IEEE P802.11
Wireless LANs

|  |
| --- |
| Minutes for TGbn MAC Ad-Hoc Teleconferences in May to July 2024 |
| Date: 2024-05-30 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Jeongki Kim | Ofinno |  |  | jeongki.kim.ieee@gmail.com |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This document contains the minutes for the TGbn MAC ad hoc teleconferences in May to July 2024.

Revisions:

* Rev0: Added the minute from the MAC ad hoc teleconference held on May 30.
* Rev1: Added the minute from the MAC ad hoc teleconference held on Jun 6.
* Rev2: Added the minute from the MAC ad hoc teleconference held on June 13.
* Rev3: Added the minute from the MAC ad hoc teleconference held on June 17.
* Rev4: Added the minute from the MAC ad hoc teleconferences held on June 24, June 27, and July 8.

**May 30, 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. 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%22%20%5Cl%20%227) 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), Jeongki Kim (jeongki.kim.ieee@gmail.com), and Xiaofei Wang (xiaofei.wang@interdigital.com)

|  |  |
| --- | --- |
| Name | Affiliation |
| AbidRabbu, Shaima' | VESTEL |
| Aio, Kosuke | Sony Corporation |
| Ajami, Abdel Karim | Apple Inc. |
| Ali, Sawaira | Istanbul Medipol University, Vestel |
| Asai, Yusuke | Nippon Telegraph and Telephone Corporation (NTT) |
| Baek, SunHee | LG ELECTRONICS |
| Baykas, Tuncer | Ofinno |
| Bredewoud, Albert | Broadcom Corporation |
| Byeon, Seongho | SAMSUNG ELECTRONICS |
| Carney, William | Sony Group Corporation |
| Cha, Dongju | LG ELECTRONICS |
| Chaturvedi, Abhishek | Samsung Electronics |
| CHENG, yajun | Xiaomi Communications Co., Ltd. |
| Chisci, Giovanni | Qualcomm Technologies, Inc |
| Choi, JinHo | SAMSUNG ELECTRONICS |
| Choi, Jinsoo | LG ELECTRONICS |
| Chu, Liwen | NXP Semiconductors |
| Chung, Chulho | SAMSUNG |
| Coffey, John | Realtek Semiconductor Corp. |
| Dong, Xiandong | Xiaomi Communications Co., Ltd. |
| Ekkundi, Manasi | SAMSUNG ELECTRONICS |
| Erkucuk, Serhat | Ofinno |
| Fan, Shuang | Sanechips Technology Co., Ltd. |
| Fischer, Matthew | Broadcom Corporation |
| Fujimori, Yuki | Canon Research Centre France |
| Ghosh, Chittabrata | Apple Inc. |
| Gu, Jaheon | Samsung Electronics Co., Ltd. |
| Gu, Junrong | Clourney Semiconductor |
| Gu, Xiangxin | Spreadtrum Communications (Shanghai) Co., Ltd. |
| GUIGNARD, Romain | Canon Research Centre France |
| Gupta, Binita | Cisco Systems, Inc. |
| Hart, Brian | Cisco Systems, Inc. |
| Hasabelnaby, Mahmoud | Huawei Technologies Canada; Huawei Technologies Co., Ltd |
| Hedayat, Ahmadreza | Apple Inc. |
| Ho, Duncan | Qualcomm Technologies, Inc |
| Hosseinianfar, Hamid | Ofinno |
| Hsu, Yung Lin | National Taiwan University |
| Hu, Chunyu | Spreadtrum Communications US |
| HUANG, CHIHAN | MediaTek Inc. |
| huang, kaikai | Nokia |
| Huang, Po-Kai | Intel Corporation |
| Huq, Kazi Mohammed Saidul | NO AFFILIATION |
| Jang, Insun | LG ELECTRONICS |
| Jee, Anand | SAMSUNG ELECTRONICS |
| Kabbinale, Aniruddh | Samsung Electronics Co., Ltd. |
| Kain, Carl | Noblis, Inc.; USDoT |
