IEEE P802.11
Wireless LANs

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| Minutes for TGbn MAC Ad-Hoc teleconferences from September to November 2024 |
| Date: 2024-09-23 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Srinivas Kandala | Samsung Electronics |  |  | srini.k1@samsung.com |

Abstract

This document contains the meeting minutes for the TGbn MAC ad hoc teleconferences held between September 2024 and November 2024 meetings.

Revisions:

* Rev0: Added the minutes from the telephone conference held on September 23

Abbreviations:

* C: Comment.
* A: Answer.

# Monday, 23 September 2024, 07:00pm – 09:00pm ET (TGbn MAC ad hoc conference call)

Chairman: Xiaofei Wang (Interdigital)

Secretary: Srinivas Kandala (Samsung)

This meeting took place using a webex session.

**Introduction**

1. The Chair (Xiaofei, Interdigital) calls the meeting to order at 7:01pm EDT. The Chair introduces himself and the Secretary, Srini (Samsung)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents.
	1. Nobody responds.
3. The Chair goes through the IEEE copyright policy and no comments received on the floor
4. The Chair recommends using IMAT for recording the attendance.
	* Please record your attendance during the conference call by using the IMAT system:
		1. 1) login to [imat](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbn <MAC/PHY/Joint> conference call that you are attending.
	* If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Xiaofei Wang (xiaofei.wang@interdigital.com), Srinivas Kandala (srini.k1@samsung.com), and Jeongki Kim (jeongki.kim.ieee@gmail.com)

