IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TGbe 2020 July to September teleconference minutes | | | | |
| Date: 2020-07-16 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Dennis Sundman | Ericsson |  |  | dennis.sundman@ericsson.com |
|  |  |  |  |  |

Abstract

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

Revisions:

* Rev 0: Added references to MAC and PHY sessions held 13th and 15th of July. Added minutes for joint meeting the 16th of July.
* Rev1: Added references to MAC and PHY sessions held 20th to 29th of July. Added minutes for joint meeting the 30th of July.
* Rev2: Added the final results on Motions 120 and 121. Added appendix with the outcome. Updated some typos.
* Rev3: Added references to MAC and PHY sessions held 3rd to 19th August. Added minutes for joint meeting the 20th of August.

# Monday 13 July 2020, 19:00 – 21:00 ET

Split PHY and MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1093-05-00be-minutes-for-tgbe-phy-ad-hoc-cc-july-to-sept-2020.docx>

# Wednesday 15 July 2020, 10:00 – 12:00 ET

Only MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>

# Thursday 16 July 2020, 11:30 – 13:00 ET

Introduction

1. The Chair, Alfred Asterjadhi (Qualcomm), calls the meeting to order at 11:32 ET. The Chair notifies that the agenda is 927r9.
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:

* Abouelseoud, Mohamed Sony Corporation
* Aboulmagd, Osama Huawei Technologies Co.,  Ltd
* Aio, Kosuke Sony Corporation
* Ansley, Carol CommScope
* Asterjadhi, Alfred Qualcomm Incorporated
* Au, Kwok Shum Huawei Technologies Co.,  Ltd
* B, Hari Ram NXP Semiconductors
* Baek, SunHee LG ELECTRONICS
* Bei, Jianwei NXP Semiconductors
* Bluschke, Andreas Signify
* Bredewoud, Albert Broadcom Corporation
* Cao, Rui NXP Semiconductors
* CHAN, YEE Facebook
* Chen, Xiaogang Intel
* Cheng, Paul MediaTek Inc.
* CHERIAN, GEORGE Qualcomm Incorporated
* Chitrakar, Rojan Panasonic Asia Pacific Pte Ltd.
* Choi, Jinsoo LG ELECTRONICS
* Chu, Liwen NXP Semiconductors
* CHUN, JINYOUNG LG ELECTRONICS
* Duan, Ruchen SAMSUNG
* Fang, Yonggang ZTE TX Inc
* feng, Shuling MediaTek Inc.
* Fischer, Matthew Broadcom Corporation
* Gan, Ming Huawei Technologies Co., Ltd
* Ghosh, Chittabrata Intel Corporation
* Grandhe, Niranjan NXP Semiconductors
* Grigat, Michael Deutsche Telekom AG
* GUIGNARD, Romain Canon Research Centre France
* Guo, Yuchen Huawei Technologies Co., Ltd
* Hamilton, Mark Ruckus/CommScope
* Han, Jonghun SAMSUNG
* Han, Zhiqiang ZTE Corporation
* Ho, Duncan Qualcomm Incorporated
* Hsiao, Ching-Wen MediaTek Inc.
* Hsieh, Hung-Tao MediaTek Inc.
* Hu, Chunyu Facebook
* Hu, Glenn Tencent
* Huang, Guogang  Huawei
* Jang, Insun LG ELECTRONICS
* Ji, Chenhe Huawei Technologies Co. Ltd
* Jiang, Jinjing Apple, Inc.
* Kain, Carl USDoT
* Kandala, Srinivas SAMSUNG
* Kedem, Oren Huawei Technologies Co. Ltd
* Khude, Nilesh NXP Semiconductors
* Kim, Jeongki LG ELECTRONICS
* Kim, Myeong-Jin SAMSUNG
* kim, namyeong LG ELECTRONICS
* Kim, Sang Gook LG ELECTRONICS
* Kim, Songhak Kaonmedia
* Kim, Youhan Qualcomm Incorporated
* Kishida, Akira Nippon Telegraph and Telephone Corporation (NTT)
* Klein, Arik Huawei Technologies Co. Ltd
* Kneckt, Jarkko Apple, Inc.
* Koc, Onur VESTEL ELEKTRONIK SANAYI VE TICARET ANONIM SIRKETI
* Kwon, Young Hoon NXP Semiconductors
* Lan, Zhou Broadcom Corporation
* Lee, Wookbong SAMSUNG
* 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
* Lindskog, Erik SAMSUNG
* Liu, Jianhan MediaTek Inc.
* Lopez, Miguel Ericsson AB
* Lou, Hanqing InterDigital, Inc.
* Lu, Liuming ZTE Corporation
* Luo, Chaoming Beijing OPPO telecommunications corp., ltd.
* Ma, Mengyao HUAWEI
* Memisoglu, Ebubekir Istanbul Medipol University; Vestel
* Mirfakhraei, Khashayar Cisco Systems, Inc.
* Monajemi, Pooya Cisco Systems, Inc.
* Murphy, Rick vLogic, Inc.
* NANDAGOPALAN, SAI SHANKAR Cypress Semiconductor Corporation
* Naribole, Sharan SAMSUNG
* Nezou, Patrice Canon Research Centre France
* noh, yujin Newracom Inc.
* Pare, Thomas MediaTek Inc.
* Park, Eunsung LG ELECTRONICS
* Park, Minyoung Intel Corporation
* Patil, Abhishek Qualcomm Incorporated
* Patwardhan, Gaurav Hewlett Packard Enterprise
* Petrick, Albert InterDigital, Inc.
* Pettersson, Charlie Ericsson AB
* Puducheri, Srinath Broadcom Corporation
* Raissinia, Alireza Qualcomm Incorporated
* Redlich, Oded HUAWEI
* RISON, Mark Samsung Cambridge Solution Centre
* Rosdahl, Jon Qualcomm Technologies, Inc.
* Roy, Sayak NXP Semiconductors
* Schelstraete, Sigurd Quantenna Communications, Inc.
* Sedin, Jonas Ericsson AB
* Seok, Yongho MediaTek Inc.
* Sethi, Ankit NXP Semiconductors
* Shellhammer, Stephen Qualcomm Incorporated
* Shilo, Shimi HUAWEI
* Singh, Gurdev SAMSUNG
* Solaija, Muhammad Sohaib Istanbul Medipol University; Vestel
* Song, Taewon LG ELECTRONICS
* 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
* SURACI, FRANK U.S. Department of Homeland Security
* Tanaka, Yusuke Sony Corporation
* Tian, Bin Qualcomm Incorporated
* Tsodik, Genadiy Huawei Technologies Co. Ltd
* 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.
* Wendt, Matthias Signify
* Wentink, Menzo Qualcomm
* Wu, Tianyu Apple, Inc.
* Wullert, John Perspecta Labs
* Xin, Liangxiao Sony Corporation
* Xin, Yan Huawei Technologies Co., Ltd
* Yan, Aiguo Oppo
* 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
* Yukawa, Mitsuyoshi Canon, Inc.
* Zhang, Yan NXP Semiconductors
* Zuo, Xin Tencent

1. Comment regarding Agenda:
   1. C: I have an updated strawpoll on 1961.
   2. R: This was not submitted within 24 hours so we take it the next meeting.
   3. C: I want to defer 596
   4. C: I want to defer 617
   5. R: Ok.

