraton Labs

Xin, Yan Huawei Technologies Co., Ltd

Yang, Jay Nokia

YANG, RUI InterDigital, Inc.

Yang, Steve TS MediaTek Inc.

Yano, Kazuto Advanced Telecommunications Research Institute International (ATR)

Yee, James MediaTek Inc.

Yi, Yongjiang Spreadtrum Communication USA Inc.

Yu, Jian Huawei Technologies Co., Ltd

Zhang, Jiayi Ofinno

Zhang, Yan NXP Semiconductors

Zhou, Lei H3C Technologies Co., Limited

Zhou, Pei Guangdong OPPO Mobile Telecommunications Corp.,Ltd

1. Announcements:
   1. Draft 1.4 is posted.
2. Agenda.

Discussion:

C: I think my document 1868 has been presented.

C: The document number should be 27r2.

C: 1533 should be 1533r2.

**Agenda approved with unanimous consent.**

1. Technical Submissions**: CR**
   1. [1533r2](https://mentor.ieee.org/802.11/dcn/21/11-21-1533-02-00be-cc36-cr-on-eht-operation-element.doc) CC36 CR on EHT Operation element Guogang Huang [14C]

Guogang goes through the CRs. Some discussion and updates.

Discussion:

C: Is the existence of the EHT operation information field optional? Or how can the size of it be 0? I think it’s best to state this explicitly in the spec.

C: It seems we are missing some basic information about some elements in the spec.

C: There is a “shall” statement that should be rephrased to use the term “is” instead.

SP 1. Do you agree to resolve the following CIDs listed in [1533r3](https://mentor.ieee.org/802.11/dcn/21/11-21-1533-03-00be-cc36-cr-on-eht-operation-element.doc) and incorporate the text changes into the latest TGbe draft **with ONE CCFS**?

* 4261, 4263, 5124, 5125, 6234, 6602, 6603, 6702, 6703, 8278, 8279

Discussion: Some clarification discussion together with SP 2.

Result: Y/N/A/N-A: 39/27/29/59.

SP 2. Do you agree to resolve the following CIDs listed in [1533r3](https://mentor.ieee.org/802.11/dcn/21/11-21-1533-03-00be-cc36-cr-on-eht-operation-element.doc) and incorporate the text changes into the latest TGbe draft **with TWO CCFSs**?

* 4261, 4263, 5124, 5125, 6234, 6602, 6603, 6702, 6703, 8278, 8279

Discussion: Some clarification together with SP 1.

Result: Y/N/A/N-A: 38/27/36/53.

Discussion:

C: This seems to be a pure design choice with no particular technical impact. I think we can go with any.

C: Similar comment, this has been up for discussion for a long time, just pick one and then it’s decided.

C: Can we run SP 1 vs SP 2?

SP 1a. Do you agree to resolve the following CIDs listed in [1533r3](https://mentor.ieee.org/802.11/dcn/21/11-21-1533-03-00be-cc36-cr-on-eht-operation-element.doc) and incorporate the text changes into the latest TGbe draft **with ONE CCFS**? (this is precisely the same as SP 1).

* 4261, 4263, 5124, 5125, 6234, 6602, 6603, 6702, 6703, 8278, 8279

Result: Y/N/A/N-A: 50/29/24/55.

* 1. [0027r2](https://mentor.ieee.org/802.11/dcn/22/11-22-0027-02-00be-cr-for-tid-mapping-and-eml-notification-primitives.docx) cr-for-TID mapping and EML Notification primitives Zhiqiang Han [2C]

Zhiqiang goes through the CRs. Some discussion and updates of the document.

SP 3: Do you agree to resolve the following CIDs listed in [27r3](https://mentor.ieee.org/802.11/dcn/22/11-22-0027-03-00be-cr-for-tid-mapping-and-eml-notification-primitives.docx) and incorporate the text changes into the latest TGbe draft?

* 4313, 4314

Result: Supported with no objection from the group.

* 1. [0237r0](https://mentor.ieee.org/802.11/dcn/22/11-22-0237-00-00be-cr-for-trigger-frame-and-puncturing.docx) CR for trigger frame and puncturing Yanjun Sun [20C]

Yanjun goes through the document.

SP 4: Do you agree to resolve the following CIDs listed in [0237r1](https://mentor.ieee.org/802.11/dcn/22/11-22-0237-01-00be-cr-for-trigger-frame-and-puncturing.docx) and incorporate the text changes into the latest TGbe draft?

* 4583, 5441, 4097, 6486, 6485, 5370, 7028, 4875, 4876, 7682, 4967, 5589, 7690, 5465, 6091, 4886, 6126, 6125, 5946, 5852, 6686, 5733

Result: Supported with no objection from the group.

* 1. [0255r0](https://mentor.ieee.org/802.11/dcn/22/11-22-0255-00-00be-cc36-cr-for-clause-6-3.docx) CC36-CR-for-Clause-6.3 Arik Klein [2C]

Arik goes through the CRs.

SP 5: Do you support to incorporate the proposed draft text in this document 11-22/0255r0 to the next revision of TGbe Draft 1.4, for addressing the following CIDs:

* 4316,4317

Discussion: Some discussion and updates to the text during the discussion.

1. AoB: No other business.
2. Adjourn at 11:59 ET.

# 9th Conf. Call: Feb 10 (19:00–21:00 ET)–MAC

Only MAC.

1. MAC: [https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx](https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx%20)

# 10th Conf. Call: Feb 14 (19:00–21:00 ET)–PHY/MAC

PHY and MAC.

