IEEE P802.11  
Wireless LANs

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| TGbe January 2021 to March 2021 Teleconference Minutes | | | | |
| Date: 2021-01-20 | | | | |
| Author(s): | | | | |
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| Liwen Chu | NXP |  |  |  |

Abstract

This document contains the minutes for January 2021 to March 2021 TGbe teleconferences.

Revisions:

* Rev0: First revision of the document. Added minutes of meeting call on Wednesday 20th of January.
* Rev1: Added participation list to the meeting 20th of January. Also fixed some typos, thanks to Dorothy Stanley for providing feedback.
* Rev2: Added minutes on the call on Wednesday 27th of January. Also added references to the meeting calls the 21st and 25th of January.
* Rev3: Added minutes from the call 3rd of February. Thanks to Liwen for taking the minutes. Also added reference to the meeting calls the 28th of January and 1st of February.

# 5th Conf. Call: January 20 (10:00–12:00 ET)–JOINT

1. The Chair, Alfred Asterjadhi (Qualcomm), calls the meeting to order at 9:01 ET. The Chair notifies that the agenda is in [1917r10](https://mentor.ieee.org/802.11/dcn/20/11-20-1917-10-00be-jan-mar-tgbe-teleconference-agendas.docx).

* IEEE 802 and 802.11 IPR policy and procedure
  + **Patent Policy: Ways to inform IEEE:**
    - Cause an LOA to be submitted to the IEEE-SA ([patcom@ieee.org](mailto:patcom@ieee.org)); or
    - Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
    - Speak up now and respond to this Call for Potentially Essential Patents. **Nobody speaks/writes up**.

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

* + **Copyright Policy: Participants are advised that**
    - IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
    - Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy
  + **Patent, Participation, Copyright and policy related subclause:** Please refer to *Patent And Procedures* in [20/1917r10](https://mentor.ieee.org/802.11/dcn/20/11-20-1917-10-00be-jan-mar-tgbe-teleconference-agendas.docx).