Agenda approved with unanimous consent.

1. Announcements:
   1. Towards TGbe D0.1 Draft – Status and Updates
      * [997r4](https://mentor.ieee.org/802.11/dcn/20/11-20-0997-04-00be-tgbe-spec-text-volunteers-and-status.docx) TGbe spec text volunteers and status
      * Some discussion and clarifications regarding the spec text volunteers and status.
      * The chair updates the document live.
      * The chair explains the guidelines for R1 vs R2 categorization.
        + Comments:
          - C: We should not discuss R2 during R1 (for draft spec text).
          - C: Simple topics should be clear for R1.
          - C: Suggestion to follow motion of January for which topic falls in R1 and R2.
          - C: Should follow guidline as strictly as possible.
          - C: I prefer a 50% threshold for SPs.
          - C: If there are not many motions in a category then implicitly it should belong in R1.

Adjourned at 13:00 ET

# Thursday 20 July 2020, 10:00 – 13:00 ET

Split PHY and MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1093-05-00be-minutes-for-tgbe-phy-ad-hoc-cc-july-to-sept-2020.docx>

# Thursday 22 July 2020, 10:00 – 13:00 ET

Only MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>

# Thursday 23 July 2020, 10:00 – 13:00 ET

Split PHY and MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1093-05-00be-minutes-for-tgbe-phy-ad-hoc-cc-july-to-sept-2020.docx>

# Thursday 27 July 2020, 10:00 – 13:00 ET

Split PHY and MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1093-05-00be-minutes-for-tgbe-phy-ad-hoc-cc-july-to-sept-2020.docx>

# Thursday 29 July 2020, 10:00 – 13:00 ET

Only MAC.

* <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>

# Thursday 30 July 2020, 10:00 – 13:00 ET

1. The Chair (Alfred Asterjadhi, Qualcomm) calls the meeting to order at 10:02. The agenda can be found in 927r15. A reminder that this call is one with motions.
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:

* Aboulmagd, Osama Huawei Technologies Co.,  Ltd
* Adhikari, Shubhodeep Broadcom Corporation
* Agarwal, Peyush Broadcom Corporation
* Aio, Kosuke Sony Corporation
* Alayasra, Musab Medipol University; Vestel
* An, Song-Haur INDEPENDENT
* Anwyl, Gary MediaTek Inc.
* Asterjadhi, Alfred Qualcomm Incorporated
* Au, Kwok Shum Huawei Technologies Co.,  Ltd
* B, Hari Ram NXP Semiconductors
* Baek, SunHee LG ELECTRONICS
* Baik, Eugene Qualcomm Incorporated
* Bankov, Dmitry IITP RAS
* Batra, Anuj Apple, Inc.
* Bhandaru, Nehru Broadcom Corporation
* Bredewoud, Albert Broadcom Corporation
* Cao, Rui NXP Semiconductors
* Carney, William Sony Corporation
* chen, jindou Huawei Technologies Co. Ltd
* Cheng, Paul MediaTek Inc.
* CHERIAN, GEORGE Qualcomm Incorporated
* Chu, Liwen NXP Semiconductors
* CHUN, JINYOUNG LG ELECTRONICS
* Coffey, John Realtek Semiconductor Corp.
* Das, Dibakar Intel Corporation
* Das, Subir Perspecta Labs Inc.
* Dash, Debashis Apple, Inc.
* Dave, Brajesh Apple, Inc.
* Dong, Xiandong Xiaomi Inc.
* Doostnejad, Roya Intel Corporation
* Duan, Ruchen SAMSUNG
* Fang, Yonggang ZTE TX Inc
* feng, Shuling MediaTek Inc.
* Fischer, Matthew Broadcom Corporation
* Ghaderipoor, Alireza MediaTek Inc.
* Ghosh, Chittabrata Intel Corporation
* 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.
* Hu, Chunyu Facebook
* Huang, Guogang  Huawei
* Huang, Lei Panasonic Asia Pacific Pte Ltd.
* Huang, Po-Kai Intel Corporation
* Hwang, Sung Hyun Electronics and Telecommunications Research Institute (ETRI)
* Jang, Insun LG ELECTRONICS
* Ji, Chenhe Huawei Technologies Co. Ltd
* Jia, Jia Huawei Technologies Co., Ltd
* jiang, feng Apple Inc.
* Jiang, Jinjing Apple, Inc.
* Kain, Carl USDoT
* Kakani, Naveen Qualcomm Incorporated
* Kamel, Mahmoud InterDigital, Inc.
* Kedem, Oren Huawei Technologies Co. Ltd
* Khorov, Evgeny IITP RAS
* Kim, Jeongki LG ELECTRONICS
* Kim, Myeong-Jin SAMSUNG
* kim, namyeong LG ELECTRONICS
* Kim, Sang Gook LG ELECTRONICS
* 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)
* Kumar, Manish Marvell Semiconductor, Inc.
* Kwon, Young Hoon NXP Semiconductors
* Lalam, Massinissa SAGEMCOM BROADBAND SAS
* Lan, Zhou Broadcom Corporation
* Lansford, James Qualcomm Incorporated
* Latif, Imran Quantenna Communications, Inc.
* Lee, Wookbong SAMSUNG
* Levitsky, Ilya IITP RAS
* Levy, Joseph InterDigital, Inc.
* Li, Guoqing Apple, Inc.
* Li, Nan ZTE Corporation
* Li, Yunbo Huawei Technologies Co., Ltd
* Liang, dandan Huawei Technologies Co., Ltd
* Liu, Jianfei HUAWEI
* Liu, Jianhan MediaTek Inc.
* Liu, Yong Apple, Inc.
* Lopez, Miguel Ericsson AB
* Lou, Hanqing InterDigital, Inc.
* Lu, Liuming ZTE Corporation
* Luo, Chaoming Beijing OPPO telecommunications corp., ltd.
* Lv, kaiying MediaTek Inc.
* Ma, Li MediaTek Inc.
* Ma, Mengyao HUAWEI
* Max, Sebastian Ericsson AB
* Mirfakhraei, Khashayar Cisco Systems, Inc.
* Monajemi, Pooya Cisco Systems, Inc.
* Montreuil, Leo Broadcom Corporation
* Nguyen, An DHS/CISA
* noh, yujin Newracom Inc.
* Palm, Stephen Broadcom Corporation
* Pare, Thomas MediaTek Inc.
* Park, Eunsung LG ELECTRONICS
* Park, Minyoung Intel Corporation
* Patil, Abhishek Qualcomm Incorporated
* Patwardhan, Gaurav Hewlett Packard Enterprise
* Petrick, Albert InterDigital, Inc.
* Puducheri, Srinath Broadcom Corporation
* Pulikkoonattu, Rethnakaran Broadcom Corporation
* Rai, Kapil Qualcomm Incorporated
* Redlich, Oded HUAWEI
* Rezk, Meriam Qualcomm Incorporated
* Rosdahl, Jon Qualcomm Technologies, Inc.
* Roy, Sayak NXP Semiconductors
* Sambasivan, Sam AT&T
* Sedin, Jonas Ericsson AB
* Seok, Yongho MediaTek Inc.
* Sethi, Ankit NXP Semiconductors
* Shilo, Shimi HUAWEI
* Solaija, Muhammad Sohaib Istanbul Medipol University; Vestel
* Song, Taewon LG ELECTRONICS
* Stanley, Dorothy Hewlett Packard Enterprise
* Startsev, Ivan IITP RAS
* 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
* Tanaka, Yusuke Sony Corporation
* Tian, Bin Qualcomm Incorporated
* Tsodik, Genadiy Huawei Technologies Co. Ltd
* Urabe, Yoshio Panasonic Corporation
* Varshney, Prabodh Nokia
* Verenzuela, Daniel Sony Corporation
* Verma, Lochan Qualcomm Incorporated
* Verma, Sindhu Broadcom Corporation
* Vermani, Sameer Qualcomm Incorporated
* Wang, Chao Chun MediaTek Inc.
* Wang, Hao Tencent
* Wang, Huizhao Quantenna Communications, Inc.
* Wang, Lei Huawei R&D USA
* Wang, Qi Apple, Inc.
* Wu, Kanke Qualcomm Incorporated
* Wu, Tianyu Apple, Inc.
* Wullert, John Perspecta Labs
* 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
* Yona, Yair Qualcomm Incorporated
* Yong, Su Khiong Apple, Inc.
* Young, Christopher Broadcom Corporation
* Yu, Jian Huawei Technologies Co., Ltd
* Yukawa, Mitsuyoshi Canon, Inc.
* Zein, Nader NEC Laboratories Europe
* Zeng, Yan Huawei Technologies Co.,  Ltd
* Zhang, Yan NXP Semiconductors
* Zuo, Xin Tencent

