IEEE P802.11  
Wireless LANs

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| TGbe 2020 September to November teleconference minutes | | | | |
| Date: 2020-09-16 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Dennis Sundman | Ericsson |  |  | dennis.sundman@ericsson.com |
|  |  |  |  |  |

Abstract

This document contains the minutes for September to November 2020 TGbe teleconferences.

Revisions:

* Rev0: First revision of the document. Added minutes for joint meeting call the 15th of September.
* Rev1: Updated some typos. Thanks to Alfred Asterjadhi (Qualcomm) for pointing them out.
* Rev2: Added references to minutes the 14th of September. Added minutes for the joint call the 17th of September.
* Rev3: Added references to minutes September 21-28. Added minutes for the joint call the 30th of September.
* Rev4: Added references to minutes October 8-14. Added minutes for the joint call the 15th of October.
* Rev5: Added participant list for the meeting held October 15.
* Rev6: Added references to minutes October 19-28. Added minutes for the joint call the 29th of October.

# Monday 14 September 2020, 19:00 – 21:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-19-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Tuesday 15 September 2020, 19:00 – 21:00 ET

**Introduction**

1. The Chair, Alfred Asterjadhi (Qualcomm), calls the meeting to order at 19:02 ET. The Chair notifies that the agenda is in 1269r5.
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/writes up.
   * The Chair goes through **Error! Reference source not found.**.
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) 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:
      * "[voter status] First Name Last Name (Affiliation)"
   5. Participants reported in IMAT:

* Abdelaal, Rana Broadcom Corporation
* Abouelseoud, Mohamed Sony Corporation
* Aboulmagd, Osama Huawei Technologies Co.,  Ltd
* Adachi, Tomoko TOSHIBA Corporation
* Agarwal, Peyush Broadcom Corporation
* Akhmetov, Dmitry Intel Corporation
* Aldana, Carlos Facebook
* An, Song-Haur INDEPENDENT
* Andersdotter, Amelia None - Self-funded
* Ansley, Carol IEEE member / Self Employed
* Anwyl, Gary MediaTek Inc.
* Asterjadhi, Alfred Qualcomm Incorporated
* Au, Kwok Shum Huawei Technologies Co.,  Ltd
* Au, Oscar Origin Wireless
* B, Hari Ram NXP Semiconductors
* Baek, SunHee LG ELECTRONICS
* Baik, Eugene Qualcomm Incorporated
* baron, stephane Canon Research Centre France
* Bei, Jianwei NXP Semiconductors
* Berkema, Alan HP Inc.
* Boldy, David Broadcom Corporation
* Cao, Rui NXP Semiconductors
* Cariou, Laurent Intel Corporation
* Carney, William Sony Corporation
* Chen, Canfeng Xiaomi Inc.
* Chen, Cheng Intel Corporation
* Chen, Cheng-Ming Qualcomm Incorporated
* Chen, Na MaxLinear Corp
* Cheng, Paul MediaTek Inc.
* Choo, Seungho Senscomm Semiconductor Co., Ltd.
* Chu, Liwen NXP Semiconductors
* CHUN, JINYOUNG LG ELECTRONICS
* Chung, Chulho SAMSUNG
* Coffey, John Realtek Semiconductor Corp.
* Das, Dibakar Intel Corporation
* Das, Subir Perspecta Labs Inc.
* Derham, Thomas Broadcom Corporation
* de Vegt, Rolf Qualcomm Incorporated
* Ding, Baokun Huawei Technologies Co., Ltd
* Ding, Yanyi Panasonic Corporation
* DOAN, DUNG Qualcomm Incorporated
* Dong, Xiandong Xiaomi Inc.
* ElSherif, Ahmed Qualcomm Incorporated
* Erceg, Vinko Broadcom Corporation
* Fang, Yonggang ZTE TX Inc
* feng, Shuling MediaTek Inc.
* Fischer, Matthew Broadcom Corporation
* Gan, Ming Huawei Technologies Co., Ltd
* Ghaderipoor, Alireza MediaTek Inc.
* Ghosh, Chittabrata Intel Corporation
* Gong, Bo Huawei Technologies Co. Ltd
* Grandhe, Niranjan NXP Semiconductors
* Guo, Yuchen Huawei Technologies Co., Ltd
* Haider, Muhammad Kumail Facebook
* Hamilton, Mark Ruckus/CommScope
* Han, Zhiqiang ZTE Corporation
* Ho, Duncan Qualcomm Incorporated
* Hong, Hanseul WILUS Inc.
* Hsiao, Ching-Wen MediaTek Inc.
* Hsieh, Hung-Tao MediaTek Inc.
* Hsu, Chien-Fang MediaTek Inc.
* Hu, Chunyu Facebook
* Hu, Mengshi HUAWEI
* Huang, Guogang  Huawei
* Huang, Po-Kai Intel Corporation
* Hwang, Sung Hyun Electronics and Telecommunications Research Institute (ETRI)
* Inoue, Yasuhiko Nippon Telegraph and Telephone Corporation (NTT)
* Jang, Insun LG ELECTRONICS
* Jeon, Eunsung SAMSUNG ELECTRONICS
* Ji, Chenhe Huawei Technologies Co. Ltd
* Jiang, Jeng-Shiann Vertexcom Technologies
* Jiang, Jinjing Apple, Inc.
* Jones, Allan Activision
* JUNG, MYUNG CHEUL Pantech Inc.
* Kadampot, Ishaque Ashar Qualcomm Incorporated
* Kain, Carl USDoT
* Kakani, Naveen Qualcomm Incorporated
* Kamel, Mahmoud InterDigital, Inc.
* Kandala, Srinivas SAMSUNG
* Kang, Sugbong Apple, Inc.
* Kedem, Oren Huawei Technologies Co. Ltd
* Khan, Naseem Leidos Engineering. LLC
* Kim, Jeongki LG ELECTRONICS
* Kim, Myeong-Jin SAMSUNG
* kim, namyeong LG ELECTRONICS
* Kim, Sang Gook LG ELECTRONICS
* Kim, Sanghyun WILUS Inc
* Kim, Yongho Korea National University of Transportation
* Kim, Youhan Qualcomm Incorporated
* Kishida, Akira Nippon Telegraph and Telephone Corporation (NTT)
* Klein, Arik Huawei Technologies Co. Ltd
* Kneckt, Jarkko Apple, Inc.
* Ko, Geonjung WILUS Inc.
* Kondo, Yoshihisa Advanced Telecommunications Research Institute International (ATR)
* Kwon, Young Hoon NXP Semiconductors
* Lan, Zhou Broadcom Corporation
* Lee, Il-Gu Sungshin University
* Lee, Wookbong SAMSUNG
* Levitsky, Ilya IITP RAS
* Levy, Joseph InterDigital, Inc.
* Li, Jialing Qualcomm Incorporated
* Li, Nan ZTE Corporation
* Li, Qinghua Intel Corporation
* Li, Yiqing Huawei Technologies Co. Ltd
* Li, Yunbo Huawei Technologies Co., Ltd
* Lim, Dong Guk LG ELECTRONICS
* Lin, Wei Huawei Technologies Co. Ltd
* Lindskog, Erik SAMSUNG
* Liu, Der-Zheng Realtek Semiconductor Corp.
* Liu, Jianhan MediaTek Inc.
* Lou, Hanqing InterDigital, Inc.
* Lu, Liuming ZTE Corporation
* Luo, Chaoming Beijing OPPO telecommunications corp., ltd.
* Ma, Li MediaTek Inc.
* Ma, Mengyao HUAWEI
* Mehrnoush, Morteza Facebook
* Memisoglu, Ebubekir Istanbul Medipol University; Vestel
* Merlin, Simone Qualcomm Incorporated
* Minotani, Jun Panasonic Corporation
* Mirfakhraei, Khashayar Cisco Systems, Inc.
* Monajemi, Pooya Cisco Systems, Inc.
* Montreuil, Leo Broadcom Corporation
* Moon, Juseong Korea National University of Transportation
* Murti, Wisnu SeoulTech
* Nakano, Takayuki Panasonic Corporation
* Nam, Junyoung Qualcomm Incorporated
* Naribole, Sharan SAMSUNG
* Nezou, Patrice Canon Research Centre France
* Okada, Hiraku Nagoya University
* Ouchi, Masatomo Canon
* Pare, Thomas MediaTek Inc.
* Park, Eunsung LG ELECTRONICS
* Park, Minyoung Intel Corporation
* Patil, Abhishek Qualcomm Incorporated
* Patwardhan, Gaurav Hewlett Packard Enterprise
* Perkins, Richard Qorvo
* Petrick, Albert InterDigital, Inc.
* Pirhonen, Riku NXP Semiconductors
* porat, ron Broadcom Corporation
* Puducheri, Srinath Broadcom Corporation
* QIU, WEI Huawei Technologies Co., Ltd
* Rai, Kapil Qualcomm Incorporated
* Raissinia, Alireza Qualcomm Incorporated
* Rantala, Enrico-Henrik Nokia
* Redlich, Oded HUAWEI
* Rege, Kiran Perspecta Labs
* Rezk, Meriam Qualcomm Incorporated
* Rosdahl, Jon Qualcomm Technologies, Inc.
* Schelstraete, Sigurd Quantenna Communications, Inc.
* Shellhammer, Stephen Qualcomm Incorporated
* Sherlock, Ian Texas Instruments Incorporated
* Shilo, Shimi HUAWEI
* Smely, Di Dieter Kapsch TrafficCom AG
* Solaija, Muhammad Sohaib Istanbul Medipol University; Vestel
* Srinivasan, Shree Raman Qualcomm Incorporated
* Stott, Noel Keysight Technologies
* Strauch, Paul Qualcomm Incorporated
* Su, Hang Broadcom Corporation
* SUH, JUNG HOON Huawei Technologies Co. Ltd
* Sun, Bo ZTE Corporation
* Sun, Li-Hsiang InterDigital, Inc.
* Sun, Yanjun Qualcomm Incorporated
* Sundman, Dennis Ericsson AB
* SURACI, FRANK U.S. Department of Homeland Security
* Tian, Bin Qualcomm Incorporated
* Tian, Tao Unisoc Comm.
* Torab Jahromi, Payam Facebook
* Tsodik, Genadiy Huawei Technologies Co. Ltd
* Urabe, Yoshio Panasonic Corporation
* Varshney, Prabodh Nokia
* Vermani, Sameer Qualcomm Incorporated
* VIGER, Pascal Canon Research Centre France
* Wang, Hao Tencent
* Wang, Huizhao Quantenna Communications, Inc.
* Wang, Lei Huawei R&D USA
* Wang, Qi Apple, Inc.
* Wang, Xiaofei InterDigital, Inc.
* Ward, Lisa Rohde & Schwarz
* Wu, Kanke Qualcomm Incorporated
* Wu, Tianyu Apple, Inc.
* Wullert, John Perspecta Labs
* Xin, Liangxiao Sony Corporation
* Xin, Yan Huawei Technologies Co., Ltd
* Xue, Qi Qualcomm Incorporated
* Xue, Ruifeng Cisco Systems, Inc.
* Yan, Aiguo Oppo
* Yang, Jay Nokia
* YANG, RUI InterDigital, Inc.
* Yang, Steve TS MediaTek Inc.
* Yang, Yunsong Futurewei Technologies
* Yano, Kazuto Advanced Telecommunications Research Institute International (ATR)
* Yee, James MediaTek Inc.
* yi, yongjiang Futurewei Technologies
* Yona, Yair Qualcomm Incorporated
* Young, Christopher Broadcom Corporation
* Yu, Heejung Korea University
* Yu, Jian Huawei Technologies Co., Ltd
* Yu, Mao NXP Semiconductors
* Yukawa, Mitsuyoshi Canon, Inc.
* Zeng, Ruochen NXP Semiconductors
* Zeng, Yan Huawei Technologies Co.,  Ltd
* ZHANG, JIAYIN HUAWEI
* Zhang, Yan NXP Semiconductors
* Zou, Tristan Qualcomm Incorporated
* Zuo, Xin Tencent

1. Announcements: No particular announcements.
2. Call for nominations of TGbe officers
   1. Vicechairs and Secretary. The Chair mentions that all current officers are willing to continue their service. If other people are interested, they shall speak up before the motion to re-confirm the TGbe officers scheduled for Thursday session.
3. Towards TGbe D0.1 Draft**–Status and Updates (Edward)**

* Alfred goes through an overview of the PDT status updates. We need to finalize the document by September 30.