1. 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:
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* 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)"
* Attendence reported in IMAT:
* Aboulmagd, Osama Huawei Technologies Co.,  Ltd
* Adhikari, Shubhodeep Broadcom 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
* Bankov, Dmitry IITP RAS
* baron, stephane Canon Research Centre France
* Bredewoud, Albert Broadcom Corporation
* Cao, Rui NXP Semiconductors
* Cariou, Laurent Intel Corporation
* Carney, William Sony Corporation
* Cavalcanti, Dave Intel Corporation
* 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
* Chung, Chulho SAMSUNG
* Coffey, John Realtek Semiconductor Corp.
* Das, Subir Perspecta Labs Inc.
* Derham, Thomas Broadcom Corporation
* de Vegt, Rolf Qualcomm Incorporated
* Ding, Yanyi Panasonic Corporation
* Dong, Xiandong Xiaomi Inc.
* Duan, Ruchen SAMSUNG
* Erceg, Vinko Broadcom Corporation
* Fang, Yonggang Self
* Fischer, Matthew Broadcom Corporation
* Gao, Zhigang Cisco Systems, Inc.
* Ghaderipoor, Alireza MediaTek Inc.
* Ghosh, Chittabrata Intel Corporation
* Gong, Bo Huawei Technologies Co. Ltd
* Gu, Xiangxin Unisoc
* Han, Jonghun SAMSUNG
* Han, Zhiqiang ZTE Corporation
* Handte, Thomas Sony Corporation
* Hart, Brian Cisco Systems, Inc.
* 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
* Huang, Po-Kai Intel Corporation
* Jamalabdollahi, Mohsen Cisco Systems, Inc.
* Jang, Insun LG ELECTRONICS
* Kain, Carl USDoT
* kamath, Manoj Broadcom Corporation
* Kamel, Mahmoud InterDigital, Inc.
* Kandala, Srinivas SAMSUNG
* Kedem, Oren Huawei Technologies Co. Ltd
* Khorov, Evgeny IITP RAS
* Kim, Myeong-Jin SAMSUNG
* kim, namyeong LG ELECTRONICS
* Kim, Sang Gook LG ELECTRONICS
* Kim, Sanghyun WILUS Inc
* Kim, Youn-Kwan Sync Techno
* Kishida, Akira Nippon Telegraph and Telephone Corporation (NTT)
* Klein, Arik Huawei Technologies Co. Ltd
* Kneckt, Jarkko Apple, Inc.
* Kwon, Young Hoon NXP Semiconductors
* Lalam, Massinissa SAGEMCOM BROADBAND SAS
* Lansford, James Qualcomm Incorporated
* Lee, Wookbong SAMSUNG
* Levitsky, Ilya IITP RAS
* Li, Yunbo Huawei Technologies Co., Ltd
* Lim, Dong Guk LG ELECTRONICS
* Liu, Yong Apple, Inc.
* Lopez, Miguel Ericsson AB
* Lorgeoux, Mikael Canon Research Centre France
* Lou, Hanqing InterDigital, Inc.
* Lu, kaiying MediaTek Inc.
* Lu, Liuming Guangdong OPPO Mobile Telecommunications Corp.,Ltd
* Lumbatis, Kurt CommScope, Inc.
* Lv, Lily Huawei Technologies Co. Ltd
* Ma, Li MediaTek Inc.
* Ma, Mengyao HUAWEI
* Martinez Vazquez, Marcos MaxLinear Corp
* Max, Sebastian Ericsson AB
* McCann, Stephen Huawei Technologies Co.,  Ltd
* Memisoglu, Ebubekir Istanbul Medipol University; Vestel
* Monajemi, Pooya Cisco Systems, Inc.
* Montemurro, Michael Huawei Technologies Co. Ltd
* Montreuil, Leo Broadcom Corporation
* Ng, Boon Loong Samsung Research America
* noh, yujin Newracom Inc.
* Ozbakis, Basak VESTEL
* Park, Eunsung LG ELECTRONICS
* Park, Minyoung Intel Corporation
* Patil, Abhishek Qualcomm Incorporated
* Patwardhan, Gaurav Hewlett Packard Enterprise
* Petrick, Albert InterDigital, Inc.
* Raissinia, Alireza Qualcomm Incorporated
* Reshef, Ehud Intel Corporation
* Rosdahl, Jon Qualcomm Technologies, Inc.
* Salman, Hanadi Istanbul Medipol University; VESTEL
* Sambasivan, Sam AT&T
* Schelstraete, Sigurd ON Semiconductor
* Sedin, Jonas Ericsson AB
* Sevin, Julien Canon Research Centre France
* Shellhammer, Stephen Qualcomm Incorporated
* Shilo, Shimi HUAWEI
* SUH, JUNG HOON Huawei Technologies Co. Ltd
* Sun, Bo ZTE Corporation
* Sundman, Dennis Ericsson AB
* Tanaka, Yusuke Sony Corporation
* Tian, Bin Qualcomm Incorporated
* Torab Jahromi, Payam Facebook
* Tsodik, Genadiy Huawei Technologies Co. Ltd
* Van Zelst, Allert Qualcomm Incorporated
* Varshney, Prabodh Nokia
* Verenzuela, Daniel Sony Corporation
* VIGER, Pascal Canon Research Centre France
* Wang, Chao Chun MediaTek Inc.
* wang, haifei Huawei Technologies Co., Ltd
* Wang, Hao Tencent
* Wang, Lei Futurewei Technologies
* Wang, Qi Apple, Inc.
* Wentink, Menzo Qualcomm
* Wilhelmsson, Leif Ericsson AB
* Wu, Tianyu Apple, Inc.
* Wullert, John Perspecta Labs
* Xiao, Bo ZTE Corporation
* 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
* Zeng, Yan Huawei Technologies Co.,  Ltd
* Zhang, Yan NXP Semiconductors
* Zhou, Pei Guangdong OPPO Mobile Telecommunications Corp.,Ltd
* Zuo, Xin Tencent
* Attendence reported through e-mail:
  + Palayur, Saju MaxLinear

1. Approval of agenda.
   * The contribution 1247 to be added to the list of technical submissions.
   * Some updates to the editor status report.
   * Agenda approved with unanimous consent.
2. Announcements:
   * TGbe D0.3. is now available in the members area:
     + <https://www.ieee802.org/11/private/Draft_Standards/11be/index.html>
   * CC34 - IEEE 802.11 P802.11be Comment Collection is now open (ends Feb. 03)
     + <https://mentor.ieee.org/802.11/poll-vote?p=46800008&t=46800008>
   * Reminder:
     + There are no motions to add to TGbe SFD for R1 after D0.3 is released
       1. I.e., SPs may be ran, and expected to be included in the compendium of SPs but no motion will be ran to add to TGbe SFD
3. TGbe Editor Status Report/Updates:
   * [997r85](https://mentor.ieee.org/802.11/dcn/20/11-20-0997-85-00be-tgbe-spec-text-volunteers-and-status.docx) Volunteers and Status; 20/[1935r11](https://mentor.ieee.org/802.11/dcn/20/11-20-1935-11-00be-compendium-of-straw-polls-and-potential-changes-to-the-specification-framework-document-part-2.docx) Compendium of SPs–Part 2; [1262r23](https://mentor.ieee.org/802.11/dcn/19/11-19-1262-23-00be-specification-framework-for-tgbe.docx) TGbe SFD.
   * Edward goes through [19/1935r1](https://mentor.ieee.org/802.11/dcn/19/11-19-1935-01-00be-tgbe-editor-s-report.ppt)
4. Technical Submissions: **Proposed Draft Text (PDTs) for fixings TBDs**
   * [0011r2](https://mentor.ieee.org/802.11/dcn/21/11-21-0011-02-00be-proposed-draft-text-pdt-joint-spatial-stream-and-mimo-protocol-enhancement-part-2.docx) Spatial Stream and MIMO Protocol Enhancement Part 2, Wook Bong Lee
     + Some discussion regarding NDP Announcement frame: whether it includes bandwidth indication, puncturing information.
5. Technical Submissions:
   * [**0043r1**](https://mentor.ieee.org/802.11/dcn/21/11-21-0043-01-00be-eht-ltf-related-signaling-in-enhanced-trigger-frame.pptx) **EHT-LTF related signaling in enhanced trigger frame Lei Huang**