1. Announcements: Nothing mentioned.
2. Any objection to proceed with the agenda?

C: For the 1961r4, can we defer it to the end of MAP General? 🡪 ok.

C: What is the idea for the D0.1 – Status and Updates discussion? 🡪 The idea is to finalize the joint items as well as going through the yellow parts.

C: The agenda is approved.

**Motions (concentrated within the first 90 mins of the call) in document** [**841r12**](https://mentor.ieee.org/802.11/dcn/20/11-20-0841-12-00be-tgbe-motions-list-for-teleconferences.pptx)

1. **Approve TG minutes.**

**Move to approve TGbe minutes of teleconferences listed below:**

* + **Teleconferences May-July:**

[**https://mentor.ieee.org/802.11/dcn/20/11-20-0775-06-00be-may-july-tgbe-teleconference-minutes.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0775-06-00be-may-july-tgbe-teleconference-minutes.docx)

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

**Discussion:** No discussion.

Approved with unanimous consent.

1. **Motion 119.**

**Move to add to the 11be SFD, candidate specification text in 11-20/566r44 that is identified with the following tags:**

* + SP103, SP104, SP105, SP106, SP107, SP108, SP109, SP110, SP111, SP112, SP113, SP114, SP115, SP116, SP117, SP118, SP119, SP120, SP121, SP122, SP123, SP124, SP125, SP126, SP127, SP128, SP129, SP130.

Move: Edward Au, Second: Stephen (Kiwin) Palm

**Discussion:** No discussion.

Approved with unanimous consent.

1. **Motion 120. (Amended by motion 121)**

**Move to add to the 11be SFD the following text:**

* **11be agrees to define mechanisms to support the operation of a Non-STR AP MLD in R1**
* **The mechanisms are limited to instantiate a Non-STR Non-AP MLD as a Soft AP that could utilize all its links. The exact language to govern such scope is TBD.**

**Move:** Jinjing Jian, **Second:** Kaiying Lu

**Discussion:**

C: The Non-STR AP adds complexity to the spec text of R1. I also question the use case for this to be part of R1.

C: There is probably needed to put some definition of Soft AP. Probably the node part of this text should be put as informative part.

C: A Soft AP should be simplified as an MLD.

C: I would like to move to make a motion to amend the motion to remove the “Note:”. See **Motion 121**. 🡪 Motion amended.

Preliminary Results: Y/N/Abstain/no-vote: 85/32/24/57 🡪 preliminary fails.

Final results: Y/N/A: 83/31/22 (72%) 🡪 motion fails. See Appendix 1 for details.

1. **Motion 121.**

Move to amend Motion 120 by deleting the following term: “Note:”.

**Move:** Zhou Lan, **Second:** Yong Liu

**Discission:** No discussion.

Preliminary results: Y/N/Abstain/no-vote: 98/15/24/61 🡪 preliminary passes.

Final results: Y/N/A: 95/15/23 🡪 motion passes. See Appendix 1 for details.

**Towards TGbe D0.1 Draft – Status and Updates [~30 mins]**

[997r9](https://mentor.ieee.org/802.11/dcn/20/11-20-0997-09-00be-tgbe-spec-text-volunteers-and-status.docx) TGbe spec text volunteers and status.

* 1. Updates to the document where cell-rows are marked green and release information is updated. The changes will be seen in r9.
  2. Extensive discussion regarding R1/R2 for MAP-Setup.
  3. **Straw poll:** R1 vs R2 SP: Do you support that MAP-setup is classified as R1?

**Result:** Y/N/A: 48/46/20.

* 1. **Straw poll:** Do you support having MAP-access and TXOP sharing topic under R1 spec development?

**Result:** Y/N/A: 52/59/13.

* 1. **Straw poll:** R1 vs R2 SP 3: Do you support having MAP-Group Management topic under R1 spec development?

**Result:** Y/N/A: 48/56/18.

* 1. **Straw poll:** SP4: Which option do you prefer: option 1: All MAP features in R1 (unless those already decided to be in R2), option 2: all MAP features in R2, option 3: abstain

**Result:** Y/N/A: 53/58/17.

**Technical submissions – Straw polls**

1. [**0674r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-0674-03-00be-forward-compatible-ofdma.pptx)**, “Forward compatible OFDMA” – Xiaogang Chen (Intel)**

**SP**

**Do you agree that 11be support the design of allowing multiplexing STAs of different amendments in one transmissions with OFDMA?**

* + STAs of different amendments may include HE, EHT and post-EHT STA;
    - The BW allocated to different STAs that can be mixed in one transmission is TBD;
  + This feature is targeted for R2.

**Discussion:**

C: Can you modify the text and put post-EHT to its own bullet. 🡪 Ok.

C: Can you delete the s in transmission(s)? 🡪 Ok.

C: Can you add “…OFDMA using frequency domain A-PPDU”? 🡪 Ok.

New text:

**Do you agree that 11be support the design of allowing multiplexing STAs of different amendments in one transmission with OFDMA using frequency domain A-PPDU?**

* + STAs of different amendments may include HE, EHT
    - post-EHT STA is TBD;
    - The BW allocated to different STAs that can be mixed in one transmission is TBD;
  + This feature is targeted for R2.

**Result:** Y/N/A/no-answer: 88/1/36/51

1. [**0617r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-0617-03-00be-multi-ap-operation-basic-definition.pptx)**, “Multi-AP Operation - Basic Definition” – Oren Kedem (Huawei)**

**Straw poll 1**

Which of the options do you prefer with regards to Multi-AP set definition?

* + - Option1 – One Static group “Multi-AP Candidate Set”
    - Option 2 – Two groups, one static “Multi-AP Candidate Set” and one Dynamic group “Multi AP Operation/Active Set”

**Discussion:**

C: We already have AP Candidate Set in the SFD. I think we need the dynamic group.

C: Dynamic group per TXOP means too much overhead.