Discussion:

C: I prefer that we take what we have by the end of this week.

* Edward goes through spec text and volunteers document.
* SP: Do you support having “MLO-TID mapping/Link” as Basics R1?
  + Y/N/A: 79/44/27 🡪 SP fails.

1. **Technical Submissions-Trigger**
   * [**764r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-0764-02-00be-trigger-consideration.pptx)**, “Trigger Consideration”, Liwen Chu (NXP)**

**Summary:** The authors look at different extensions to the trigger frame design for EHT. They consider 2 options. The first option is based on reusing the .11ax frame structures, whereas the second option is to define new trigger types.

C: Slide 6, I think it’s better not to use the reserved bit.

C: Slide 4, you use user info. It has information which is not in the common part right?

A: Yes.

C: You could consider using another reserved bit to signal that this is an enhanced trigger frame.

* + [**828r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-0828-01-00be-ru-allocation-subfield-design-for-eht-trigger-frame.pptx)**, “RU Allocation Subfield Design 4 EHT Trigger Frame”, Myeongjin Kim**

**Summary:** The authors propose to modify the RU allocation subfield to indicate the supported bandwidths.

**Discussion:**

C: What happens when the MRU’s becomes larger than 80 MHz? Can you get issues like reversed primary/secondary channels? Can you handle this?  
A: Yes.

1. **AoB:** Next call we will continue with trigger based contributions.
2. **Recess at 20:56**.

# Tuesday 16 September 2020, 09:00 – 11:00 ET

Only MAC:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>

# Thursday 17 September 2020, 9:00 – 10:00 ET

**Introduction**

1. The Chair, Alfred Asterjadhi (Qualcomm), calls the meeting to order at 9:01 ET. The Chair notifies that the agenda is in 1269r7.
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/writes 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) 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:
      * "[voter status] First Name Last Name (Affiliation)"
   5. Participants reported in IMAT:

* Abouelseoud, Mohamed Sony Corporation
* Aboulmagd, Osama Huawei Technologies Co.,  Ltd
* Adachi, Tomoko TOSHIBA Corporation
* Adhikari, Shubhodeep Broadcom Corporation
* Agarwal, Peyush Broadcom Corporation
* Akhmetov, Dmitry Intel Corporation
* An, Song-Haur INDEPENDENT
* Asterjadhi, Alfred Qualcomm Incorporated
* Au, Kwok Shum Huawei Technologies Co.,  Ltd
* Au, Oscar Origin Wireless
* Awater, Geert Qualcomm Incorporated
* Aygul, Mehmet Istanbul Medipol University; Vestel
* Baek, SunHee LG ELECTRONICS
* Baik, Eugene Qualcomm Incorporated
* Bankov, Dmitry IITP RAS
* baron, stephane Canon Research Centre France
* Beg, Chris Cognitive Systems Corp.
* Bei, Jianwei NXP Semiconductors
* Bhandaru, Nehru Broadcom Corporation
* Boldy, David Broadcom Corporation
* Bredewoud, Albert Broadcom Corporation
* Cao, Rui NXP Semiconductors
* Carney, William Sony Corporation
* Chen, Cheng Intel Corporation
* chen, jindou Huawei Technologies Co. Ltd
* Chen, Na MaxLinear Corp
* Cheng, Paul MediaTek Inc.
* CHERIAN, GEORGE Qualcomm Incorporated
* Chitrakar, Rojan Panasonic Asia Pacific Pte Ltd.
* Choi, Jinsoo LG ELECTRONICS
* Choo, Seungho Senscomm Semiconductor Co., Ltd.
* Chu, Liwen NXP Semiconductors
* CHUN, JINYOUNG LG ELECTRONICS
* Chung, Chulho SAMSUNG
* Das, Dibakar Intel Corporation
* Das, Subir Perspecta Labs Inc.
* Davies, Robert Signify
* Derham, Thomas Broadcom Corporation
* Ding, Yanyi Panasonic Corporation
* Dong, Xiandong Xiaomi Inc.
* Erceg, Vinko Broadcom Corporation
* Fang, Yonggang ZTE TX Inc
* feng, Shuling MediaTek Inc.
* Fischer, Matthew Broadcom Corporation
* Foland, Jeremy Broadcom Corporation
* Godbole, sachin Broadcom Corporation
* Goto, Fumihide Self
* Guo, Yuchen Huawei Technologies Co., Ltd
* HAN, CHONG pureLiFi
* Han, Jonghun SAMSUNG
* Han, Zhiqiang ZTE Corporation
* Handte, Thomas Sony Corporation
* Hervieu, Lili Cable Television Laboratories Inc. (CableLabs)
* Ho, Duncan Qualcomm Incorporated
* Hong, Hanseul WILUS Inc.
* Hsieh, Hung-Tao MediaTek Inc.
* Hsu, Chien-Fang MediaTek Inc.
* Hu, Chunyu Facebook
* Hu, Glenn Tencent
* Huang, Guogang  Huawei
* Huang, Lei Guangdong OPPO Mobile Telecommunications Corp.,Ltd
* Huang, Po-Kai Intel Corporation
* Jang, Insun LG ELECTRONICS
* Jeon, Eunsung SAMSUNG ELECTRONICS
* Ji, Chenhe Huawei Technologies Co. Ltd
* jiang, feng Apple Inc.
* Jones, Allan Activision
* Kakani, Naveen Qualcomm Incorporated
* Kamel, Mahmoud InterDigital, Inc.
* Kandala, Srinivas SAMSUNG
* Kasher, Assaf Qualcomm Incorporated
* Kedem, Oren Huawei Technologies Co. Ltd
* Khan, Naseem Leidos Engineering. LLC
* Khorov, Evgeny IITP RAS
* Kim, Jeongki LG ELECTRONICS
* Kim, Myeong-Jin SAMSUNG
* kim, namyeong LG ELECTRONICS
* Kim, Sang Gook LG ELECTRONICS
* Kim, Sanghyun WILUS Inc
* Kim, Yongho Korea National University of Transportation
* Kim, Youhan Qualcomm Incorporated
* Kishida, Akira Nippon Telegraph and Telephone Corporation (NTT)
* Klein, Arik Huawei Technologies Co. Ltd
* Klimakov, Andrey Huawei Technologies Co., Ltd
* Kneckt, Jarkko Apple, Inc.
* Ko, Geonjung WILUS Inc.
* Kondo, Yoshihisa Advanced Telecommunications Research Institute International (ATR)
* Kwon, Young Hoon NXP Semiconductors
* Lalam, Massinissa SAGEMCOM BROADBAND SAS
* Lan, Zhou Broadcom Corporation
* Lansford, James Qualcomm Incorporated
* Lee, Il-Gu Sungshin University
* Lee, Nancy Signify
* Le Houerou, Brice Canon Research Centre France
* Levitsky, Ilya IITP RAS
* Levy, Joseph InterDigital, Inc.
* Li, Nan ZTE Corporation
* Li, Yunbo Huawei Technologies Co., Ltd
* Lim, Dong Guk LG ELECTRONICS
* Lin, Wei Huawei Technologies Co. Ltd
* LIU, CHENCHEN Huawei Technologies Co., Ltd
* Liu, Der-Zheng Realtek Semiconductor Corp.
* Liu, Jianfei HUAWEI
* Liu, Yong Apple, Inc.
* Lopez, Miguel Ericsson AB
* Lorgeoux, Mikael Canon Research Centre France
* Lou, Hanqing InterDigital, Inc.
* Lu, Liuming ZTE Corporation
* Luo, Chaoming Beijing OPPO telecommunications corp., ltd.
* Lv, kaiying MediaTek Inc.
* Lv, Lily Huawei Technologies Co. Ltd
* Ma, Li MediaTek Inc.
* Ma, Mengyao HUAWEI
* Madpuwar, Girish Broadcom Corporation
* Mehrnoush, Morteza Facebook
* MELZER, Ezer Toga Networks, a Huawei company
* Memisoglu, Ebubekir Istanbul Medipol University; Vestel
* Mirfakhraei, Khashayar Cisco Systems, Inc.
* Montreuil, Leo Broadcom Corporation
* Moon, Juseong Korea National University of Transportation
* Nezou, Patrice Canon Research Centre France
* Nguyen, An DHS/CISA
* noh, yujin Newracom Inc.
* Ozbakis, Basak VESTEL
* Palm, Stephen Broadcom Corporation
* Pare, Thomas MediaTek Inc.
* Park, Eunsung LG ELECTRONICS
* Park, Minyoung Intel Corporation
* Patwardhan, Gaurav Hewlett Packard Enterprise
* Perkins, Richard Qorvo
* Petrick, Albert InterDigital, Inc.
* Petry, Brian Broadcom Corporation
* Pettersson, Charlie Ericsson AB
* porat, ron Broadcom Corporation
* Pulikkoonattu, Rethnakaran Broadcom Corporation
* Pushkarna, Rajat Panasonic Asia Pacific Pte Ltd.
* Rafique, Saira Istanbul Medipol University ; VESTEL
* Raissinia, Alireza Qualcomm Incorporated
* Redlich, Oded HUAWEI
* Rege, Kiran Perspecta Labs
* Regev, Dror Toga Networks (a Huawei Company)
* REICH, MOR Togan Networks, a Huawei Company
* Sandhu, Shivraj Qualcomm Incorporated
* Schiessl, Sebastian u-blox
* Sedin, Jonas Ericsson AB
* Seok, Yongho MediaTek Inc.
* Serafimovski, Nikola pureLiFi
* Sevin, Julien Canon Research Centre France
* Shellhammer, Stephen Qualcomm Incorporated
* Shilo, Shimi HUAWEI
* Smely, Di Dieter Kapsch TrafficCom AG
* Solaija, Muhammad Sohaib Istanbul Medipol University; Vestel
* Stacey, Robert Intel Corporation
* SU, HONGJIA Huawei Technologies Co.,  Ltd
* SUH, JUNG HOON Huawei Technologies Co. Ltd
* Sun, Bo ZTE Corporation
* Sun, Li-Hsiang InterDigital, Inc.
* Sun, Yanjun Qualcomm Incorporated
* Sundman, Dennis Ericsson AB
* SURACI, FRANK U.S. Department of Homeland Security
* Takai, Mineo Space-Time Engineering
* Tanaka, Yusuke Sony Corporation
* THOUMY, Francois Canon Research Centre France
* Tian, Bin Qualcomm Incorporated
* Tsodik, Genadiy Huawei Technologies Co. Ltd
* Turkmen, Halise Istanbul Medipol University; Vestel
* Urabe, Yoshio Panasonic Corporation
* Van Zelst, Allert Qualcomm Incorporated
* Varshney, Prabodh Nokia
* Verma, Sindhu Broadcom Corporation
* Vermani, Sameer Qualcomm Incorporated
* VIGER, Pascal Canon Research Centre France
* Wang, Chao Chun MediaTek Inc.
* Wang, Hao Tencent
* Wang, Lei Huawei R&D USA
* Wang, Qi Apple, Inc.
* Want, Roy Google
* Wentink, Menzo Qualcomm
* Wu, Tianyu Apple, Inc.
* Wullert, John Perspecta Labs
* Xin, Liangxiao Sony Corporation
* Xin, Yan Huawei Technologies Co., Ltd
* Xue, Ruifeng Cisco Systems, Inc.
* Yang, Bo Huawei Technologies Co. Ltd
* Yang, Jay Nokia
* YANG, RUI InterDigital, Inc.
* Yang, Steve TS MediaTek Inc.
* Yang, Yunsong Futurewei Technologies
* Yano, Kazuto Advanced Telecommunications Research Institute International (ATR)
* Yee, James MediaTek Inc.
* yi, yongjiang Futurewei Technologies
* Young, Christopher Broadcom Corporation
* Yu, Heejung Korea University
* Yu, Jian Huawei Technologies Co., Ltd
* Yu, Mao NXP Semiconductors
* Yukawa, Mitsuyoshi Canon, Inc.
* Zhang, Yan NXP Semiconductors
* Zhou, Yifan Huawei Technologies Co., Ltd
* Zuo, Xin Tencent