| Kakani, Naveen | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| kamath, Manoj | Broadcom Corporation |
| Kamel, Mahmoud | Interdigital Inc. |
| Kandala, Srinivas | Samsung |
| Karthik, S. G. | SAMSUNG ELECTRONICS |
| Kim, Geon Hwan | LG ELECTRONICS |
| Kim, Jeongki | Ofinno |
| Kim, Jungjun | Samsung Electronics Co., Ltd. |
| Kim, Sang Gook | LG ELECTRONICS |
| Kim, Sanghyun | WILUS Inc. |
| Kishida, Akira | NTT |
| Klein, Arik | Huawei Technologies Co., Ltd |
| Koo, Jonghoe | SAMSUNG ELECTRONICS |
| Kuo, Chih-Chun | MediaTek Inc. |
| Lanante, Leonardo | Ofinno |
| Lee, Gwangho | Korea National University of Transportation |
| Lee, Hong Won | LG ELECTRONICS |
| LEE, JOONSOO | Newracom Inc. |
| Li, Weiyi | Spreadtrum Communication USA, Inc |
| Lim, Dong Guk | LG ELECTRONICS |
| LIU, QINGLAI | Panasonic |
| Lorgeoux, Mikael | Canon Research Centre France |
| Lou, Hanqing | InterDigital, Inc. |
| Lu, kaiying | MediaTek Inc. |
| Lu, Liuming | Guangdong OPPO Mobile Telecommunications Corp.,Ltd. |
| LU, Yuxin | TCL Industries |
| Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| Ma, Yongsen | SAMSUNG ELECTRONICS |
| Madni, Haji Muhammad | VESTEL |
| McCann, Stephen | Huawei Technologies Co., Ltd |
| Montemurro, Michael | Huawei Technologies Co., Ltd |
| Motozuka, Hiroyuki | Panasonic Holdings Corporation |
| Namvar, Nima | Charter Communications |
| Nayak, Peshal | Samsung Research America |
| Neishaboori, Azin | General Motors Company |
| Noh, Si-Chan | Newracom Inc. |
| Park, Minyoung | Intel Corporation |
| Park, Sungjin | Senscomm |
| Patil, Abhishek | Qualcomm Incorporated |
| Patwardhan, Gaurav | Hewlett Packard Enterprise |
| Petrick, Albert | InterDigital, Inc. |
| Quan, Yingqiao | Spreadtrum Communications (Shanghai) Co., Ltd.; Unisoc (Shanghai) Technologies Co., Ltd. |
| RISON, Mark | Samsung Cambridge Solution Centre |
| Rosenzweig Arbel, Gil | Renesas Electronics Corporation |
| Roy, Rishabh | SAMSUNG ELECTRONICS |
| Sato, Takuhiro | SHARP CORPORATION |
| Serizawa, Kazunobu | Advanced Telecommunications Research Institute International(ATR) |
| Shafin, Rubayet | Samsung Research America |
| Shi, Zhenpeng | Huawei Technologies Co., Ltd |
| Singh, Aditi | Charter Communications |
| Sun, Bo | Sanechips Technology Co., Ltd. |
| Taori, Rakesh | Infineon Technologies |
| Tseng, Yen Hsiung | MediaTek Inc. |
| Wang, Lei | Futurewei Technologies/Huawei Technologies |
| Wang, Ying | InterDigital, Inc. |
| Wee, Gaius | Panasonic Holdings Corporation |
| Wullert, John | Peraton Labs |
| Xia, Qing | Sony Corporation |
| Xiao, Tong | Xiaomi Communications Co., Ltd. |
| Xu, Yanchao | Amlogic |
| Xu, Yue | Huawei Technologies Co., Ltd |
| Yahya, Salim | VESTEL,IMU |
| Yan, Zhongjiang | Northwestern Polytechnical University |
| Yang, Jay | ZTE Corporation |
| Yang, Jimmy | Moxa Inc. |
| Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| Yee, James | MediaTek Inc. |
| Yoon, Yelin | LG ELECTRONICS |
| Zhang, Jiayi | Ofinno |
| Zhang, John | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| Zhao, Yue | Huawei Technologies Co., Ltd |
| Zhou, Lei | H3C Technologies Co., Limited |

