IEEE P802.11  
Wireless LANs

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| Minutes for TGbn MAC Ad-Hoc Teleconferences in November 2024 to January 2025 | | | | |
| Date: 2024-12-05 | | | | |
| Author(s): | | | | |
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|  |  |  |  |  |

Abstract

This document contains the minutes for the TGbn MAC ad hoc teleconferences in November 2024 to January 2025.

Revisions:

* Rev0: Added the minute from the MAC ad hoc teleconference held on Dec 5 and 9.
* Rev1: Added the minute from the MAC ad hoc teleconference held on Dec 12 and 16.
* Rev2: Added the minute from the MAC ad hoc teleconference held on Jan 6 and 9.

### Dec 5, 2024 (TGbn MAC ad hoc teleconference)

Chairman: Srinivas Kandala (Samsung)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex.

**Introduction**

1. The Chair (Srinivas Kandala, Samsung) calls the meeting to order at 10:00am ET. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
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.
   1. **Copyright Policy: Participants are advised that**
      1. IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html" \l "7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
      2. Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy
4. The Chair recommends using IMAT for recording the attendance.
   1. 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 “TGbn <MAC/PHY/Joint> conference call that you are attending.
   2. If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Srinivas Kandala ([srini.k1@samsung.com](mailto:srini.k1@samsung.com)), Jeongki Kim ([jeongki.kim.ieee@gmail.com](mailto:jeongki.kim.ieee@gmail.com)), and Xiaofei Wang ([xiaofei.wang@interdigital.com](mailto:xiaofei.wang@interdigital.coma))

Recorded attendance

    Timestamp                          Name                                        Affiliation  
Breakout                                                                                                
TGbn (MAC)  12/05/2024                  Yang, Haorui                                       China Mobile  
TGbn (MAC)  12/05/2024                     Yang, Jay                                    ZTE Corporation  
TGbn (MAC)  12/05/2024                  Yano, Kazuto  Advanced Telecommunications Research Institute...  
TGbn (MAC)  12/05/2024                    Yee, James                                      MediaTek Inc.  
TGbn (MAC)  12/05/2024                   Yoon, Yelin                                     LG ELECTRONICS  
TGbn (MAC)  12/05/2024                  Zhang, Jiayi                                             Ofinno  
TGbn (MAC)  12/05/2024            Zhang, Lyutianyang                      Huawei Technologies Co., Ltd.  
TGbn (MAC)  12/05/2024                 Zhou, Huixuan  Guangdong OPPO Mobile Telecommunications Corp....  
TGbn (MAC)  12/05/2024                zhang, zhigang                                    ZTE Corporation  
TGbn (MAC)  12/05/2024                     Zhao, Yue                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/05/2024                     Zhou, Pei                                                TCL  
TGbn (MAC)  12/05/2024                 Zhou, Renlong                     Sanechips Technology Co., Ltd.  
TGbn (MAC)  12/05/2024           Zuniga, Juan Carlos                                Cisco Systems, Inc.  
TGbn (MAC)  12/05/2024                    Yang, Hang                          Ruijie Networks Co., Ltd.  
TGbn (MAC)  12/05/2024                 Zhang, Maolin                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/05/2024               Yan, Zhongjiang              Northwestern Polytechnical University  
TGbn (MAC)  12/05/2024                 Smith, Luther     Cable Television Laboratories Inc. (CableLabs)  
TGbn (MAC)  12/05/2024                     Xia, Qing                                   Sony Corporation  
TGbn (MAC)  12/05/2024                  Scott, David                                Cisco Systems, Inc.  
TGbn (MAC)  12/05/2024              Shabdanov, Samat                                           Mediatek  
TGbn (MAC)  12/05/2024                 Shi, Zhenpeng                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/05/2024                  Singh, Aditi                             Charter Communications  
TGbn (MAC)  12/05/2024                 Son, Ju-Hyung                                         WILUS Inc.  
TGbn (MAC)  12/05/2024                Sung, Hyeonjun                                         WILUS Inc.  
TGbn (MAC)  12/05/2024           Talarico, Salvatore                                 Nokia Technologies  
TGbn (MAC)  12/05/2024                Tanaka, Yusuke                                   Sony Corporation  
TGbn (MAC)  12/05/2024               Tsujimaru, Yuki                                              Canon  
TGbn (MAC)  12/05/2024                 Urabe, Yoshio                     Panasonic Holdings Corporation  
TGbn (MAC)  12/05/2024             Varshney, Prabodh                                              Nokia  
TGbn (MAC)  12/05/2024                      Wang, Qi                                          Apple Inc  
TGbn (MAC)  12/05/2024                    Wee, Gaius                     Panasonic Holdings Corporation  
TGbn (MAC)  12/05/2024                 Wullert, John                                       Peraton Labs  
TGbn (MAC)  12/05/2024                    Xiao, Tong                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  12/05/2024                   Ryu, Kiseon                                 NXP Semiconductors  
TGbn (MAC)  12/05/2024                  Roy, Rishabh                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/05/2024                   RISON, Mark                  Samsung Cambridge Solution Centre  
TGbn (MAC)  12/05/2024                Fang, Yonggang                                      MediaTek Inc.  
TGbn (MAC)  12/05/2024              Fischer, Matthew                               Broadcom Corporation  
TGbn (MAC)  12/05/2024                   Fu, Qingwei                               TP-Link Systems Inc.  
TGbn (MAC)  12/05/2024                Fujimori, Yuki                       Canon Research Centre France  
TGbn (MAC)  12/05/2024             Gaeremynck, Robbe                                               IMEC  
TGbn (MAC)  12/05/2024                     Genc, Eda                                              Nokia  
TGbn (MAC)  12/05/2024                    Gu, Jaheon                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  12/05/2024                  Gu, Xiangxin     Spreadtrum Communications (Shanghai) Co., Ltd.  
TGbn (MAC)  12/05/2024                 Gupta, Binita                                Cisco Systems, Inc.  
TGbn (MAC)  12/05/2024                  Ha, Taeyoung                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  12/05/2024       Haider, Muhammad Kumail                               Meta Platforms, Inc.  
TGbn (MAC)  12/05/2024                Handte, Thomas                             Sony Group Corporation  
TGbn (MAC)  12/05/2024                   Hart, Brian                                Cisco Systems, Inc.  
TGbn (MAC)  12/05/2024          Hasabelnaby, Mahmoud  Huawei Technologies Canada; Huawei Technologie...  
TGbn (MAC)  12/05/2024                 He, Chuanfeng         Beijing OPPO telecommunications corp., ltd  
TGbn (MAC)  12/05/2024            Hedayat, Ahmadreza                                         Apple Inc.  
TGbn (MAC)  12/05/2024                 Hervieu, Lili                                          CableLabs  
TGbn (MAC)  12/05/2024                    Ho, Duncan                         Qualcomm Technologies, Inc  
TGbn (MAC)  12/05/2024                 huang, kaikai                                              Nokia  
TGbn (MAC)  12/05/2024                   Fan, Shuang                     Sanechips Technology Co., Ltd.  
TGbn (MAC)  12/05/2024                 Huang, Po-Kai                                  Intel Corporation  
TGbn (MAC)  12/05/2024               Erkucuk, Serhat                                             Ofinno  
TGbn (MAC)  12/05/2024              Dezfouli, Behnam                                              Nokia  
TGbn (MAC)  12/05/2024              Aboulmagd, Osama                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/05/2024                   Aio, Kosuke                                   Sony Corporation  
TGbn (MAC)  12/05/2024            Ajami, Abdel Karim                                          Apple Inc  
TGbn (MAC)  12/05/2024             Alcantara, Carlos                                Cisco Systems, Inc.  
TGbn (MAC)  12/05/2024                  Baek, SunHee                                     LG ELECTRONICS  
TGbn (MAC)  12/05/2024               baron, stephane                       Canon Research Centre France  
TGbn (MAC)  12/05/2024                Byeon, Seongho                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/05/2024                  Carty, Clark                             Juniper Networks, Inc.  
TGbn (MAC)  12/05/2024                   Cha, Dongju                                     LG ELECTRONICS  
TGbn (MAC)  12/05/2024                      Che, Hui                           Ruijie Networks Co., Ltd  
TGbn (MAC)  12/05/2024                  Chen, Junbin                               TP-Link Systems Inc.  
TGbn (MAC)  12/05/2024                  CHENG, yajun                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  12/05/2024                   Choi, JinHo                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/05/2024                    Chu, Liwen                                 NXP Semiconductors  
TGbn (MAC)  12/05/2024                Doppler, Klaus                                              Nokia  
TGbn (MAC)  12/05/2024            Rodriguez, Stephen                                Cisco Systems, Inc.  
TGbn (MAC)  12/05/2024                Inoue, Kyosuke                                  SHARP CORPORATION  
TGbn (MAC)  12/05/2024                Jiang, Zhiping                                  Xidian University  
TGbn (MAC)  12/05/2024                  Lou, Hanqing                                 InterDigital, Inc.  
TGbn (MAC)  12/05/2024             Lovison, Federico                                Cisco Systems, Inc.  
TGbn (MAC)  12/05/2024                   Lu, Liuming  Guangdong OPPO Mobile Telecommunications Corp....  
TGbn (MAC)  12/05/2024                     LU, Yuxin                                     TCL Industries  
TGbn (MAC)  12/05/2024                 Luo, Chaoming        Beijing OPPO telecommunications corp., ltd.  
TGbn (MAC)  12/05/2024                   Ma, Yongsen                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/05/2024              Manoharan, Jegan                                Cisco Systems, Inc.  
TGbn (MAC)  12/05/2024           Montemurro, Michael                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/05/2024            Motozuka, Hiroyuki                     Panasonic Holdings Corporation  
TGbn (MAC)  12/05/2024                  Mutgan, Okan                                              Nokia  
TGbn (MAC)  12/05/2024                 Naik, Gaurang                         Qualcomm Technologies, Inc  
TGbn (MAC)  12/05/2024                  Namvar, Nima                             Charter Communications  
TGbn (MAC)  12/05/2024                  Noh, Si-Chan                                      Newracom Inc.  
TGbn (MAC)  12/05/2024  Nurani Krishnan, Neelakantan                                         Apple Inc.  
TGbn (MAC)  12/05/2024                Park, Minyoung                                         Apple Inc.  
TGbn (MAC)  12/05/2024            Patwardhan, Gaurav                         Hewlett Packard Enterprise  
TGbn (MAC)  12/05/2024                 Perez, Javier                                             Ofinno  
TGbn (MAC)  12/05/2024           Pettersson, Charlie                                        Ericsson AB  
TGbn (MAC)  12/05/2024                Ratnam, Vishnu                           Samsung Research America  
TGbn (MAC)  12/05/2024              Lorgeoux, Mikael                       Canon Research Centre France  
TGbn (MAC)  12/05/2024                   Jang, Insun                                     LG ELECTRONICS  
TGbn (MAC)  12/05/2024                     Lijun, Yu                                        self-funded  
TGbn (MAC)  12/05/2024                Levitsky, Ilya                                            NRU HSE  
TGbn (MAC)  12/05/2024             Johnsson, Kerstin                                              Nokia  
TGbn (MAC)  12/05/2024                    Kain, Carl                                Noblis, Inc.; USDoT  
TGbn (MAC)  12/05/2024                Kakani, Naveen  Qualcomm Incorporated; Qualcomm Technologies, Inc  
TGbn (MAC)  12/05/2024              Kalamkar, Sanket  Qualcomm Incorporated; Qualcomm Technologies, Inc  
TGbn (MAC)  12/05/2024             Kandala, Srinivas                                            Samsung  
TGbn (MAC)  12/05/2024                Karthik, S. G.                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/05/2024                   Kedem, Oren                                          Maxlinear  
TGbn (MAC)  12/05/2024                Kim, Geon Hwan                                     LG ELECTRONICS  
TGbn (MAC)  12/05/2024                  Kim, Jeongki                                             Ofinno  
TGbn (MAC)  12/05/2024                  Kim, Jungjun                                Samsung Electronics  
TGbn (MAC)  12/05/2024                Kim, Sang Gook                                     LG ELECTRONICS  
TGbn (MAC)  12/05/2024                 Kim, Sanghyun                                         WILUS Inc.  
TGbn (MAC)  12/05/2024                   Klein, Arik                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/05/2024                  Koo, Jonghoe                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/05/2024         Koundourakis, Michail                  Samsung Cambridge Solution Center  
TGbn (MAC)  12/05/2024             Lalam, Massinissa                             SAGEMCOM BROADBAND SAS  
TGbn (MAC)  12/05/2024                 Lee, Hong Won                                     LG ELECTRONICS  
TGbn (MAC)  12/05/2024                  LEE, JOONSOO                                      Newracom Inc.  
TGbn (MAC)  12/05/2024                   LEE, Mingyu                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  12/05/2024                     Li, Weiyi                  Spreadtrum Communication USA, Inc

TGbn (MAC)  12/05/2024                Quan, Yingqiao  Spreadtrum Communications (Shanghai) Co., Ltd

1. The Chair asked whether there is comment about agenda in 11-24/1988r3.

Kosuke requested to defer his SPs.

**Submissions**

1. [24/2007r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2007-00-00bn-pdt-mac-p-edca.docx) PDT-MAC-p-edca Dmitry Akhmetov

C:Should is not proper in the sepc. You can delete it.

C: What does the balance mean? Balance is fuzzy.

C: We need more discussion on fair channel access of legacy STA on this. RTS frame has collision problem.

C: should is changed to is expected to. Instead of device, use STA.

C: Details TBD, access category is TBD? Or others TBD? Details of mechansim?

C: the sentece is not proper.

C: fairness is better in the last sentence. I don’t want to remove it. Just rephrase it.

