IEEE P802.11  
Wireless LANs

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| TGbe 2020 May to July teleconference minutes | | | | |
| Date: 2020-05-15 | | | | |
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|  |  |  |  |  |

Abstract

This document contains the minutes for May to July 2020 TGbe teleconferences.

Revisions:

* Rev 0: Added references to telephone conferences held 4th-11th of May. Added minutes for telephone conference 14th of May.

# Contents

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# Monday 4 May 2020, 10:00-13:00 ET

Only MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-0511-13-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-march-and-may-2020.docx>

# Thursday 7 May 2020, 19:00-22:00 ET

Split PHY and MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-0511-13-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-march-and-may-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-0587-06-00be-minutes-april-phy-cc.docx>

# Friday 8 May 2020, 10:00-13:00 ET

Only MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-0511-13-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-march-and-may-2020.docx>

# Monday 11 May 2020, 19:00 – 22:00 ET

Split PHY and MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-0748-00-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-march-and-may-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-0708-02-00be-minutes-for-tgbe-phy-ad-hoc-cc-march-to-may-2020.docx>

# Thursday 14 May 2020, 10:00 – 13:00 ET

**Introduction**

1. The Chair, Alfred Asterjadhi (Qualcomm) calls the meeting to order at 10:02AM. The agenda can be found [11-20/0735r4](https://mentor.ieee.org/802.11/dcn/20/11-20-0735-04-00be-may-july-tgbe-teleconference-agendas.docx).
2. IEEE 802 and 802.11 IPR policy and procedure. 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 please speak up now. Nobody speaks up.
3. 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 ([aasterja@qti.qualcomm.com](mailto:aasterja@qti.qualcomm.com))
   4. Please ensure that the following information is listed correctly when joining the call:
      1. "[voter status] First Name Last Name (Affiliation)"
   5. List of attendees:
   * Aboulmagd, Osama Huawei Technologies Co., Ltd
   * Adhikari, Shubhodeep Broadcom Corporation
   * Aio, Kosuke Sony Corporation
   * Ansley, Carol CommScope
   * Asterjadhi, Alfred Qualcomm Incorporated
   * Au, Kwok Shum Huawei Technologies Co., Ltd
   * Awater, Geert Qualcomm Incorporated
   * baron, stephane Canon Research Centre France
   * Bredewoud, Albert Broadcom Corporation
   * Cao, Rui NXP Semiconductors
   * Carney, William Sony Corporation
   * Cavalcanti, Dave Intel Corporation
   * CHAN, YEE Facebook
   * Chen, Cheng Intel Corporation
   * Chen, Xiaogang Intel
   * CHERIAN, GEORGE Qualcomm Incorporated
   * Chitrakar, Rojan Panasonic Asia Pacific Pte Ltd.
   * Choi, Jinsoo LG ELECTRONICS
   * CHUN, JINYOUNG LG ELECTRONICS
   * Ciochina, Dana Sony Corporation
   * Coffey, John Realtek Semiconductor Corp.
   * Das, Subir Perspecta Labs Inc.
   * de Vegt, Rolf Qualcomm Incorporated
   * Duan, Ruchen SAMSUNG
   * ElSherif, Ahmed Qualcomm Incorporated
   * Erceg, Vinko Broadcom Corporation
   * Fang, Yonggang ZTE TX Inc
   * Fischer, Matthew Broadcom Corporation
   * Galati Giordano, Lorenzo Nokia
   * Gan, Ming Huawei Technologies Co., Ltd
   * Guo, Qiang InfomTechnologies
   * Guo, Yuchen Huawei Technologies Co., Ltd
   * Han, Jonghun SAMSUNG
   * Han, Zhiqiang ZTE Corporation
   * Handte, Thomas Sony Corporation
   * Hervieu, Lili Cable Television Laboratories Inc. (CableLabs)
   * Ho, Duncan Qualcomm Incorporated
   * Hong, Hanseul Yonsei University
   * Hsieh, Hung-Tao MediaTek Inc.
   * Hsu, Chien-Fang MediaTek Inc.
   * Hu, Chunyu Facebook
   * Hu, Glenn Tencent
   * Hu, Mengshi HUAWEI
   * Huang, Guogang Huawei