**Recorded attendance through Imat and e-mail:**

 **Name Affiliation**

|  |  |
| --- | --- |
| Ajami, Abdel Karim | Apple Inc. |
| Zhang, Lyutianyang | Huawei Technologies Co., Ltd. |
| Zhang, Jiayi | Ofinno |
| Yee, James | MediaTek Inc. |
| Yang, Jimmy | Moxa Inc. |
| Yang, Jay | ZTE Corporation |
| Yang, Haorui | China Mobile |
| Yang, Hang | Ruijie Networks Co., Ltd. |
| Yan, Zhongjiang | Northwestern Polytechnical University |
| Xu, Yanchao | Amlogic |
| Xiao, Tong | Xiaomi Communications Co., Ltd. |
| Xia, Qing | Sony Corporation |
| Wullert, John | Peraton Labs |
| Wee, Gaius | Panasonic Holdings Corporation |
| Zhang, Maolin | Huawei Technologies Co., Ltd |
| Wang, Xiaofei | InterDigital, Inc. |
| VIGER, Pascal | Canon Research Centre France |
| Urabe, Yoshio | Panasonic Holdings Corporation |
| Talarico, Salvatore | Sony Corporation |
| Sung, Hyeonjun | WILUS Inc. |
| Shirakawa, Atsushi | SHARP CORPORATION |
| Shi, Zhenpeng | Huawei Technologies Co., Ltd |
| Shafin, Rubayet | Samsung Electronics |
| Sato, Takuhiro | SHARP CORPORATION |
| Sakamoto, Ryunosuke | SHARP CORPORATION |
| Sadiq, Bilal | Samsung Research America |
| Ryu, Kiseon | NXP Semiconductors |
| Quan, Yingqiao | Spreadtrum Communications (Shanghai) Co., Ltd.... |
| Quan, Li | ZTE Corporation |
| Wang, Qi | Apple Inc. |
| Qi, Yue | Samsung Research America |
| Zhao, Yue | Huawei Technologies Co., Ltd |
| Zhou, Pei | TCL |
| Zhou, Huixuan | OPPO |
| Petrick, Albert | InterDigital, Inc. |
| Perez, Javier | Ofinno |
| Patwardhan, Gaurav | Hewlett Packard Enterprise |
| Hart, Brian | Cisco Systems, Inc. |
| Hamilton, Mark | CommScope |
| Haider, Muhammad Kumail | Meta Platforms, Inc. |
| Ha, Taeyoung | Samsung Electronics Co., Ltd. |
| Gupta, Binita | Cisco Systems, Inc. |
| Gu, Xiangxin | Spreadtrum Communications (Shanghai) Co., Ltd. |
| Gu, Jaheon | Samsung Electronics Co., Ltd. |
| Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.... |
| Fu, Qingwei | TP-Link Systems Inc. |
| Fischer, Matthew | Broadcom Corporation |
| Fang, Yonggang | MediaTek Inc. |
| Fan, Shuang | Sanechips Technology Co., Ltd. |
| Erkucuk, Serhat | Ofinno |
| Hasabelnaby, Mahmoud | Huawei Technologies Canada; Huawei Technologie... |
| Doppler, Klaus | Nokia |
| Dezfouli, Behnam | Nokia |
| Das, Subir | Peraton Labs |
| Cui, Yaoshen | TP-Link Systems Inc. |
| Coffey, John | Realtek Semiconductor Corp. |
| Chu, Liwen | NXP Semiconductors |
| Choi, JinHo | SAMSUNG ELECTRONICS |
| Chisci, Giovanni | Qualcomm Technologies, Inc |
| CHENG, yajun | Xiaomi Communications Co., Ltd. |
| Chen, Wei-Han | Mediatek Inc |
| Cha, Dongju | LG ELECTRONICS |
| Carney, William | Sony Group Corporation |
| Byeon, Seongho | SAMSUNG ELECTRONICS |
| Baykas, Tuncer | Ofinno |
| Dong, Xiandong | Xiaomi Communications Co., Ltd. |
| Hedayat, Ahmadreza | Apple Inc. |
| Helwa, Sherief | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| Ho, Duncan | Qualcomm Technologies, Inc |
| Park, Sungjin | Senscomm |
| Ouchi, Masatomo | Canon |
| Noh, Si-Chan | Newracom Inc. |
| Nayak, Peshal | Samsung Research America |
| Naik, Gaurang | Qualcomm Technologies, Inc |
| Motozuka, Hiroyuki | Panasonic Holdings Corporation |
| Montemurro, Michael | Huawei Technologies Co., Ltd |
| Minotani, Jun | Panasonic Holdings Corporation |
| Mehrnoush, Morteza | Apple Inc. |
| Ma, Yongsen | SAMSUNG ELECTRONICS |
| Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| LU, Yuxin | TCL Industries |
| Lu, Liuming | Guangdong OPPO Mobile Telecommunications Corp.... |
| Lou, Hanqing | InterDigital, Inc. |
| Li, Weiyi | Spreadtrum Communication USA, Inc |
| Lee, Hong Won | LG ELECTRONICS |
| Lanante, Leonardo | Ofinno |
| Kuo, Chih-Chun | MediaTek Inc. |
| Klein, Arik | Huawei Technologies Co., Ltd |
| Kim, Suhwook | SAMSUNG ELECTRONICS |
| Kim, Sang Gook | LG ELECTRONICS |
| Kim, Jungjun | Samsung Electronics |
| Kim, Geon Hwan | LG ELECTRONICS |
| Kandala, Srinivas | Samsung |
| Kalamkar, Sanket | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| Kain, Carl | Noblis, Inc.; USDoT |
| Johnsson, Kerstin | Nokia |
| Inoue, Kyosuke | SHARP CORPORATION |
| Huang, Po-Kai | Intel Corporation |

1. The Chair reminds that the agenda can be found in [11-24/1643r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1643-02-00bn-sept-nov-tgbn-teleconference-agenda.docx). The Chair asks for the comments about the agenda.
	1. Document 24/1452 author coud not attend the meeting and has been removed from agenda
	2. Document 24/1473 will be presented by Qisheng Huang
	3. No comments from the participantd
	4. Agenda approved by unanimous consent
2. Annoucements:

The chair made the following announcement:

* + - Presentations to be uploaded at least 24 hours prior to the scheduled meeting. Those not uploaded in time will be removed from the queues.
		- Topics with many contributions and they might discuss similar concepts/issues. Please check with other members to harmonize/consolidate (co-authoring, harmonized SPs, etc).
		- Time allocated for each presentation is limited to 15 mins (20 if planned SP run). Make sure that contribution is presented well within this time limit and that you leave enough room for any Q&As (preferred). If no time left for Q&As then please use TGbn reflector.
1. Technical Submissions-MAP:
	1. [24/1467](https://mentor.ieee.org/802.11/dcn/24/11-24-1467-00-00bn-framework-of-multi-ap.pptx) Framework of Multi-AP Suhwook Kim (Samsung)