1. The Chair asked whether there is comment about agenda in 11-24/964r1.
	1. The Chair goes through the submissions.
	* 24/0151 Establishment of Security Key for Control frame SunHee Baek
	* [24/0490](https://mentor.ieee.org/802.11/dcn/24/11-24-0490-00-00bn-discussion-on-control-frame-and-mac-header-protection.pptx) Discussion on Control Frame and MAC Header Protection Yunbo Li
	* 24/0497 Security enhancement (control frame protection) follow up Liwen Chu
	* 24/0502 MAC header protection follow up Liwen Chu
	* [24/0525](https://mentor.ieee.org/802.11/dcn/24/11-24-0525-00-00bn-mac-header-data-integrity-with-relaxed-receiver-requirement.pptx) MAC header/data integrity with relaxed RXer requirement Li-Hsiang Sun
	* ~~24/0535 Trigger, BA, and BAR Protection follow up Po-kai Huang~~
	* [~~24/0547~~](https://mentor.ieee.org/802.11/dcn/24/11-24-0547-00-00bn-secure-control-frames-follow-up.pptx) ~~Secure Control frames - Follow Up Abhishek Patil~~
	* [~~24/0443~~](https://mentor.ieee.org/802.11/dcn/24/11-24-0443-00-00bn-discussion-on-bounded-delay-in-industrial-scenarios.pptx) ~~Discussion on Determining Latency in Industrial Scenarios Yue Xu~~
	* [24/0668](https://mentor.ieee.org/802.11/dcn/24/11-24-0668-01-00bn-data-forwarding-within-txop-for-xr-use-cases.pptx) Data-forwarding-within-TXOP-for-XR-use-cases Seongho Byeon
	* [24/0797](https://mentor.ieee.org/802.11/dcn/24/11-24-0797-00-00bn-operating-mode-request.pptx) Operating Mode Request Yongsen Ma
		+ Po-kai, Abhi, Yue requested to defer their presentations.
	1. From TGbn Chair
		1. The document should be uploaded at least 24 hours prior to the call.
		2. The agenda should be approved.
	2. The agenda is approved with modifications.

 **Submissions**

1. 24/0151 Establishment of Security Key for Control frame SunHee Baek

C: slide 5, first bullet, both STAs support security keys, what about the group? What if one of STAs does not support for group control frame? control frame includes integrity check?

A: Yes, MIC can be ignored by the STA.

C: Implementation may be confusing.

C: how much time does the STA estimate whether the frame is valid? Within SIFS?

A: Yes

C: This is 11bn, assuming going ML operation. Those are carried by AP MLD and non-AP MLD rather than STAs or AP.

C: unique key is per link. MLO link id may be need in PTK generation.

A: cPTK cGTK is different per link

C: We need to use MLO link ID.

C: Take a look at 11be related subclause.

C: question, MU-BAR with cGTK and BA with cPTK is ok?

A: Depends on use case. It is unicast or broadcast.

1. [24/0490](https://mentor.ieee.org/802.11/dcn/24/11-24-0490-00-00bn-discussion-on-control-frame-and-mac-header-protection.pptx) Discussion on Control Frame and MAC Header Protection Yunbo Li

C: slide 3, try to use TF and initial control frame from 11ax, be,... we have to consider this now. Management frame is similar. First time, unprotected management frame is used.

C: We need to focus on specific important tech model to improve . Wi-Fi 8 should improve the security feature.

A: We can resolve this issue after wi-fi 8. We can solve future.

C: Beacon protection and other management frame protection are good examples. We do introduce up to Wi-Fi 7. Similar trends.

A: I thought whether it’s real issue. But don’t think so.

C: MAC header protection. There are many field in header. PM, A-Control fields, SN, are not protected. The second bullet is not true. There is a paper cited. Very easy to create the attack. Score boad context, sequence numbe spaces. We need to at least protect the MAC header and control frame.

A: We can look at the other advance. Look like endless target. Separate standards would be better with better experts. That’s not the main target for Wi-Fi 8.