1. Announcements: None.

**Motions:** [**841r22**](https://mentor.ieee.org/802.11/dcn/20/11-20-0841-22-00be-tgbe-motions-list-for-teleconferences.pptx)

1. **Motion: Approve TG Minutes**

Move to approve TGbe minutes of teleconferences listed below:

* + Teleconferences July-Sept: <https://mentor.ieee.org/802.11/dcn/20/11-20-1109-06-00be-july-september-tgbe-teleconference-minutes.docx>

**Move:** Dennis Sundman, **Second:** Edward Au

**Discussion:** No discussion

**Result:** Approved with unanimous consent.

1. **Motion 128: Move to confirm Laurent Cariou as TGbe Vice-Chair**

**Move:** Subir Das**, Second:** Ming Gan

**Result:** Approved with unanimous consent.

1. **Motion 129: Move to confirm Matthew Fischer as TGbe Vice-Chair**

**Move:** Subir Das**, Second:** Ming Gan

**Result:** Approved with unanimous consent.

1. **Motion 130: Move to confirm Dennis Sundman as TGbe Secretary**

**Move: Subir Das, Second: Edward Au**

**Result:** Approved with unanimous consent.

1. **Motion 131:  Move to add to the 11be SFD, candidate specification text in 11-20/566r66 that is identified with the following tags:**
   * SP190, SP191, SP192, SP193, SP194, SP195, SP196, SP197, SP199, SP200, SP201, SP202, SP203, SP204, SP205, SP206, SP207, SP208, SP209.

**Move:** Edward Au**, Second:** Ross Jian Yu

**Discussion:**

C: I want to keep SP198.

A: According to our procedures if there is a request to remove it, we should treat it separately.

C: Is this the right number, r66, because I see r67 on the server.

A: Yes, r66 is correct.

**Result:** Approved with unanimous consent.

**Note: These are all candidate SFD texts highlighted in yellow that have NOT received a request for further discussion**

1. **Move 132: Move to add to the 11be SFD, candidate specification text in 11-20/566r66 that is identified with the following tags:**
   * *SP198*

**Move:** Matthew Fischer**, Second:** Kaiying Lu

**Discussion:**

C: I am speaking against this motion. This way of doing transmission (proposed in 198) is not how we generally do it. We need to evaluate overhead/performance for this. This sort of big optional feature is not justified to be added at this point.

C: Other technologies have this feature and it entails a competitive advantage (for example NR-U). I believe we need this.

C: How do you know the channel busy time?

C: How do we know if this works?

C: I think we should be careful what the competition is doing. Unless we can step up against it (e.g., NR-U), we’re going to be out of business. Our standard if full of options.

C: I think it is a good feature but we need more time to evaluate this.

**Preliminary Result:** Y/N/A: 59/37/43 🡪 Preliminary fails

**Result**: Y/N/A: 59Y, 35N, 40A, [62%] 🡪 fails. See Appendix 1 for details.

**Note 1: These are all candidate SFD texts highlighted in yellow that have received a request for further discussion**

**Note 2: SP result is 52Y,16N,24A: see next slide for SP content**

1. **Motion 133: Move to amend the paragraph below of the TGbe SFD (11-20/1262r14):**

802.11be uses B3 equal to 1, B2 B1 equal to 0 and B0 equal to 0 in Fragment Number field to indicate 512 BA bitmap length and to use B3 equal to 1, B2-B1 equal to ~~0~~1 and B0 equal to ~~1~~0 in Fragment Number field to indicate 1024 BA bitmap length in compressed BA and multi-STA BA. [Motion 112, #SP24, [17] and [158]]

**Move:** Liwen Chu, **Second:** Ming Gan

**Discussion:** No discussion.

**Result:** Approved with unanimous consent.

**Towards TGbe D0.1 Draft–Status and Updates (Edward)–**[**997r41**](https://mentor.ieee.org/802.11/dcn/20/11-20-0997-41-00be-tgbe-spec-text-volunteers-and-status.docx)

Edward goes through the spec text volunteers and status document. Some minor discussion.

1. PDT Status for R1 MAC features:

|  |  |  |  |
| --- | --- | --- | --- |
| **Not Uploaded** | **Uploaded** | **And Presented** | **And Passed StrawPoll** |
|  | 1320, 1274, 1332, 1333, 1407, 1409, 1434, 1408, 1440, 1445, 1411, 1431. | 1309, 1336, 1395 (III), 1292. | [1256r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1256-03-00be-pdt-mac-mlo-tid-mapping-link-management-default-mode-and-enablement.docx), [1255r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1255-04-00be-pdt-mac-mlo-discovery-discovery-procedures-including-probing-and-rnr.docx), [1272r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1272-01-00be-pdt-mac-mlo-multiple-bssid-procedure.docx), [1261r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1261-01-00be-pdt-mac-mlo-retransmissions.docx), [1291r12](https://mentor.ieee.org/802.11/dcn/20/11-20-1291-12-00be-pdt-mac-mlo-enhanced-multi-link-single-radio-operation.docx), [1271r7](https://mentor.ieee.org/802.11/dcn/20/11-20-1271-07-00be-pdt-mac-mlo-multi-link-channel-access-end-ppdu-alignment.docx), [1275r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1275-04-00be-mac-pdt-mlo-ba-procedure.docx), [1270r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1270-04-00be-pdt-mac-mlo-power-save-procedures.docx), [1300r8](https://mentor.ieee.org/802.11/dcn/20/11-20-1300-08-00be-pdt-mac-mlo-multi-link-setup-usage-and-rules-of-ml-ie.docx), [1299r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1299-06-00be-pdt-mac-mlo-multi-link-channel-access-str.docx), [1359r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1359-04-00be-pdt-mac-eht-operation-element.docx), [1353r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1353-05-00be-pdt-mac-eht-bss-operation.docx), [1309r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1309-05-00be-proposed-draft-specification-for-ml-general-mld-authentication-mld-association-and-ml-setup.docx) (I, II), [1281r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1281-04-00be-pdt-mac-txop-bandwidth-signaling.docx) |

1. PDT Status for R1 PHY features:

|  |  |  |  |
| --- | --- | --- | --- |
| **Not Uploaded** | **Uploaded** | **And Presented** | **And Passed StrawPoll** |
|  | 1319, 1351, 1403, 1404, 1447, 1448, 1452, 1307, 1462, 1464, 1466, 1480, 1479, 1494, 1495. | 1315. | [1293r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1293-01-00be-pdt-phy-scope-and-eht-phy-functions.docx), [1295r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1295-01-00be-pdt-phy-overview-of-the-ppdu-enconding-process.docx), [1160r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1160-04-00be-pdt-phy-mu-mimo.docx), [1327r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1327-01-00be-pdt-eht-ppdu-format.docx), [1153r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1153-03-00be-pdt-phy-timing-related-parameters.docx), [1260r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1260-04-00be-pdt-phy-eht-stf.docx), [1349r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1349-03-00be-pdt-constellation-mapping.docx), [1231r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1231-03-00be-pdt-phy-beamforming.docx), [1252r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1252-02-00be-pdt-phy-frequency-tolerance.docx), [1253r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1253-06-00be-pdt-phy-modulation-accuracy.docx), [1254r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1254-06-00be-pdt-phy-receive-specification-general-and-receiver-minimum-input-sensitivity-and-channel-rejection.docx), [1229r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1229-03-00be-pdt-phy-channel-numbering-and-channelization.docx), [1294r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1294-04-00be-pdt-phy-eht-plme.docx), [1329r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1329-02-00be-pdt-eht-preamble-l-stf-l-ltf-l-sig-and-rl-sig.docx), [1290r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1290-03-00be-pdt-phy-parameters-for-eht-mcss.docx), [1276r7](https://mentor.ieee.org/802.11/dcn/20/11-20-1276-07-00be-pdt-phy-eht-preamble-eht-sig.docx), [1371r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1371-04-00be-pdt-phy-subcarriers-and-resource-allocation-for-wideband.docx), [1338r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1338-06-00be-pdt-phy-eht-modulation-and-coding-eht-mcss.docx), [1339r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1339-05-00be-pdt-phy-data-field-coding.docx), [1337r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1337-03-00be-pdt-phy-mathematical-description-of-signals.docx), [1340r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1340-02-00be-pdt-phy-packet-extension.docx). |

**Discussion:**

C: When is the last time for a straw poll to pass to make it into D0.1?