1. MAC: [https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx](https://mentor.ieee.org/802.11/dcn/22/11-22-0248-03-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-jan-and-march-2022.docx%20)
2. PHY: <https://mentor.ieee.org/802.11/dcn/22/11-22-0309-01-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-february-march-2022.docx>

# 11th Conf. Call: Feb 16 (10:00–12:00 ET)-JOINT

1. The Chair, Alfred Asterjadhi (Qualcomm) calls the meeting to order at 10:01 AM. The agenda can be found in [110r11](https://mentor.ieee.org/802.11/dcn/22/11-22-0110-11-00be-jan-mar-tgbe-teleconference-agenda.docx) .
2. IEEE 802 and 802.11 IPR policy and procedure
   1. Patent Policy: Ways to inform IEEE:
      1. Cause an LOA to be submitted to the IEEE-SA ([patcom@ieee.org](mailto:patcom@ieee.org)); or
      2. Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      3. Speak up now and respond to this Call for Potentially Essential Patents

If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair.

The Chair asks if anyone is aware of any potentially essential patent. **Nobody speaks up.**

* 1. Copyright Policy: Participants are advised that
     1. IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
     2. Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy
  2. Patent, Participation, Copyright and policy related subclause:
     1. **The Chair goes through the “Patent And Procedures” section in** [**110r11**](https://mentor.ieee.org/802.11/dcn/22/11-22-0110-11-00be-jan-mar-tgbe-teleconference-agenda.docx)**.** The Chair encourages the group to go through the remainder of those parts in details.

1. Attendance reminder.
   1. Participation slide: <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0180-05-00EC-ieee-802-participation-slide.pptx>
   2. Please record your attendance during the conference call by using the IMAT system:
      1. 1) login to [imat](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   3. If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Dennis Sundman ([dennis.sundman@ericsson.com](mailto:dennis.sundman@ericsson.com)) and Alfred Asterjadhi
   4. Please ensure that the following information is listed correctly when joining the call:
      1. "[voter status] First Name Last Name (Affiliation)"
2. Announcements:
   1. Monday 21st conf calls are cancelled.
3. Agenda.
   1. Discussion:

C: Please remove 1533

C: Updates to some revision numbers.

C: Can you add 0202?

* 1. Agenda approved with unanimous consent.

1. Technical Submissions**: CR**
   1. [0237r1](https://mentor.ieee.org/802.11/dcn/22/11-22-0237-01-00be-cr-for-trigger-frame-and-puncturing.docx) CR for trigger frame and puncturing Yanjun Sun [1C SP]

Yanjun goes through his comment.

SP1: Do you agree to resolve the following CIDs listed in 237r1 and incorporate the text changes into the latest TGbe draft?

* 5205

Result: Supported with no objection from the group.

* 1. [0255r1](https://mentor.ieee.org/802.11/dcn/22/11-22-0255-01-00be-cc36-cr-for-clause-6-3.docx) CC36-CR-for-Clause-6.3 Arik Klein [2C SP]

Arik goes through the comment. Some update to the text compared to previous week.

Discussion: Some discussion.

SP2: Do you agree to resolve the following CIDs listed in 255r1 and incorporate the text changes into the latest TGBe draft?

* 4316, 4317

Result: Y/N/A/NA: 35/37/27/56

* 1. [0285r0](https://mentor.ieee.org/802.11/dcn/22/11-22-0285-00-00be-cc36-cr-on-cid-5447.doc) CR on CID 5447 Ross J. Yu [1C]

Ross goes through the comment.

Discussion: Extensive discussion.

* 1. [1778r1](https://mentor.ieee.org/802.11/dcn/21/11-21-1778-01-00be-eht-sounding-enhancements.pptx) EHT Sounding Enhancements Arik Klein [1C]

Arik has prepared a slideset explaining the challenge with different puncturing rules.

Discussion: Extensive discussion. The group is trying to understand precisely what the problem is and how it can be addressed (and if there is a problem).

SP1-1778r2: Do you support ~~to modify the EHT Sounding procedure in 802.11be R1 to address the following problem:~~

* ~~Support~~ OFDMA puncturing patterns in Disabled Channels bitmap for R1.

Discussion:

C: Is this for the general case or the sounding phase?

C: This is only for the bitmap sent in the beacon.

C: Everything should follow this bitmap.

C: This impacts the sounding procedure, but it’s not immediately for the sounding procedure.

C: In the beginning of the presentation you said this was about problems, but seems to be a solution rather than a problem.

SP deferred.

* 1. [0083r0](https://mentor.ieee.org/802.11/dcn/22/11-22-0083-00-00be-cc36-resolution-to-cids-for-35-9.docx) CC36 resolution to CIDs for 35.9 Laurent Cariou [8C]

Laurent goes through the CRs.

*Out of time*

* 1. [0155r0](https://mentor.ieee.org/802.11/dcn/22/11-22-0155-00-00be-cr-for-10-13-ppdu-duration-constraint.docx) CR-for-10.13-PPDU-Duration-ConstraintJason Y. Guo [2C]
  2. [0171r0](https://mentor.ieee.org/802.11/dcn/22/11-22-0171-00-00be-cr-for-eht-dl-mu-operation.docx) CR-for-EHT-DL-MU-Operation Jason Y. Guo [5C]
  3. [0226r0](https://mentor.ieee.org/802.11/dcn/22/11-22-0226-00-00be-cr-for-missing-elements-in-clause-6-3.docx) cr-for-missing elements-in-clause 6-3 Zhiqiang Han [8C]

1. Adjourn at 12:00 ET.