C: Generall agree with Po-Kai and Abhi.

A: backward compatitable. Most control frames are used by legacy STAs.

C: our TG is ultra high reliability. Prevention is better. We should consider several things. Optional feature.

A: Ultra High reliability, It’s more important to reduce the delay and reduce PPR(?).. We need to discuss motivation.

C:, slide 5, this is optional. If STA does not want to support, just not implement.

C:, you have to look at the requirement carefully. Cost.

C:, we already have BAR frame protection.

1. 24/0497 Security enhancement (control frame protection) follow up Liwen Chu

Discussion : None

1. 24/0502 MAC header protection follow up Liwen Chu

Discussion: None

1. [24/0525](https://mentor.ieee.org/802.11/dcn/24/11-24-0525-00-00bn-mac-header-data-integrity-with-relaxed-receiver-requirement.pptx) MAC header/data integrity with relaxed RXer requirement Li-Hsiang Sun

Presented. No discussion due to lack of time.

The teleconference was adjourned at 12:00.

**June 6, 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%22%20%5Cl%20%227) 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), Jeongki Kim (jeongki.kim.ieee@gmail.com), and Xiaofei Wang (xiaofei.wang@interdigital.com)

|  |  |
| --- | --- |
| Name | Affiliation |
| AbidRabbu, Shaima' | VESTEL |
| Abouelseoud, Mohamed | Apple Inc. |
| Aio, Kosuke | Sony Corporation |
| Ajami, Abdel Karim | Apple Inc. |
| Ali, Sawaira | Istanbul Medipol University, Vestel |
| Baek, SunHee | LG ELECTRONICS |
| Baykas, Tuncer | Ofinno |
| Bhandaru, Nehru | Broadcom Corporation |
| Bhattacharya, Abhijit | Qualcomm Incorporated |
| Bredewoud, Albert | Broadcom Corporation |
| Byeon, Seongho | SAMSUNG ELECTRONICS |
| Carney, William | Sony Group Corporation |
| Cha, Dongju | LG ELECTRONICS |
| Chaturvedi, Abhishek | Samsung Electronics |
| Chen, Junbin | TP-Link Corporation Limited |
| CHENG, yajun | Xiaomi Communications Co., Ltd. |
| Chisci, Giovanni | Qualcomm Technologies, Inc |
| Chng, Baw | BAWMAN LLC |
| Choi, JinHo | SAMSUNG ELECTRONICS |
| Chu, Liwen | NXP Semiconductors |
| Ciochina, Dana | Sony Corporation |
| Coffey, John | Realtek Semiconductor Corp. |
| Cui, Yaoshen | TP-Link Corporation Limited |
| Dong, Xiandong | Xiaomi Communications Co., Ltd. |
| Erkucuk, Serhat | Ofinno |
| Fan, Shuang | Sanechips Technology Co., Ltd. |
| Fang, Yonggang | MediaTek Inc. |
| Fujimori, Yuki | Canon Research Centre France |
| Ganji, Mehdi | Charter Communications |
| Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| Ghosh, Chittabrata | Apple Inc. |
| Gu, Jaheon | Samsung Electronics Co., Ltd. |
| Gupta, Binita | Cisco Systems, Inc. |
| Ha, Taeyoung | Samsung Electronics Co., Ltd. |
| Handte, Thomas | Sony Group Corporation |
| Hasabelnaby, Mahmoud | Huawei Technologies Canada; Huawei Technologies Co., Ltd |
| Hedayat, Ahmadreza | Apple Inc. |
| Hervieu, Lili | CableLabs |
| Hsu, Yung Lin | National Taiwan University |
| HUANG, CHIHAN | MediaTek Inc. |