C: Is this R1 or R2?

A: I don’t want to specify that.

C: Can we clarify that this is not intended for the SFD?

Running out of time, we will continue next session.

**Adjourned at 12:59.**

# Thursday 3 August 2020, 10:00 – 13:00 ET

Split PHY and MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1093-05-00be-minutes-for-tgbe-phy-ad-hoc-cc-july-to-sept-2020.docx>

# Thursday 5 August 2020, 10:00 – 13:00 ET

Only MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>

# Thursday 6 August 2020, 19:00 – 22:00 ET

Split PHY and MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>
* PHY: <https://mentor.ieee.org/802.11/dcn/20/11-20-1093-05-00be-minutes-for-tgbe-phy-ad-hoc-cc-july-to-sept-2020.docx>

# Thursday 17 August 2020, 19:00 – 22:00 ET

Split PHY and MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>
* PHY: Not available yet.

# Thursday 19 August 2020, 10:00 – 13:00 ET

Only MAC.

* MAC: <https://mentor.ieee.org/802.11/dcn/20/11-20-1079-11-00be-minutes-for-tgbe-mac-ad-hoc-teleconferences-in-july-and-september-2020.docx>

# Thursday 20 August 2020, 10:00 – 13:00 ET

**Introduction**

1. The Chair (Alfred Asterjadhi, Qualcomm) calls the meeting to order at 10:01. The agenda can be found in 927r23. A reminder that this call is one with motions.
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
     + Aio, Kosuke Sony Corporation
     + Akhmetov, Dmitry Intel Corporation
     + Alayasra, Musab Medipol University; Vestel
     + An, Song-Haur INDEPENDENT
     + Ansley, Carol CommScope
     + Asterjadhi, Alfred Qualcomm Incorporated
     + Au, Kwok Shum Huawei Technologies Co., Ltd
     + Awater, Geert Qualcomm Incorporated
     + Baek, SunHee LG ELECTRONICS
     + Baik, Eugene Qualcomm Incorporated
     + Bankov, Dmitry IITP RAS
     + baron, stephane Canon Research Centre France
     + Bhandaru, Nehru Broadcom Corporation
     + Boldy, David Broadcom Corporation
     + Cao, Rui NXP Semiconductors
     + Cavalcanti, Dave Intel 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
     + Chu, Liwen NXP Semiconductors
     + Coffey, John Realtek Semiconductor Corp.
     + Das, Subir Perspecta Labs Inc.
     + de Vegt, Rolf Qualcomm Incorporated
     + Ding, Yanyi Panasonic Corporation
     + DOAN, DUNG Qualcomm Incorporated
     + Dong, Xiandong Xiaomi Inc.
     + Doostnejad, Roya Intel Corporation
     + Duan, Ruchen SAMSUNG
     + Eitan, Alecsander Qualcomm Incorporated
     + Erceg, Vinko Broadcom Corporation
     + Fang, Yonggang ZTE TX Inc
     + feng, Shuling MediaTek Inc.
     + Fischer, Matthew Broadcom Corporation
     + Galati Giordano, Lorenzo Nokia
     + Gan, Ming Huawei Technologies Co., Ltd
     + Ghaderipoor, Alireza MediaTek Inc.
     + Ghosh, Chittabrata Intel Corporation
     + Godbole, sachin Broadcom Corporation
     + Gong, Bo Huawei Technologies Co. Ltd
     + Guo, Yuchen Huawei Technologies Co., Ltd
     + Han, Jonghun SAMSUNG
     + Handte, Thomas Sony Corporation
     + Hervieu, Lili Cable Television Laboratories Inc. (CableLabs)
     + Ho, Duncan Qualcomm Incorporated
     + Hong, Hanseul WILUS Inc.
     + Hsieh, Hung-Tao MediaTek Inc.
     + Hu, Chunyu Facebook
     + Hu, Glenn Tencent
     + Huang, Guogang Huawei
     + Huang, Lei Panasonic Asia Pacific Pte Ltd.
     + Huang, Po-Kai Intel Corporation
     + Inohiza, Hirohiko Canon
     + Jang, Insun LG ELECTRONICS
     + Jeon, Eunsung SAMSUNG ELECTRONICS
     + Ji, Chenhe Huawei Technologies Co. Ltd
     + Jia, Jia Huawei Technologies Co., Ltd
     + jiang, feng Apple Inc.
     + Kain, Carl USDoT
     + Kakani, Naveen Qualcomm Incorporated
     + Kamel, Mahmoud InterDigital, Inc.
     + Kandala, Srinivas SAMSUNG
     + Kang, Sugbong Apple, Inc.
     + 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, Sang Gook LG ELECTRONICS
     + Kim, Sanghyun WILUS Inc
     + Kim, Youhan Qualcomm Incorporated
     + Klein, Arik Huawei Technologies Co. Ltd
     + Klimakov, Andrey Huawei Technologies Co., Ltd
     + Kneckt, Jarkko Apple, Inc.
     + Ko, Geonjung WILUS Inc.
     + Kumar, Manish Marvell Semiconductor, Inc.
     + Lan, Zhou Broadcom Corporation
     + Lee, Wookbong SAMSUNG
     + Levitsky, Ilya IITP RAS
     + Levy, Joseph InterDigital, Inc.
     + Li, Yiqing Huawei Technologies Co. Ltd
     + Li, Yunbo Huawei Technologies Co., Ltd
     + Liang, dandan Huawei Technologies Co., Ltd
     + Lim, Dong Guk LG ELECTRONICS
     + Lin, Wei Huawei Technologies Co. Ltd
     + LIU, CHENCHEN Huawei Technologies Co., Ltd
     + 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
     + Max, Sebastian Ericsson AB
     + Memisoglu, Ebubekir Istanbul Medipol University; Vestel
     + Mohanty, Bibhu Qualcomm Incorporated
     + Monajemi, Pooya Cisco Systems, Inc.
     + Montreuil, Leo Broadcom Corporation
     + Nakano, Takayuki Panasonic Corporation
     + Naribole, Sharan SAMSUNG
     + Nezou, Patrice Canon Research Centre France
     + Nguyen, An DHS/CISA
     + noh, yujin Newracom Inc.
     + Palm, Stephen Broadcom Corporation
     + Park, Minyoung Intel Corporation
     + Patil, Abhishek Qualcomm Incorporated
     + Patwardhan, Gaurav Hewlett Packard Enterprise
     + Petrick, Albert InterDigital, Inc.
     + Petry, Brian Broadcom Corporation
     + Pettersson, Charlie Ericsson AB
     + porat, ron Broadcom Corporation
     + Puducheri, Srinath Broadcom Corporation
     + Pulikkoonattu, Rethnakaran Broadcom Corporation
     + Raissinia, Alireza Qualcomm Incorporated
     + Redlich, Oded HUAWEI
     + Rege, Kiran Perspecta Labs
     + RISON, Mark Samsung Cambridge Solution Centre
     + Rosdahl, Jon Qualcomm Technologies, Inc.
     + Salman, Hanadi Istanbul Medipol University; VESTEL
     + Sambasivan, Sam AT&T
     + Schelstraete, Sigurd Quantenna Communications, Inc.
     + Sedin, Jonas Ericsson AB
     + Seok, Yongho MediaTek Inc.
     + Sevin, Julien Canon Research Centre France
     + Shellhammer, Stephen Qualcomm Incorporated
     + Shilo, Shimi HUAWEI
     + Solaija, Muhammad Sohaib Istanbul Medipol University; Vestel
     + Son, Ju-Hyung WILUS Inc.
     + Song, Taewon LG ELECTRONICS
     + Sosack, Robert Molex Incorporated
     + Stanley, Dorothy Hewlett Packard Enterprise
     + 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
     + Tanaka, Yusuke Sony Corporation
     + THOUMY, Francois Canon Research Centre France
     + Tian, Bin Qualcomm Incorporated
     + Trainin, Solomon Qualcomm Incorporated
     + Tsodik, Genadiy Huawei Technologies Co. Ltd
     + Urabe, Yoshio Panasonic Corporation
     + Van Zelst, Allert Qualcomm Incorporated
     + Varshney, Prabodh Nokia
     + Verenzuela, Daniel Sony Corporation
     + Verma, Sindhu Broadcom Corporation
     + Vermani, Sameer Qualcomm Incorporated
     + Wang, Chao Chun MediaTek Inc.
     + Wang, Hao Tencent
     + Wang, Lei Huawei R&D USA
     + Wang, Qi Apple, Inc.
     + Wang, Yi-Hsiu Zeku
     + Wilhelmsson, Leif Ericsson AB
     + Wullert, John Perspecta Labs
     + Xin, Yan Huawei Technologies Co., Ltd
     + Yang, Bo Huawei Technologies Co. Ltd
     + Yang, Jay Nokia
     + YANG, RUI InterDigital, Inc.
     + Yang, Steve TS MediaTek Inc.
     + Yano, Kazuto Advanced Telecommunications Research Institute International (ATR)
     + Yee, James MediaTek Inc.
     + yi, yongjiang Futurewei Technologies
     + Young, Christopher Broadcom Corporation
     + Yu, Jian Huawei Technologies Co., Ltd
     + Zein, Nader NEC Laboratories Europe
     + Zeng, Ruochen NXP Semiconductors
     + ZHANG, JIAYIN HUAWEI
     + Zhang, Yan NXP Semiconductors
     + Zuo, Xin Tencent
4. Announcements: No announcements.
5. No objections to approve the agenda with unanimous consent.