Summary: The authors argue that the number of HE-LTF and EHT-LTF symbols may not always be the same for A-PPDU. To that end they propose to signal the number of LTF information in the EHT TB PPDU.

Discussion:

C: A-PPDU is an R2 feature. Therefore, I propose we go with the current design for R1.

A: My concern is that if we wait until R2 to discuss this, we may need to have different hardware for R1 and R2.

C: If they have different number of symbols, the symbol boundry may not be aligned.

A: I think the LTF needs to be same size of OFDM symbol.

C: Why do you want them to be different number of LTF symbols?

A: I believe the flexibility is good.

C: I don’t see a strong benefit to have different number of LTFs, but I see complexity concerns with introducing this.

A: I see your point. How about for the MU-PPDU?

C: I need to doublecheck this, but at least for TB PPDU this is just too complex.

C: I am not sure it is a good idea to mix data with LTF which may be the case if there are different number of LTFs. I would need to think more about this.

A: Ok.

* + [**0057r2**](https://mentor.ieee.org/802.11/dcn/21/11-21-0057-02-00be-discussion-on-special-user-info-field-of-trigger-frame.pptx) **Discussion on special user info field of trigger frame Lei Huang**

Summary: The authors propose to move the 2-bit PPDU Bandwidth Extension subfield to the common info field in order to minimize the overhead of the enhanced MU-RTS trigger frame.

*Straw poll deferred.*

* + [**0095r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-0095-00-00be-phy-related-agreements-for-sst.pptx) **PHY-related agreements for SST Sigurd Schelstraete**

Summary: The authors have identified that for SST to extend to EHT, the full definition needs to be revised.

**SP1**

Do you agree that:

* for an 80 MHz operating STA that is assigned (by the AP) a non-primary 80 MHz channel in a 160 MHz or 320 MHz EHT MU PPDU (if such operation is defined), SST shall define a “guaranteed non-punctured 20 MHz channel” in that non-primary 80 MHz channel.

Discussion:

C: Is this channel supposed to be the same for all 80 MHz STAs?

A: It wouldn’t have to be strictly the same.

C: This cannot be mandatory since it’s not part of R1.

A: Yes and this is just an agreement so we can address it later.

C: I want to commit to SST 80 MHz for R1. So I want that to be super clear.

C: Maybe we can update the text to something that “do you agree that when we define…”?

A: We can add a note SST in non-primary 80 MHz is an R2 feature.

C: How come option 3 was chosen?

A: The other options has some drawbacks.

C: Do we really need the dynamic puncturing mode?

*Some updates on the text*

*Further lengthy discussions on the SP1 text.*

**New text:**

Do you agree that:

* for an 80 MHz operating STA supporting SST that is assigned (by the AP) a non-primary 80 MHz channel in a 160 MHz or 320 MHz EHT MU PPDU using SST, the STA shall have already received at least one “guaranteed non-punctured 20 MHz channel” from the AP within the non-primary 80 MHz.
* Note: SST in non-primary 80 MHz is an agreed R2 feature

SP1 not run.

1. Adjourn at 11:00.

# 6th Conf. Call: January 21 (10:00–12:00 ET)

This was a split call between PHY and MAC:

* PHY: <https://mentor.ieee.org/802.11/dcn/21/11-21-0138-03-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-january-march-2021.docx>
* MAC: N/A at this point.

# 7th Conf. Call: January 25 (10:00–12:00 ET)

This was a split call between PHY and MAC:

* PHY: <https://mentor.ieee.org/802.11/dcn/21/11-21-0138-03-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-january-march-2021.docx>
* MAC: N/A at this point.

# 8th Conf. Call: January 27 (10:00–12:00 ET)–JOINT

1. The Chair, Alfred Asterjadhi (Qualcomm), calls the meeting to order at 9:01 ET. The Chair notifies that the agenda is in [1917r13](https://mentor.ieee.org/802.11/dcn/20/11-20-1917-13-00be-jan-mar-tgbe-teleconference-agendas.docx).
2. IEEE 802 and 802.11 IPR policy and procedure
   1. **Patent Policy: Ways to inform IEEE:**
      * Cause an LOA to be submitted to the IEEE-SA ([patcom@ieee.org](mailto:patcom@ieee.org)); or
      * Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      * Speak up now and respond to this Call for Potentially Essential Patents. **Nobody speaks/writes up**.