1. [24/1762r5](https://mentor.ieee.org/802.11/dcn/24/11-24-1762-05-00bn-pdt-mac-npca.docx) PDT-MAC-NPCA Matthew Fischer

C:new field , 9-x1 already exists.

C: clarification on texts of 40MHz or TBD.. some editorial comments.

C: the most recently received texts are related to only non-AP STA. If NPCA STA is non-AP STA or AP, then we need to clarify the text like the most recently received or transmitted.

C: plus the TXOP duration may not be considered in case of TXOP\_DURATION set to UNSPECIFIED value.

1. Pending SPs – Channel Access + MAP (30 mins):

SP1 **SP1 – Dmitry Akhmetov – Channel Access**

Do you agree to define HIP EDCA in UHR where a STA with Low Latency traffic may be allowed, based on TBD conditions, to send a Defer Signal (e.g. CTS frame or RTS) to start a protected short contention for pending LL data

* + Conditions to be allowed to send a Defer Signal is TBD
  + STA in HiP EDCA always use RTS/CTS as initial frame exchange and retry.
  + Duration of protected short contention is TBD.
  + Access parameters (AIFSN, CW and the expansion rules) used to transmit the Defer Signal are TBD. The retry count where the Defer Signal is allowed to be sent is TBD
  + Contention parameters for the protected short contention are TBD. The STAs that transmitted a Defer Signal but did not win the protected short contention will initiate a new retry.
  + Low Latency traffic is treated as AC\_VO traffic. Other cases are TBD.
  + The solution would provide control on the degree of collisions that may occur while using it and, allows for autonomous randomness or/and controlled by the AP
  + No new synchronization requirement on STA side

*Supporting documents: [24/1144]*

Result:

C: defer signal is going to be existing MAC frame or PHY signal?

A: This is frame. CTS frame.

C: We don’t have HiP. Can you add ancronym?

C: Do you mean that LL traffic is treated as AC\_VO traffic?

C: what’s the primary use of initial frame? You mention the Defer Signal.

C: HiP EDCA is distributed mechanism. Enabling/disabling condition is missing. That should be the first condition.

C: e.g., CTS frame or RTS. We have to choose one or both are possible. What’s the difference?

C: If Defer signal is CTS then what is the intention of the SP?

C: Other LL STA contend the channel during the period? Or STA transmitting Defer Signal accesses the channel?

C: Is this operation performing after Defer signal? We don’t need to mandate RTS/CTS after Defer signal in a few STA cases.

C: How can STA know that traffic is low latency traffic?

C: AP should enable this operation.

C: synchronization issue should be discussed.

C: In seven bullet, controlled by AP meaning?

Recorded voting (appendix)

36 Y, 52N, 36A

* [24/1464](https://mentor.ieee.org/802.11/dcn/24/11-24-1464-00-00bn-discussion-on-icf.pptx) Discussion on ICF Insun Jang

C: Why do you add this information at the end of fields?

A: This is current design defined in the current spec.

C: In this case, some STA may stop before reading this.

C: In slide 5, do you need length field?

C: Padding, if we go with this way, some other contribution mentions that MIC and PN can be carried in padding. Some STA may not understand this control information. How do I skip? This may not be easy.

C: option 1, hanqing, information should be provided early. You don’t need the length necessarily. Intermidate FCS or MIC should be considered in Padding.

A: We may have multiple control feedbacks.

C: User info already fixed.

C: User Info size is fixed. 4 octects

* [24/1702](https://mentor.ieee.org/802.11/dcn/24/11-24-1702-00-00bn-consideration-on-the-signalling-method-of-intermediate-fcs.pptx) Consideration-on-the-signalling-method-of-intermediate-fcs Yanchao Xu

C: Regarding the miss detection due to error, error can happen to other part.

A: Recipient can do early determination of Trigger frame.

C: I agree with this direction. If the STA know the location, the STA can terminate parsing early.

The teleconference was adjourned at 12:00.

### Dec 9, 2024 (TGbn MAC ad hoc teleconference)

Chairman: Xiaofei Wang (Interdigital)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex.

**Introduction**

1. The Chair (Xiaofei Wang, Interdigital) calls the meeting to order at 19:00 ET. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
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.
   1. **Copyright Policy: Participants are advised that**
      1. IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html" \l "7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
      2. Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy
4. The Chair recommends using IMAT for recording the attendance.
   1. 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 “TGbn <MAC/PHY/Joint> conference call that you are attending.
   2. If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Srinivas Kandala ([srini.k1@samsung.com](mailto:srini.k1@samsung.com)), Jeongki Kim ([jeongki.kim.ieee@gmail.com](mailto:jeongki.kim.ieee@gmail.com)), and Xiaofei Wang ([xiaofei.wang@interdigital.com](mailto:xiaofei.wang@interdigital.coma))

Recorded attendance

       Timestamp                                Name                                        Affiliation  
Breakout                                                                                                      
TGbn (MAC)  09/12/2024                       Wang, Xiaofei                                 InterDigital, Inc.  
TGbn (MAC)  09/12/2024                          Gu, Jaheon                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  09/12/2024                       Luo, Chaoming        Beijing OPPO telecommunications corp., ltd.  
TGbn (MAC)  09/12/2024             Haider, Muhammad Kumail                               Meta Platforms, Inc.  
TGbn (MAC)  09/12/2024                 Talarico, Salvatore                                 Nokia Technologies  
TGbn (MAC)  09/12/2024                       huang, kaikai                                              Nokia  
TGbn (MAC)  09/12/2024                     Shafin, Rubayet                                Samsung Electronics  
TGbn (MAC)  09/12/2024                         Hart, Brian                                Cisco Systems, Inc.  
TGbn (MAC)  09/12/2024                 Montemurro, Michael                       Huawei Technologies Co., Ltd  
TGbn (MAC)  09/12/2024                Hasabelnaby, Mahmoud  Huawei Technologies Canada; Huawei Technologie...  
TGbn (MAC)  09/12/2024                    Shabdanov, Samat                                           Mediatek  
TGbn (MAC)  09/12/2024                        Dumdei, Alan                                              Cisco  
TGbn (MAC)  09/12/2024                       Nayak, Peshal                           Samsung Research America  
TGbn (MAC)  09/12/2024                       Gupta, Binita                                Cisco Systems, Inc.  
TGbn (MAC)  09/12/2024                     Ouchi, Masatomo                                              Canon  
TGbn (MAC)  09/12/2024                        Kim, Jungjun                                Samsung Electronics  
TGbn (MAC)  09/12/2024                       Kim, chan woo                                      Cisco systems  
TGbn (MAC)  09/12/2024                    Georgiev, Zahari                                      Cisco Systems  
TGbn (MAC)  09/12/2024                       Zhou, Huixuan  Guangdong OPPO Mobile Telecommunications Corp....  
TGbn (MAC)  09/12/2024                      Byeon, Seongho                                SAMSUNG ELECTRONICS  
TGbn (MAC)  09/12/2024                  Zhang, Lyutianyang                      Huawei Technologies Co., Ltd.  
TGbn (MAC)  09/12/2024                            Wang, Qi                                          Apple Inc  
TGbn (MAC)  09/12/2024                      Inoue, Kyosuke                                  SHARP CORPORATION  
TGbn (MAC)  09/12/2024                         Klein, Arik                       Huawei Technologies Co., Ltd  
TGbn (MAC)  09/12/2024                        CHENG, yajun                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  09/12/2024                            Che, Hui                           Ruijie Networks Co., Ltd  
TGbn (MAC)  09/12/2024                         Aio, Kosuke                                   Sony Corporation  
TGbn (MAC)  09/12/2024                       HUANG, CHIHAN                                      MediaTek Inc.  
TGbn (MAC)  09/12/2024                  Yukawa, Mitsuyoshi                                              Canon  
TGbn (MAC)  09/12/2024                          Das, Subir                                       Peraton Labs  
TGbn (MAC)  09/12/2024                         Yoon, Yelin                                     LG ELECTRONICS  
TGbn (MAC)  09/12/2024                      Quan, Yingqiao  Spreadtrum Communications (Shanghai) Co., Ltd....  
TGbn (MAC)  09/12/2024                      Hsu, Ostrovsky                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  09/12/2024                       Zhou, Renlong                     Sanechips Technology Co., Ltd.  
TGbn (MAC)  09/12/2024                    Fischer, Matthew                               Broadcom Corporation  
TGbn (MAC)  09/12/2024                    Manoharan, Jegan                                Cisco Systems, Inc.  
TGbn (MAC)  09/12/2024                         Procyk, Ian                                      Cisco Systems  
TGbn (MAC)  09/12/2024                          Yee, James                                      MediaTek Inc.  
TGbn (MAC)  09/12/2024                         Fan, Shuang                     Sanechips Technology Co., Ltd.  
TGbn (MAC)  09/12/2024                       Taori, Rakesh                              Infineon Technologies  
TGbn (MAC)  09/12/2024                        Chen, Junbin                               TP-Link Systems Inc.  
TGbn (MAC)  09/12/2024                           Zhou, Pei                                                TCL  
TGbn (MAC)  09/12/2024                         Cha, Dongju                                     LG ELECTRONICS  
TGbn (MAC)  09/12/2024                        Zhang, Jiayi                                             Ofinno  
TGbn (MAC)  09/12/2024                        Ha, Taeyoung                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  09/12/2024                      Tanaka, Yusuke                                   Sony Corporation  
TGbn (MAC)  09/12/2024                      Fang, Yonggang                                      MediaTek Inc.  
TGbn (MAC)  09/12/2024                   Tseng, Yen Hsiung                                      MediaTek Inc.  
TGbn (MAC)  09/12/2024                     Petrick, Albert                                 InterDigital, Inc.  
TGbn (MAC)  09/12/2024                       Lee, Ju Hyung                                              Nokia  
TGbn (MAC)  09/12/2024                       Naik, Gaurang                         Qualcomm Technologies, Inc  
TGbn (MAC)  09/12/2024                         Gu, Junrong                             Clourney Semiconductor  
TGbn (MAC)  09/12/2024                          Xiao, Tong                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  09/12/2024                      Adachi, Tomoko                                TOSHIBA Corporation  
TGbn (MAC)  09/12/2024  Mohamed Hassan Salem, Nedime Pelin                                Cisco Systems, Inc.  
TGbn (MAC)  09/12/2024                       Son, Ju-Hyung                                         WILUS Inc.  
TGbn (MAC)  09/12/2024                       Perez, Javier                                             Ofinno  
TGbn (MAC)  09/12/2024                           Li, Yunbo                       Huawei Technologies Co., Ltd  
TGbn (MAC)  09/12/2024                        Noh, Si-Chan                                      Newracom Inc.  
TGbn (MAC)  09/12/2024                       Urabe, Yoshio                     Panasonic Holdings Corporation  
TGbn (MAC)  09/12/2024                        Koo, Jonghoe                                SAMSUNG ELECTRONICS  
TGbn (MAC)  09/12/2024                    Dezfouli, Behnam                                              Nokia  
TGbn (MAC)  09/12/2024                        Lou, Hanqing                                 InterDigital, Inc.  
TGbn (MAC)  09/12/2024                          Chu, Liwen                                 NXP Semiconductors  
TGbn (MAC)  09/12/2024                           Yang, Jay                                    ZTE Corporation  
TGbn (MAC)  09/12/2024                         Ma, Yongsen                                SAMSUNG ELECTRONICS  
TGbn (MAC)  09/12/2024                       Huang, Po-Kai                                  Intel Corporation  
TGbn (MAC)  09/12/2024                   Alcantara, Carlos                                Cisco Systems, Inc.  
TGbn (MAC)  09/12/2024                        Gu, Xiangxin     Spreadtrum Communications (Shanghai) Co., Ltd.  
TGbn (MAC)  09/12/2024                        Cui, Yaoshen                               TP-Link Systems Inc.  
TGbn (MAC)  09/12/2024                      Dong, Xiandong                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  09/12/2024                       Chen, Wei-Han                                       Mediatek Inc  
TGbn (MAC)  09/12/2024                       Shi, Zhenpeng                       Huawei Technologies Co., Ltd  
TGbn (MAC)  09/12/2024                        Kim, Jeongki                                             Ofinno  
TGbn (MAC)  09/12/2024                       Zimmer, Ethan                                Cisco Systems, Inc.  
TGbn (MAC)  09/12/2024                  Rodriguez, Stephen                                Cisco Systems, Inc.  
TGbn (MAC)  09/12/2024                      Kishida, Akira                                                NTT  
TGbn (MAC)  09/12/2024                     Monajemi, Pooya                                         Apple Inc.  
TGbn (MAC)  09/12/2024                       Wullert, John                                       Peraton Labs  
TGbn (MAC)  09/12/2024                      Park, Minyoung                                         Apple Inc.  
TGbn (MAC)  09/12/2024                         Ryu, Kiseon                                 NXP Semiconductors  
TGbn (MAC)  09/12/2024                        Yang, Haorui                                       China Mobile  
TGbn (MAC)  09/12/2024                        Yano, Kazuto  Advanced Telecommunications Research Institute...  
TGbn (MAC)  09/12/2024                      Nezou, Patrice                       Canon Research Centre France  
TGbn (MAC)  09/12/2024                       Kim, Sanghyun                                         WILUS Inc.  
TGbn (MAC)  09/12/2024                      Sung, Hyeonjun                                         WILUS Inc.  
TGbn (MAC)  09/12/2024                       Lee, Hong Won                                     LG ELECTRONICS  
TGbn (MAC)  09/12/2024                     Erkucuk, Serhat                                             Ofinno  
TGbn (MAC)  09/12/2024                      Kim, Geon Hwan                                     LG ELECTRONICS  
TGbn (MAC)  09/12/2024                    Kalamkar, Sanket  Qualcomm Incorporated; Qualcomm Technologies, Inc  
TGbn (MAC)  09/12/2024               Wong Mosquera, Blanca                                 Cisco Systems, Inc  
TGbn (MAC)  09/12/2024                         Choi, JinHo                                SAMSUNG ELECTRONICS  
TGbn (MAC)  09/12/2024                         Lu, Liuming  Guangdong OPPO Mobile Telecommunications Corp....  
TGbn (MAC)  09/12/2024                      Kuo, Chih-Chun                                      MediaTek Inc.  
TGbn (MAC)  09/12/2024                      Sato, Takuhiro                                  SHARP CORPORATION  
TGbn (MAC)  09/12/2024                      Kim, Sang Gook                                     LG ELECTRONICS  
TGbn (MAC)  09/12/2024                      Kakani, Naveen  Qualcomm Incorporated; Qualcomm Technologies, Inc  
TGbn (MAC)  09/12/2024                      Ng, Boon Loong                                Samsung Electronics  
TGbn (MAC)  09/12/2024                           Li, Weiyi                  Spreadtrum Communication USA, Inc  
TGbn (MAC)  09/12/2024                       Zhang, Maolin                       Huawei Technologies Co., Ltd  
TGbn (MAC)  09/12/2024                     Carney, William                             Sony Group Corporation  
TGbn (MAC)  09/12/2024                         Jang, Insun                                     LG ELECTRONICS  
TGbn (MAC)  09/12/2024                      Hamilton, Mark                                   Ruckus/CommScope  
TGbn (MAC)  09/12/2024                      Ratnam, Vishnu                           Samsung Research America  
TGbn (MAC)  09/12/2024                     Patil, Abhishek                              Qualcomm Incorporated  
TGbn (MAC)  09/12/2024                       Palayur, Saju                                      Maxlinear Inc  
TGbn (MAC)  09/12/2024                 Sakamoto, Ryunosuke                                  SHARP CORPORATION  
TGbn (MAC)  09/12/2024                  Hedayat, Ahmadreza                                         Apple Inc.  
TGbn (MAC)  09/12/2024                  Motozuka, Hiroyuki                     Panasonic Holdings Corporation  
TGbn (MAC)  09/12/2024                        Scott, David                                Cisco Systems, Inc.  
TGbn (MAC)  09/12/2024                       Park, Sungjin                                           Senscomm