**Motions (concentrated within the first 90 mins of the call). Document 11-20/0841r17:**

1. **Motion 122.**

**Move to add to the 11be SFD, candidate specification text in 11-20/566r56 that is identified with the following tags:**

* + SP131, SP132, SP133, SP134, SP135, SP136, SP137, SP138, SP139, SP140, SP141, SP142, SP143, SP144, SP145, SP146, SP147, SP148, SP149, SP150, SP151, SP152, SP153, SP154, SP155, SP156, SP157, SP158, SP159, SP160, SP161, SP162, SP163, SP164, SP165, SP166, SP167, SP168, SP169, SP170.

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

**Discussion: None**

**Result: Approved with unanimous consent.**

**Note 1: These are all candidate SFD texts highlighted in yellow that have NOT received a request for further discussion**

**Note 2: SP134 and SP135 were requested to be removed from SP’s author.**

1. **Motion 123.**

**Move to add to the 11be SFD, candidate specification text in 11-20/566r56 that is identified with the following tags:**

* + SP169

**Move: Ron Porat, Second: Bin Tian**

**Discussion:**

C: This requires a large table to fit all combinations. I believe it is better to reduce the number of combinations. Therefore, I am against this motion.

C: We have chosen to explicitly signal these tables. It did require one additional bit, but no additional complexity at the receiver. So, I disagree with previous speaker. I am for this motion.

Result: Y/N/A: 71/42/28 🡪 (62%) Preliminary fails.

**Final results: Y/N/A: 70/40/26 (64%) 🡪 motion fails.** See Appendix 1 for details.

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

**Towards TGbe D0.1 Draft–Status and Updates (Edward):** <https://mentor.ieee.org/802.11/dcn/20/11-20-0997-15-00be-tgbe-spec-text-volunteers-and-status.docx>

SP1: Do you support that the “Priority access support for NS/EP services” to be in R1?

Result: Y/N/A: 50/61/54.

SP2: Do you support that “MLO-Power save: Power state indication” is in R1?

Result: Y/N/A: 63/47/36

Edward goes through the guide for specification drafting: <https://mentor.ieee.org/802.11/dcn/20/11-20-1250-00-00be-a-guide-for-specification-drafting.ppt>

**Technical presentations**

1. **SP:** [**11-20/0596r1**](https://mentor.ieee.org/802.11/dcn/20/11-20-0596-01-00be-ap-candidate-set-follow-up.pptx)

Straw poll 1:

* **Do you agree to use the following text to replace Motion 55 text for better clarification?**
  + 1. 11be shall define an AP candidate set\* as follows:
    2. An AP candidate set is a set of APs that can initiate or participate in Multi-AP Coordination.
    3. An AP in an AP candidate set can participate as a shared AP in Multi-AP Coordination initiated by a sharing AP in the same AP candidate set.
    4. At least one AP in an AP candidate set shall be capable of being a sharing AP.
    5. \*Note: The name can be changed.

**Result: Y/N/A: 95/1/36**

1. **SP:** [**11-20/0617r3**](https://mentor.ieee.org/802.11/dcn/20/11-20-0617-03-00be-multi-ap-operation-basic-definition.pptx)

Straw poll 1:

* **Which of the options do you prefer with regards to Multi-AP set definition?** 
  + - Option 1 – One Static group  “Multi-AP Candidate Set”
    - Option 2 – Two groups, one static “Multi-AP Candidate Set” and one Dynamic group “Multi-AP Operation/Active Set”
    - Abstain.

**Discussion:**

C: Which problem are you trying to solve with this dynamic grouping?

A: The static group may be large. During TXOP sharing only a subset of the group will participating.

C: Maybe the term “dynamic” is precise.

A: I am not fully aware of the difference between dynamic and semi-static.

**Result: Option1/Option2/A: 38/54/27**

1. **SP: 11-20/0548r3**

Straw poll 1:

Do you support that 802.11be will adopt Coordinated UL MU-MIMO as an Multi-AP Coordination scheme for UL transmissions in R2?

Note: Not for joint reception.

**Result: Y/N/A: 76/6/43**

1. **11-20/0576r1, “Coordinated Spatial Reuse Protocol” – Yongho Seok (MediaTek)**

**Summary:** The authors propose an over-the-air protocol to enable coordinated spatial reuse (C-SR). Through simulations they show that C-SR provides higher system throughput (goodput) when transmit power control is applied than when it is not applied.

**Discussion:**

Yes. Not finished, finish offline/next time.