A: All SPs passed by Monday 28th September. We may also go through a couple of documents in the joint call.

AoB: None.

**Recess at 9:59.**

# Monday 21 September, 10:00 – 13:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Wednesday 23 September, 10:00 – 13:00 ET

Only MAC:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>

# Thursday 24 September, 19:00 – 22:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Monday 28 September, 19:00 – 22:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Wednesday 30 September, 19:00 – 21:00 ET

**Introduction**

1. The Chair, Alfred Asterjadhi (Qualcomm), calls the meeting to order at 19:01 ET. The Chair notifies that the agenda is in 1269r16.
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/writes up.
3. Attendance reminder.

* Participation slide: <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0180-05-00EC-ieee-802-participation-slide.pptx>
* Please record your attendance during the conference call by using the IMAT system:
  + 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.
* 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))
* Please ensure that the following information is listed correctly when joining the call:
  + "[voter status] First Name Last Name (Affiliation)"
* Participants reported in IMAT:
* AbidRabbu, Shaima' Istanbul Medipol University; Vestel
* Aboulmagd, Osama Huawei Technologies Co.,  Ltd
* Abushattal, Abdelrahman Istanbul Medipol university ;Vestel
* Adhikari, Shubhodeep Broadcom Corporation
* Agarwal, Peyush Broadcom Corporation
* Akhmetov, Dmitry Intel Corporation
* An, Song-Haur INDEPENDENT
* Anwyl, Gary MediaTek Inc.
* Asterjadhi, Alfred Qualcomm Incorporated
* Au, Kwok Shum Huawei Technologies Co.,  Ltd
* baron, stephane Canon Research Centre France
* Boldy, David Broadcom Corporation
* Bredewoud, Albert Broadcom Corporation
* Cao, Rui NXP Semiconductors
* Cariou, Laurent Intel Corporation
* Carney, William Sony Corporation
* Chen, Cheng Intel Corporation
* Chen, Na MaxLinear Corp
* CHERIAN, GEORGE Qualcomm Incorporated
* Chitrakar, Rojan Panasonic Asia Pacific Pte Ltd.
* Choi, Jinsoo LG ELECTRONICS
* Chu, Liwen NXP Semiconductors
* Coffey, John Realtek Semiconductor Corp.
* Das, Dibakar Intel Corporation
* Das, Subir Perspecta Labs Inc.
* de Vegt, Rolf Qualcomm Incorporated
* Dong, Xiandong Xiaomi Inc.
* Eitan, Alecsander Qualcomm Incorporated
* Fang, Yonggang ZTE TX Inc
* Ghaderipoor, Alireza MediaTek Inc.
* Ghosh, Chittabrata Intel Corporation
* Gong, Bo Huawei Technologies Co. Ltd
* 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
* Hsieh, Hung-Tao MediaTek Inc.
* Hsu, Chien-Fang MediaTek Inc.
* Hu, Chunyu Facebook
* Huang, Guogang  Huawei
* Huang, Lei Guangdong OPPO Mobile Telecommunications Corp.,Ltd
* Inoue, Yasuhiko Nippon Telegraph and Telephone Corporation (NTT)
* Jang, Insun LG ELECTRONICS
* Ji, Chenhe Huawei Technologies Co. Ltd
* Jiang, Jinjing Apple, Inc.
* Kain, Carl USDoT
* Kakani, Naveen Qualcomm Incorporated
* Kamel, Mahmoud InterDigital, Inc.
* Kandala, Srinivas SAMSUNG
* Kang, Sugbong Apple, Inc.
* Kedem, Oren Huawei Technologies Co. Ltd
* Khan, Naseem Leidos Engineering. LLC
* Khorov, Evgeny IITP RAS
* Kim, Jeongki LG ELECTRONICS
* Kim, Sang Gook LG ELECTRONICS
* Kim, Sanghyun WILUS Inc
* Kim, Youhan Qualcomm Incorporated
* Kishida, Akira Nippon Telegraph and Telephone Corporation (NTT)
* Klein, Arik Huawei Technologies Co. Ltd
* Klimakov, Andrey Huawei Technologies Co., Ltd
* Ko, Geonjung WILUS Inc.
* Kondo, Yoshihisa Advanced Telecommunications Research Institute International (ATR)
* Lalam, Massinissa SAGEMCOM BROADBAND SAS
* Lee, Wookbong SAMSUNG
* Le Houerou, Brice Canon Research Centre France
* Levitsky, Ilya IITP RAS
* Levy, Joseph InterDigital, Inc.
* Li, Yiqing Huawei Technologies Co. Ltd
* Li, Yunbo Huawei Technologies Co., Ltd
* Lim, Dong Guk LG ELECTRONICS
* Lin, Wei Huawei Technologies Co. Ltd
* Liu, Jianfei HUAWEI
* Lopez, Miguel Ericsson AB
* Lorgeoux, Mikael Canon Research Centre France
* Lou, Hanqing InterDigital, Inc.
* Lu, kaiying MediaTek Inc.
* Lu, Liuming ZTE Corporation
* Ma, Li MediaTek Inc.
* Ma, Mengyao HUAWEI
* Max, Sebastian Ericsson AB
* Memisoglu, Ebubekir Istanbul Medipol University; Vestel
* Mirfakhraei, Khashayar Cisco Systems, Inc.
* Montreuil, Leo Broadcom Corporation
* Nguyen, An DHS/CISA
* noh, yujin Newracom Inc.
* Ozbakis, Basak VESTEL
* Patil, Abhishek Qualcomm Incorporated
* Patwardhan, Gaurav Hewlett Packard Enterprise
* Petrick, Albert InterDigital, Inc.
* Pettersson, Charlie Ericsson AB
* porat, ron Broadcom Corporation
* Puducheri, Srinath Broadcom Corporation
* Rai, Kapil Qualcomm Incorporated
* Raissinia, Alireza Qualcomm Incorporated
* Redlich, Oded HUAWEI
* Rege, Kiran Perspecta Labs
* Rosdahl, Jon Qualcomm Technologies, Inc.
* Salman, Hanadi Istanbul Medipol University; VESTEL
* Sambasivan, Sam AT&T
* Schelstraete, Sigurd Quantenna Communications, Inc.
* Sedin, Jonas Ericsson AB
* Sevin, Julien Canon Research Centre France
* Shellhammer, Stephen Qualcomm Incorporated
* Shilo, Shimi HUAWEI
* Sosack, Robert Molex Incorporated
* Strauch, Paul Qualcomm Incorporated
* SUH, JUNG HOON Huawei Technologies Co. Ltd
* Sun, Bo ZTE Corporation
* Sun, Li-Hsiang InterDigital, Inc.
* Sundman, Dennis Ericsson AB
* THOUMY, Francois Canon Research Centre France
* Tian, Bin Qualcomm Incorporated
* Torab Jahromi, Payam Facebook
* Trainin, Solomon Qualcomm Incorporated
* Tsodik, Genadiy Huawei Technologies Co. Ltd
* Urabe, Yoshio Panasonic Corporation
* Varshney, Prabodh Nokia
* Verma, Sindhu Broadcom Corporation
* Vermani, Sameer Qualcomm Incorporated
* VIGER, Pascal Canon Research Centre France
* Wang, Chao Chun MediaTek Inc.
* Wang, Hao Tencent
* Wang, Huizhao Quantenna Communications, Inc.
* Wang, Lei Huawei R&D USA
* Wentink, Menzo Qualcomm
* Wilhelmsson, Leif Ericsson AB
* Wu, Tianyu Apple, Inc.
* Wullert, John Perspecta Labs
* Xin, Yan Huawei Technologies Co., Ltd
* Yang, Bo Huawei Technologies Co. Ltd
* Yang, Jay Nokia
* Yano, Kazuto Advanced Telecommunications Research Institute International (ATR)
* Yee, James MediaTek Inc.
* yi, yongjiang Futurewei Technologies
* Yu, Jian Huawei Technologies Co., Ltd
* Yu, Mao NXP Semiconductors
* Yukawa, Mitsuyoshi Canon, Inc.
* Zeng, Yan Huawei Technologies Co.,  Ltd
* Zhang, Yan NXP Semiconductors
* Zuo, Xin Tencent

1. Announcements: None.
2. Approval of agenda. Discussion:

* Can we add an item for the status of the SFD? Yes, added after Motions and telcos discussion.
* Agenda approved.

1. Motions (concentrated within the first 90 mins of the call) [841r24](https://mentor.ieee.org/802.11/dcn/20/11-20-0841-24-00be-tgbe-motions-list-for-teleconferences.pptx) TGbe motions list for teleconferences
2. **Motion 134.**

**Move to instruct the TGbe Editor to create IEEE802.11be D0.1 draft by incorporating the changes specified in the following documents:**