TGbn (MAC)  09/12/2024                  Ajami, Abdel Karim                                          Apple Inc

1. The Chair asked whether there is comment about agenda in 11-24/1988r6.

* 825 and 741 were deleted from agenda.

PDT **Submissions**

* [24/1966r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1966-00-00bn-pdt-mac-crtwt.docx) PDT MAC CRTWT Giovanni Chisci

C: Do you have any reason to change CR-TWT to Co-RTWT?

A: This is aligned with Ross’s document.

The author requested to SP.

TGbn Chair recommended having more time to review the document.

The author is ok with it.

Pending SPs – Topic (30 mins):

**SP1 – Haorui Yang – Roaming**

Do you agree to define a mechanism in 802.11bn to guarantee that the selected target AP MLD connects to the same operator network with the source AP MLD if the AP MLDs communicate using the over-the-DS interface.

* + The detailed mechanism is TBD.

*Supporting documents: [24/1388]*

Result:

C:We have seamless roaming mechanism. Which mechanism are you referring to here?

A: Right now I don’t have the detailed mechanism. This can be one of mechanisms.

C: What is the same operator network? Not need this now. Defer this SP.

C: We are discussing seamless roaming in the same ESS. But, the same operator network is more open.

A: Mobility domain may not be enough.

C: What is the intention of SP? What is the infrastructure network that you want to define?

A: I can defer.

C: the same operator network is unclear.

**SP2 – Kumail Haider – Power Save**

Do you agree add the following text to TGbn SFD:

* TGbn defines a mechanism that enables a STA to request guaranteed availability from AP/Mobile AP during certain time periods

NOTE 1 – The exact signaling mechanism is TBD

NOTE 2 – It is AP’s discretion to accept the request or not

*Supporting doc: [24/1602r1]*

Result:

C: Today, TWT request/response can be used to request to AP that can accept it or not. Do you want to define another mechanism on top of the existing mechanism?

A: We may change the current TWT mechanism for this.

C: There is already a existing TWT mechanism and SCS mechanism to meet the requirements. I don’t see the gap.

A: AP and mobile AP shall be available within those SP.

Recorded.

C: Is it AP’s capability of guaranteed availability?

A: It’s for AP to be available for the period.

Recorded voting (appendix)

Result: 29Y/40N/44A

**SP3 – Rubayet Shafin – P2P**

Do you agree to enhance existing mechanism(s) in 11bn to improve latency for a non-AP STA communication with another non-AP STA on the base channel and off-channel, respectively, by

* enhancing mechanism(s) to allow an AP to share a TXOP with multiple peer-to-peer (p2p) non-AP STAs(s)
* enhancing the baseline Channel Usage procedure to provide better recommendation on channel selection for P2P by enabling coordination between APs that do not belong to the same ESS so that the channels recommended for P2P operation sent by those APs are the same.

Note: the coordinated channel recommendation is an optional feature. Also, the responding AP has an option to reject the request for such coordination.

Note:

- Base channel is the channel where the AP associated with the non-AP STA is operating.

- A channel outside its associated AP’s operating BW is an off-channel for the non-AP STA.

*Supporting docs: [11-22/1528r1, 11-23/294r1, 11-23/1424r0, 11-23/1929r0, 11-24/392r2, 11-24/393r3, 11-24/0403r2]*

Result:

No objection

**SP4 – Brian Hart – Feedback**

* + Do you agree to add the following text to the 11bn SFD?
    - Define a mechanism in 11bn that enables an AP to solicit, and/or for a non-AP STA to respond with, the non-AP STA’s rating of the quality of experience that the STA receives from the ESS of the AP.

*Supporting documents: [24/1123r1]*

Result:

C: How do you envision the rating to be provided to that AP? … what kind of parameters are?

A: we discussed a couple of variants. This is just a high level.

C: What’s the difference between quality of experience and the current preference value?

C: how does that work ? This works with the QoS characteristics. Does it require some change to the QoS characteristics field?

A: This is just a sort of a high level, generalized report on the client’s experience for the network.

Recorded voting

40Y, 20N, 55A

* Technical Submissions–Control part 2 + C-RTWT+QoS:
  + [24/1893](https://mentor.ieee.org/802.11/dcn/24/11-24-1893-00-00bn-icf-follow-up.pptx) ICF follow up Liwen Chu

C: slide 4, option 1 is preferred than option 4. If Control information bits is exceeding 28 bits, how can you handle it?

A: I assume it does not happen now. If more than 28 bits, we can use two user info fields. We can have a control ID. In the future, we can figure out.

C: ICF is for unsolicited unavailability report?

A: It is initial control frame.

C: this Trigger frame is not related to the BSRP Trigger frame.

A: we want to use BSRP Trigger frame.

C: Is this tried to aside from control information that the feedback from the AP will be expected to be also BSRP related information or just purely for the control information.

C: We can ICF/ICR for several variant (DPS, coex, multi AP. We should consider the variant to identify at least what.

A: we only figure out that this available information will be need to be carried for this dynamic power save. We don’t need to carry such the information in the special user info field.

* + [24/1583](https://mentor.ieee.org/802.11/dcn/24/11-24-1583-00-00bn-icr-transmission-follow-up.pptx) ICR transmission-follow-up Dibakar Das

C: What is the unavailability information that OBSS STA report to AP?

A: avaiable for receiving any DL data.

C: Between AP and STA obvisus AP , there are the frame exchange. There are RTS/CTS/

C: why the collision decrease by the unavailabiltiy information? I would assume it should increase because you send this unavailability information. Interfere with your transmission?

* + [24/0743](https://mentor.ieee.org/802.11/dcn/24/11-24-0743-00-00bn-simulation-results-for-map-obss-twt-management.pptx) Simulation results for MAP OBSS TWT management Patrice NEZOU

C: slide 5 how would this case occur in your view? It would be that case two A practically never occurs. I’m not aware of.

C: the case c is more fair operational scenarios that’s ok I protect RTWT, you protect mine.

C: RTWT is periodic low latency traffic. Why do you set the CBR traffic in scenarios? Not suitable.

A: I agree with you that to measure the latency we have to choose.

C: Mixed traffic scenarios may be suitable.

C: slide 6, the length of the SP should be adapted.. what do you mean strong medium access rule?

* + [24/1690](https://mentor.ieee.org/802.11/dcn/24/11-24-1690-00-00bn-discussion-on-ooo-delivery.pptx) Discussion on OOO delivery Liangxiao Xin

C: Inorder delivery is to the upper layer from MAC? Have you look into that? Is there a concern with that? Upper layer in order delivery.

A: It’s better to provide inorder delivery in the whole network.

C: You’re assuming SCS flow is set up for. What if SCS flow stream is not setup?

A: Out of delivery is enabled for SCS traffic. If there is no SCStraffic stream, there is no out of order delivery.

C: Tclass process. This is a lot of implemenation that would prefer to avoid.

A: we will have this issue we need to solve this. I think increase TID numbers from eight to fifteen.

The teleconference was adjourned at 21:00.

### Dec 12, 2024 (TGbn MAC ad hoc teleconference)

Chairman: Xiaofei Wang (Interdigital)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex.

**Introduction**

1. The Chair (Xiaofei Wang, Interdigital) calls the meeting to order at 10:00 ET. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
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.
   1. **Copyright Policy: Participants are advised that**
      1. IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html" \l "7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
      2. Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy
4. The Chair recommends using IMAT for recording the attendance.
   1. 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 “TGbn <MAC/PHY/Joint> conference call that you are attending.
   2. If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Srinivas Kandala ([srini.k1@samsung.com](mailto:srini.k1@samsung.com)), Jeongki Kim ([jeongki.kim.ieee@gmail.com](mailto:jeongki.kim.ieee@gmail.com)), and Xiaofei Wang ([xiaofei.wang@interdigital.com](mailto:xiaofei.wang@interdigital.coma))

Recorded attendance

TGbn (MAC)  12/12/2024                           LU, Yuxin                                     TCL Industries  
TGbn (MAC)  12/12/2024                    GUIGNARD, Romain                       Canon Research Centre France  
TGbn (MAC)  12/12/2024               Wong Mosquera, Blanca                                 Cisco Systems, Inc  
TGbn (MAC)  12/12/2024                           Zhao, Yue                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/12/2024                  Hedayat, Ahmadreza                                         Apple Inc.  
TGbn (MAC)  12/12/2024                   Lovison, Federico                                Cisco Systems, Inc.  
TGbn (MAC)  12/12/2024                        Swartz, Matt                                              Cisco  
TGbn (MAC)  12/12/2024                  Motozuka, Hiroyuki                     Panasonic Holdings Corporation  
TGbn (MAC)  12/12/2024                     Patil, Abhishek                              Qualcomm Incorporated  
TGbn (MAC)  12/12/2024                      Tanaka, Yusuke                                   Sony Corporation  
TGbn (MAC)  12/12/2024                         Procyk, Ian                                      Cisco Systems  
TGbn (MAC)  12/12/2024                          Das, Subir                                       Peraton Labs  
TGbn (MAC)  12/12/2024                          Yee, James                                      MediaTek Inc.  
TGbn (MAC)  12/12/2024                      Fujimori, Yuki                       Canon Research Centre France  
TGbn (MAC)  12/12/2024                           Yang, Jay                                    ZTE Corporation  
TGbn (MAC)  12/12/2024                         Hart, Brian                                Cisco Systems, Inc.  
TGbn (MAC)  12/12/2024                         RISON, Mark                  Samsung Cambridge Solution Centre  
TGbn (MAC)  12/12/2024                      Kim, Sang Gook                                     LG ELECTRONICS  
TGbn (MAC)  12/12/2024                           Zhou, Pei                                                TCL  
TGbn (MAC)  12/12/2024                        Kim, Jeongki                                             Ofinno  
TGbn (MAC)  12/12/2024                       Gupta, Binita                                Cisco Systems, Inc.  
TGbn (MAC)  12/12/2024                    Georgiev, Zahari                                      Cisco Systems  
TGbn (MAC)  12/12/2024                   Varshney, Prabodh                                              Nokia  
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TGbn (MAC)  12/12/2024                       Zhou, Huixuan  Guangdong OPPO Mobile Telecommunications Corp....  
TGbn (MAC)  12/12/2024                        Scott, David                                Cisco Systems, Inc.  
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TGbn (MAC)  12/12/2024                           Wang, Lei         Futurewei Technologies/Huawei Technologies  
TGbn (MAC)  12/12/2024                        Coffey, John                        Realtek Semiconductor Corp.  
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TGbn (MAC)  12/12/2024                    Manoharan, Jegan                                Cisco Systems, Inc.  
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TGbn (MAC)  12/12/2024                      Kakani, Naveen  Qualcomm Incorporated; Qualcomm Technologies, Inc  
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TGbn (MAC)  12/12/2024                     Petrick, Albert                                 InterDigital, Inc.  
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TGbn (MAC)  12/12/2024                           Li, Weiyi                  Spreadtrum Communication USA, Inc  
TGbn (MAC)  12/12/2024                       Wullert, John                                       Peraton Labs  
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TGbn (MAC)  12/12/2024                        Lou, Hanqing                                 InterDigital, Inc.  
TGbn (MAC)  12/12/2024                     Tsujimaru, Yuki                                              Canon  
TGbn (MAC)  12/12/2024                        LEE, JOONSOO                                      Newracom Inc.  
TGbn (MAC)  12/12/2024                       Perez, Javier                                             Ofinno  
TGbn (MAC)  12/12/2024                     Ekkundi, Manasi                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/12/2024                    Fischer, Matthew                               Broadcom Corporation  
TGbn (MAC)  12/12/2024                   Lalam, Massinissa                             SAGEMCOM BROADBAND SAS  
TGbn (MAC)  12/12/2024                         Cha, Dongju                                     LG ELECTRONICS  
TGbn (MAC)  12/12/2024                     Erkucuk, Serhat                                             Ofinno  
TGbn (MAC)  12/12/2024                      Quan, Yingqiao  Spreadtrum Communications (Shanghai) Co., Ltd....  
TGbn (MAC)  12/12/2024                         Aio, Kosuke                                   Sony Corporation  
TGbn (MAC)  12/12/2024                          Ho, Duncan                         Qualcomm Technologies, Inc  
TGbn (MAC)  12/12/2024                         Fu, Qingwei                               TP-Link Systems Inc.  
TGbn (MAC)  12/12/2024                      Hsu, Ostrovsky                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  12/12/2024                      Nezou, Patrice                       Canon Research Centre France  
TGbn (MAC)  12/12/2024                          Xiao, Tong                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  12/12/2024                      Handte, Thomas                             Sony Group Corporation  
TGbn (MAC)  12/12/2024                      Ratnam, Vishnu                           Samsung Research America  
TGbn (MAC)  12/12/2024                        Chen, Junbin                               TP-Link Systems Inc.  
TGbn (MAC)  12/12/2024                       Hervieu, Lili                                          CableLabs  
TGbn (MAC)  12/12/2024                          Gu, Jaheon                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  12/12/2024                        Ha, Taeyoung                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  12/12/2024                       Urabe, Yoshio                     Panasonic Holdings Corporation  
TGbn (MAC)  12/12/2024                       Kim, Sanghyun                                         WILUS Inc.  
TGbn (MAC)  12/12/2024                       Shi, Zhenpeng                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/12/2024                          Val, Inaki                                    MaxLinear, Inc.  
TGbn (MAC)  12/12/2024                        Dumdei, Alan                                              Cisco  
TGbn (MAC)  12/12/2024                         Choi, JinHo                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/12/2024                      Karthik, S. G.                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/12/2024                         Fan, Shuang                     Sanechips Technology Co., Ltd.  
TGbn (MAC)  12/12/2024                        CHENG, yajun                    Xiaomi Communications Co., Ltd.