**AoB – No time left for other business.**

**Adjourn at 13:00 ET.**

# Appendix 1

**Motion 120:**

Calculated Results : 85Y, 32N, 24A, [72%]

Amended Results : 83Y, 31N, 22A, [72%]

---------------------------------------------

---------------------------------------------

[V] Lochan Verma Apple | X | | |

[V] Yonggang Fang ZTE TX | X | | |

sam sambasivan | X | | | AT&T: VOTER

[V] Prabodh Varshney Nokia | X | | |

[V] Miguel Lopez Ericsson | X | | |

[V] Rui Yang InterDigital | | X | |

[V] Jim Lansford Qualcomm | | X | |

[VM] Al Petrick Interdigital | | X | |

[V] Sang Kim LGE | X | | |

[V] Youhan Kim Qualcomm | | X | |

[V] Sebastian Max Ericsson | | X | |

[V] Joseph Levy InterDigital | | X | |

[V] Yongho Seok Mediatek | X | | |

[V] Wookbong Lee Samsung | X | | |

[V} Zhou Lan Broadcom | X | | |

[V] Cheng Chen Intel | | | X |

[V] Junghoon Suh Huawei | X | | |

[V] Chunyu Hu FB | X | | |

[V] Jonas Sedin Ericsson | | | X |

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

[V] laurent cariou, Intel | | | X |

[V] Yujin Noh Newracom | X | | |

[V] Yong Liu Apple | X | | |

[V]Manish Kumar nxp\_ | X | | |

[V] Song H An Independent | | | X |

[V] Gaurav Patwardhan HPE | | X | |

[V] Bill Carney Sony | X | | |

[V] Yanjun Sun Qualcomm | | X | |

[V] Jinjing Jiang Apple | X | | |

[V] George Cherian Qualcomm | | X | |

[V] Chittabrata Ghosh Intel | | X | |

[V] dibakar das Intel | | | X |

[V] Carl Kain USDOT/Noblis | X | | |

[V]Guogang Huang Huawei | X | | |

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

[V] Jason Yuchen Guo Huawei | X | | |

[V] Steve TS Yang MediaTek | X | | |

[V] Taewon Song LGE | X | | |

[A]Jay Yang Nokia | | | X | INVALID VOTE: NON VOTER

[V] Ross Jian Yu Huawei | X | | |

[P]Ding Yanyi Panasonic | | | X |

[V] Bo Sun ZTE | X | | |

[V] Shubhodeep Adhikari Broadcom | X | | |

[V] Yunbo Li Huawei Technologies | X | | |

[V] Harry Wang Tencent | | | X |

[V] Rui Du Huawei | X | | |

[V] Wei Lin Huawei | X | | |

[V] Rob Sun Huawei | X | | |

[V] Eunsung Park LGE | X | | |

[V] Yoshihisa Kondo ATR | X | | |

[V] Sanghyun Kim WILUS | | | X |

[V]Mengyao Ma Huawei | X | | |

[V] Kazuto Yano ATR | | | X |

[V] Myeongjin Kim Samsung | X | | |

[V] James Yee, MediaTek | X | | |

[V] Insun Jang LGE | X | | |

[V] Jeongki Kim LGE | X | | |

[V] Chenhe Ji Huawei | X | | |

[V] Ming Gan Huawei | X | | |

[V] Yifan Zhou Huawei | X | | |

Jindou Chen | X | | | INVALID VOTE: NO MATCH FOUND!

[V] Yoshio Urabe Panasonic | | X | |

[V] Hongjia Su Huawei | X | | |

[V]NanLI ZTE | X | | |

V Yusuke Tanaka sony | | | X |

[V] Frank Hsu Mediatek | X | | |

[V] Dandan Liang Huawei | X | | |

[V]HungTao Hsieh Mediatek | X | | |

[V] Jiayin Zhang Huawei | X | | |

[V] Yang Bo Huawei | | X | |

[V] Jia Jia Huawei | X | | |

[V] David Yang Huawei | X | | |

[V]Liuming LU ZTE | X | | |

[V] Osama Aboul-Magd Huawei Technologies | | X | |

AN NGUYEN | | | X | DHS/CISA: VOTER

[V] Thomas Handte Sony | X | | |

[V] Subir Perspecta Labs | | | X |

[V] Dennis Sundman Ericsson | | | X |

[V] Oded Redlich Huawei | | | X |

[V]Jarkko Kneckt Apple | X | | |

[V] Massinissa Lalam Sagemcom | | X | |

[V] Oren Kedem Huawei | X | | | INVALID VOTE: NON VOTER

[V] Genadiy Tsodik Huawei | | | X |

[V] Shimi Shilo Huawei | X | | |

[V] Albert Bredewoud Broadcom | X | | |

[V] Arik Klein Huawei | | X | |

[V] Evgeny Khorov IITP RAS | X | | |

[V] Ilya Levitsky IITP RAS | X | | |

[V] Dana Ciochina Sony | X | | |

[V] Assaf Kasher Qualcomm | | X | |

[V] YongjiangJohn Yi Futurewei | | X | |

[V] Huizhao Wang Quantenna/ON Semi | | | X |

[V] Minyoung Park Intel Corp. | | | X |

[V] Matthew Fischer Broadcom | X | | |

[V] kiwin palm «BRCM» | X | | |

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

[V] Lei Wang Futurewei/Huawei | X | | |

[V] Young Hoon Kwon NXP | X | | |

[V] Pooya Monajemi Cisco | | X | |

[V] Duncan Ho Qualcomm | | X | |

[V] Ruchen Duan Samsung | X | | |

[V] Jianhan Liu Meditak Inc. | X | | |

[V] Tianyu Wu Apple | X | | |

[V] Khashayar Mirfakhraei Cisco systems | | | X | INVALID VOTE: NON VOTER

[V] Rui Cao NXP | | | X |

[V] Liangxiao Xin Sony | | | X |

[V] Feng Jiang Apple | X | | |

[V] Robert Stacey, Intel | | X | |

[V] Debashis Dash Apple | X | | |

[V] Chris Young Broadcom | X | | |

guoqing | X | | | Li, Apple: VOTER

[V] Sameer Vermani Qualcomm | | X | |

Ron Porat | X | | | Broadcom: VOTER

Imran Latif | X | | | Apple: VOTER

Brajesh | X | | | Dave, Apple: VOTER

[V] Srinivas Kandala Samsung | X | | |

[V] Srinath Puducheri Broadcom | X | | |

[V] Jon Rosdahl Qualcomm | | X | |

[V] Kosuke Aio, Sony | | | X |

[V] Abhishek Patil Qualcomm | | X | |

[V] Bin Tian Qualcomm | | X | |

[V] Sharan Naribole Samsung | X | | |

[V] Lei Huang Panasonic | | | X |

[V] Sindhu Verma Broadcom | X | | |

[V] Yan Zhang NXP | X | | |

[v] kaiying lu MediaTek | X | | |

[V] Liwen Chu NXP | X | | |

[V] Ali Raissinia Qualcomm | | X | |

[V] Edward Au Huawei | X | | |

[V] Jeff J.Q. Liu Broadcom | X | | |

[V] Ahmed Elsherif Qualcomm | | X | |

[V] Reza Hedayat Charter | | | X |

[V] paul cheng MediaTek | X | | |

[V] Anuj Batra Apple | X | | |

Qi Wang | X | | | Apple: VOTER

[V] Xiaofei Wang InterDigital | | X | |

[V] Naveen Kakani Qualcomm | | X | |

Evan Sun | | X | | INVALID VOTE: NO MATCH FOUND!