| huang, kaikai | Nokia |
| Huang, Po-Kai | Intel Corporation |
| Inohiza, Hirohiko | Canon |
| Jang, Insun | LG ELECTRONICS |
| Kakani, Naveen | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| Kalamkar, Sanket | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| kamath, Manoj | Broadcom Corporation |
| Kandala, Srinivas | Samsung |
| Karthik, S. G. | SAMSUNG ELECTRONICS |
| Kedem, Oren | Maxlinear |
| Kim, Geon Hwan | LG ELECTRONICS |
| Kim, Jeongki | Ofinno |
| Kim, Sang Gook | LG ELECTRONICS |
| Kim, Sanghyun | WILUS Inc. |
| Kim, Suhwook | SAMSUNG ELECTRONICS |
| Kishida, Akira | NTT |
| Klein, Arik | Huawei Technologies Co., Ltd |
| Koo, Jonghoe | SAMSUNG ELECTRONICS |
| Lee, Gwangho | Korea National University of Transportation |
| Lee, Hong Won | LG ELECTRONICS |
| LEE, Mingyu | Samsung Electronics Co., Ltd. |
| Li, Weiyi | Spreadtrum Communication USA, Inc |
| li, yan | ZTE Corporation |
| Li, Yanchun | Huawei Technologies Co., Ltd |
| Lorgeoux, Mikael | Canon Research Centre France |
| Lou, Hanqing | InterDigital, Inc. |
| Lu, Liuming | Guangdong OPPO Mobile Telecommunications Corp.,Ltd. |
| LU, Yuxin | TCL Industries |
| Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| Ma, Yongsen | SAMSUNG ELECTRONICS |
| Magrin, Davide | Meta Platforms Inc. |
| McCann, Stephen | Huawei Technologies Co., Ltd |
| Mehrnoush, Morteza | Apple Inc. |
| Montemurro, Michael | Huawei Technologies Co., Ltd |
| Motozuka, Hiroyuki | Panasonic Holdings Corporation |
| Mutgan, Okan | Nokia |
| Namvar, Nima | Charter Communications |
| Neishaboori, Azin | General Motors Company |
| Noh, Si-Chan | Newracom Inc. |
| Palayur, Saju | Maxlinear Inc |
| Park, Minyoung | Intel Corporation |
| Patil, Abhishek | Qualcomm Incorporated |
| Patwardhan, Gaurav | Hewlett Packard Enterprise |
| Petrick, Albert | InterDigital, Inc. |
| Quan, Yingqiao | Spreadtrum Communications (Shanghai) Co., Ltd.; Unisoc (Shanghai) Technologies Co., Ltd. |
| RISON, Mark | Samsung Cambridge Solution Centre |
| Rosenzweig Arbel, Gil | Renesas Electronics Corporation |
| Roy, Rishabh | SAMSUNG ELECTRONICS |
| Ryu, Kiseon | NXP Semiconductors |
| Serizawa, Kazunobu | Advanced Telecommunications Research Institute International(ATR) |
| Sevin, Julien | Canon Research Centre France |
| Shafin, Rubayet | Samsung Research America |
| Shi, Zhenpeng | Huawei Technologies Co., Ltd |
| Shirakawa, Atsushi | SHARP CORPORATION |
| Talarico, Salvatore | Sony Corporation |
| Taori, Rakesh | Infineon Technologies |
| Tseng, Yen Hsiung | MediaTek Inc. |
| Vaidya, Maulik | Charter Communications |
| Wang, Lei | Futurewei Technologies/Huawei Technologies |
| Wang, Xiaofei | InterDigital, Inc. |
| Wee, Gaius | Panasonic Holdings Corporation |
| Wullert, John | Peraton Labs |
| Xia, Qing | Sony Corporation |
| Xiao, Tong | Xiaomi Communications Co., Ltd. |
| Xu, Yanchao | Amlogic |
| Xu, Yue | Huawei Technologies Co., Ltd |
| Yang, Jimmy | Moxa Inc. |
| Zhao, Yue | Huawei Technologies Co., Ltd |