   * Huang, Lei Panasonic Asia Pacific Pte Ltd.
   * Jang, Insun LG ELECTRONICS
   * Ji, Chenhe Huawei Technologies Co. Ltd
   * Jiang, Jinjing Apple, Inc.
   * Kakani, Naveen Qualcomm Incorporated
   * Kandala, Srinivas SAMSUNG
   * Kasher, Assaf Qualcomm Incorporated
   * Kedem, Oren Huawei Technologies Co. Ltd
   * Kim, Myeong-Jin SAMSUNG
   * Kim, Sang Gook LG ELECTRONICS
   * Kim, Sanghyun WILUS Inc
   * Kishida, Akira Nippon Telegraph and Telephone Corporation (NTT)
   * Kneckt, Jarkko Apple, Inc.
   * Ko, Geonjung WILUS Inc.
   * Kondo, Yoshihisa Advanced Telecommunications Research Institute International (ATR)
   * Kumar, Manish Marvell Semiconductor, Inc.
   * Kwon, Young Hoon NXP Semiconductors
   * Lalam, Massinissa SAGEMCOM BROADBAND SAS
   * Lee, Wookbong SAMSUNG
   * Levitsky, Ilya IITP RAS
   * Li, Yiqing Huawei Technologies Co. Ltd
   * Li, Yunbo Huawei Technologies Co., Ltd
   * Lim, Dong Guk LG ELECTRONICS
   * LIU, CHENCHEN Huawei Technologies Co., Ltd
   * Liu, Yong Apple, Inc.
   * Lopez, Miguel Ericsson AB
   * Lou, Hanqing InterDigital, Inc.
   * Lu, Liuming ZTE Corporation
   * Lv, kaiying MediaTek Inc.
   * Lv, Lily Huawei Technologies Co. Ltd
   * Max, Sebastian Ericsson AB
   * Memisoglu, Ebubekir IMU
   * Mirfakhraei, Khashayar Cisco Systems, Inc.
   * Monajemi, Pooya Cisco Systems, Inc.
   * Montreuil, Leo Broadcom Corporation
   * NANDAGOPALAN, SAI SHANKAR Cypress Semiconductor Corporation
   * Nezou, Patrice Canon Research Centre France
   * noh, yujin Newracom Inc.
   * Ouchi, Masatomo Canon
   * Pare, Thomas MediaTek Inc.
   * Park, Eunsung LG ELECTRONICS
   * Park, Minyoung Intel Corporation
   * Park, Sung-jin LG ELECTRONICS
   * Patil, Abhishek Qualcomm Incorporated
   * Patwardhan, Gaurav Hewlett Packard Enterprise
   * PESIN, ANTHONY InterDigital, Inc.
   * Pettersson, Charlie Ericsson AB
   * porat, ron Broadcom Corporation
   * Puducheri, Srinath Broadcom Corporation
   * Redlich, Oded Huawei
   * RISON, Mark Samsung Cambridge Solution Centre
   * Rosdahl, Jon Qualcomm Technologies, Inc.
   * Salman, Hanadi Istanbul Medipol University
   * Schelstraete, Sigurd Quantenna Communications, Inc.
   * Shellhammer, Stephen Qualcomm Incorporated
   * Shilo, Shimi HUAWEI
   * Solaija, Muhammad Sohaib Istanbul Medipol University; Vestel
   * Son, Ju-Hyung WILUS Inc.
   * Song, Taewon LG ELECTRONICS
   * Stacey, Robert Intel Corporation
   * Strauch, Paul Qualcomm Incorporated
   * SUH, JUNG HOON Huawei Technologies Co. Ltd
   * Sun, Bo ZTE Corporation
   * Sun, Li-Hsiang InterDigital, Inc.
   * Sun, Yanjun Qualcomm Incorporated
   * Sundman, Dennis Ericsson AB
   * Tian, Bin Qualcomm Incorporated
   * Torab Jahromi, Payam Facebook
   * Tsodik, Genadiy Huawei Technologies Co. Ltd
   * Turkmen, Halise Vestel
   * Van Zelst, Allert Qualcomm Incorporated
   * Varshney, Prabodh Nokia
   * VIGER, Pascal Canon Research Centre France
   * Wang, Hao Tencent
   * Wang, Lei Huawei R&D USA
   * Wang, Qi Apple, Inc.
   * Wang, Xiaofei InterDigital, Inc.
   * Ward, Lisa Rohde & Schwarz
   * Wentink, Menzo Qualcomm
   * Xin, Yan Huawei Technologies Co., Ltd
   * Yan, Aiguo Oppo
   * 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 Futurewei Technologies
   * Young, Christopher Broadcom Corporation
   * Yu, Jian Huawei Technologies Co., Ltd
   * Yu, Mao NXP Semiconductors
   * Zhang, Yan NXP Semiconductors
   * Zhou, Yifan Huawei Technologies Co., Ltd
4. Announcements:
   1. The Chair announces that there are new rules on page 36 in 11-20/0735r4, to be discussed in the next item, TGbe procedure.
5. TGbe Procedure:
   1. Follow up on re-scheduling a subset of new teleconference calls for MAC ad-hoc.
      1. MAC SP result was: 31Y, 13N, 15A.
      2. Discussion on new meeting times for the MAC ad-hoc:

C: Two voices heard that believe it is unfair that no meeting times are good for Europe.