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

* 1. **The Chair goes through: Copyright Policy: Participants are advised that**
     + IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
     + Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy
  2. **The Chair goes through: Patent, Participation, Copyright and policy related subclause:** Please refer to *Patent And Procedures* in [20/1917r13](https://mentor.ieee.org/802.11/dcn/20/11-20-1917-13-00be-jan-mar-tgbe-teleconference-agendas.docx).

1. Attendance reminder.

* Participation slide: <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0180-05-00EC-ieee-802-participation-slide.pptx>
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* 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)"
* Attendence reported in IMAT:
* Aboulmagd, Osama Huawei Technologies Co., Ltd
* An, Song-Haur INDEPENDENT
* Anwyl, Gary MediaTek Inc.
* Asterjadhi, Alfred Qualcomm Incorporated
* B, Hari Ram NXP Semiconductors
* Baek, SunHee LG ELECTRONICS
* Bankov, Dmitry IITP RAS
* baron, stephane Canon Research Centre France
* Bravo, Daniel Intel Corporation
* Bredewoud, Albert Broadcom Corporation
* Carney, William Sony Corporation
* 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
* Coffey, John Realtek Semiconductor Corp.
* Das, Subir Perspecta Labs Inc.
* Derham, Thomas Broadcom Corporation
* 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.
* Ghosh, Chittabrata Intel Corporation
* Gong, Bo Huawei Technologies Co. Ltd
* Gu, Xiangxin Unisoc
* Han, Jonghun SAMSUNG
* Han, Zhiqiang ZTE Corporation
* Handte, Thomas Sony Corporation
* Hart, Brian Cisco Systems, Inc.
* Hervieu, Lili Cable Television Laboratories Inc. (CableLabs)
* Ho, Duncan Qualcomm Incorporated
* Hong, Hanseul WILUS Inc.
* Hsieh, Hung-Tao MediaTek Inc.
* Hu, Chunyu Facebook
* Huang, Lei Guangdong OPPO Mobile Telecommunications Corp.,Ltd
* Huang, Po-Kai Intel Corporation
* Jamalabdollahi, Mohsen Cisco Systems, Inc.
* Jang, Insun LG ELECTRONICS
* Kain, Carl USDoT
* Kakani, Naveen Qualcomm Incorporated
* Kamel, Mahmoud InterDigital, Inc.
* Kandala, Srinivas SAMSUNG
* 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
* Kim, Youhan Qualcomm Incorporated
* Kim, Youn-Kwan Sync Techno
* 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
* Lalam, Massinissa SAGEMCOM BROADBAND SAS
* Lansford, James Qualcomm Incorporated
* Lee, Hong Won LG ELECTRONICS
* Lee, Nancy Signify
* Lee, Wookbong SAMSUNG
* Levitsky, Ilya IITP RAS
* Levy, Joseph InterDigital, Inc.
* Li, Yunbo Huawei Technologies Co., Ltd
* Lim, Dong Guk LG ELECTRONICS
* lim, taesung LG ELECTRONICS
* Liu, Jianhan MediaTek Inc.
* Liu, Yong Apple, Inc.
* Lorgeoux, Mikael Canon Research Centre France
* Lou, Hanqing InterDigital, Inc.
* Lu, kaiying MediaTek Inc.
* Lu, Liuming Guangdong OPPO Mobile Telecommunications Corp.,Ltd
* Lumbatis, Kurt CommScope, Inc.
* Ma, Li MediaTek Inc.
* Max, Sebastian Ericsson AB
* McCann, Stephen Huawei Technologies Co., Ltd
* Monajemi, Pooya Cisco Systems, Inc.
* Montemurro, Michael Huawei Technologies Co. Ltd
* Montreuil, Leo Broadcom Corporation
* Naik, Gaurang Qualcomm Incorporated
* Nezou, Patrice Canon Research Centre France
* Ng, Boon Loong Samsung Research America
* Ozbakis, Basak VESTEL
* Palayur, Saju Maxlinear Inc
* Park, Eunsung LG ELECTRONICS
* Park, Minyoung Intel Corporation
* Patil, Abhishek Qualcomm Incorporated
* Patwardhan, Gaurav Hewlett Packard Enterprise
* Petrick, Albert InterDigital, Inc.
* Pushkarna, Rajat Panasonic Asia Pacific Pte Ltd.
* Raissinia, Alireza Qualcomm Incorporated
* Redlich, Oded HUAWEI
* Reshef, Ehud Intel Corporation
* RISON, Mark Samsung Cambridge Solution Centre
* Roder, Patricia IEEE STAFF
* Rosdahl, Jon Qualcomm Technologies, Inc.
* Schelstraete, Sigurd ON Semiconductor
* Sedin, Jonas Ericsson AB
* Sethi, Ankit NXP Semiconductors
* Sevin, Julien Canon Research Centre France
* Shellhammer, Stephen Qualcomm Incorporated
* Shilo, Shimi HUAWEI
* Solaija, Muhammad Sohaib Istanbul Medipol University; Vestel
* Stanley, Dorothy Hewlett Packard Enterprise
* SUH, JUNG HOON Huawei Technologies Co. Ltd
* Sun, Li-Hsiang Sony Corporation
* Tian, Bin Qualcomm Incorporated
* Torab Jahromi, Payam Facebook
* Tsodik, Genadiy Huawei Technologies Co. Ltd
* Tsujimaru, Yuki Canon Inc.
* Van Zelst, Allert Qualcomm Incorporated
* Varshney, Prabodh Nokia
* Verenzuela, Daniel Sony 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 Futurewei Technologies
* Wentink, Menzo Qualcomm
* Wilhelmsson, Leif Ericsson AB
* Wu, Kanke Qualcomm Incorporated
* Wullert, John Perspecta Labs
* Xiao, Bo ZTE Corporation
* Yang, Bo Huawei Technologies Co. Ltd
* Yang, Jay Nokia
* Yang, Steve TS MediaTek Inc.
* Yano, Kazuto Advanced Telecommunications Research Institute International (ATR)
* yi, yongjiang Futurewei Technologies
* Yu, Jian Huawei Technologies Co., Ltd
* Zhang, Yan NXP Semiconductors
* Zhou, Pei Guangdong OPPO Mobile Telecommunications Corp.,Ltd
* Zuo, Xin Tencent
* Reportet through e-mail:
* Au, Edward Huawei Technologies Co., Ltd