TGbn (MAC)  12/12/2024                       Lee, Hong Won                                     LG ELECTRONICS

1. The Chair asked whether there is comment about agenda in 11-24/1988r7.

2018 is removed in the agenda.

* PDT Submissions (45 mins):
  + [24/2040r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2040-00-00bn-pdt-mac-coexistence.docx) PDT MAC Coexistence Laurent Cariou\*

C: Table 9-663, value is equal 3, this is the M-BA in non-HT dup right?

A: You’re correct. I will revise.

C: You have the limited capability more. Ist that tied to the DPS or is something else?

A: Yeah, that’s some thing else. We have a motion on this as well.

C: PPDU is addressed to the STA. PPDUs are not addressed to anything at all.

C: LO seems to be in the sepc we may want to change that.

* + [24/2016r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2016-00-00bn-pdt-mac-power-save.docx) PDT MAC power save Liwen Chu

C: non-controverial comments.

C: This long PDT. Very hard to know what text is derived from which motion.

C: Can you mark the motion number for each text? That’s the general request.

C: There is AP can use .. . I want to delete this. The sentece makes no sense.

* + ~~24/2018r0 PDT MAC control frame (ICF/ICR) Liwen Chu~~
* Pending SPs – Topic (30 mins):

**SP1 – Brian Hart –MAP**

During the MAC call, Brian requested to change SP texts as follows:

Do you agree to add the following text to the 11bn SFD:

* + Define a mechanism in 11bn that defines:
    - AP-to-AP frame formats to enable interoperable MAPC across APs and including MLME primitive(s) so that a pair of AP’s SMEs can orchestrate the over-the-air transmission and reception of these frames
    - MLME primitive(s) so that a pair of AP’s SMEs may send the content of such non-time critical AP-to-AP frames over-the-DS between peer AP-MLMEs (rather than over-the-air via peer AP MACs)

*Supporting documents: [24/1595r1, 24/0838r1]*

C: There is already a mechanism of communicating from AP to AP over the DS and over the air. Is this defining a new mechanism or leveraging?

A: This is to leverage existing. Avoiding to define new mechanism.

C: Is th scope of this mostly for the frame that are negotiating the establishment of the MAP protocol? Like negotiation of RTWT, CTDMA,?

A: there are not intended to be sort of real time intra-TXOP frames. These are mor than unreal time frames set sent beforehand and out of band.

C: I’m favor of this trouble. This is very helpful.

Result: 66Y, 13N, 40A

**SP2 – Pascal Viger –C-RTWT**

Do you agree to add the following text to the 11bn SFD:

* + Define mechanisms that enable a CR-TWT (coordinated R-TWT) Coordinated AP to modify its CR-TWT STAs’ medium access policy during CR-TWT schedule(s)
    - with the objective of not interfering with the CR-TWT Coordinating AP during the scheduled period(s);
    - detailed mechanisms are TBD

*Supporting documents: [24/742r1, 24/538r1, 24/1259r2, 24/1435r0]*

Result:

C: the scheduled period(s) is for OBSS SP?

A: Yes.

C: CR-TWT activity is between two APs. CR-TWT is based on R-TWT?

C: You try to slow down those stations.

C: We don’t have CR-TWT STA’s. I suggest to remove the CR-TWT.

A: 11bn STA can understand CR-TWT. UHR STA is better?

C: Yes. It’s better.

C: modify the medium access policy. UHR STA , the self behavior. Can it be modified only by the associated AP?

Result 53/28/40A

**SP3 – Binita Gupta –Roaming**

Do you agree to add the following text to 11bn SFD?

* 11bn defines that as part of seamless roaming procedure a non-AP MLD in state 4 can perform roaming transition through a target AP MLD.

Bitnita requested to change SP text to the combined SP text for SP 3 and SP4.

New SP text of SP3.  
Do you agree to add the following text to 11bn SFD?  
11bn defines that as part of seamless roaming procedure, a non-AP MLD in state 4 can perform roaming transition using the defined request/response frame through the current AP MLD or with a target AP MLD:  
• The defined request/response frame shall be protected.  
• The solution for roaming transition through a target AP MLD must guard against Denial-of-service attacks on the target AP MLD."

*Supporting list: 24/0398, 24/1812, 24/0052, 23/1884, 23/1937, 23/1996, 24/830, 24/0083, 24/0101, 24/0396, 24/0412, 23/2157, 24/0655, 24/679, 24/1425, 24/1883, 24/1086*

Result:

C: Let’s come up with a framework that we know there’s some consensus beyond. We can defer this.

C: Generally I’m ok with this. The first bullet is fine. We don’t need to specify that enough service.

C: The second bullet, it does not impose any behavior. It can be note.

C: do you consider new deployments? Wwe disclose d the BSS without PMF. We have to have this systems roaming.

C: You repeated the current motion or want to define new procedure?

A: We don’t call it out so that why we are calling it out here.

SP is deferred

* Technical Submissions–QoS + Feedback:
  + [24/1887](https://mentor.ieee.org/802.11/dcn/24/11-24-1887-00-00bn-bsrp-tf-response-rules-changes-for-m-ba.pptx) BSRP TF response rules changes for M-BA Laurent Cariou\*

C: slide 4, you have another option to acheive this.

A: what’s another option?

C: unavilability information can be carried with BA bitmap.

C: Is this (QoS null and M-BA) possible ?

A: I don’t think we would make it the capability on the AP side.

C: Do you talk about the allowed PPDU type for the BSRP trigger frame?

C: AMPDU content ctext?

C: how does it ensour that the receiver does send a buffer status?

C: Do we have to have explicit indication in the BSRP trigger frame?

A: Personally, I don’t think we need explicit indication. I don’t think it’s crucial.

**Do you support to include the following in the 11bn SFD:**

* **modify the rules for responding to a BSRP TF so that the scheduled non-AP STA that is in Dynamic Unavailability Operation (DUO) mode, in addition to baseline rules:**
  + Is allowed to aggregate QoS Null frame(s) with M-STA BA if the response is TB PPDU
  + Is allowed to include only M-STA BA if the response is in non-HT (Dup) mode
    - And therefore not include BSR in the response

46Y, 30N, 43A

* + [24/0741](https://mentor.ieee.org/802.11/dcn/24/11-24-0741-00-00bn-qos-provisioning-for-802-11bn.pptx) QoS provisioning for 802.11bn Pascal Viger

C: slide 6, I would prefer to add the reorder buffer.

C: next slide, BSR, TF, R-TWT, For TF, we can accommodate that in the current format. Preferred ac to be able to do uplink trigger. Are you suggesting to improve enhanced BSR?

C: You can also consider Dibakar’s presentation as a solution.

C: You’re considering the 4 bits SCSID/TID. Current SCSID length is 1 octect. Are you considering 4 LSBs?

A: If no a lot of SCS sessions, we can consider this.

C: 11bn, we can consider preferred TID indication. We are thinking using unused TIDs from 8-14.

Adjourned at 12:00 ET

### Dec 16, 2024 (TGbn MAC ad hoc teleconference)

Chairman: Srinivas Kandala (Samsung)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex.

**Introduction**

* The Chair (Srinivas Kandala, Samsung) calls the meeting to order at 10:00am ET. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
* 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.
* The Chair goes through the IEEE copyright policy.
  1. **Copyright Policy: Participants are advised that**
     1. IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
     2. Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy
* The Chair recommends using IMAT for recording the attendance.
  1. 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 “TGbn <MAC/PHY/Joint> conference call that you are attending.
  2. If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Srinivas Kandala ([srini.k1@samsung.com](mailto:srini.k1@samsung.com)), Jeongki Kim ([jeongki.kim.ieee@gmail.com](mailto:jeongki.kim.ieee@gmail.com)), and Xiaofei Wang ([xiaofei.wang@interdigital.com](mailto:xiaofei.wang@interdigital.coma))