C: Some meetings are such that there is little/no time inbeteen to do any work.

C: Discussion back and forth about pros and cons with different times.

**Straw poll 1:** Option1: Keep current schedule 10 AM WED

Y/N/A/No-answer: 64/40/20/39

**Straw poll 2:** Option2: Alternate between 10 AM and 19:00 on WED – see [11-20/0735r4](https://mentor.ieee.org/802.11/dcn/20/11-20-0735-04-00be-may-july-tgbe-teleconference-agendas.docx)

Y/N/A/No-answer: 57/36/25/42

**Straw poll 3:** Option3: Do you prefer moving the schedule for the new MAC ad hoc conference calls (10 AM Friday)  
Y/N/A/No-answer: 45/57/27/33

**Straw poll 4:** Option4: Do you prefer moving the schedule for the new MAC ad hoc conference calls (9 AM Wednesday)

Y/N/A/No-answer: 59/48/14/41

**Straw poll 5:** Option5: Do you prefer moving the schedule for the new Mac ad hoc conference calls (1 AM Wednesday)

Y/N/A/No-answer: 41/56/15/51

Option1 is the most popular option.

* 1. Update to the Guideline-Building Consensus and Populating the TGbe SFD.

Alfred goes through the changes in [11-20/0735r4](https://mentor.ieee.org/802.11/dcn/20/11-20-0735-04-00be-may-july-tgbe-teleconference-agendas.docx).

**Discussion:**

C: Is this going to be a separate or is it part of the joint session?

A: The proposal is to move the joint sessions.

C: Only existing voting members are allowed to vote?

A: Yes.

C: I would like the WG chair to consider how to change this.

C: What do we do if the compendium on motions marked in green fails.

A: If this happens I will ask the group where the concerns are.  
C: Some of the green text is in question form. I cannot put that into the SFD.  
A: I consider that as editorial. It should be rather straight forward to modify it so that it can go into the SFD. The editor (Edward Au) can do this.

Nobody objects to keep the joint meetings at 10:00 AM.

1. Is there any objection to continue with the submissions as per the agenda below? Nobody objects.
   1. Technical Submissions**-Multi RU**:
      1. [413r1](https://mentor.ieee.org/802.11/dcn/20/11-20-0413-01-00be-discussion-on-eht-trigger-based-ul-mu.pptx) Discussion on EHT Trigger based UL MU (Insun Jang)
      2. [416r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0416-00-00be-mru-signaling-in-trigger-frame.pptx) Mru-signaling-in-trigger-frame (Ross Jian Yu)
   2. Technical Submissions**-HARQ**:
      1. [466r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0466-00-00be-harq-feedback.pptx) HARQ feedback (Li-Hsiang Sun)
      2. [481r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0481-00-00be-impact-of-harq-on-latency-system-level-simulation-analysis.pptx) Impact of HARQ on Latency-System Level Simulation Analysis (Shimi Shilo)
      3. [482r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0482-00-00be-discussion-on-harq-unit.pptx) Discussion on HARQ Unit (Shimi Shilo)
   3. Technical Submissions**-MAP TDMA**:
      1. 574r0 C-TDMA definition (Laurent Cariou)
      2. 595r0 C-TDMA protection (Dibakar Das)
   4. Technical Submissions**-MAP General**:
      1. [560r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0560-00-00be-multi-ap-configuration-and-resource-allocation.pptx) Multi-AP Configuration and Resource Allocation (Po-Kai Huang)
      2. [596r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0596-00-00be-ap-candidate-set-follow-up.pptx) AP candidate set follow up (Cheng Chen)
      3. [617r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0617-00-00be-multi-ap-operation-basic-definition.pptx) Multi-AP-Operation-Basic-Definition (Oren Kedem)
   5. Technical Submissions**-Low Lat**:
      1. [005r1](https://mentor.ieee.org/802.11/dcn/20/11-20-0005-01-00be-proposals-on-latency-reduction.pptx) Proposals on Latency Reduction (Shubhodeep Adhikari)
   6. Technical Submissions**-MAP-MU MIMO**:
      1. 548r0 Discussion On Coordinated UL MU-MIMO (Genadiy Tsodik)
   7. Technical Submissions**-General**:
      1. [674r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0674-00-00be-forward-compatible-ofdma.pptx) Forward compatible OFDMA (Xiaogang Chen)
   8. Technical Submissions**-MAP-SR**:
      1. [576r1](https://mentor.ieee.org/802.11/dcn/20/11-20-0576-01-00be-coordinated-spatial-reuse-protocol.pptx) Coordinated Spatial Reuse Protocol (Yongho Seok)
      2. [590r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0590-00-00be-shared-txop-spatial-reuse-considerations.pptx) Shared TXOP Spatial Reuse Considerations (Jonghun Han)