1. The Chair goes through announcements:
   * CC34-IEEE 802.11 P802.11be Comment Collection is now open (ends Feb. 03)
     + <https://mentor.ieee.org/802.11/poll-vote?p=46800008&t=46800008>
     + Clarifications: Members are not expected to submit comments targeting TBDs since they are expected to be solved via the existing PDT process. However, it is okay for members to submit comments identifying issues within the same subclause as a TBD or provide a preference on how to solve a TBD. If the TBD is solved by the time the comments are available then the resolution to that comment can reference directly the PDT where the TBD is solved.
   * The Chair asks if there are any discussion on the comments collection. Nobody speaks/writes up.
2. The Chair goes through the agenda.
   * C: Can we ad 11r6 to the agenda?
   * A: Ok.
   * C: I want to run a straw poll in 57r2, trigger frame special user field.
   * A: Ok added to the agenda.
   * C: Can you add 1399r1 to the agenda?
   * A: Ok.
   * C: Minor thing 95 should be r1.
   * A: Ok.
   * *Agenda approved with unanimous consent.*
3. TGbe Editor Status Report/Updates
   * Not much to report.
4. Technical Submissions: Proposed Draft Text (PDTs) for fixings TBDs
   * [**11r6**](https://mentor.ieee.org/802.11/dcn/21/11-21-0011-06-00be-proposed-draft-text-pdt-joint-spatial-stream-and-mimo-protocol-enhancement-part-2.docx) **Proposed Draft Text (PDT-Joint): Spatial Stream and MIMO Protocol Enhancement Part 2 Wook Bong Lee**

Summary: Report on updates to the spatial streams and MIMO protocol spec text.

*Various details are being modified in the document. The modifications will be in r7.*

*The Chair asks if there is any objection to accepting 11r7? 🡪 No objection.*

* + [**137r9**](https://mentor.ieee.org/802.11/dcn/21/11-21-0137-00-00be-proposed-draft-text-pdt-joint-fix-tbds-in-spatial-stream-and-mimo-protocol-enhancement-part-1.docx) **Proposed Draft Text (PDT-Joint): Fix TBDs in Spatial Stream and MIMO Protocol Enhancement Part 1 Wook Bong Lee**

Summary: Report on updates to the spatial streams and MIMO protocol spec text.

*Some updates on the text. Further modifications will be made to the document offline.*

*Some clarification: Space-time streams are changed to spatial stream because there are no space time block codes in EHT.*

1. Technical submissions:
   * [**0095r1**](https://mentor.ieee.org/802.11/dcn/21/11-21-0095-01-00be-phy-related-agreements-for-sst.pptx) **PHY-related agreements for SST Sigurd Schelstraete [SPs]**

SP1 text updated since previous call:

* **Do you agree that:** 
  + for an 80 MHz operating STA supporting SST that is assigned (by the AP) a non-primary 80 MHz channel in a 160 MHz or 320 MHz EHT MU PPDU using SST, the STA shall have already received at least one "guaranteed non-punctured 20 MHz channel" from the AP within the non-primary 80 MHz.
  + Notes:
    - SST in non-primary 80 MHz is an agreed R2 feature
    - ways of informing the STA (signaling, static information, …) are TBD

Discussion:

C: Can you change to “,… the STA shall already know al least one…”

A: Ok.