* [**1256r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1256-03-00be-pdt-mac-mlo-tid-mapping-link-management-default-mode-and-enablement.docx)**,** [**1255r**](https://mentor.ieee.org/802.11/dcn/20/11-20-1255-05-00be-pdt-mac-mlo-discovery-discovery-procedures-including-probing-and-rnr.docx)**5,** [**1272r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-1272-01-00be-pdt-mac-mlo-multiple-bssid-procedure.docx)**,** [**1261r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-1261-01-00be-pdt-mac-mlo-retransmissions.docx)**,** [**1291r12**](https://mentor.ieee.org/802.11/dcn/20/11-20-1291-12-00be-pdt-mac-mlo-enhanced-multi-link-single-radio-operation.docx)**,** [**1271r7**](https://mentor.ieee.org/802.11/dcn/20/11-20-1271-07-00be-pdt-mac-mlo-multi-link-channel-access-end-ppdu-alignment.docx)**,** [**1275r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1275-04-00be-mac-pdt-mlo-ba-procedure.docx)**,** [**1270r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1270-04-00be-pdt-mac-mlo-power-save-procedures.docx)**,** [**1300r8**](https://mentor.ieee.org/802.11/dcn/20/11-20-1300-08-00be-pdt-mac-mlo-multi-link-setup-usage-and-rules-of-ml-ie.docx)**,** [**1299r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1299-06-00be-pdt-mac-mlo-multi-link-channel-access-str.docx)**,** [**1359r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1359-04-00be-pdt-mac-eht-operation-element.docx)**,** [**1353r5**](https://mentor.ieee.org/802.11/dcn/20/11-20-1353-05-00be-pdt-mac-eht-bss-operation.docx)**,** [**1309r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1309-06-00be-proposed-draft-specification-for-ml-general-mld-authentication-mld-association-and-ml-setup.docx)**,** [**1281r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1281-04-00be-pdt-mac-txop-bandwidth-signaling.docx)**,** [**1336r5**](https://mentor.ieee.org/802.11/dcn/20/11-20-1336-05-00be-11be-spec-text-for-mlo-ba-share-and-extension-of-sn-space.docx)**,**
* [**1292r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1292-06-00be-pdt-mac-mlo-power-save-traffic-indication.docx)**,** [**1395r14**](https://mentor.ieee.org/802.11/dcn/20/11-20-1395-14-00be-pdt-mac-mlo-multi-link-channel-access-general-non-str.docx)**,** [**1333r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1333-02-00be-pdt-mac-mlo-discovery-ml-ie-usage-rules-in-the-context-of-discovery.docx)**,** [**1409r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1409-03-00be-pdt-mac-sta-id.docx)**,** [**1408r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1408-02-00be-pdt-mac-txop-preamble-puncturing.docx)**,** [**1440r7**](https://mentor.ieee.org/802.11/dcn/20/11-20-1440-07-00be-pdt-mac-mlo-enhanced-multi-link-operation-mode.docx)**,** [**1445r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1445-06-00be-pdt-mac-mlo-setup-security.docx)**,** [**1411r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1411-04-00be-pdt-mac-mlo-group-addressed-data-frame.docx)**,** [**1431r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1431-06-00be-proposed-draft-specification-for-individual-addressed-data-delivery-without-ba-negotiation.docx)**,** [**1320r9**](https://mentor.ieee.org/802.11/dcn/20/11-20-1320-09-00be-pdt-mac-mlo-multi-link-channel-access-capability-signaling.docx)**,** [**1274r9**](https://mentor.ieee.org/802.11/dcn/20/11-20-1274-09-00be-mac-pdt-mlo-ml-ie-structure.docx)**,** [**1332r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1332-06-00be-pdt-mac-mlo-bss-parameter-update.docx)**,** [**1434r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1434-06-00be-pdt-for-ns-ep-priority-access.docx)**,** [**1293r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-1293-01-00be-pdt-phy-scope-and-eht-phy-functions.docx)**,** [**1295r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-1295-01-00be-pdt-phy-overview-of-the-ppdu-enconding-process.docx)**,**
* [**1160r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1160-04-00be-pdt-phy-mu-mimo.docx)**,** [**1327r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-1327-01-00be-pdt-eht-ppdu-format.docx)**,** [**1153r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1153-03-00be-pdt-phy-timing-related-parameters.docx)**,** [**1260r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1260-04-00be-pdt-phy-eht-stf.docx)**,** [**1349r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1349-03-00be-pdt-constellation-mapping.docx)**,** [**1231r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1231-03-00be-pdt-phy-beamforming.docx)**,** [**1252r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1252-02-00be-pdt-phy-frequency-tolerance.docx)**,** [**1253r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1253-06-00be-pdt-phy-modulation-accuracy.docx)**,** [**1254r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1254-06-00be-pdt-phy-receive-specification-general-and-receiver-minimum-input-sensitivity-and-channel-rejection.docx)**,** [**1229r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1229-03-00be-pdt-phy-channel-numbering-and-channelization.docx)**,** [**1294r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1294-04-00be-pdt-phy-eht-plme.docx)**,** [**1329r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1329-02-00be-pdt-eht-preamble-l-stf-l-ltf-l-sig-and-rl-sig.docx)**,** [**1290r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1290-03-00be-pdt-phy-parameters-for-eht-mcss.docx)**,** [**1276r7**](https://mentor.ieee.org/802.11/dcn/20/11-20-1276-07-00be-pdt-phy-eht-preamble-eht-sig.docx)**,** [**1371r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1371-04-00be-pdt-phy-subcarriers-and-resource-allocation-for-wideband.docx)**,**
* [**1338r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1338-06-00be-pdt-phy-eht-modulation-and-coding-eht-mcss.docx)**,** [**1339r5**](https://mentor.ieee.org/802.11/dcn/20/11-20-1339-05-00be-pdt-phy-data-field-coding.docx)**,** [**1337r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1337-03-00be-pdt-phy-mathematical-description-of-signals.docx)**,** [**1340r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1340-02-00be-pdt-phy-packet-extension.docx)**,** [**1315r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1315-06-00be-draft-text-for-support-for-large-bandwidth.docx)**,** [**1351r5**](https://mentor.ieee.org/802.11/dcn/20/11-20-1351-05-00be-pdt-phy-pilot.docx)**,** [**1319r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1319-03-00be-pdt-phy-preamble-puncture.docx)**,** [**1403r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1403-04-00be-pdt-phy-txvector-rxvector-trigvector-config-vector.doc)**,** [**1404r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1404-02-00be-pdt-phy-support-for-non-ht-ht-vht-he-format-and-regulatory.doc)**,** [**1447r6**](https://mentor.ieee.org/802.11/dcn/20/11-20-1447-06-00be-pdt-subcarriers-and-resource-allocation-for-multiple-rus.docx)**,** [**1448r7**](https://mentor.ieee.org/802.11/dcn/20/11-20-1448-07-00be-pdt-resource-unit-interleaving-for-rus-and-multipe-rus.docx)**,** [**1452r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1452-03-00be-pdt-segment-parser.docx)**,** [**1307r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1307-04-00be-pdt-phy-introduction-to-eht-phy.docx)**,** [**1462r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1462-02-00be-pdt-phy-tx-mask.docx)**,** [**1464r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1464-02-00be-pdt-phy-u-sig.docx)**,**
* [**1466r0**](https://mentor.ieee.org/802.11/dcn/20/11-20-1466-00-00be-pdt-phy-eht-sounding-ndp.docx)**,** [**1480r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-1480-01-00be-pdt-phy-s-flatness.docx)**,** [**1479r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1479-02-00be-pdt-phy-t-block.docx)**,** [**1494r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-1494-04-00be-pdt-of-eht-phy-data-scrambler-and-descrambler.docx)**,** [**1495r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-1495-03-00be-pdt-of-eht-ltf-sequences.docx)**.**

**Move: Laurent Cariou (Intel), Second: Bin Tian (Qualcomm)**

**Discussion:**

C: Does this mean to approve the draft or only to create it?

A: This motion authorizes the creation of D0.1 and oapproves the documents on which it is based.

C: My experience is that we run a motion to approve the draft.

A: This is a good question that I need to clarify.

**Result: Motion passes with unanimous consent.**

1. Future Telcos Schedules.
   * Some discussion back and forth. As a concesquence, Nov 3 is cancelled.

* Currently Planned Telcos for Nov Electronic Plenary (EP):
  + Nov 2 Monday – MAC/PHY 19:00-21:00 ET
  + ~~Nov 3 Tuesday – MAC/PHY 19:00-21:00 ET~~
  + Nov 4 Wednesday – Joint 09:00-11:00 ET
  + Nov 5 Thursday – MAC/PHY 09:00-11:00 ET
  + Nov 9 Monday – Joint 09:00-11:00 ET
* Delete the following telcos (conflict with Nov EP):
  + ~~Nov 02 Monday – MAC/PHY 10:00-13:00 ET~~
  + ~~Nov 05 Thursday – MAC/PHY 19:00-22:00 ET~~
* Add additional new telcos in October:
  + Oct 14 Wednesday – MAC/PHY 10:00-13:00 ET
  + Oct 21 Wednesday – MAC/PHY 10:00-13:00 ET
  + Oct 28 Wednesday – MAC/PHY 10:00-13:00 ET
* Plan for November to January
  + Schedule 3 conference calls per week (excluding vacations/holidays)

1. Status of SFD. Edward gives a short update on the SFD.
   * PDT SP: Do you support to classify “MLO-TID mapping/Link Management: TID to Link Mapping [negotioation]” as Basics R1 and Optional?
     + Result: Y/N/A: 48/27/49.
2. Planning Considerations:
   * D0.1 has ~100 TBDs in MAC clauses & ~700 TBDs in PHY clauses
   * Joint Queues: 16 submissions (14 backlogged)
     + 3 Joint CCs in October (+2 in EP)
   * MAC Queues: 52 submissions (46 backlogged)
     + 5 MAC CCs in October (+ 3 in EP + 3 addl)
   * PHY Queues: 26 submissions (20 backlogged)
     + 5 PHY CCs in October (+ 3 in EP + 3 addl)
   * Queuing priority:
     + - [1] Deferred SPs > [2] Solving D0.1 TBDs > [3] R1 features > [4] R2 features
   * Time allocation\*: [1] up to 20 mins x telco, [2] up to 100 mins x telco, [3] up to 100 mins x telco, [4] up to 20 mins x telco (\*averages and subject to changes for load balancing and prioritization).
     + Comment: The minutes add to 4 hours.
     + Answer: I need to amend this.
   * Draft evolution: D0.2 out in Nov, D0.3 out in Jan, D0.4 out in Mar, D1.0 out in May (Next Major Milestone).
3. **Technical presentations: Trigger**
4. [**831r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-0831-01-00be-trigger-frame-for-frequency-domain-a-ppdu-support.pptx)**, “Trigger Frame 4 Frequency-domain A-PPDU Support” – Jonghun Han**

**Summary:** The authors discuss various (3 options) ways of creating a trigger frame for A-PPDU frames.

**Discussion:**

C: We prefer a variant of option 1 since it makes many things easier. Furthermore the padding for AID is optional.

C: Since we know if the frame is EHT or not, we don’t need to add 12 bits for the EHT AID.

A: True, but we may need 1 additional bit.

C: Slide 14, are you implying that EHT/EHT+ may have different AID?

A: Yes.

C: Slide 6, what is the bandwidth of this trigger frame?

A: 320 MHz.

1. [**840r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-0840-01-00be-backward-compatible-eht-trigger-frame.pptx)**, “Backward compatible EHT trigger frame” – Ming Gan**

**Summary:** The authors propose a backwards compatible EHT trigger that enables new EHT functionality through special user info fields.

Discussion: Yes.

1. [**1192r0**](https://mentor.ieee.org/802.11/dcn/20/11-20-1192-00-00be-tb-ppdu-format-signaling-in-trigger-frame.pptx)**, “TB PPDU Format Signaling in Trigger Frame” – Geonjung Ko**

**Summary:** The authors propose to indicate if a TF is EHT or HE by introducing a version ID subfield. It requires some limitations in how the fields are used in order for HE STAs not to misunderstand the EHT information.

**Discussion:**

C: Slide 6, what’s your intention of the version ID subfield?

A: To indicate the version, if the TF is EHT or not.

1. [**1429r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-1429-01-00be-enhanced-trigger-frame-for-eht-support.pptx)**, “Enhanced Trigger Frame for EHT Support” – Steve Shellhammer**

**Summary:** The authors propose a backwards compatible trigger frame extension. Their idea is based on using currently unused/reserved bits in the common and user info fields.

No time for discussion. Discussion will take place next meeting.

**Adjourned at 12:59 ET.**

# Thursday 8 October, 19:00 – 22:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Monday 12 October, 19:00 – 22:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Wednesday 14 October, 10:00 – 13:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Thursday 15 October, 19:00 – 21:00 ET

**Introduction**

1. The Chair, Alfred Asterjadhi (Qualcomm), calls the meeting to order at 19:01 ET. The Chair notifies that the agenda is in 1269r24.
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/writes up.
3. Attendance reminder.