**Technical contributions**

1. [**413r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-0413-01-00be-discussion-on-eht-trigger-based-ul-mu.pptx) **Discussion on EHT Trigger based UL MU (Insun Jang)**

**Summary:** The authors look at Trigger based UL MU using 240/320 MHz and Multi-RU aggregation. In particular they consider what information fields need to be updated.

**Discussion:**

C: Slide 3, do you assume that you can signal single link with multiple links?

A: For now I don’t consider multi-link.

C: Slide 4, for the user field, do you have enough bits?

A: I think so.

C: Option 2, slide 8, where does AP obtain STA data? To support option 2 I need some additional information.

C: Is there a typo in SP 1, it should be 3 bits right? Furthermore I am preparing a contribution for this. Can you defer your SP until I have presented?

A: Sure.

C: The 240 Mhz is a punctured 320 so that should not be needed to signal. We need to think about forward and backward compatibility.

A: Yes.

C: Slide 8, I prefer option 2. Can you defer the strawpoll?

Straw poll deferred.

1. [**416r0**](https://mentor.ieee.org/802.11/dcn/20/11-20-0416-00-00be-mru-signaling-in-trigger-frame.pptx) **Mru-signaling-in-trigger-frame (Ross Jian Yu)**

**Summary:** The authors propose 3 options for multi-RU indication.

**Discussion:**

C: I believe your option 3 is the best one.

A: Ok.

C: I agree with the previous commentor.

A: Ok.

C: Can you defer SP1 since I have a presentation that is related. I believe you can run SP2 to gather information.

A: Ok I will defer.

C: Are you proposing to use 1 reserved bit in the existing frame?  
A: We are open to it.

**Straw poll 2:**

Which option do you prefer to be used for RU combination indication in the trigger frame+ Non-ofdma mode TBD

A: Option 1, Repeat AID in the User Info field allocated to the same STA

B: Option 2, combination indication in each user info field

C: Abstain

D: Need more discussion

E: Option 3: Change in the RU Allocation subfield

**Result:**

A/B/C/D/E: 14/21/22/41/30/40

1. [**466r0**](https://mentor.ieee.org/802.11/dcn/20/11-20-0466-00-00be-harq-feedback.pptx) **HARQ feedback (Li-Hsiang Sun)**

**Summary:** The authors look at possible ways to determine whether HARQ unit LLRs are buffered.

**Discussion:**

C: On slide 6, In general I consider an MPDU to contain multiple CWs.

A: Here we assume a “CW” is a number of codewords.

C: On slide 4, you mention that it may be hard for the originator to conclude whether a particular HARQ unit is buffered. What do you mean with this?

A: Between transmissions it is hard for the originator to know how many units were buffered.

1. [**481r0**](https://mentor.ieee.org/802.11/dcn/20/11-20-0481-00-00be-impact-of-harq-on-latency-system-level-simulation-analysis.pptx) **Impact of HARQ on Latency-System Level Simulation Analysis (Shimi Shilo)**

**Summary:** The authors present simulation results for HARQ focusing on latency. The simulations are carried out in NS-3 simulator.

**Discussion:**

C: Which system, .11ac, .11ax, etc?

A: I think it is

C: What BW did you run?  
A: I believe 20 MHz

C: How many spatial streams?

A: 2.

C: I would suggest to perform simulations where you sweep different operating points.

A: We did perform many more simulations, not presented here. The results were pretty consistent.

C: There are clearly many retransmissions (due to the large latency). I believe this largely benefits HARQ compared to ARQ. I try to understand how realistic these gains are in practice.

A: Naturally this is a simplified scenario.

C: Whats the target PER for the first transmission? I would expect that ARQ should be better than HARQ in some cases.

A: We didn’t modify Minstrel at all. The same Minstrel for ARQ and HARQ.

1. **Adjourn at 13:00.**