C: What about the trigger frame?

A: You are right that we may need to do something for non-HT duplicate trigger frames.

C: Is this for the SFD? Can it explicitly state that?

A: Ok, updating text.

C: Maybe we can change the SST to enhanced or extended SST?

C: SST is already present in R1 (because it’s in the spec). However this extension is for R2.

C: Previously it was clear we were going to do this in R2. Now it could end up in R1.

New text:

* **Do you agree to add the following to the SFD:** 
  + for an 80 MHz operating STA supporting SST that is assigned (by the AP) a non-primary 80 MHz channel in a 160 MHz or 320 MHz EHT MU PPDU using SST, the STA shall have known at least one "guaranteed non-punctured 20 MHz channel" from the AP within the non-primary 80 MHz.

Straw poll deferred to next meeting.

* + [**57r2**](https://mentor.ieee.org/802.11/dcn/21/11-21-0057-02-00be-discussion-on-special-user-info-field-of-trigger-frame.pptx) **Discussion on Special User Info field of Trigger Frame Lei Huang**

**SP1:**

Do you agree the 2-bit PPDU Bandwidth Extension subfield in the Special User Info field of Trigger frame is moved to the common info field which uses 2 bits of the UL HE-SIG-A2 Reserved subfield?

Discussion:

C: I would prefer to not do this for all types.

C: I think with the information in the RU allocation is already sufficient. So I don’t think we need a special user info field.

C: Is your intention not to include the special user info field in MU-RTS frame?

A: Yes.

Further extensive discussion about the text formulation.

New text:

* + - SP1 0057r2: Do you agree the MU-RTS trigger frame does not include special user info field
      * Signaling of PPDU BW is TBD
      * The Spacial User Info field is identified by AID12 set to 2007

1. AoB: None.
2. Adjourned at 10:59.

# 9th Conf. Call: January 28 (19:00–22:00 ET)

This was a split call between PHY and MAC:

* PHY: <https://mentor.ieee.org/802.11/dcn/21/11-21-0138-03-00be-minutes-802-11-be-phy-ad-hoc-telephone-conferences-january-march-2021.docx>
* MAC: N/A at this point.

# 10th Conf. Call: February 01 (19:00–22:00 ET)

This was a split call between PHY and MAC:

* PHY: Cancelled.
* MAC: N/A at this point.

# 11th Conf. Call: February 03 (10:00–12:00 ET)–JOINT

Chairman: Alfred (Qualcomm)

Secretary: Liwen Chu (NXP)

This meeting took place using a webex session.