Discussion

* + - C: In agreement that both residential and enterprise should be addressed. On slide 5, it is stated that enterprise does not need much information over the air as it can be done otherwise. Also, having over-the DS to be in 11bn scope with a light touch is helpful
		- A: We agree that we need to consider the enterprise situation
		- C: Slide 5, agree with other commneter that we have coordination in both residential and enterprise. In the table, you say that there may be privacy issues, can you comment on it?
		- A: But if there is multi-AP sharing, there will be privacy issues
		- C: Last row of the table, what is CSN?
		- A: Coordinated Spatial Nulling
		- C: Is it different from CBF?
		- A: they are similar
		- C: It is said that there is no controller in residential. In the future I expect that there would be APs that can fulfill the coordinator function. So, we should not exclude the case.
		- A: Agreed
	1. [24/1473](https://mentor.ieee.org/802.11/dcn/24/11-24-1473-01-00bn-map-co-edca-to-improve-the-performance-of-edging-sta-follow-up.pptx) MAP co-EDCA to improve the perf. of edging STA Follow up Li Quan

Discussion

* + - C: Slide 5, looks like you are using saturated traffic models. How does this look when you have some thing like video, which is more periodic and not saturated?
		- A: We use saturated traffic model because this exposes the problem. For other models, this problem exists but not as severe, so showing the most important case here
		- C: I understand, but I dont expect saturated traffic models usually do well with VO
		- A: Do you mean that the real video would perform well in saturated traffic model and we have this issue in our simulation
		- C: It seem that AC\_VO is not a good way to have saturated traffic model
		- C: Trying to understand what the new item that are you are trying to address in the Straw Poll
		- A: The new feature is that the STA will provide new information and the associated AP will share this information with the other BSS and we will allow the STA to recommend the desired EDCA parameters for other STAs
		- C: It appears that some of these are already in the spec. May be good to double check
		- C: Slide 4. How does STA 1 know whether it is hidden or not? Is it a hidden node or channel access problem? If it is hidden, you want the AP to adjust the parameters for STA2 to STA3 and it seems that the AP needs to determine the edging and non-edging STAs then we may end up reducing the system throughput and probably not an efficient network decision to make
		- A: We are still digging out the most important statistic, which can derive the solution to the hidden node problem. I think this is an implementation problem and we are considering some prediction models and trying to judge whether we are able to solve the hidden node problem. The AP can just apply the recommendation from STA1 and it may know most of the statistic and the AP can consider the recommendation and may use the statistic measured by itself
		- C: Slide 6, what is the definition of channel access time
		- A: STA will contend for the channel and has one PPDU to transmit and time take to accessi the channel and the PPDU transmission
	1. [24/1595](https://mentor.ieee.org/802.11/dcn/24/11-24-1595-00-00bn-scope-of-mapc-and-roaming-standardization.pptx) Scope of MAPC and Roaming Standardization Brian Hart

Discussion

* + - C: Before defining the interfaces, we should decide on framework and architecture is and we need to understand them before we have the definitions
		- A: Understand the comment on dependency on architecture
		- C: not necessarily not complementary, we should just figure them out
		- A: Yes
		- C: One question on AP interfaces, slide 5 and slide 6, what are the main functions of the SME in the interfaces:
		- A: SME typically represents the AP vendor; enabling/disabling, policy, request/response, agreeing/disagreeing coming from policy engine and then the scheduler. Interface 3 is just trying to get this information securely to the peer entity
		- C: What is your understanding of mimumum set (lowest common denominator). While doing this it may preclude some other class of solutions
		- A: That is not the intention. Lowest common denominator still needs to show value to customer. To the earlier discussion, we want to solve both residential and enterprisee
		- C: Slide 5, step 3 – these two APs can only share the management frame and not the control frame?
		- A: My opinion is that there will be latency in this path and there will be encryption etc and I am not relying the interface to be fast. The control information would be sent over the wireless interface. Still it is a management and you should be able to handle low latency. However for C-TDMA, it should go over the air
	1. [24/1596](https://mentor.ieee.org/802.11/dcn/24/11-24-1596-01-00bn-consideration-of-map-coordination-on-npca-channel.pptx) Consideration of MAP coordination on NPCA channel Li Yan