Recorded attendance

        Timestamp                   Name                                        Affiliation  
Breakout                                                                                          
TGbn (MAC)  12/16/2024          Naik, Gaurang                         Qualcomm Technologies, Inc  
TGbn (MAC)  12/16/2024         Kuo, Chih-Chun                                      MediaTek Inc.  
TGbn (MAC)  12/16/2024          Zhou, Renlong                     Sanechips Technology Co., Ltd.  
TGbn (MAC)  12/16/2024         Fang, Yonggang                                      MediaTek Inc.  
TGbn (MAC)  12/16/2024     Zhang, Lyutianyang                      Huawei Technologies Co., Ltd.  
TGbn (MAC)  12/16/2024             Gu, Jaheon                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  12/16/2024          Luo, Chaoming        Beijing OPPO telecommunications corp., ltd.  
TGbn (MAC)  12/16/2024           Cui, Yaoshen                               TP-Link Systems Inc.  
TGbn (MAC)  12/16/2024            Fan, Shuang                     Sanechips Technology Co., Ltd.  
TGbn (MAC)  12/16/2024             Wee, Gaius                     Panasonic Holdings Corporation  
TGbn (MAC)  12/16/2024          Shi, Zhenpeng                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/16/2024          Zhou, Huixuan  Guangdong OPPO Mobile Telecommunications Corp....  
TGbn (MAC)  12/16/2024           Baek, SunHee                                     LG ELECTRONICS  
TGbn (MAC)  12/16/2024            Lu, Liuming  Guangdong OPPO Mobile Telecommunications Corp....  
TGbn (MAC)  12/16/2024           Levy, Joseph                                 InterDigital, Inc.  
TGbn (MAC)  12/16/2024           Ha, Taeyoung                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  12/16/2024          Zhang, Maolin                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/16/2024             Yang, Hang                          Ruijie Networks Co., Ltd.  
TGbn (MAC)  12/16/2024         Hamilton, Mark                                   Ruckus/CommScope  
TGbn (MAC)  12/16/2024         Adachi, Tomoko                                TOSHIBA Corporation  
TGbn (MAC)  12/16/2024              LU, Yuxin                                     TCL Industries  
TGbn (MAC)  12/16/2024     Ajami, Abdel Karim                                          Apple Inc  
TGbn (MAC)  12/16/2024            Aio, Kosuke                                   Sony Corporation  
TGbn (MAC)  12/16/2024          huang, kaikai                                              Nokia  
TGbn (MAC)  12/16/2024           LEE, JOONSOO                                      Newracom Inc.  
TGbn (MAC)  12/16/2024     Yukawa, Mitsuyoshi                                              Canon  
TGbn (MAC)  12/16/2024          Kim, Sanghyun                                         WILUS Inc.  
TGbn (MAC)  12/16/2024      Kandala, Srinivas                                            Samsung  
TGbn (MAC)  12/16/2024       Chisci, Giovanni                         Qualcomm Technologies, Inc  
TGbn (MAC)  12/16/2024         Fujimori, Yuki                       Canon Research Centre France  
TGbn (MAC)  12/16/2024    Sakamoto, Ryunosuke                                  SHARP CORPORATION  
TGbn (MAC)  12/16/2024          Gupta, Binita                                Cisco Systems, Inc.  
TGbn (MAC)  12/16/2024          Taori, Rakesh                              Infineon Technologies  
TGbn (MAC)  12/16/2024           Singh, Aditi                             Charter Communications  
TGbn (MAC)  12/16/2024           Scott, David                                Cisco Systems, Inc.  
TGbn (MAC)  12/16/2024           Roy, Rishabh                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/16/2024         Kim, Sang Gook                                     LG ELECTRONICS  
TGbn (MAC)  12/16/2024          Huang, Po-Kai                                  Intel Corporation  
TGbn (MAC)  12/16/2024        Yang, Hsi-Chang                                       Mediatek Inc  
TGbn (MAC)  12/16/2024       Shabdanov, Samat                                           Mediatek  
TGbn (MAC)  12/16/2024        Petrick, Albert                                 InterDigital, Inc.  
TGbn (MAC)  12/16/2024            Gu, Junrong                             Clourney Semiconductor  
TGbn (MAC)  12/16/2024               Wang, Qi                                          Apple Inc  
TGbn (MAC)  12/16/2024             Yee, James                                      MediaTek Inc.  
TGbn (MAC)  12/16/2024         Tanaka, Yusuke                                   Sony Corporation  
TGbn (MAC)  12/16/2024           Koo, Jonghoe                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/16/2024         Hsu, Ostrovsky                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  12/16/2024           Kim, Jungjun                                Samsung Electronics  
TGbn (MAC)  12/16/2024         Kishida, Akira                                                NTT  
TGbn (MAC)  12/16/2024         Sato, Takuhiro                                  SHARP CORPORATION  
TGbn (MAC)  12/16/2024     Hedayat, Ahmadreza                                         Apple Inc.  
TGbn (MAC)  12/16/2024            Ryu, Kiseon                                 NXP Semiconductors  
TGbn (MAC)  12/16/2024       Kalamkar, Sanket  Qualcomm Incorporated; Qualcomm Technologies, Inc  
TGbn (MAC)  12/16/2024       Georgiev, Zahari                                      Cisco Systems  
TGbn (MAC)  12/16/2024  Wong Mosquera, Blanca                                 Cisco Systems, Inc  
TGbn (MAC)  12/16/2024        Carney, William                             Sony Group Corporation  
TGbn (MAC)  12/16/2024              Gao, Ning  Guangdong OPPO Mobile Telecommunications Corp....  
TGbn (MAC)  12/16/2024     Patwardhan, Gaurav                         Hewlett Packard Enterprise  
TGbn (MAC)  12/16/2024            Fu, Qingwei                               TP-Link Systems Inc.  
TGbn (MAC)  12/16/2024         Inoue, Kyosuke                                  SHARP CORPORATION  
TGbn (MAC)  12/16/2024           Kim, Jeongki                                             Ofinno  
TGbn (MAC)  12/16/2024        Monajemi, Pooya                                         Apple Inc.  
TGbn (MAC)  12/16/2024       Dezfouli, Behnam                                              Nokia  
TGbn (MAC)  12/16/2024        Erkucuk, Serhat                                             Ofinno  
TGbn (MAC)  12/16/2024             Chu, Liwen                                 NXP Semiconductors  
TGbn (MAC)  12/16/2024            Yoon, Yelin                                     LG ELECTRONICS  
TGbn (MAC)  12/16/2024         Quan, Yingqiao  Spreadtrum Communications (Shanghai) Co., Ltd....  
TGbn (MAC)  12/16/2024            Yang, Jimmy                                          Moxa Inc.  
TGbn (MAC)  12/16/2024           Yano, Kazuto  Advanced Telecommunications Research Institute...  
TGbn (MAC)  12/16/2024         Ratnam, Vishnu                           Samsung Research America  
TGbn (MAC)  12/16/2024              Li, Weiyi                  Spreadtrum Communication USA, Inc  
TGbn (MAC)  12/16/2024           Yang, Haorui                                       China Mobile  
TGbn (MAC)  12/16/2024            Procyk, Ian                                      Cisco Systems  
TGbn (MAC)  12/16/2024            Cha, Dongju                                     LG ELECTRONICS  
TGbn (MAC)  12/16/2024         Baykas, Tuncer                                             Ofinno  
TGbn (MAC)  12/16/2024     Mehrnoush, Morteza                                         Apple Inc.  
TGbn (MAC)  12/16/2024         Byeon, Seongho                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/16/2024     Motozuka, Hiroyuki                     Panasonic Holdings Corporation  
TGbn (MAC)  12/16/2024              Zhou, Pei                                                TCL  
TGbn (MAC)  12/16/2024         Dong, Xiandong                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  12/16/2024           Lou, Hanqing                                 InterDigital, Inc.  
TGbn (MAC)  12/16/2024            Hart, Brian                                Cisco Systems, Inc.  
TGbn (MAC)  12/16/2024         Sung, Hyeonjun                                         WILUS Inc.  
TGbn (MAC)  12/16/2024            Ma, Yongsen                                SAMSUNG ELECTRONICS  
TGbn (MAC)  12/16/2024             Das, Subir                                       Peraton Labs  
TGbn (MAC)  12/16/2024          Lee, Hong Won                                     LG ELECTRONICS  
TGbn (MAC)  12/16/2024          Son, Ju-Hyung                                         WILUS Inc.  
TGbn (MAC)  12/16/2024              Zhao, Yue                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/16/2024             Xiao, Tong                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  12/16/2024              Wang, Lei         Futurewei Technologies/Huawei Technologies  
TGbn (MAC)  12/16/2024            Klein, Arik                       Huawei Technologies Co., Ltd  
TGbn (MAC)  12/16/2024          Park, Sungjin                                           Senscomm  
TGbn (MAC)  12/16/2024      Varshney, Prabodh                                              Nokia  
TGbn (MAC)  12/16/2024          Wullert, John                                       Peraton Labs  
TGbn (MAC)  12/16/2024          Chen, Wei-Han                                       Mediatek Inc  
TGbn (MAC)  12/16/2024               Che, Hui                           Ruijie Networks Co., Ltd  
TGbn (MAC)  12/16/2024           Gu, Xiangxin     Spreadtrum Communications (Shanghai) Co., Ltd.  
TGbn (MAC)  12/16/2024           Coffey, John                        Realtek Semiconductor Corp.  
TGbn (MAC)  12/16/2024         Kim, Geon Hwan                                     LG ELECTRONICS  
TGbn (MAC)  12/16/2024          Perez, Javier                                             Ofinno  
TGbn (MAC)  12/16/2024              Xia, Qing                                   Sony Corporation  
TGbn (MAC)  12/16/2024          Urabe, Yoshio                     Panasonic Holdings Corporation  
TGbn (MAC)  12/16/2024         Park, Minyoung                                         Apple Inc.

TGbn (MAC)  12/16/2024            Choi, JinHo                                SAMSUNG ELECTRONICS

* The Chair asked whether there is comment about agenda in 11-24/1988r9.
* PDT Submissions (30 mins):
  + [24/2022r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2022-00-00bn-pdt-mac-bsr-enhancement.docx) PDT MAC BSR Enhancement Frank Hsu

C: deliver seems to be odd word. Indicate is better than deliver.

C: red font, avoid the red font.

C: its associated AP

C: multiple TID can be controled?

C: QoS Control and BSR control are both here?

C: you can change it to non-AP. Uless the UHR non-AP.

C: UHR non-AP STA?

C: the first line, can be its associated AP and the next is the AP.

* + [24/1961r](https://mentor.ieee.org/802.11/dcn/24/11-24-1961-03-00bn-pdt-mac-c-tdma.docx)3 PDT-MAC-C-TDMA Sanket Kalamkar

C: In 157, we can think about ICF more. Would be better with aligning with the SFD.

C: does the SFD contain this diagram?

C: ICF is PPDU 0 or PPDU 1?

A: In this case, it’s PPDU 0. ICF creates the TXOP. If you say it’s PPDU 0, then that was my interpretation .

C: is this r4 or r3?

A: This is staill R3.

C: Sharing AP and shared AP are colocated or non-colocated? In early motions? You only consider non-colocated AP.

A: Motion 159 describes non-colocated AP but we can further discuss non-colocated AP also.

C: we want to limit the ICF to Co-TDMA now. We have ICF in many other functionality for example NPCA.

C: for polling phases, At least for TXOP based schemes maybe it’s already been discussed that it’s needed as well for the coordinated beamforming.

A: This is for the progress of co-TDMA.

* Pending SPs – Topic (30 mins):

**SP1 – Binita Gupta –Roaming**

Do you agree to add the following text to 11bn SFD?

* + 11bn defines that when a non-AP MLD is not in the process of roaming transition, it can exchange class 3 frames with only one AP MLD

*Supporting list: 23/2157, 24/0396, 24/0052, 23/1884, 23/1937, 23/1996, 24/830, 24/0083*

Result:

C: Do you want to prevent some feature from coming like joint transmission or some kind of beamforming where communicating with more than one AP MLD. Might be possible.

C: based on the current spec, we only required STA can associate with one AP MLD. What’s the difference between these requirement and here you mean?

C: is there nay technical obstacle to if we enable more than one AP MLD to exchange class 3 with one AP MLD?

C: I also have a contribution to a proposed to enable more than one AP ID. We can have more open discussion.

Deferred

**SP2 – Binita Gupta –Bandwidth Expansion**

Do you agree to add the following text to 11bn SFD?

* + Define in 11bn a mechanism for dynamic bandwidth selection (DBS) that enables an AP to expand its operating UHR BSS bandwidth for UHR STAs that support the DBS operation.
  + TBD whether a time duration is indicated for expanded UHR BSS bandwidth

*Supporting list: 24/088, 24/815*

Result:

C: Enterprise environment, bandwdith are selected based on the criteria. For managing the interference, when the bandwidth of one AP gets expanded, it would impact other Aps and neighboring Aps. I did not find the reasons in two docs.

C: I would suggest to hold on this and further discuss this aspects before running this.

C: Do you assume that all STAs support DBS or only can trigger some STA?

C: Is this similar to mechanism of operation mode indication? It does not require to have a frame exchange with the STA.

A: this is AP announcing. This can be beacon response.

C: when the bandwidth is expanded and going to the larger bandwidth, but going back to a narrow bandwidth, I think the STA has to follow and it needs time.

28Y, 34N, 47A

**SP3 – Binita Gupta –QoS**

Do you agree to add the following text to 11bn SFD?

* + Define a mechanism in 11bn that enables:
    - A non-AP MLD to provide multiple QoS profiles in the SCS Request for an SCS stream, each indicating a different set of QoS characteristics parameters for the SCS stream, and
    - The non-AP MLD indicates which QoS profile is currently active, and
    - AP can accept or reject individual QoS profiles for the SCS stream

*Supporting list: 24/0660, 24/1752*

 Result:

C: Agree with the direction. The uplink gaming’s kind of thing where you want some kind of a triggering when they were actually actively doing something but other times you are ok with not really doing? You’re not generating your traffic so you would expec they’d be not. You can’t send any minimum or max service intervlas so if it does not know when to trigger it anyway. Can I treat that as another QoS profile?

A:You can treat that as a QoS profile and if you know essentially you are pausing your SCS. Right. You can pause your SCS in that sense. And you know the normal behavior should apply.

C: Concern on the mechansim of the viability. There’s alway going to be some randomness in the traffic. Traffi profile and all traffic is not going to be completely isynchornous. Long enough period of time to make it viable. We have exising mechanism, Management frame is more dynamic. Reasonable with management.

C: why not using SCS request to update QoS characteristic intead of providing multiple?

A: this was answered in the presentation. The SCS change request may be failed by AP. Resulting changing the scheduling for the desired QoS.

C: does this copule with RTWT? What’s the relationship with RTWT?

A: I’m not tied to RTWT.

C: How do you distinguise multiple QoS profile? Is SCSID?

A: I said using a QoS profile ID. Which is within the same SCS ID.

Recorded voting (appendix).

30Y, 25N, 45A

**SP4 – Binita Gupta –QoS**

Do you agree to add the following text to 11bn SFD?

* + Define a mechanism in 11bn that enables a non-AP MLD to dynamically update the active QoS profile for an SCS stream by signaling a different QoS profile to the AP in an A-Control field, where the QoS profile is selected from one of the previously accepted QoS profiles for that SCS stream.

*Supporting list: 24/0660, 24/1752*

Result:

Deferred

* Technical Submissions–QoS + BSR part 2
  + [24/1752](https://mentor.ieee.org/802.11/dcn/24/11-24-1752-00-00bn-dynamic-qos-profiles-follow-up.pptx) Dynamic QoS Profiles follow up Binita Gupta

C: max data rate. How does STA predict the max data rate? How does the AP respond to that? Do they use the max MCS? How that could be really utilized to do that?

A: The STA request the max data rate. Not both sides.

C: This may bottleneck would be the MCS maybe you have very high peak throughput in that 4K codec and then the MCS would be the bottleneck.

C: what’s the benefit of this QoS profile?

A: AP will serve the client up to this maximum data rate.

* + [24/0963](https://mentor.ieee.org/802.11/dcn/24/11-24-0963-01-00bn-enhancement-of-bsr-follow-up.pptx) Enhancement of BSR follow-up Frank Hsu

No discussion.

Adjourned at 12:00 ET

### Jan 6, 2025 (TGbn MAC ad hoc teleconference)

Chairman: Srinivas Kandala (Samsung)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex.

**Introduction**

* The Chair (Srinivas Kandala, Samsung) calls the meeting to order at 19:00am ET. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
* 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.
* The Chair goes through the IEEE copyright policy.
  1. **Copyright Policy: Participants are advised that**
     1. IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html" \l "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;
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  2. If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Srinivas Kandala ([srini.k1@samsung.com](mailto:srini.k1@samsung.com)), Jeongki Kim ([jeongki.kim.ieee@gmail.com](mailto:jeongki.kim.ieee@gmail.com)), and Xiaofei Wang ([xiaofei.wang@interdigital.com](mailto:xiaofei.wang@interdigital.coma))

Recorded attendance

Timestamp Name Affiliation

Breakout

TGbn (MAC) 06/01/2025 Jang, Insun LG ELECTRONICS

TGbn (MAC) 06/01/2025 Zhao, Yue Huawei Technologies Co., Ltd

TGbn (MAC) 06/01/2025 Roy, Rishabh SAMSUNG ELECTRONICS

TGbn (MAC) 06/01/2025 Gupta, Binita Cisco Systems, Inc.