**Introduction**

1. The Chair (Alfred, Qualcomm) calls the meeting to order at 10:01am EDT. The Chair introduces himself and the Secretary, Liwen (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents.
   1. Nobody responds.
3. The Chair goes through the IEEE copyright policy, and patent and procedures.
4. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imat](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com)) and Alfred Asterjadhi ([aasterja@qti.qualcomm.com](mailto:aasterja@qti.qualcomm.com))
   * Attendance reported in IMAT:
   * Aboulmagd, Osama Huawei Technologies Co., Ltd
   * Adhikari, Shubhodeep Broadcom Corporation
   * Akhmetov, Dmitry Intel Corporation
   * Ansley, Carol IEEE member / Self Employed
   * Anwyl, Gary MediaTek Inc.
   * Asterjadhi, Alfred Qualcomm Incorporated
   * Au, Kwok Shum Huawei Technologies Co., Ltd
   * B, Hari Ram NXP Semiconductors
   * Baek, SunHee LG ELECTRONICS
   * Bankov, Dmitry IITP RAS
   * baron, stephane Canon Research Centre France
   * Cao, Rui NXP Semiconductors
   * Cariou, Laurent Intel Corporation
   * Carney, William Sony Corporation
   * Cheng, Paul MediaTek Inc.
   * Chitrakar, Rojan Panasonic Asia Pacific Pte Ltd.
   * Choi, Jinsoo LG ELECTRONICS
   * Choo, Seungho Senscomm Semiconductor Co., Ltd.
   * Chung, Chulho SAMSUNG
   * Coffey, John Realtek Semiconductor Corp.
   * Das, Subir Perspecta Labs Inc.
   * Derham, Thomas Broadcom Corporation
   * de Vegt, Rolf Qualcomm Incorporated
   * Ding, Yanyi Panasonic Corporation
   * Dong, Xiandong Xiaomi Inc.
   * Duan, Ruchen SAMSUNG
   * Erceg, Vinko Broadcom Corporation
   * Fang, Yonggang Self
   * feng, Shuling MediaTek Inc.
   * Ghosh, Chittabrata Intel Corporation
   * Gong, Bo Huawei Technologies Co. Ltd
   * Han, Jonghun SAMSUNG
   * Han, Zhiqiang ZTE Corporation
   * Hart, Brian Cisco Systems, Inc.
   * Hervieu, Lili Cable Television Laboratories Inc. (CableLabs)
   * Ho, Duncan Qualcomm Incorporated
   * Hong, Hanseul WILUS Inc.
   * Hsieh, Hung-Tao MediaTek Inc.
   * Huang, Guogang HUAWEI
   * Huang, Po-Kai Intel Corporation
   * Jamalabdollahi, Mohsen Cisco Systems, Inc.
   * Jeon, Eunsung SAMSUNG ELECTRONICS
   * JONES, JEFFRUM Qorvo
   * Kakani, Naveen Qualcomm Incorporated
   * Kamel, Mahmoud InterDigital, Inc.
   * 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
   * Kim, Youhan Qualcomm Incorporated
   * Kim, Youn-Kwan Sync Techno
   * Kishida, Akira Nippon Telegraph and Telephone Corporation (NTT)
   * Klein, Arik Huawei Technologies Co. Ltd
   * Ko, Geonjung WILUS Inc.
   * Kondo, Yoshihisa Advanced Telecommunications Research Institute International (ATR)
   * Kwon, Young Hoon NXP Semiconductors
   * Lalam, Massinissa SAGEMCOM BROADBAND SAS
   * Lansford, James Qualcomm Incorporated
   * Lee, Hong Won LG ELECTRONICS
   * Lee, Nancy Signify
   * Lee, Wookbong SAMSUNG
   * Levitsky, Ilya IITP RAS
   * Levy, Joseph InterDigital, Inc.
   * Li, Yiqing Huawei Technologies Co. Ltd
   * Lim, Dong Guk LG ELECTRONICS
   * Liu, Jianhan MediaTek Inc.
   * Liu, Yong Apple, Inc.
   * Lorgeoux, Mikael Canon Research Centre France
   * Lou, Hanqing InterDigital, Inc.
   * Lu, kaiying MediaTek Inc.
   * Lu, Liuming Guangdong OPPO Mobile Telecommunications Corp.,Ltd
   * Lumbatis, Kurt CommScope, Inc.
   * Ma, Mengyao HUAWEI
   * Martinez Vazquez, Marcos MaxLinear Corp
   * Max, Sebastian Ericsson AB
   * McCann, Stephen Huawei Technologies Co., Ltd
   * Memisoglu, Ebubekir Istanbul Medipol University; Vestel
   * Montemurro, Michael Huawei Technologies Co. Ltd
   * Naik, Gaurang Qualcomm Incorporated
   * Nezou, Patrice Canon Research Centre France
   * Ng, Boon Loong Samsung Research America
   * Ouchi, Masatomo Canon
   * Ozbakis, Basak VESTEL
   * Ozpoyraz, Burak Vestel
   * Park, Minyoung Intel Corporation
   * Patil, Abhishek Qualcomm Incorporated
   * Patwardhan, Gaurav Hewlett Packard Enterprise
   * Petrick, Albert InterDigital, Inc.
   * Raissinia, Alireza Qualcomm Incorporated
   * Redlich, Oded HUAWEI
   * Reshef, Ehud Intel Corporation
   * RISON, Mark Samsung Cambridge Solution Centre
   * Rosdahl, Jon Qualcomm Technologies, Inc.
   * Schelstraete, Sigurd ON Semiconductor
   * Sedin, Jonas Ericsson AB
   * Sethi, Ankit NXP Semiconductors
   * Sevin, Julien Canon Research Centre France
   * Shaari, Firas Comcast
   * Shafin, Rubayet Samsung Research America
   * Shellhammer, Stephen Qualcomm Incorporated
   * Shilo, Shimi HUAWEI
   * Solaija, Muhammad Sohaib Istanbul Medipol University; Vestel
   * SUH, JUNG HOON Huawei Technologies Co. Ltd
   * Sun, Bo ZTE Corporation
   * Sun, Li-Hsiang Sony Corporation
   * Tian, Bin Qualcomm Incorporated
   * Torab Jahromi, Payam Facebook
   * Tsodik, Genadiy Huawei Technologies Co. Ltd
   * Urabe, Yoshio Panasonic Corporation
   * Van Zelst, Allert Qualcomm Incorporated
   * Varshney, Prabodh Nokia
   * Verenzuela, Daniel Sony Corporation
   * VIGER, Pascal Canon Research Centre France
   * Wang, Chao Chun MediaTek Inc.
   * Wang, Hao Tencent
   * Wang, Huizhao Quantenna Communications, Inc.
   * Wang, Lei Futurewei Technologies
   * Wang, Qi Apple, Inc.
   * Wu, Tianyu Apple, Inc.
   * Wullert, John Perspecta Labs
   * Xiao, Bo ZTE Corporation
   * 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
   * Yoon, Jeonghwan LG ELECTRONICS
   * Zhang, Yan NXP Semiconductors
   * Zhou, Pei Guangdong OPPO Mobile Telecommunications Corp.,Ltd
   * Zhou, Yifan Huawei Technologies Co., Ltd
   * Zuo, Xin Tencent
5. TGbe Editor Status Report/Updates

The chair announced the comment collection about 11be draft. If the comment can’t be submitted, the comment can be sent to WG chair.