Su Khiong Yong | X | | | Apple: VOTER

[V] Thomas Pare Mediatek | X | | |

[V] Eugene Baik Qualcomm | | X | |

**Motion 121:**

Calculated Results : 98Y, 15N, 24A, [86%]

Amended Results : 95Y, 15N, 23A, [86%]

---------------------------------------------

---------------------------------------------

[V] Lochan Verma Apple | X | | |

[V] Yonggang Fang ZTE TX | X | | |

sam sambasivan | | | X | AT&T: VOTER

[V] Prabodh Varshney Nokia | X | | |

[V] Miguel Lopez Ericsson | | | X |

[V] Rui Yang InterDigital | X | | |

[V] Jim Lansford Qualcomm | X | | |

[VM] Al Petrick Interdigital | X | | |

[V] Sang Kim LGE | X | | |

[V] Youhan Kim Qualcomm | X | | |

[V] Sebastian Max Ericsson | X | | |

[V] Joseph Levy InterDigital | | | X |

[V] Yongho Seok Mediatek | | X | |

[V] Wookbong Lee Samsung | X | | |

[V} Zhou Lan Broadcom | X | | |

[V] Cheng Chen Intel | X | | |

[V] Junghoon Suh Huawei | | | X |

[V] Yan Xin Huawei | | | X |

[V] Xiaogang Chen Intel | | | X |

[V] Chunyu Hu FB | X | | |

[V] Jonas Sedin Ericsson | X | | |

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

[V] laurent cariou, Intel | X | | |

[V] Yujin Noh Newracom | | | X |

[V] Yong Liu Apple | X | | |

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

[V]Manish Kumar nxp\_ | X | | |

[V] Song H An Independent | | | X |

[V] Gaurav Patwardhan HPE | X | | |

[V] Bill Carney Sony | | X | |

[V] Yanjun Sun Qualcomm | X | | |

[V] Jinjing Jiang Apple | X | | |

[V] George Cherian Qualcomm | X | | |

[V] Chittabrata Ghosh Intel | X | | |

[V] dibakar das Intel | X | | |

[V] Carl Kain USDOT/Noblis | X | | |

[V]Guogang Huang Huawei | X | | |

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

[V] Jason Yuchen Guo Huawei | X | | |

[V] Steve TS Yang MediaTek | | X | |

[V] Taewon Song LGE | X | | |

[A]Jay Yang Nokia | | | X | INVALID VOTE: NON VOTER

[V] Ross Jian Yu Huawei | X | | |

[P]Ding Yanyi Panasonic | X | | |

[V] Bo Sun ZTE | X | | |

[V] Shubhodeep Adhikari Broadcom | X | | |

[V] Yunbo Li Huawei Technologies | X | | |

[V] Harry Wang Tencent | | | X |

[V] Rui Du Huawei | X | | |

[V] Wei Lin Huawei | X | | |

[V] Rob Sun Huawei | X | | |

[V] Eunsung Park LGE | | | X |

[V] Yoshihisa Kondo ATR | | | X |

[V]Mengyao Ma Huawei | X | | |

[V] Kazuto Yano ATR | | | X |

[V] Myeongjin Kim Samsung | X | | |

[V] James Yee, MediaTek | | X | |

[V] Insun Jang LGE | X | | |

[V] Jeongki Kim LGE | X | | |

[V] Ming Gan Huawei | X | | |

Jindou Chen | X | | | INVALID VOTE: NO MATCH FOUND!

[V] Yoshio Urabe Panasonic | X | | |

[V] Hongjia Su Huawei | X | | |

[V]NanLI ZTE | | X | |

V Yusuke Tanaka sony | X | | |

[V] Frank Hsu Mediatek | | X | |

[V] Dandan Liang Huawei | X | | |

[V]HungTao Hsieh Mediatek | | X | |

[V] Jiayin Zhang Huawei | X | | |

[V] Yang Bo Huawei | | X | |

[V] Jia Jia Huawei | X | | |

[V] David Yang Huawei | X | | |

[V]Liuming LU ZTE | | X | |

[V] Osama Aboul-Magd Huawei Technologies | | X | |

AN NGUYEN | X | | | DHS/CISA: VOTER

[V] Thomas Handte Sony | | | X |

[V] Subir Perspecta Labs | | | X |

[V] Dennis Sundman Ericsson | X | | |

[V] Oded Redlich Huawei | | | X |

[V]Jarkko Kneckt Apple | X | | |

[V] Massinissa Lalam Sagemcom | | | X |

[V] Oren Kedem Huawei | X | | | INVALID VOTE: NON VOTER

[V] Genadiy Tsodik Huawei | | | X |

[V] Shimi Shilo Huawei | | | X |

[V] Albert Bredewoud Broadcom | X | | |

[V] Arik Klein Huawei | X | | |

[V] Evgeny Khorov IITP RAS | X | | |

[V] Ilya Levitsky IITP RAS | X | | |

[V] Dana Ciochina Sony | X | | |

[V] Assaf Kasher Qualcomm | | X | |

[V] YongjiangJohn Yi Futurewei | | X | |

[V] Huizhao Wang Quantenna/ON Semi | X | | |

[V] Minyoung Park Intel Corp. | X | | |

[V] Matthew Fischer Broadcom | X | | |

[V] kiwin palm «BRCM» | X | | |

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

[V] Lei Wang Futurewei/Huawei | X | | |

[V] Young Hoon Kwon NXP | X | | |

[V] Pooya Monajemi Cisco | | X | |

[V] Payam Torab Facebook | | | X |

[V] Duncan Ho Qualcomm | X | | |

[V] Ruchen Duan Samsung | X | | |

[V] Jianhan Liu Meditak Inc. | | X | |

[V] Tianyu Wu Apple | X | | |

[V] Khashayar Mirfakhraei Cisco systems | X | | | INVALID VOTE: NON VOTER

[V] Rui Cao NXP | X | | |

[V] Liangxiao Xin Sony | | | X |

[V] Feng Jiang Apple | X | | |

[V] Debashis Dash Apple | X | | |

[V] Chris Young Broadcom | X | | |

guoqing | X | | | Li, Apple: VOTER

[V] Sameer Vermani Qualcomm | X | | |

Ron Porat | X | | | Apple: VOTER

Imran Latif | X | | | Broadcom: VOTER

Brajesh | X | | | Dave, Apple: VOTER

[V] Srinivas Kandala Samsung | X | | |

[V] Sai Cypress | X | | |

[V] Srinath Puducheri Broadcom | X | | |

[V] Kosuke Aio, Sony | X | | |

[V] Abhishek Patil Qualcomm | X | | |

[V] Bin Tian Qualcomm | X | | |

[V] Sharan Naribole Samsung | X | | |

[V] Lei Huang Panasonic | | | X |

[V] Sindhu Verma Broadcom | X | | |

[V] Yan Zhang NXP | X | | |

[V] Liwen Chu NXP | X | | |

[V] Ali Raissinia Qualcomm | X | | |

[V] Edward Au Huawei | | | X |

[V] Jeff J.Q. Liu Broadcom | X | | |

[V] Ahmed Elsherif Qualcomm | X | | |

[V] Reza Hedayat Charter | | | X |

[V] Anuj Batra Apple | X | | |

Qi Wang | X | | | Apple: VOTER

[V] Xiaofei Wang InterDigital | X | | |

Su Khiong Yong | X | | | Apple: VOTER

[V] Thomas Pare Mediatek | | X | |

[V] Eugene Baik Qualcomm | X | | |

**Motion 123:**

Calculated Results : 71Y, 42N, 28A, [62%]

Amended Results : 70Y, 40N, 26A, [64%]