Discussion

* + - C: Generally agree with the line of thinking. When NPCA is jointly involved with multi-AP, NPCA should be involved in the set up. However, in slide 5, each coordination sequence should be discussed separately, since in some cases, there may be some overlap, it may not be an issue for some coordination sequence
		- A: We have not given the detailed information on how a coordinated mechanism should work with NPCA. Yes, we should have more specific discussion for each of the mechanisms. In my thinking C-TDMA would work with NPCA and we can talk more about other groups
		- C: In case we have two APs with different NPCA primary channels. In your proposal, you want these NPCA primary channels to be aligned. Question is if two APs have two different NPCA primary channels do we need coordination? It is better to have them separate and not have coordination
		- A: In some examples, two APs have the same primary channel then it may not be easy to have different NPCA primary channels and keep them non-overlapping. However, in the case where the APs have wide bandwidth, then we can easily separate them out
		- C: Slide 6. It seems that the RNR carries only the basic information, TBTT offset etc. Do you want to add other information to RNR?
		- A: Yes, we need to add bandwidth information in RNR
		- C: If we have the two APs to have to address NPCA rules, we may want to add these rules here
		- A: Yes, we can decide on further coordination or not
		- C: In NPCA, the TXOP on the NPCA primary channel can be taken only if the peers see the same OBSS. Taking that view, the two APs and the two STAs should be the same OBSS, only then the NPCA transmissions will be successful. Any thoughts on that and what can be provided?
		- A: If I understand the question, AP1 may detect OBSS PPDU and AP2 may not. In this situation, the APs can exchange the AP list and for the same neighboring AP if they observe OBSS they can switch the channel. If the AP1 detects OBSS PPDU from neighboring AP but is not detected by AP2, we should not consider coordination. So the APs should exchange the list and then they have to coordinate
1. Technical Submissions-NPCA Part 1:
	1. [24/0868](https://mentor.ieee.org/802.11/dcn/24/11-24-0868-00-00bn-additional-considerations-on-non-primary-channel-access.pptx) Additional Considerations on NPCA Leonardo Lanante

Discussion

* + - C: Slide 5, if the STA detects transmission on NPCA primary channel, it will switch back to primary channel. In this case how does the STA set the NAV timer on the NPCA primary channel?
		- A: Our thinking is that it is a different time in the secondary channel, which is only relevant if it is in the NPCA, is that your question? Or you are thinking of using the same NAV timer?
		- C: For simplicity, it is better to have same timer. Do you think that they have to be different?
		- A: That is our initial thinking but we can consider same. But we do not want the STA that does not use NPCA performs better than NPCA
		- C: Slide 3, elaborate on physical CS
		- A: I mean that the CS can be detected from the PPDU, either a physical transmission or virtual
		- C: How do you know that the PPDU is covered by the NPCA primary channel
		- A: Based on the energy detection
		- C: But it may not be from the same source?
		- A: We can discuss further – for example check the bandwidth in the primary channel or high energy occuring in the secondary channel
	1. [24/1125](https://mentor.ieee.org/802.11/dcn/24/11-24-1125-01-00bn-considerations-on-switching-for-npca.pptx) Considerations on switching for NPCA Dongju Cha

Discussion

* + - C: On second bullet in slide 8, it feels like DSO scope. If we agree on DSO, we can think about this case
		- A: Yes
		- C: But we have not agreed about DSO. We can consider the case with DSO
		- C: Slide 4, for pre-HE PPDU, do you have any feel if the bandwidth is sigaled and if it is widely signaled in legacy implementations?
		- A: From my knowledge we can get the bandwith from HT-SIG and VHT-SIG-A field
		- C: So you are saying that sufficient information is available
		- A: Yes
		- C: Regarding DSO, I dont think we should mix NPCA and DSO as different devices have different bandwidths. I dont think we should a restriction that NPCA primary should be in operating bandwidth
		- C: Agree with the other commenter, then NPCA priary outside the operating bandwidth it is like DSO on which we do not have an agreement
		- C: Slide 7, channel switch delay from primary to NPCA primary, can you give an example? In EMLSR, there is only one switch delay, why are there two?
		- A: It can be dependent on the channel conditions, but I need to think on the details. Can i get back after thinking?
		- C: Sure, we can discuss further. But it will not be dependent on channel conditions and they would be same
		- C: The channel switch is a hardware capability and is known in advance and can be set. However, due to the differences to NAV timers, the channel switch time could be different
		- A: For pre-11ax, the switch delay can be hardware limited
1. There is no other business
2. Session adjourned at 9:00 PM ET