The editor asked to add a meeting to discuss the comment allocation, separate PHY/MAC comments, and let MAC/PHY chair to allocate the comments.

Chair replied that TGbe Editor and TGbe chair will work to assign CIDs on a POC/topic basis. Members can request the CIDs. During the MAC/PHY ad-hoc Monday conference calls each ad-hoc chair to go over the comment list.

After the discussion, the chair announced the cancellation of Feb 10 teleconference.

1. The Chair went through today’s presentation list. SP in 53r2 was deferred per the request. 95 was updated to r2. The modified agenda was approved.
2. TGbe Editor Status Report/Updates [10 mins]

The technical editor announced that there are still several unassigned motions. If the motions belong to TTT, it is better the POC to take them.

The chair asked the POC to review the unassigned document and take them.

The editor would like to change link latency to R2 and confirm with the TG today.

C: by default, it will be in R2.

The chair confirmed that the comment is correct.

Editor asked whether the group has any comments. No comment was received. The change is confirmed.

1. [1961r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1961-02-00be-release-guidelines-an-overview.pptx) Follow up on Release Guidelines-An Overview [Follow Up]

The chair went through the new three slides 11 to 13 in 1961r2.

Q: is it normal to let D1.0 available?

A: when SP passed the WG letter ballot, D1.0 will be available.

Q: If D1.0 is available, should it be mentioned that the draft is not stable.

A: It is always the case that the draft is under change.

Q: Will you do WG ballot for D1.0 or D3.0?

A: will run a SP about whether the LB will be on D1.0 or D2.0.

SP1: which option do you prefer for TGbe D1.0 and TGbe D2.0:

Option 1: Run a working group letter ballot motion

Option 2: Run a working group comment collection motion

Option 3: Abstain

42Option1, 53Option2, 67Abstain

**Submissions**

1. [**0011r8**](https://mentor.ieee.org/802.11/dcn/21/11-21-0011-08-00be-proposed-draft-text-pdt-joint-spatial-stream-and-mimo-protocol-enhancement-part-2.docx) **Spatial Stream and MIMO Protocol Enhancement Part 2 Wook Bong Lee [SP]**

The author went through the changes in 0011r8.

Q: 3\*996+484 is missing

A: agreed. The table is moved to document 137. Will add the missed part in the table.

Q: How many in total of segments.

A: don’t know for now.

Q: why do you put three reserved bits before segment number in MIMO control.

A: just allocate three bits now. Can do some calculation per 320MHz and 16 SS.

SP:

Do you agree to incorporate changes as instructed in 11/21-11r9 to the Tgbe draft?

No objection.

Wookbone asked to change the order to present 137 after 95. No objection.

1. [**0095r1**](https://mentor.ieee.org/802.11/dcn/21/11-21-0095-01-00be-phy-related-agreements-for-sst.pptx) **PHY-related agreements for SST Sigurd Schelstraete [2 SPs]**

SP1discusison:

C: worry that some people take this SP to put SST in R1.

A: change note to clarify SST in R1 is not agreement per this SP.

C: first bullet in note is ok. SST is available today. The channel puncture should be mentioned.

C: change to “depends on whether and how SST is defined in R1”.

C: should remove the might not of the first bullet of note.

SP1 (updated per the discussion)

**Do you agree that:**

for an 80 MHz operating STA supporting SST that is assigned (by the AP) a non-primary 80 MHz channel in a 160 MHz or 320 MHz EHT MU PPDU using SST, the STA shall have prior knowledge of at least one "guaranteed non-punctured 20 MHz channel" from the AP within the non-primary 80 MHz.

Notes:

* + - Whether this agreement applies to R1 depends on whether SST operation in non-primary 80 MHz with preamble puncturing is defined in R1
    - SST in non-primary 160 MHz is an agreed R2 feature
    - ways of informing the STA (signaling, static information, …) are TBD

63Y, 27N, 34A

SP2 discussion:

C: how about non primary 80MHz?

A: this is about 160MHz STA.

SP2 was deferred.

1. [**0137r3**](https://mentor.ieee.org/802.11/dcn/21/11-21-0137-01-00be-proposed-draft-text-pdt-joint-fix-tbds-in-spatial-stream-and-mimo-protocol-enhancement-part-1.docx) **Fix TBDs in SS & MIMO Protocol Enhancement Part 1 Wook Bong Lee**

The author went through the changes. Based on the discussion some **Partial BW Info subfield values** under 2\*996+484 were updated.

SP

Do you agree to incorporate changes as instructed in 11/21-147r4 to the Tgbe draft?

No objection.

The chair asked wheterhe there are any other business. No response.

The teleconference was adjourned at 11:56am