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TGbn (MAC) 06/01/2025 Ekkundi, Manasi SAMSUNG ELECTRONICS

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TGbn (MAC) 06/01/2025 Kim, Sang Gook LG ELECTRONICS

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TGbn (MAC) 06/01/2025 Fujimori, Yuki Canon Research Centre France

TGbn (MAC) 06/01/2025 Erkucuk, Serhat Ofinno

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TGbn (MAC) 06/01/2025 Wang, Lei Futurewei Technologies/Huawei Technologies

TGbn (MAC) 06/01/2025 Yee, James MediaTek Inc.

TGbn (MAC) 06/01/2025 Naik, Gaurang Qualcomm Technologies, Inc

* The Chair asked whether there is comment about agenda in 11-24/1988r13.
* PDT Submissions (60 mins):
  1. [24/2056r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2056-00-00bn-pdt-mac-twt-sp-management.docx) PDT-MAC-TWT SP Management Kumail Haider\*

C: you have to specify the UHR STA or non-UHR STA for EOTSP. You need to identify the capability of it.

A: Let me work on that. It’s optional. UHR STA.

C: Agree with the capability. We discussed about the details but did not reach consensus on the detailed format. we need more discussion on the detailed signal. In current SFD, signaling is TBD.

C: I want to join the discussion on the detailed signaling.

* 1. [24/1881r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1881-00-00bn-pdt-mac-seamless-roaming.docx) PDT-MAC-Seamless-Roaming Duncan Ho

C: I suggest to use the similar text with 11r. Seamless transition and seamless roaming. You can add note for it.

C: The last text may be more related to framework. I’m willing to work on that.

C: The current AP MLD shall send a TBD Response frame. Not sure if the current or target AP MLD? Is there any SFD text for it? This is related to DS mapping design. You can remove this text. How to design DS mapping need more discussion. You can say ”TBD Response frame can be sent by the non-AP MLD...” like that.

C: The current AP MLD may forward to ... . I prefer to allow the current AP MLD forward pending individual frame .. before sending TBD request frame. It can be one option.

C: Those happen parallel.

A: I need to think about it.

C: The current AP MLD is same as serving AP MLD?

A: Yes

* 1. [24/2020r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2020-00-00bn-pdt-for-uhr-mac-introduction-section.docx) PDT for UHR MAC Introduction section George Cherian

C: Title should be updated.

* 1. [24/2030r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2030-00-00bn-pdt-mac-coordinated-beamforming.docx) PDT-MAC-Coordinated-Beamforming Jason Y. Guo

C: Motion 116, I could not find the related text.

A: That is the sounding PDT text. The last text is related to it.

C: This document does not cover it.

* 1. ~~24/2067r0 PDT MAC UHR BSS Operation Ming Gan~~
  2. ~~24/2066r0 PDT MAC Acknolwedgement Procedure Ming Gan~~

\*Member requested to present first due to scheduling constraints.

* Pending SPs – Topic (30 mins):

**~~SP1 – Gaius Y. H. Wee – C-RTWT~~**

~~Do you support allowing an AP to request a neighbour AP to share a portion of its TXOP obtained during an R-TWT SP?~~

* ~~The request is based on sending a TWT request, which contains the TWT element~~
* ~~The portion of TXOP is shared by sending an MU-RTS TXS Trigger frame~~

*~~Supporting docs:~~*[*~~24/1457r0~~*](https://mentor.ieee.org/802.11/dcn/24/11-24-1457-00-00bn-r-twt-sharing.pptx)*~~,~~*[*~~23/2212r1~~*](https://mentor.ieee.org/802.11/dcn/23/11-23-2212-01-00bn-r-twt-protection-in-11bn.pptx)

~~Result:~~

**SP2 – Giovanni Chisci – PDT – C-RTWT**

Do you support to incorporate the text of [11-24/1966r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1966-02-00bn-pdt-mac-crtwt.docx) into the TGbn D0.1?

*Supporting documents: [24/1966r2]*

Result: No objection

* Technical Submissions–Roaming Part 1
  1. [24/1516](https://mentor.ieee.org/802.11/dcn/24/11-24-1516-00-00bn-seamless-roaming-context-transfer.pptx) Seamless Roaming Context Transfer Yelin Yoon

C: SP 3, non-AP MLD can renegotiate with AP MLD.

C: SN is based on each AP MLD. I prefer to renegotiate with target AP MLD.

C: renegotiation after roaming means after request/resposne or after preparation?

A:

A:

* 1. [24/1517](https://mentor.ieee.org/802.11/dcn/24/11-24-1517-00-00bn-seamless-roaming-data-transfer.pptx) Seamless Roaming Data Transfer Yelin Yoon

C: negotiation between AP MLD and target AP MLD is L3 level signaling. It is implemenation.

A: Yes

C: The first bullet, This signaling is sent to target AP MLD or non-AP MLD?

A: Non-AP MLD.

C: This makes sense. But the transition duration timer is implementation.

C: We don’t limit how long.

C: Would you separate two SPs? Amount of the data and timer.

C: transition timer can be timer or event.

C: timer is one option the other is sequence based approach.

* 1. [24/1528](https://mentor.ieee.org/802.11/dcn/24/11-24-1528-02-00bn-details-on-data-forwarding-for-seamless-roaming.pptx) Details-on-data-forwarding-for-seamless-roaming Ryuichi Hirata

C: SP 2 a mechanism, there are a lot of mechanisms. Some are outside of the scope.

C: The capability signaling, I totally agree with it. Backhaul, different architecture is probably not in the scope. Implementation can be decided.

Adjourned at 21:00 ET.

### Jan 9, 2025 (TGbn MAC ad hoc teleconference)

Chairman: Xiaofei Wang (Interdigital)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex.

**Introduction**

* The Chair (Xiaofei Wang, Interdigital) calls the meeting to order at 10:00am ET. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
* 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.
* The Chair goes through the IEEE copyright policy.
  1. **Copyright Policy: Participants are advised that**
     1. IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html" \l "7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
     2. Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy
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  2. If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Srinivas Kandala ([srini.k1@samsung.com](mailto:srini.k1@samsung.com)), Jeongki Kim ([jeongki.kim.ieee@gmail.com](mailto:jeongki.kim.ieee@gmail.com)), and Xiaofei Wang ([xiaofei.wang@interdigital.com](mailto:xiaofei.wang@interdigital.coma))

Recorded attendance

    Timestamp                                Name                                        Affiliation  
Breakout                                                                                                      
TGbn (MAC)  01/09/2025                         Cha, Dongju                                     LG ELECTRONICS  
TGbn (MAC)  01/09/2025                       Sevin, Julien                       Canon Research Centre France  
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TGbn (MAC)  01/09/2025                   Tseng, Yen Hsiung                                      MediaTek Inc.  
TGbn (MAC)  01/09/2025                      Sung, Hyeonjun                                         WILUS Inc.  
TGbn (MAC)  01/09/2025                       Son, Ju-Hyung                                         WILUS Inc.  
TGbn (MAC)  01/09/2025                       Shi, Zhenpeng                       Huawei Technologies Co., Ltd  
TGbn (MAC)  01/09/2025                       Park, Sungjin                                           Senscomm  
TGbn (MAC)  01/09/2025                      Park, Minyoung                                         Apple Inc.  
TGbn (MAC)  01/09/2025                      Kuo, Chih-Chun                                      MediaTek Inc.  
TGbn (MAC)  01/09/2025                         Klein, Arik                       Huawei Technologies Co., Ltd  
TGbn (MAC)  01/09/2025                      Fujimori, Yuki                       Canon Research Centre France  
TGbn (MAC)  01/09/2025                      Kishida, Akira                                                NTT  
TGbn (MAC)  01/09/2025                      Kim, Sang Gook                                     LG ELECTRONICS  
TGbn (MAC)  01/09/2025                        Kim, Jeongki                                             Ofinno  
TGbn (MAC)  01/09/2025                  Ghosh, Chittabrata                                         Apple Inc.  
TGbn (MAC)  01/09/2025                          Gu, Jaheon                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  01/09/2025                      Kim, Geon Hwan                                     LG ELECTRONICS  
TGbn (MAC)  01/09/2025                      Karthik, S. G.                                SAMSUNG ELECTRONICS  
TGbn (MAC)  01/09/2025                        Gu, Xiangxin     Spreadtrum Communications (Shanghai) Co., Ltd.  
TGbn (MAC)  01/09/2025                   Kandala, Srinivas                                            Samsung  
TGbn (MAC)  01/09/2025                  Kalyankar, Shravan                       Huawei Technologies Co., Ltd  
TGbn (MAC)  01/09/2025                    GUIGNARD, Romain                       Canon Research Centre France  
TGbn (MAC)  01/09/2025                        Ha, Taeyoung                      Samsung Electronics Co., Ltd.  
TGbn (MAC)  01/09/2025                         Jang, Insun                                     LG ELECTRONICS  
TGbn (MAC)  01/09/2025                      Inoue, Kyosuke                                  SHARP CORPORATION  
TGbn (MAC)  01/09/2025            Halna du Fretay, Tristan                       Canon Research Centre France  
TGbn (MAC)  01/09/2025                      Handte, Thomas                             Sony Group Corporation  
TGbn (MAC)  01/09/2025                       huang, kaikai                                              Nokia  
TGbn (MAC)  01/09/2025                      Fang, Yonggang                                      MediaTek Inc.  
TGbn (MAC)  01/09/2025                       Kim, Sanghyun                                         WILUS Inc.  
TGbn (MAC)  01/09/2025                        Cui, Yaoshen                               TP-Link Systems Inc.  
TGbn (MAC)  01/09/2025                         Ma, Yongsen                                SAMSUNG ELECTRONICS  
TGbn (MAC)  01/09/2025                  Mehrnoush, Morteza                                         Apple Inc.  
TGbn (MAC)  01/09/2025                    Dezfouli, Behnam                                              Nokia  
TGbn (MAC)  01/09/2025                        Lou, Hanqing                                 InterDigital, Inc.  
TGbn (MAC)  01/09/2025                    Lorgeoux, Mikael                       Canon Research Centre France  
TGbn (MAC)  01/09/2025                     Ekkundi, Manasi                                SAMSUNG ELECTRONICS  
TGbn (MAC)  01/09/2025                        Miwa, Shinya                       Canon Research Centre France  
TGbn (MAC)  01/09/2025                         Choi, JinHo                                SAMSUNG ELECTRONICS  
TGbn (MAC)  01/09/2025                         Lu, Liuming  Guangdong OPPO Mobile Telecommunications Corp....  
TGbn (MAC)  01/09/2025                     Erkucuk, Serhat                                             Ofinno  
TGbn (MAC)  01/09/2025                        Mutgan, Okan                                              Nokia  
TGbn (MAC)  01/09/2025                Chaturvedi, Abhishek                                Samsung Electronics  
TGbn (MAC)  01/09/2025                        LEE, JOONSOO                                      Newracom Inc.  
TGbn (MAC)  01/09/2025                         Fan, Shuang                     Sanechips Technology Co., Ltd.  
TGbn (MAC)  01/09/2025                        Chen, Junbin                               TP-Link Systems Inc.  
TGbn (MAC)  01/09/2025                        CHENG, yajun                    Xiaomi Communications Co., Ltd.  
TGbn (MAC)  01/09/2025                       Luo, Chaoming        Beijing OPPO telecommunications corp., ltd.  
TGbn (MAC)  01/09/2025                   Neishaboori, Azin                             General Motors Company  
TGbn (MAC)  01/09/2025                           Li, Weiyi                  Spreadtrum Communication USA, Inc  
TGbn (MAC)  01/09/2025                      Nezou, Patrice                       Canon Research Centre France

* The Chair asked whether there is comment about agenda in 11-24/1988r14.
* PDT Submissions:
  1. [24/2049r](https://mentor.ieee.org/802.11/dcn/24/11-24-2049-01-00bn-pdt-mac-m-ap-coordination-framework.docx)1 PDT MAC M-AP Coordination Framework Arik Klein  
     C: definition of AP ID, do you want to tie it with Multi-AP coordination? Just conceptual. One AP assigns ID to identify another AP.

C: there is no association between APs. We don’t need association request/response in this document.

C: UHR capabilities element is for inBSS capabilities. We can have different Capability element.

C: Do you want to add other coordinated schemes in this document? You have several subclauses.There is PDT document for other schemes.

* 1. [24/2031r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2031-00-00bn-pdt-mac-coordinated-spatial-reuse.docx) PDT-MAC-Coordinated-Spatial-Reuse Jason Y. Guo

C: The sharing AP transmits is better.

A: Currently we don’t have much details.

C: only sharing AP controls the power?

A: the sharing AP controls the power of the shared AP.

C: is that transmit power control of the shared AP by sharing AP?

A: Yes

C: We don’t start the objective of coordinated spatial reuse. Co-SR allows ... like this.

* Technical Submissions–Roaming Part 2
  1. [~~24/1591~~](https://mentor.ieee.org/802.11/dcn/24/11-24-1591-00-00bn-thoughts-on-seamless-roaming-and-npca.pptx) ~~Thoughts on Seamless Roaming and NPCA Ning Gao~~
  2. [24/1624](https://mentor.ieee.org/802.11/dcn/24/11-24-1624-00-00bn-sn-assignment-and-inter-ap-mld-interaction-for-seamless-roaming.pptx) SN assignment and inter-AP MLD interaction for Seamless Roaming Kyosuke Inoue

C: We did discussed about defining MLME interfaces to expose what set of context to be transfered from current AP to the target AP MLME

C: The exact transport of how the context is transferred as you indicating should be left to the AP vendors because they’re different types of backhauls and different types of transports used on the backhole.

C: The presentation talk about the sort of like the next SN they can be assigned by the target AP it should be part of the context. I think we may not need to say. Some like data that may come so it’s very hard to define all those like behavior. You can transfer the next session. If you send PTK then you can transfer the next PN or something like that. This should be enough

* 1. [24/1740](https://mentor.ieee.org/802.11/dcn/24/11-24-1740-01-00bn-ul-data-transmission-for-seamless-roaming.pptx) UL Data Transmission for Seamless Roaming Kyosuke Inoue

C: Is this optional feature or mandatory feature? I guess from my side it’s optional feature.