* Participation slide: <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0180-05-00EC-ieee-802-participation-slide.pptx>
* Please record your attendance during the conference call by using the IMAT system:
  + 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.
* 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))
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* Zhang, Yan NXP Semiconductors
* Zhou, Yifan Huawei Technologies Co., Ltd
* Zuo, Xin Tencent

1. Approval of the agenda. Discussion:

* C: Are you planning to discuss the guidline text? It seems there are some updates regarding SPs.
* A: No, I sent an e-mail regarding that.
* Agenda approved with unanimous consent.

1. Announcements:
   * Future telcos (Nov to Jan) schedule:
     + <https://mentor.ieee.org/802.11/dcn/20/11-20-1615-00-00be-nov-jan-tgbe-teleconference-agendas.docx>
     + Topics for discussion:
       1. Move start times of AM (ET) conf calls from 10:00 to 09:00 (ET).
       2. Alternate Wednesdays calls between AM (ET) and PM (ET).
       3. Anything else?
   * Discussion:
     + C: I think we can remove the Wednesday calls.
     + A: I am not sure we can do that.
     + C: Can we be more flexible on the schedule? In particular the Wednesday calls. The calls during Thanksgiving, can we remove those calls?
     + A: I make a note.
     + C: We have commited to a timeline, so I believe it is dangerous to remove scheduled slots.
     + C: When are the TBDs supposed to be resolved?
     + A: Essentially most of them by the draft 1.0, before the comment collection?
     + C: 1, I think we have too many meeting calls. But I also think we should be better organized when it comes to offline discussions. And we have the POC that could step up a bit.
     + C: Similarly for Thanksgiving, there’s also the Christmas holidays.
     + C: I believe the 3 hours meetings are too long, we should have at most 2 hours.
     + C: I agree that 3 hours are torture, and 2 hours is much better.
     + C: What is the conclusion regarding daylight saving time.
     + General discussion regarding “good” and “bad” meeting times.
   * Alfred is cancelling and modifying in the November – January agenda document. Removing: November 22, 23, December 21, 23. Making all Wednesday meetings joint. The joint calls are made to be 2 hours. The modificactions will be available in 1615r1.
   * No further objections to approve the agenda as shown in 1615r1.

**Status and update for TGbe draft D0.2 in 997r52**

Edward updates the TGbe spec text volunteers and status document.

**Technical contributions**

1. [**1429r**](https://mentor.ieee.org/802.11/dcn/20/11-20-1429-02-00be-enhanced-trigger-frame-for-eht-support.pptx)**2, “Enhanced Trigger Frame for EHT Support” – Steve Shellhammer**

Discussion from previous session:

C: When you say the idea can be expanded, what do you mean?

A: You can send a traditional for HE, and then an enhanced one for EHT. I think we may might have some info in the common info field.

C: Let me rephrase: Do you see we need more bits?

A: I think we may need to add in the commen info.

C: Regardig the RU allocation field, you have 2 tables, one for SU and the other for MU, could you have just one table?

A: Yes, in the most resent version (1429r2), there’s only one table.

C: Slide 14, why do you distinguish the subfields? And why not just call it a 9th bit?

A: More convenient.

**Straw polls**

1. [**764r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-0764-02-00be-trigger-consideration.pptx)**, “Trigger Consideration” – Liwen Chu (NXP)**

SP1: Do you support to reuse the Trigger Type of 11ax in 11be

* + - All the Per User Info fields in a Trigger frame other than MU-BAR Trigger shall have the same size.

**Discussion:**

C: In 11ax we already ran out of reserved bits. I think we need more bits for EHT.

C: I agree with this SP, and I believe we need to keep the user fields the same.

**Results: Yes/No/Abstain/No answer: 60/16/45/71**

SP2: Do you support that UL HE SIG-A2 Reserved field is used to carry the information of the Trigger frame for soliciting EHT TB PPDU?

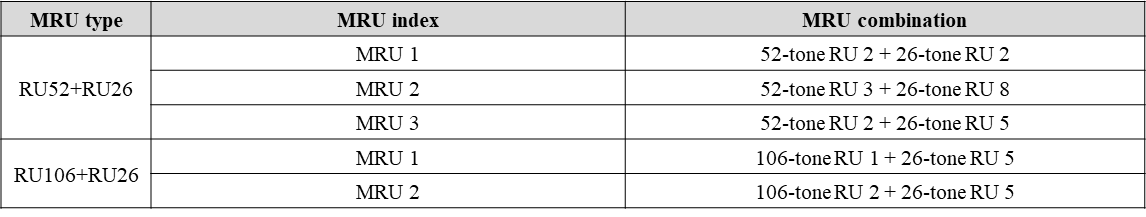
* + - The field name can be revised in Trigger frame for soliciting EHT TB PPDU.

Result: Yes/No/Abstain/No answer: 55/11/57/70.

1. [**828r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-0828-03-00be-ru-allocation-subfield-design-for-eht-trigger-frame.pptx)**, “RU Allocation Subfield Design for EHT Trigger Frame” – Myeongjin Kim (Samsung)**

SP2: Do you support that the TGbe SFD shall include the following table?

* + - Indices for MRUs in an 20 MHz HE PPDU



**Discussion:**

C: I think you should defer this SP and run it in the PHY session.

A: SP deferred.

SP7: Do you support that EHT Trigger frame includes 9-bit RU Allocation subfield?

* + - 2 bits of [X1 X0] are used to indicate the location of channel that RU allocation applies.
    - 7 bits of [X8 - X2] are used to indicate RU or multi-RU assignment.

**Discussion:**

C: We have now allocation with holes. I don’t like to have the 2 bits like this.

A: Ok.

C: What’s the meaning of this 2 bits?

A: What about removing the two sub-bullets?

C: That should work. 9 bits should be ok.

C: I’m not sure 9 bits is ok, I think we need 8 bits.

Straw poll deferred.

1. [**831r**](https://mentor.ieee.org/802.11/dcn/20/11-20-0831-02-00be-trigger-frame-for-frequency-domain-a-ppdu-support.pptx)**2, “Trigger Frame for Frequency-domain A-PPDU Support” – will be dropped.**
2. [**840r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-0840-02-00be-backward-compatible-eht-trigger-frame.pptx)**, to be r3, “Backward compatible EHT trigger frame” – Ming Gan (Huawei)**

SP1: Do you agree that the Trigger frame can be used to solicit the TB PPDU from both the HE STA(s) and EHT STA(s)?

**Discussion:**

C: Can you change it to “one” Trigger frame?

A: Ok.

C: Can you change “one” to “the same”?

A: Ok.

New text: Do you agree that the same Trigger frame can be used to solicit the TB PPDU from both the HE STA(s) and EHT STA(s)?

**Result: Yes/No/Abstain/No-answer: 94/5/21/71**

SP2: Do you agree to keep the User Info field with at least one reserved bit in the Trigger frame in R1?

**Discussion:**

C: Do you refer to the reserved bit, or an extra bit?

A: We can discuss that later.

C: Can you add a note: “No reserved bit in AI12 field”.

A: Ok.

C: Can you also add the “Not counting the reserved bit in the Trigger Dependent User Info field of the Basic Trigger frame.

A: Ok.

New text: Do you agree to keep the User Info field with at least one reserved bit in the Trigger frame in R1?

* + - No reserved bit in AID12 field and not counting the reserved bit in the Trigger Dependent User Info field of the Basic Trigger frame.

**Result: Y/N/A/No-answer: 45/37/41/67**

SP3: Do you agree to optionally include a special User Info starting with a special AID in the Trigger frame in R1?

**Discussion:**

C: Based on the discussion in the PHY group yesterday where it was concluded that puncturing is not included, we may not need so many bits anymore. Have you considered that? Can you phrase the actual purpose of those bits in a note?

A: Let’s prepare this straw poll offline and run it next time.

SP5: Do you agree to have one unified RU allocation table (for both SU and MU) for the RU allocation field in the User Info field of the Trigger frame in R1?

**Result: Yes/No/Abstain/No-answer: 70/11/31/78**

SP4: Do you agree to include an EHT/HE indicatioen per 80 MHz in the common part of the Trigger Frame, indicating to the EHT STA whether to transmit an HE or EHT TB PPDU in R1?

**Discussion:**

C: I personally need more time to study this. So I would prefer to have some time to think about it.

A: Ok.

1. [**1192r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-1192-01-00be-tb-ppdu-format-signaling-in-trigger-frame.pptx)**, “TB PPDU Format Signaling in Trigger Frame” – Geonjung Ko (WILUS)**

SP1: Do you support that a Trigger frame includes the signalling that indicates TB PPDU format to be used.

* + - Which of fields between Common Info field and User Info field includes the signalling is TBD.

**Discussion:**

C: Is this for all EHT STAs or is it per EHT STA.

A: For now it is open for discussion.

**Result: Yes/No/Abstain/No-answer: 56/16/38/75**

SP3: Do you support that an AP may allocate an RA-RU to solicit a response in an EHT TB PPDU?

**Result: Yes/No/Abstain/No-answer: 55/10/52/67**

SP4: Do you support that 11be defines the operation that enables the following:

* + - When an AP allocaten an RA-RU to solicit a response in an EHT TB PPDU, an HE TB PPDU shall not be transmitted on the RA-RU.

**Discussion:**

C: Is this single-RU or different RUs?

**Adjourned at 12:59.**

# Monday 19 October, 10:00 – 13:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Wednesday 21 October, 10:00 – 13:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Thursday 22 October, 19:00 – 22:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Monday 26 October, 19:00 – 22:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Wednesday 28 October, 10:00 – 13:00 ET

Split MAC and PHY:

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1518-06-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-sept-nov-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1499-12-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-september-november-2020.docx>

# Thursday 29 October, 10:00 – 13:00 ET

**Introduction**

1. The Chair, Alfred Asterjadhi (Qualcomm), calls the meeting to order at 19:03 ET. The Chair notifies that the agenda is in 1269r34.
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/writes up.
3. The Chair goes through **Patent, Participation and policy related subclause.**
4. Attendance reminder.