---------------------------------------------

---------------------------------------------

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

[V] Youhan Kim Qualcomm | X | | |

[V] Al Petrick Interdigital | X | | |

[V] Subir Perspecta Labs | | | X |

[V] Sang Kim LGE | | | X |

sam sambasivan | X | | |

[v] kaiying lu MediaTek | X | | |

[V] Mao Yu NXP | X | | |

[V] Yonggang Fang ZTE TX | | | X |

[V[ Sigurd Schelstraete Quantenna/ON | X | | |

[V] Duncan Ho Qualcomm | X | | |

[V] Abhishek Patil Qualcomm | X | | |

[V] Bin Tian Qualcomm | X | | |

[V} Jarkko Kneckt Apple | X | | |

[V] Rob Sun Huawei | | X | |

[V] Prabodh Varshney Nokia | X | | |

[V] kiwin PALM {BRCM | X | | |

[V] Chittabrata Ghosh Intel | X | | |

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

[V] Sai Cypress | X | | |

[V]Manish Kumar nxp\_ | X | | |

[v] Yujin Noh Newracom | X | | |

[V] Young Hoon Kwon NXP | X | | |

[V] YongjiangJohn Yi Futurewei | | X | |

[V] Lei Wang Futurewei | | X | |

[V] laurent cariou, Intel | X | | |

[V] Yan Xin Huawei | | X | |

[V] George Cherian Qualcomm | X | | |

[V] Joseph Levy InterDigital | | | X |

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

[V] Steve Shellhammer Qualcomm | X | | |

[V] Yongho Seok MediaTek | X | | |

[V] Pooya Monajemi Cisco | | | X |

[V] Bibhu Mohanty Qualcomm | X | | |

[V] Song H An Independent | | | X |

[V] Junghoon Suh Huawei | | X | |

[V] Eugene Baik Qualcomm | X | | |

[V] Jeff J.Q. Liu Broadcom | X | | |

[V] Yan ZhangNXP | X | | |

Vinko Erceg | X | | |

[V]Guogang Huang Huawei | | X | |

[V] Lei Huang Panasonic | | X | |

[V] Steve TS Yang MediaTek | X | | |

[V]Mengyao Ma Huawei | | X | |

[V] Ross Jian Yu Huawei | | X | |

[V] Ming Gan Huawei | | X | |

[V] Jason Yuchen Guo Huawei | | X | |

[V]Ding Yanyi Panasonic | | X | |

[V] Sindhu Verma Broadcom | X | | |

[V] Shubhodeep Adhikari Broadcom | X | | |

[V] Jia Jia Huawei | | X | |

[v] Lily Lv Huawei | | X | |

[V]Hanseul Hong WILUS | | | X |

[V]Glenn Hu Tencent | | X | |

[V] David Yang Huawei | | X | |

[V] Wei LinHuawei | | X | |

[V] Yunbo Li Huawei Technologies | | X | |

[V] Rojan Chitrakar Panasonic | | X | |

[v] girish madpuwa broadcom | | | X |

[V] Oren Kedem Huawei | | X | | INVALID VOTE: NON VOTER

[V] Dennis Sundman Ericsson | | | X |

[V] Jonas Sedin Ericsson | | | X |

[V] Assaf Kasher Qualcomm | X | | |

[V] Alecsander Eitan Qualcomm | X | | |

[V] Stephane Baron Canon | | | X |

[V] Patrice NEZOU Canon | | | X |

[V] Ilya Levitsky IITP RAS | | X | |

[V] Miguel Lopez Ericsson | | | X |

[V] Oded Redlich Huawei | | X | |

[NV] Mikael Lorgeoux Canon | | | X | INVALID VOTE: NO MATCH FOUND!

[V] Thomas Handte Sony | X | | |

[V] Allert van Zelst Qualcomm | X | | |

[V] Shimi Shilo Huawei | | X | |

[V] Genadiy Tsodik Huawei | | X | |

[V] sachin godbole broadcom | X | | |

[V] Mark RISON {Samsung} | | | X |

[V] Evgeny Khorov IITP RAS | | X | |

[V] Arik Klein Huawei | | X | |

[V] David Boldy, Broadcom | X | | |

Solomon Trainin Qualcomm | X | | |

[V] Geert Awater Qualcomm | X | | |

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

[V] Sanghyun Kim WILUS | | | X |

[V] Eunsung Park LGE | X | | |

[V] Insun Jang LGE | | | X |

[N] Bo Gong Huawei | | X | | INVALID VOTE: NO MATCH FOUND!

[V] Harry Wang Tencent | | X | | INVALID VOTE: NO MATCH FOUND!

[V] Dongguk Lim LGE | X | | |

[V] Kazuto Yano ATR | | | X |

[V] Jinsoo Choi LGE | X | | |

[V] Yusuke Tanaka Sony | X | | |

[V] Takayuki Nakano Panasonic | | X | |

[V] Yoshio Urabe Panasonic | | X | |

[V] Yifan Zhou Huawei | | X | |

[V] Frank Hsu Mediatek | X | | |

[V]HungTao Hsieh Mediatek | X | | |

[V] Jeongki Kim LGE | | | X |

[V] Dandan Liang | | X | |

[V] Taewon Song LGE | X | | |

[V] Hongjia Su Huawei | | X | |

[V]Chenhe Ji Huawei | | X | |

[V] Myeongjin Kim Samsung | X | | |

[V] Kosuke Aio Sony | X | | |

[PV] Jonghun Han Samsung | X | | | INVALID VOTE: NON VOTER

[V] Jiayin Zhang Huawei | | X | |

[V] Rui Du Huawei | | X | |

[V] Bo Sun ZTE | | | X |

[V] John Son WILUS | | X | |

[V] Yang Bo Huawei | | X | |

[V] Yanjun Sun Qualcomm | X | | |

[V] Ron Porat Broadcom | X | | |

[V] Wook Bong Lee Samsung | X | | |

[V] Cheng Chen Intel | X | | |

[V] James Yee, MediaTek | X | | |

[V] Gaurav Patwardhan HPE | | | X |

[V] Minyoung Park Intel | X | | |

[V] Rui Cao NXP | X | | |

[V] Jon Rosdahl Qualcomm | X | | |

[v] Rolf de Vegt Qualcomm | X | | |

[V] Qi Wang Apple | X | | |

[V] Yong Liu Apple | | | X |

[V] Feng Jiang Apple | | X | |

[V] Brian Petry, Broadcom | X | | |

[V] Na Chen, MaxLinear | X | | |

[V] Nehru Bhandaru Broadcom | X | | |

[V] Qi Xue Qualcomm | X | | |

Matthew Fischer | X | | |

[V] Rui Yang [InterDigital] | | X | |

[V] Edward Au Huawei | | | X |

[V] Carl Kain USDoT/Noblis | | | X |

An Nguyen DHS | | | X |

[V] Osama Aboul-Magd Huawei Technologies | | X | |

[V] Sebastian Max Ericsson | | | X |

[V] VK Jones Qualcomm Inc | X | | |

[V] Dmitry Akhmetov, Intel | X | | |

[V] Srinivas Kandala Samsung | X | | |

[V] Thomas Pare Mediatek | X | | |

[V] Xiaogang Chen Intel | X | | |

[V] Rethna Pulikkoonattu Broadcom | X | | |

[V] Sharan Naribole Samsung | | | X |

[V] Jianhan Liu Meditak Inc. | X | | |