C: do you see this has the choice between option 1 and option 2? Do you see the spec defines one option? Both option can be defined.

A: Both option can be defined.

C: In some case option 1 is useful. How to use option 1 and option 2 is better tell STA to make the decision to tell AP which option is to choose.

C: We can discuss how to support this.

C: You mentioned already complexity but also can consider the capability.

C: This is an option that can be considered based on nextwork capability to do so. Let’s consider what are the trade offs between the benefits introduced and the complexity becuase we introduced preparation also to make the roaming excution as short as possible. transition and excution is as short as possbile. Let’s see.

* 1. [~~24/1746~~](https://mentor.ieee.org/802.11/dcn/24/11-24-1746-02-00bn-comparision-between-enhanced-fast-bss-transition-and-smd.pptx) ~~Comp. Between Enhanced FT and Distributed SMD Guogang Huang~~
  2. [24/1812](https://mentor.ieee.org/802.11/dcn/24/11-24-1812-00-00bn-seamless-roaming-through-a-target-ap-follow-up.pptx) Seamless roaming through a target AP follow up Binita Gupta

C: use cases I very support that. The TG needs to agree on framework for doing.

I’m not sure exactly the details in this are the way to go.

C: Roaming request protection, you want to use PMF protection. This is problem is the target AP MLD have no ideas about the SN used by the STA.

A: If we add another negotiation with the target AP that adds other you know additional frames right? This is two frames.

C: this use case is very important. Slide 8, What if nonAP wants to renegotiate its SCS and it puts that information in the roaming request, what if AP reject it? What the action on the non-PA side because the non-AP will just send roaming request once.

C: I agree with usecase. Slide 7, you added the additional TSF stuff and sequence number. I worried about it. We were more simple way. We can avoid the complicated design.

C: are these alternative validation methods to be performed directly on the PMF?

* 1. [24/1820](https://mentor.ieee.org/802.11/dcn/24/11-24-1820-00-00bn-ul-data-continuity-improvement-for-seamless-roaming.pptx) UL Data Continuity Improvement 4 Seamless Roaming Yudai Morikawa

C: Not sure AP sending a roaming request. AP initiates roaming request. Client determines the roaming request.

* 1. [24/1824](https://mentor.ieee.org/802.11/dcn/24/11-24-1824-00-00bn-discussion-on-context-transfer-in-seamless-roaming.pptx) Discussion on Context Transfer in Seamless Roaming Javier Perez-Ramirez

C: transfering TWT/RTWT is out of question. No context transfer for TWT, RTWT.

C: I support this direction of renegotiation of RTWT in preparation phase.

C:preparation request and response exchange will encapsulate this renegiton . a little conern about from in preparation of all the possible negotiation.

Adjourned at 12:00 ET.

### Appendix – Recorded SP result

* **Dec 5: SP 1:– Dmitry Akhmetov – Channel Access**

SP result: 36 Y, 52N, 36A

|  |  |
| --- | --- |
| Participant Name | Voting |
| [A] Eda Genc, Nokia | No |
| [V] Charlie Pettersson, | No |
| Federico Lovison | No |
| Juan Carlos Zuniga | No |
| [V] Yonggang Fang | Yes |
| [V] Alfred Asterjadhi, Qualcomm Inc. | Yes |
| [V] Mike Montemurro | Abs |
| Malcolm Smith | No |
| [V] Serhat Erkucuk, Ofinno | Abs |
| [V] Renlong Zhou,Sanechips | No |
| [N] Javier Perez-Ramirez, Ofinno | Yes |
| [V] William Li, Spreadtrum | Abs |
| Jarkko Kneckt | Yes |
| [V] Anton Tretiakov, self | No |
| Binita Gupta | No |
| Qi Wang | Yes |
| [V]Hanqing Lou, InterDigital | No |
| [V] Mahmoud Hasabelnaby, Huawei | Abs |
| Aditi Singh | Yes |
| Minyoung Park | Yes |
| Kain, Carl | Abs |
| [v] Yuki Tsujimaru | Abs |
| [V] Srinivas Kandala Samsung | Yes |
| Mohamed Abouelseoud | Yes |
| [V] Ryuichi Hirata | Abs |
| [V] Steve Rodriguez | Cisco | No |
| [V] Stephane Baron, | No |
| Yanjun Sun | Yes |
| Reza Hedayat | Abs |
| [V] Kiseon Ryu | Yes |
| [V] Xiaofei Wang, InterDigital | No |
| [V] Prabodh Varshney | Abs |
| [V] Po-Kai Huang Intel | Yes |
| [V] Mao Yang Northwestern Polytechnical University | No |
| [V] Sang Kim LGE | Abs |
| [V] John Wullert, Peraton Labs | Yes |
| [V] Thomas Derham | Yes |
| [V] Kosuke Aio, Sony | No |
| [v] Li Quan ZTE | No |
| [V] Tuncer Baykas, Ofinno | Abs |
| [V] Jeongki Kim, Ofinno | No |
| [V] Dmitry Akhmetov, Intel | Yes |
| [V] George Cherian | Yes |
| [V] Sanghyun Kim, WILUS Inc. | Abs |
| [V] Si-Chan Noh, Newracom | Abs |
| [V] Klaus Doppler, Nokia | Yes |
| [V] GeonHwan Kim, LGE | Abs |
| [V] Massinissa Lalam, Sagemcom | No |
| [V] Akira Kishida, NTT | Yes |
| John (Juhyung) Son | Abs |
| [V], Yanchao Xu, Amlogic | Abs |
| [V] Hongwon Lee | Abs |
| [V] Duncan Ho | Yes |
| [V] Yuki FUJIMORI | Yes |
| [V] Gaius Wee, Panasonic | Abs |
| [V] Patrice NEZOU, Canon | No |
| [V] Gaurav Patwardhan, HPE | No |
| [V] Dongju Cha, LGE | Abs |
| [V] Hui Luo, Infineon | Yes |
| [V] Seongho Byeon, Samsung Electronics | Yes |
| [V] Pascal Viger, Canon | Abs |
| [V] Ning Gao | No |
| [V] Sanket Kalamkar, Qualcomm | Yes |
| [V] Matthew Fischer | Yes |
| [V] Luther Smith, CableLabs | Abs |
| [V] Kaiying Lu | Yes |
| [V] Insun Jang | Abs |
| Brian Hart | No |
| [V] Hank Hyeonjun Sung, WILUS Inc. | Abs |
| [V] Liangxiao Xin | No |
| [V] Rae Haorui Yang, China Mobile | No |
| Oren Kedem [Maxlinear] | No |
| [V] Kyosuke Inoue, SHARP | Abs |
| [V] SunHee Baek LGE | Abs |
| [V] Kazuto Yano, ATR | Abs |
| Osama Aboul-Magd | No |
| [V] Michail Koundourakis, Samsung | Yes |
| [V] Yongsen Ma | Yes |
| YaodongZhang,ZTE | No |
| [V] Yue Qi, Samsung Electronics | Yes |
| Jegan Manoharan | No |
| luyanan | No |
| [V] Zhenpeng Shi, Huawei | Abs |
| Yi jiang zte[nv] | No |
| [V] Hiroyuki Motozuka | No |
| [V] Tong Xiao, Xiaomi | Abs |
| [V] Jason Yuchen Guo | Abs |
| [nv ] Yuanjian Zhang | No |
| [V] Chaoming Luo | No |
| [NV]Haidong Xu,ZTE | No |
| [V] Shuang Fan, Sanechips | No |
| [V] Yuxin Lu | Abs |
| [V] Yingqiao Quan, Spreadtrum | Abs |
| [V] Taeyoung Ha, Samsung | Yes |
| [V]Suhwook Kim, Samsung Electronics | Yes |
| [V] Jinho Choi, Samsung Electronics | Yes |
| [nv]Qingliang Shou | No |
| Qisheng Huang ZTE | No |
| [V] Zhongjiang Yan | No |
| [V] Yoshio Urabe | Abs |
| [v] Jay Yang [ZTE] | No |
| [NV]Zhigang Zhang | No |
| [V] Karthik Srinivasa Gopalan, Samsung Electronics | Yes |
| [V] Zhuqing Tang, Huawei | Abs |
| 许海峰 | No |
| [V] Salvatore Talarico | No |
| [V] Yunbo Li | Yes |
| [V] Qingwei FU (TP-Link) | No |
| [V] Bo Li | No |
| [V] Giovanni Chisci, Qualcomm | Yes |
| [V] Hui Che, Ruijie | No |
| Dave Scott | No |
| [V] Guogang Huang Huawei | Abs |
| [V]Kaikai Huang, Nokia | Abs |
| 【A】Zhongyi Wang【ZTE】 | No |
| [V] Junbin Chen, TP-Link | Abs |
| [V] Yurong Qian （ZTE） | No |
| Ugo Campiglio | No |
| [V] Sherief Helwa, Qualcomm | Yes |
| Anonymous | No |
| Anonymous | No |
| Anonymous | No |
| Anonymous | Yes |
| Anonymous | No |

* **Dec 9 SP 2 SP2 – Kumail Haider – Power Save**

Result: 29Y/40N/44A

|  |  |
| --- | --- |
| **Participant Name** | **Voting** |
| Malcolm Smith | NO |
| [V] Serhat Erkucuk, Ofinno | NO |
| [N] Javier Perez-Ramirez, Ofinno | ABSTAIN |
| Blanca Wong Mosquera | NO |
| [V] William Li, Spreadtrum | ABSTAIN |
| Jarkko Kneckt | ABSTAIN |
| Binita Gupta | NO |
| [V]Hanqing Lou, InterDigital | NO |
| [V] Mahmoud Hasabelnaby, Huawei | NO |
| Aditi Singh | YES |
| Minyoung Park | ABSTAIN |
| Neel Nurani Krishnan | ABSTAIN |
| Kain, Carl | ABSTAIN |
| Mohamed Abouelseoud | NO |
| [V] Ryuichi Hirata | ABSTAIN |
| Reza Hedayat | NO |
| [V] Xiaofei Wang, InterDigital | NO |
| [V] Sang Kim LGE | YES |
| [V] John Wullert, Peraton Labs | NO |
| [V] George Cherian | YES |
| [V] GeonHwan Kim, LGE | YES |
| [V] Akira Kishida, NTT | YES |
| [V] Hongwon Lee | YES |
| [V] Duncan Ho | NO |
| [V] Patrice NEZOU, Canon | ABSTAIN |
| [V] Gaurav Patwardhan, HPE | NO |
| [V] Dongju Cha, LGE | YES |
| [V] Seongho Byeon, Samsung Electronics | ABSTAIN |
| Brian Hart | NO |
| [V] Rae Haorui Yang, China Mobile | ABSTAIN |
| [V] Yelin Yoon, LGE | YES |
| Jegan Manoharan | NO |
| [V] Yusuke Tanaka | ABSTAIN |
| [V] Zhenpeng Shi, Huawei | NO |
| [V] Jaheon Gu, Samsung Electronics | ABSTAIN |
| [V] Rubayet Shafin, Samsung Electronics | YES |
| [V] Tong Xiao, Xiaomi | ABSTAIN |
| [V] Jason Yuchen Guo | NO |
| YH Tseng (曾彥雄) | ABSTAIN |
| Dave Scott | NO |
| [V] Guogang Huang Huawei | NO |
| [V] Junbin Chen, TP-Link | YES |
| [V] Pei Zhou, TCL | YES |
| [V] Alice Jialing Li Chen | NO |
| Yong Liu | ABSTAIN |
| [V] Arik Klein, Huawei | ABSTAIN |
| [V] Steve Rodriguez | Cisco | NO |
| [V] Al Petrick | YES |
| [V] Hui Luo, Infineon | YES |
| [V] Frank Chien-Fang Hsu, Mediatek | NO |
| Pooya Monajemi | ABSTAIN |
| Ethan Zimmer | NO |
| Carlos Alcantara | NO |
| Behnam Dezfouli | YES |
| Taeyoung Ha, Samsung | ABSTAIN |
| Pelin Salem | NO |
| Al Dumdei | NO |
| [V] Gaurang Naik, Qualcomm | NO |
| [V] Kiseon Ryu | ABSTAIN |
| [V] Mark Hamilton (CommScope/Ruckus) | YES |
| [V] Jeongki Kim, Ofinno | ABSTAIN |
| [A] Lyutianyang Zhang, Huawei | NO |
| [V] Tuncer Baykas, Ofinno | ABSTAIN |
| [V] Giovanni Chisci, Qualcomm | NO |
| Allan Kim | NO |
| [V] Liwen Chu, NXP | NO |
| [V] Si-Chan Noh, Newracom | YES |
| [V] Jungjun Kim, Samsung Electronics | ABSTAIN |
| [V] Kosuke Aio, Sony | ABSTAIN |
| [V]Ryunosuke Sakamoto, Sharp | ABSTAIN |
| [V] George Chih-Chun Kuo | NO |
| [V] Liangxiao Xin | ABSTAIN |
| [V] SunHee Baek LGE | YES |
| Zach Georgiev | NO |
| [V] Insun Jang | YES |
| [V] Dmitry Akhmetov, Intel | YES |
| [V] Mingyu Lee, Samsung Electronics | ABSTAIN |
| [V] Vishnu Ratnam, Samsung Electronics | YES |
| [V] Chaoming Luo | YES |
| [V] Boon Loong Ng, Samsung Electronics | YES |
| Subir Das [Peraton Labs] | ABSTAIN |
| [V] Maolin Zhang, Huawei | NO |
| [V] HUI CHE, Ruijie | NO |
| [V] Takuhiro Sato, Sharp | ABSTAIN |
| [V] Kyosuke Inoue, SHARP | ABSTAIN |
| [v] Xiandong Dong-xiaomi | ABSTAIN |
| [V] M. Kumail Haider | YES |
| [V] Xiangxin Gu, Spreadtrum | NO |
| Carlos Aldana Meta | YES |
| [V] Yoshio Urabe | YES |
| [V] Yuxin Lu | ABSTAIN |
| [V] Kazuto Yano, ATR | ABSTAIN |
| [V] Jonghoe Koo, Samsung | YES |
| [V] Jerome Gu, Clourney Semiconductor | YES |
| [v] Jay Yang [ZTE] | NO |
| [V] Hiroyuki Motozuka | ABSTAIN |
| [V] Manasi Ekkundi, Samsung Electronics | ABSTAIN |
| [V] Shawn Kim, WILUS Inc. | ABSTAIN |
| [V] Yunbo Li | NO |
| [V] Jinho Choi, Samsung Electronics | YES |
| [V] Hirohiko INOHIZA | ABSTAIN |
| [V] Ming Gan Huawei | NO |
| [V]Yan Li,ZTE | NO |
| [V]Kaikai Huang, Nokia | ABSTAIN |
| [V] Jiayi Zhang (Vincent), Ofinno | YES |
| [PV]Hank Sung, WILUS Inc. | ABSTAIN |
| [V] Salvatore Talarico - Nokia | ABSTAIN |
| [V] Naveen Kakani | NO |
| [V] Yongsen Ma | ABSTAIN |
| John Son, WILUS | ABSTAIN |
| [V] Shuang Fan, Sanechips | ABSTAIN |
| Jinjing Jiang | ABSTAIN |
| Anonymous | ABSTAIN |