* Participation slide: <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0180-05-00EC-ieee-802-participation-slide.pptx>
* Please record your attendance during the conference call by using the IMAT system:
  + 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.
* 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))
* Please ensure that the following information is listed correctly when joining the call:
  + "[voter status] First Name Last Name (Affiliation)"
* Participants reported in IMAT:
* Aio, Kosuke Sony Corporation
* Akhmetov, Dmitry Intel Corporation
* An, Song-Haur INDEPENDENT
* Ansley, Carol IEEE member / Self Employed
* Anwyl, Gary MediaTek Inc.
* Asterjadhi, Alfred Qualcomm Incorporated
* Au, Kwok Shum Huawei Technologies Co.,  Ltd
* Awater, Geert Qualcomm Incorporated
* B, Hari Ram NXP Semiconductors
* Baek, SunHee LG ELECTRONICS
* baron, stephane Canon Research Centre France
* ben yahia, olfa Olfa ben yahia  Vestel
* Bluschke, Andreas Signify
* chen, jindou Huawei Technologies Co. Ltd
* Chen, Na MaxLinear Corp
* Cheng, Paul MediaTek Inc.
* CHERIAN, GEORGE Qualcomm Incorporated
* Chitrakar, Rojan Panasonic Asia Pacific Pte Ltd.
* Choi, Jinsoo LG ELECTRONICS
* Choo, Seungho Senscomm Semiconductor Co., Ltd.
* Chu, Liwen NXP Semiconductors
* Chung, Chulho SAMSUNG
* Coffey, John Realtek Semiconductor Corp.
* de Vegt, Rolf Qualcomm Incorporated
* Dong, Xiandong Xiaomi Inc.
* Duan, Ruchen SAMSUNG
* Erceg, Vinko Broadcom Corporation
* feng, Shuling MediaTek Inc.
* Fischer, Matthew Broadcom Corporation
* Ghaderipoor, Alireza MediaTek Inc.
* Gong, Bo Huawei Technologies Co. Ltd
* Haasz, Jodi IEEE Standards Association (IEEE-SA)
* Haider, Muhammad Kumail Facebook
* Han, Jonghun SAMSUNG
* Han, Zhiqiang ZTE Corporation
* Hong, Hanseul WILUS Inc.
* Hsieh, Hung-Tao MediaTek Inc.
* Hu, Chunyu Facebook
* Huang, Guogang  Huawei
* Huang, Lei Guangdong OPPO Mobile Telecommunications Corp.,Ltd
* Huang, Po-Kai Intel Corporation
* Jang, Insun LG ELECTRONICS
* Jeon, Eunsung SAMSUNG ELECTRONICS
* jiang, feng Apple Inc.
* Jiang, Jinjing Apple, Inc.
* Kakani, Naveen Qualcomm Incorporated
* Kamel, Mahmoud InterDigital, Inc.
* Kandala, Srinivas SAMSUNG
* Kedem, Oren Huawei Technologies Co. Ltd
* Kim, Jeongki LG ELECTRONICS
* Kim, Myeong-Jin SAMSUNG
* kim, namyeong LG ELECTRONICS
* Kim, Sang Gook LG ELECTRONICS
* Kim, Sanghyun WILUS Inc
* Kishida, Akira Nippon Telegraph and Telephone Corporation (NTT)
* Klein, Arik Huawei Technologies Co. Ltd
* Klimakov, Andrey Huawei Technologies Co., Ltd
* Kneckt, Jarkko Apple, Inc.
* Ko, Geonjung WILUS Inc.
* Kondo, Yoshihisa Advanced Telecommunications Research Institute International (ATR)
* Kwon, Young Hoon NXP Semiconductors
* Lansford, James Qualcomm Incorporated
* Lee, Wookbong SAMSUNG
* Levitsky, Ilya IITP RAS
* Levy, Joseph InterDigital, Inc.
* Li, Jialing Qualcomm Incorporated
* Li, Yiqing Huawei Technologies Co. Ltd
* Lim, Dong Guk LG ELECTRONICS
* Lin, Wei Huawei Technologies Co. Ltd
* Liu, Jianfei HUAWEI
* Lopez, Miguel Ericsson AB
* Lorgeoux, Mikael Canon Research Centre France
* Lou, Hanqing InterDigital, Inc.
* Lu, kaiying MediaTek Inc.
* Lu, Liuming ZTE Corporation
* Lv, Lily Huawei Technologies Co. Ltd
* Ma, Li MediaTek Inc.
* Ma, Mengyao HUAWEI
* Max, Sebastian Ericsson AB
* McCann, Stephen Huawei Technologies Co.,  Ltd
* Memisoglu, Ebubekir Istanbul Medipol University; Vestel
* Mirfakhraei, Khashayar Cisco Systems, Inc.
* Monajemi, Pooya Cisco Systems, Inc.
* Montemurro, Michael Huawei
* Montreuil, Leo Broadcom Corporation
* NANDAGOPALAN, SAI SHANKAR Cypress Semiconductor Corporation
* Nezou, Patrice Canon Research Centre France
* Ozbakis, Basak VESTEL
* Park, Eunsung LG ELECTRONICS
* Patil, Abhishek Qualcomm Incorporated
* Petrick, Albert InterDigital, Inc.
* porat, ron Broadcom Corporation
* Puducheri, Srinath Broadcom Corporation
* Pushkarna, Rajat Panasonic Asia Pacific Pte Ltd.
* Redlich, Oded HUAWEI
* Rosdahl, Jon Qualcomm Technologies, Inc.
* Roy, Sayak NXP Semiconductors
* Schelstraete, Sigurd Quantenna Communications, Inc.
* Sedin, Jonas Ericsson AB
* Shilo, Shimi HUAWEI
* Solaija, Muhammad Sohaib Istanbul Medipol University; Vestel
* Strauch, Paul Qualcomm Incorporated
* SUH, JUNG HOON Huawei Technologies Co. Ltd
* Sun, Yanjun Qualcomm Incorporated
* Sundaram, Rajesh Broadcom Corporation
* THOUMY, Francois Canon Research Centre France
* Tian, Bin Qualcomm Incorporated
* Tsodik, Genadiy Huawei Technologies Co. Ltd
* Urabe, Yoshio Panasonic Corporation
* Ustunbas, Seda Vestel
* Van Zelst, Allert Qualcomm Incorporated
* Varshney, Prabodh Nokia
* Vermani, Sameer Qualcomm Incorporated
* VIGER, Pascal Canon Research Centre France
* Wang, Chao Chun MediaTek Inc.
* Wang, Huizhao Quantenna Communications, Inc.
* Wang, Lei Huawei R&D USA
* Wentink, Menzo Qualcomm
* Wu, Kanke Qualcomm Incorporated
* Wu, Tianyu Apple, Inc.
* Wullert, John Perspecta Labs
* Xin, Yan Huawei Technologies Co., Ltd
* 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
* Zeng, Yan Huawei Technologies Co.,  Ltd
* Zhang, Yan NXP Semiconductors
* Zhou, Yifan Huawei Technologies Co., Ltd
* Zuo, Xin Tencent
* Attendance through e-mail:

Dennis Sundman, Ericsson AB

1. The Chair goes through the agenda and asks for comments.
   1. SP 1192r1 removed.
   2. 997r58 updated.
   3. Agenda approved.
2. Announcements: No announcements.
3. **Motions (concentrated within the first 90 mins of the call).** [841r27](https://mentor.ieee.org/802.11/dcn/20/11-20-0841-27-00be-tgbe-motions-list-for-teleconferences.pptx) Motions list for teleconferences
   1. Move to add to the 11be SFD, candidate specification text in 11-20/566r78 that is identified with the following tags:

SP210, SP211, SP212, SP213, SP214, SP215, SP216, SP217, SP218, SP219,

SP220, SP221, SP222, SP223, SP224, SP225, SP226, SP227, SP228, SP229,

SP230, SP231, SP232, SP233, SP234, SP235, SP236, SP237, SP238, SP239,

SP240, SP241, SP242, SP243.

**Move:** Edward Au  **Second:** Bin Tian

**Discussion:** Change the reference to 577r78. (added in the minutes)

**Result:** Approved with unanimous consent.

Note: These are all candidate SFD texts highlighted in yellow that have NOT received a request for further discussion

* 1. Move to accept changes to the TGbe draft as specified in the following documents:

[1582r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1582-01-00be-ml-ie-complete-profile-indication.docx), [1592r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1592-00-00be-ml-ie-in-authentication-frame.docx), [1610r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1610-01-00be-pdt-mac-mlo-6-3-5-and-6-authentication.docx), [1611r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1611-01-00be-pdt-mac-mlo-6-3-7-to-9-association.docx), [1659r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1659-01-00be-pdt-mac-mlo-6-3-7-to-6-3-9-association-1.docx)

[1612r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1612-01-00be-pdt-phy-spatial-configuration-table-typo-fixed.docx).

**Move:** Edward Au **Second:** Bin Tian

**Discussion:** No discussion.

**Result:** Approved with unanimous consent.

Note: These are all proposed draft texts (PDTs) that obtained ≥ 75% support during the straw poll phase and that have NOT received a request for further discussion

1. Towards TGbe D0.2 Draft**–Status and Updates (Edward).** [997r57](https://mentor.ieee.org/802.11/dcn/20/11-20-0997-57-00be-tgbe-spec-text-volunteers-and-status.docx) TGbe spec text volunteers and status
   1. Edward goes through the document and makes update.
2. Technical Submissions**-Deferred SPs on topic-Trigger**
   1. [**1429r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1429-02-00be-enhanced-trigger-frame-for-eht-support.pptx) **Enhanced Trigger Frame for EHT Support Steve Shellhammer [SPs]**

SP 2: Do you support reassigning reserved bits in the Tigger Frame Common Info Field for the following new subfields?

|  |  |
| --- | --- |
| **Subfield Name** | **Bits** |
| Enhanced Trigger Frame Flag | 1 |
| PHY Version Field | 3 |
| UL BW Extension Field | 1 |

Discussion:

C: Can you include the subfield name in the SP?

A: Let me do some update.

C: I believe it is not enough with 1 bit for the BW.

A: The number in this table just says we need 1 bit more. In total we thus have 3 bits, and that should be sufficient.

Many discussions about the fields and how/what to do with them.

Straw poll deferred.

New text: Do you support reassigning reserved bits (UL HE SIG-A2 Reserved subfield and the Reserved Bit) in the Tigger Frame Common Info Field for the following new subfields?

1. Technical Submissions**-Sounding**
   1. [**848r0**](https://mentor.ieee.org/802.11/dcn/20/11-20-0848-00-00be-sounding-request-in-sequential-sounding.pptx) **Sounding Request in Sequential Sounding Ross Jian Yu**

**Summary:** The authours propose to introduce a sounding request frame, which is a frame for coordinating sounding among multiple APs.

**Discussion:**

C: I believe the sounding request better happen before the master AP perform its sounding.

* 1. [**950r4**](https://mentor.ieee.org/802.11/dcn/20/11-20-0950-03-00be-partial-bandwidth-feedback-for-multi-ru.pptx) **Partial Bandwidth Feedback for Multi-RU Eunsung Jeon**

**Summary:** The authors propose 3 different options to signal RU allocation in the partial BW feedback for EHT.

**Discussion:**

Some discussion regarding the precise bytes. Option 3 is most in focus.

**SP1**

Do you agree to design the EHT NDPA frame based on the VHT/ HE NDPA frame?

* + - The EHT NDPA frame will have the same type/subtype subfield in the FC field of the VHT/HE NDPA frame.

**Result:** Yes/No/Abstain/No-answer: 77/4/31/63

* 1. [**1015r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1015-01-00be-eht-ndpa-frame-design-discussion.pptx) **EHT NDPA Frame Design Discussion Chenchen Liu**

**Summary:** The authors propose two EHT NDPA frame design methods.

**Discussion:**C: Slide 14, what is the RU size and RU position?

A: This is just an example. We want to illustrate that it can be done this way.

**SP2**

Do you support to keep the length of EHT STA Info field in the NDPA frame as 4 bytes?