* **Dec 9 SP4 – Brian Hart – Feedback**

Result: 40Y, 20N, 55A

|  |  |
| --- | --- |
| **Participant Name** |  |
| [V] Mike Montemurro | NO |
| Malcolm Smith | YES |
| [V] Serhat Erkucuk, Ofinno | ABSTAIN |
| [N] Javier Perez-Ramirez, Ofinno | YES |
| Blanca Wong Mosquera | YES |
| [V] William Li, Spreadtrum | ABSTAIN |
| Jarkko Kneckt | NO |
| Binita Gupta | YES |
| Qi Wang | NO |
| [V]Hanqing Lou, InterDigital | ABSTAIN |
| Minyoung Park | NO |
| Neel Nurani Krishnan | YES |
| Kain, Carl | ABSTAIN |
| Mohamed Abouelseoud | NO |
| [V] Ryuichi Hirata | ABSTAIN |
| Reza Hedayat | YES |
| [V] Xiaofei Wang, InterDigital | ABSTAIN |
| [V] Sang Kim LGE | ABSTAIN |
| [V] John Wullert, Peraton Labs | YES |
| [V] George Cherian | YES |
| [V] GeonHwan Kim, LGE | ABSTAIN |
| [V] Akira Kishida, NTT | ABSTAIN |
| John (Juhyung) Son | ABSTAIN |
| [V] Hongwon Lee | ABSTAIN |
| [V] Duncan Ho | ABSTAIN |
| [V] Patrice NEZOU, Canon | ABSTAIN |
| [V] Gaurav Patwardhan, HPE | YES |
| [V] Dongju Cha, LGE | ABSTAIN |
| [V] Seongho Byeon, Samsung Electronics | YES |
| Brian Hart | YES |
| [V] Rae Haorui Yang, China Mobile | NO |
| [V] Yelin Yoon, LGE | ABSTAIN |
| [V] Yusuke Tanaka | YES |
| [V] Zhenpeng Shi, Huawei | NO |
| [V] Jaheon Gu, Samsung Electronics | ABSTAIN |
| [V] Rubayet Shafin, Samsung Electronics | YES |
| [V] Tong Xiao, Xiaomi | YES |
| [V] Jason Yuchen Guo | NO |
| YH Tseng (曾彥雄) | YES |
| Dave Scott | YES |
| [V] Guogang Huang Huawei | NO |
| [V] Junbin Chen, TP-Link | ABSTAIN |
| [V] Pei Zhou, TCL | NO |
| Yong Liu | NO |
| [V] Arik Klein, Huawei | ABSTAIN |
| [V] Steve Rodriguez | Cisco | YES |
| [V] Al Petrick | YES |
| [V] Rakesh Taori | ABSTAIN |
| [V] Hui Luo, Infineon | YES |
| [N] Masatomo Ouchi | ABSTAIN |
| [V] Frank Chien-Fang Hsu, Mediatek | YES |
| [v] Sean Coffey | ABSTAIN |
| Ethan Zimmer | YES |
| Carlos Alcantara | YES |
| Behnam Dezfouli | YES |
| Al Dumdei | YES |
| [V] Gaurang Naik, Qualcomm | ABSTAIN |
| [V] Yonggang Fang MediaTek | ABSTAIN |
| [V] Kiseon Ryu | ABSTAIN |
| [V] Mark Hamilton (CommScope/Ruckus) | NO |
| [V] Jeongki Kim, Ofinno | NO |
| [A] Lyutianyang Zhang, Huawei | NO |
| [V] Tuncer Baykas, Ofinno | ABSTAIN |
| [V] Giovanni Chisci, Qualcomm | ABSTAIN |
| Allan Kim | YES |
| [V] Liwen Chu, NXP | ABSTAIN |
| [V] Si-Chan Noh, Newracom | ABSTAIN |
| [V] Jungjun Kim, Samsung Electronics | ABSTAIN |
| [V] Kosuke Aio, Sony | YES |
| [V]Ryunosuke Sakamoto, Sharp | ABSTAIN |
| [V] George Chih-Chun Kuo | ABSTAIN |
| [V] Po-Kai Huang Intel | NO |
| [V] Liangxiao Xin | ABSTAIN |
| [V] SunHee Baek LGE | ABSTAIN |
| Zach Georgiev | YES |
| [V] Insun Jang | ABSTAIN |
| [V] Dmitry Akhmetov, Intel | ABSTAIN |
| [V] Ning Gao | ABSTAIN |
| [V] Vishnu Ratnam, Samsung Electronics | YES |
| [V] Dibakar das, Intel | NO |
| [V] Chaoming Luo | YES |
| [V] Boon Loong Ng, Samsung Electronics | YES |
| Subir Das [Peraton Labs] | ABSTAIN |
| [V] HUI CHE, Ruijie | NO |
| [V] Takuhiro Sato, Sharp | ABSTAIN |
| [V] Kyosuke Inoue, SHARP | YES |
| [v] Xiandong Dong-xiaomi | ABSTAIN |
| [V] Xiangxin Gu, Spreadtrum | ABSTAIN |
| Carlos Aldana Meta | YES |
| [V] Yoshio Urabe | ABSTAIN |
| [V] Yuxin Lu | ABSTAIN |
| [V] Kazuto Yano, ATR | YES |
| [V] Atsushi Shirakawa | YES |
| [V] Jonghoe Koo, Samsung | ABSTAIN |
| [V] Jerome Gu, Clourney Semiconductor | NO |
| [v] Jay Yang [ZTE] | ABSTAIN |
| [V] Hiroyuki Motozuka | YES |
| [V] Manasi Ekkundi, Samsung Electronics | YES |
| [V] Shawn Kim, WILUS Inc. | ABSTAIN |
| [V] Yingqiao Quan, Spreadtrum | ABSTAIN |
| [V] Yunbo Li | NO |
| [V] Hirohiko INOHIZA | ABSTAIN |
| [V] Ming Gan Huawei | ABSTAIN |
| [V]Yan Li,ZTE | ABSTAIN |
| [V]Kaikai Huang, Nokia | YES |
| [V] Jiayi Zhang (Vincent), Ofinno | YES |
| [PV]Hank Sung, WILUS Inc. | ABSTAIN |
| [V] Salvatore Talarico - Nokia | YES |
| [V] Naveen Kakani | ABSTAIN |
| [V] Yongsen Ma | ABSTAIN |
| [V] Shuang Fan, Sanechips | ABSTAIN |
| Jinjing Jiang | YES |
| [V] Qingwei FU (TP-Link) | NO |
| tomo adachi | ABSTAIN |
| Anonymous | ABSTAIN |

* **Dec 16 SP3 – Binita Gupta –QoS**

 Result: 30Y, 25N, 45A

|  |  |
| --- | --- |
| **Participant Name** |  |
|  |  |
| [V] Hui Luo, Infineon | NO |
| [N] Masatomo Ouchi | ABSTAIN |
| [V] Thomas Derham | NO |
| [N] Javier Perez-Ramirez, Ofinno | YES |
| [V] Lei Wang, Futurewei/Huawei | ABSTAIN |
| Mohamed Abouelseoud | NO |
| Reza Hedayat | NO |
| [V] Xiaofei Wang, InterDigital | ABSTAIN |
| Binita Gupta | YES |
| Blanca Wong Mosquera | YES |
| [V] Mike Montemurro | ABSTAIN |
| Jinjing Jiang | NO |
| Pooya Monajemi | NO |
| Malcolm Smith | YES |
| Al Dumdei | YES |
| Minyoung Park | NO |
| [V] Serhat Erkucuk, Ofinno | YES |
| [V] Gaurang Naik, Qualcomm | ABSTAIN |
| [V] Duncan Ho | ABSTAIN |
| Jarkko Kneckt | NO |
| Kain, Carl | ABSTAIN |
| [V] Sangho Seo, Broadcom | YES |
| [V] Taeyoung Ha, Samsung | YES |
| [V] Gaurav Patwardhan, HPE | YES |
| James Yee | YES |
| [V] Srinivas Kandala Samsung | NO |
| [V] Hongwon Lee | YES |
| [V] Joseph Levy, Interdigital | ABSTAIN |
| [V] GeonHwan Kim, LGE | YES |
| [V] Yusuke Tanaka | YES |
| [V] John Wullert, Peraton Labs | ABSTAIN |
| [V] Mark Hamilton (CommScope/Ruckus) | ABSTAIN |
| [V] Yelin Yoon, LGE | YES |
| [V], Yanchao Xu, Amlogic | ABSTAIN |
| [V] Frank Chien-Fang Hsu, Mediatek | NO |
| [V] Kazuto Yano, ATR | YES |
| Taori Rakesh | ABSTAIN |
| [V] Joonsoo, Newracom | ABSTAIN |
| Chitto Ghosh | ABSTAIN |
| YH Tseng (曾彥雄) | NO |
| Brian Hart | YES |
| [V] Dongju Cha, LGE | YES |
| Zach Georgiev | YES |
| Dave Scott | YES |
| [V] Seongho Byeon, Samsung Electronics | ABSTAIN |
| Yongho Seok | NO |
| [V] Gaius Wee, Panasonic | ABSTAIN |
| [V] Kiseon Ryu | ABSTAIN |
| [V] Ryuichi Hirata | ABSTAIN |
| [V] Sanket Kalamkar | ABSTAIN |
| [V] Jungjun Kim, Samsung Electronics | ABSTAIN |
| [V] Yuki FUJIMORI | ABSTAIN |
| [V] Insun Jang | YES |
| [V] Takuhiro Sato, Sharp | ABSTAIN |
| [V] Shawn(Sanghyun) Kim, WILUS Inc. | ABSTAIN |
| [PV]Hank Sung, WILUS Inc. | ABSTAIN |
| [V] Dmitry Akhmetov, Intel | YES |
| [V]Hanqing Lou, InterDigital | ABSTAIN |
| [V] Zhenpeng Shi, Huawei | NO |
| [V] Vishnu Ratnam, Samsung Electronics | YES |
| [V] Yongsen Ma | ABSTAIN |
| [V] SunHee Baek, LGE | YES |
| [V] Dibakar das, Intel | YES |
| [v]-XIANDONG DONG XIAOMI | NO |
| [V] Yue Zhao Huawei | NO |
| [V] Hui Che, Ruijie | YES |
| Yoshio Urabe | ABSTAIN |
| [V] Kyosuke Inoue, SHARP | ABSTAIN |
| [V] Tong Xiao, Xiaomi | ABSTAIN |
| [V] George Cherian | ABSTAIN |
| [V] George Chih-Chun Kuo | ABSTAIN |
| [V] Yuxin Lu | ABSTAIN |
| [V] Akira Kishida, NTT | ABSTAIN |
| [V] Hiroyuki Motozuka | ABSTAIN |
| [V] Jaheon Gu, Samsung Electronics | YES |
| [V] Pei Zhou, TCL | ABSTAIN |
| [V] Peshal Nayak, Samsung Electronics | NO |
| [V] Rae Haorui Yang, China Mobile | NO |
| [V] Junghoon Suh, Huawei | NO |
| [V] Ross Jian Yu Huawei | NO |
| tomo adachi | ABSTAIN |
| [V] Arik Klein, Huawei | NO |
| [V] Yunbo Li | NO |
| [V] Rubayet Shafin, Samsung Electronics | YES |
| Subir Das [Peraton Labs] | ABSTAIN |
| [V] Yang Hang, Ruijie | ABSTAIN |
| [V] Li Quan , ZTE | ABSTAIN |
| [V] Jason Yuchen Guo | NO |
| [V] Guogang Huang Huawei | NO |
| Yong Liu | NO |
| [V] Shuang Fan, Sanechips | ABSTAIN |
| [V] Tuncer Baykas, Ofinno | YES |
| [V] Li-Hsiang Sun | ABSTAIN |
| [V] Sherief Helwa, Qualcomm Technologies, Inc | ABSTAIN |
| [V] Atsushi Shirakawa | ABSTAIN |
| [V]Rishabh Roy, Samsung Electronics | YES |
| [V]Kaikai Huang, Nokia | ABSTAIN |
| [V] Matthew Fischer | YES |
| Anonymous | NO |
| Anonymous | ABSTAIN |