**Result:** Yes/No/Abstain: 71/2/41/68

* 1. [**1435r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-1435-01-00be-eht-ndpa-frame-design.pptx) **EHT NDPA frame design Cheng Chen**

**Summary:** The author points out that most content has already been discussed in the previous presentations.

**Discussion:**C: How to signal 16 antennas with 3 bits? I think we need more.

A: Yes, that’s why I mention this, that we need to extend this field.

**SP 1**

Do you agree to create a new EHT NDPA variant using the reserved encoding value 11 for B0-B1 in Sounding Dialog Token field?

**Discussion:**

C: Please remove the word reserved.

A: Ok.

**New text:**Do you agree to create a new EHT NDPA variant using the encoding value 11 for B0-B1 in Sounding Dialog Token field?

**Result:** Y/N/A/No-answer: 48/8/42/64

1. **Adjourn at 12:58.**

# Appendix 1

**Motion 132**

*Note that IMAT registration does not affect the outcome of the result.*

Calculated Results : 59Y, 37N, 43A, [61%]

Amended Results : 59Y, 35N, 40A, [62%]

Amended Results [INCL. IMAT]: 54Y, 26N, 34A, [67%]

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[V] Subir Perspecta Labs | | | X | IMAT-YES

[V] Wook Bong Lee Samsung | X | | | IMAT-NO

[V] Duncan Ho Qualcomm | | | X | IMAT-YES

[V] Eunsung Park LGE | | | X | IMAT-YES

[V] Massinissa Lalam Sagemcom | X | | | IMAT-YES

[V] Rui Yang [InterDigital] | | | X | IMAT-YES

[V] Junghoon Suh Huawei | | X | | IMAT-NO

[V] Bin Tian Qualcomm | | | X | IMAT-YES

Kiran Rege, Perspecta Labs | | | X | INVALID VOTE: NO MATCH FOUND!

[V] Yonggang Fang ZTE TX | X | | | IMAT-YES

[V] Prabodh Varshney Nokia | X | | | IMAT-YES

[v] kaiying lu MediaTek | X | | | IMAT-NO

[V] James Yee, MediaTek | X | | | IMAT-YES

[V] Chunyu Hu FB | | X | | IMAT-YES

[V] Young Hoon Kwon NXP | X | | | IMAT-YES

[V] Steve Shellhammer Qualcomm | | | X | IMAT-YES

[V] Minyoung Park Intel Corp. | X | | | IMAT-YES

[V] laurent cariou, Intel | X | | | IMAT-NO

[V] Lei Wang Futurewei | | X | | IMAT-YES

[V] Po-Kai Huang Intel | | | X | IMAT-YES

[V] Yujin Noh Newracom | | | X | IMAT-NO

[V] dibakar das Intel | X | | | IMAT-YES

[V] Na Chen, MaxLinear | | | X | IMAT-YES

[V] Jianwei Bei NXP | | | X | IMAT-YES

[V] Jeremy Foland, Broadcom | X | | | IMAT-YES

[V] Yan Xin Huawei | | X | | IMAT-YES

[V] Yan ZhangNXP | X | | | IMAT-YES

[V] Al Petrick Interdigital | | | X | IMAT-NO

[V] Thomas Pare Mediatek | X | | | IMAT-YES

[V] Yongho Seok MediaTek | X | | | IMAT-YES

[v] Zhou Lan Broadcom | X | | | IMAT-YES

[V] Gaurav Patwardhan HPE | X | | | IMAT-YES

[V] Song H An Independent | | | X | IMAT-YES

[V] VK Jones Qualcomm Inc | | X | | IMAT-NO

[V] Sameer Vermani Qualcomm | | X | | IMAT-YES

[V] Allan Jones - Activision | | | X | IMAT-YES

[V] Shubhodeep Adhikari Broadcom | X | | | IMAT-YES

[V]Chenchen LIU Huawei | | X | | IMAT-YES

[V]-XIANDONG DONG XIAOMI | | X | | IMAT-YES

[V] Ming GanHuawei | | X | | IMAT-NO

[V] Kazuto Yano ATR | X | | | IMAT-YES

[V] Harry Hao Wang Tencent | | | X | IMAT-YES

[V] BO SUN | X | | | IMAT-YES [ZTE]

[V] Jason Yuchen Guo Huawei | | X | | IMAT-YES

[V] Yifan Zhou Huawei | | X | | IMAT-YES

[V] Ryuichi Hirata Sony | | X | | IMAT-NO

[V} Sachin Godbole Broadcom | X | | | IMAT-YES

[V] Der-Zheng Liu Realtek | | X | | IMAT-YES

[V] Hongjia Su Huawei | | X | | IMAT-YES

[V]Hanseul Hong WILUS | | X | | IMAT-YES

[V] Ross Jian Yu Huawei | | X | | IMAT-YES

[V] Frank Hsu Mediatek | X | | | IMAT-YES

[V] Sindhu Verma Broadcom | X | | | IMAT-YES

[V] Wei Lin Huawei | | X | | IMAT-YES

[V] Lei Huang OPPO | | | X | IMAT-YES

[v] Girish Madpuwar broadcom | X | | | IMAT-YES

[V] Rojan Chitrakar Panasonic | X | | | IMAT-YES

[V] Glenn Hu Tencent | | | X | IMAT-YES

[V] David Yang Huawei | | X | | IMAT-NO

[V] Dennis Sundman, Ericsson | | | X | IMAT-YES

Dieter Smely KAPSCH | | | X | INVALID VOTE: NO MATCH FOUND!

[V] Albert Bredewoud Broadcom | X | | | IMAT-YES

[V] Genadiy Tsodik Huawei | | X | | IMAT-YES

[V] Stephane Baron Canon | X | | | IMAT-YES

[V] Shimi Shilo Huawei | | X | | IMAT-YES

[V] Thomas Handte Sony | X | | | IMAT-YES

[V] Ilya Levitsky IITP RAS | | X | | IMAT-YES

[V] David Boldy Broadcom | X | | | IMAT-YES

[V] Assaf Kasher Qualcomm | | | X | IMAT-YES

[NV] Mehmet Ali IMU; VESTEL | | X | | INVALID VOTE: NO MATCH FOUND!

[V] Miguel Lopez Ericsson | | | X | IMAT-YES

[V] Patrice NEZOU Canon | | | X | IMAT-YES

[V] Geert Awater Qualcomm | | | X | IMAT-YES

[V] Oded Redlich Huawei | | X | | IMAT-YES

[V] Allert van Zelst Qualcomm | | | X | IMAT-YES

[V] Jonas Sedin Ericsson | | X | | IMAT-YES

[V] Richard Van Nee Qualcomm | | X | | IMAT-NO

[V] Evgeny Khorov IITP RAS | | X | | IMAT-NO

[V] Osama Aboul-Magd Huawei | | X | | IMAT-YES

[V] Jinsoo Choi LGE | | | X | IMAT-YES

Boyce YangboHuawei | | X | | INVALID VOTE: NO MATCH FOUND!

[V] Dongguk Lim LGE | | | X | IMAT-YES

[V] Yunbo Li Huawei Technologies | | X | | IMAT-YES

[V] Myeongjin Kim Samsung | X | | | IMAT-YES

[V] Fumihide Goto Denso | | | X | IMAT-NO

[V]Guogang Huang Huawei | | X | | IMAT-YES

[N] Namyeong Kim LGE | | | X | INVALID VOTE: NON VOTER

[V]Ding Yanyi Panasonic | X | | | IMAT-YES

[V] Tomoko Adachi Toshiba | X | | | IMAT-YES

[V] Jeongki Kim LGE | | | X | IMAT-YES

[V]HungTao Hsieh Mediatek | X | | | IMAT-YES

[V] Yoshio Urabe Panasonic | X | | | IMAT-YES

[V] Rui Du Huawei | | X | | IMAT-NO

[V] Insun Jang LGE | | | X | IMAT-YES

[V] Yasuhiko Inoue, NTT | | | X | IMAT-NO

[V] Yoshihisa Kondo ATR | X | | | IMAT-YES

[V]lily lv Huawei | | X | | IMAT-YES

Akira Kishida NTT | | X | | IMAT-YES

[V]Chenhe Ji Huawei | | X | | IMAT-YES

[V] Rob Sun Huawei | | X | | IMAT-NO

[V] Mineo Takai, Space-Time Engineering | | | X | IMAT-YES

[V]Mengyao Ma Huawei | | X | | IMAT-YES

[V] Yusuke Tanaka Sony | | | X | IMAT-YES

[V]Xin Zuo Tencent | X | | | IMAT-YES

[V] Sanghyun Kim WILUS | X | | | IMAT-YES

[V] Sigurd Schelstraete Quantenna | | | X | IMAT-NO

[V] Liwen Chu NXP | X | | | IMAT-YES

[V] Youhan Kim Qualcomm | | | X | IMAT-YES

[V] Sang Kim LGE | | | X | IMAT-YES

[V] Ron Porat Broadcom | X | | | IMAT-YES

[V] Matthew Fischer Broadcom | X | | | IMAT-YES

[V]Jarkko Kneckt Apple | X | | | IMAT-NO

[V] Li-Hsiang Sun interdigital | | | X | IMAT-YES

[V] Rui Cao NXP | X | | | IMAT-YES

[V] Srinivas Kandala Samsung | X | | | IMAT-YES

[V] Mohamed Abouelseoud Sony | | | X | IMAT-YES

[V] Ruchen Duan Samsung | X | | | IMAT-NO

[V] Qi Wang Apple | X | | | IMAT-YES

[V] Chao-Chun Wang MediaTek | X | | | IMAT-YES

[V] Cheng Chen Intel | X | | | IMAT-YES

[V] Chris Young Broadcom | X | | | IMAT-YES

[V] Payam Torab Facebook | | | X | IMAT-NO

[V] Joseph Levy InterDigital | | | X | IMAT-YES

[V] Ali Raissinia Qualcomm | | | X | IMAT-YES

[V] Dmitry Akhmetov, Intel | | | X | IMAT-YES

[V] Yanjun Sun Qualcomm | | | X | IMAT-YES

[V] Nehru Bhandaru Broadcom | X | | | IMAT-YES

[V] Rethna Pulikkoonattu Broadcom | X | | | IMAT-YES

[V] Robert Stacey, Intel | X | | | IMAT-YES

[V] kiwin PALM {BRCM | X | | | IMAT-YES

Vinko Erceg | X | | | IMAT-YES [Broadcom]

[V] Yong Liu Apple | X | | | IMAT-YES

[V] AN NGUYEN DHS | X | | | IMAT-YES

[V] YongjiangJohn Yi Futurewei | | X | | IMAT-YES

[V] Bill Carney Sony | X | | | IMAT-YES

[V]Liuming LuZTE | X | | | IMAT-YES

[V] paul cheng MediaTek | X | | | IMAT-YES

[V] Peyush Agarwal Broadcom | X | | | IMAT-YES

[V] Mao Yu NXP | X | | | IMAT-YES