1. The Chair asked whether there is comment about agenda in 11-24/964r4.
	1. The Chair goes through the submissions.
		1. [24/0525](https://mentor.ieee.org/802.11/dcn/24/11-24-0525-01-00bn-mac-header-data-integrity-with-relaxed-receiver-requirement.pptx) MAC header/data integrity with relaxed RXer req. Li-Hsiang Sun [Q&A]
		2. [24/0443](https://mentor.ieee.org/802.11/dcn/24/11-24-0443-00-00bn-discussion-on-bounded-delay-in-industrial-scenarios.pptx) Discussion on Determining Latency in Industrial Scenarios Yue Xu
		3. [24/0668](https://mentor.ieee.org/802.11/dcn/24/11-24-0668-01-00bn-data-forwarding-within-txop-for-xr-use-cases.pptx) Data-forwarding-within-TXOP-for-XR-use-cases Seongho Byeon
		4. [24/0797](https://mentor.ieee.org/802.11/dcn/24/11-24-0797-00-00bn-operating-mode-request.pptx) Operating Mode Request Yongsen Ma
		5. [24/0318](https://mentor.ieee.org/802.11/dcn/24/11-24-0318-00-00bn-robust-secondary-channel-access.pptx) Robust Secondary Channel Access Yanchun Li
		6. [24/0449](https://mentor.ieee.org/802.11/dcn/24/11-24-0449-02-00bn-considerations-on-dynamic-subchannel-operation-follow-up.pptx) Considerations on DSO–Follow Up Liuming Lu
	2. For 525, need more presentations. It’s ok.
	3. The agenda is approved.

 **Submissions**

* 1. [24/0525](https://mentor.ieee.org/802.11/dcn/24/11-24-0525-01-00bn-mac-header-data-integrity-with-relaxed-receiver-requirement.pptx) MAC header/data integrity with relaxed RXer req. Li-Hsiang Sun [Q&A]

C: slide 12, slide 4, in the botttom scenario. Protected BA. What is protected?

A: B will not send BA for fake frame. Both side can detect fake transmissions.

C: what is the time until orignator accepted BA?

A: SIFS after the data.

C: there is delay for receiver side for decoding it? How does A know the time of processing by B?

A: A need know time. A can transmit BAR.

C: In partial state, the operation doesn't work.

C: what we’re actually protecting again? Data?

A: Somebody can change the header while some body can change data.

* 1. [24/0443](https://mentor.ieee.org/802.11/dcn/24/11-24-0443-00-00bn-discussion-on-bounded-delay-in-industrial-scenarios.pptx) Discussion on Determining Latency in Industrial Scenarios Yue Xu

C: what does it mean STA TxMOde Negotiation? How does it differentiate with SCS procedure?

A: We need one negotiation procedure for this. This is a little different from SCS procedure.

C: Slide 4, for target value of latency, 24ms is enough for industrial scenarios?

A: This is for one example.

C: Are you assuming the controled network? Or legacy device that is not controlled?

A: We just consider high level perspection.

* 1. [24/0668](https://mentor.ieee.org/802.11/dcn/24/11-24-0668-01-00bn-data-forwarding-within-txop-for-xr-use-cases.pptx) Data-forwarding-within-TXOP-for-XR-use-cases Seongho Byeon

C:, slide 7,, STA B send A-MPDU1 to AP and AP sends A-MPDU 1 to STA A. Does AP not need to decode A-MPDU?

A: MAC addesses should be changed.

C: If AP does not particapte in, then AP does not decrypt the data and STA A and STA B should exchange security keys.

A: Let me think about more.

C: If MAC addess is changed by AP, how do you know addresses? ICF or QoS data?

A: If AP know destination address (A3) and forwarding traffic, it’s possible. And it can transmit it in ICF also.

C: What’s the different between this and relaying?
A: For Relay, AP is endpoint. In this case, AP is relay.

C: I need have more details. Whether A and B can hear each other?

C: why can’t you address this in TXOP sharing? You can use the existing TXOP sharing scheme. What’s the gap? Why would you go with this? Rather than SCS and TXOP sharing?

A: STA initiates the transmission and AP forwards it to another STA.

C: SCS is already there. Defines the requirement of STAs.

A: SCS may not be appropriate for aperiodic traffic.

C: Do we need DF-ICF/ICR for data forwarding case always?

A: It depends on the scenarios. AP may need time for data forwarding procedure.

C: What’s the DF-End? Is it CF-End?

A: CF-end is for finishing the TXOP. DF-END is not.

* 1. [24/0449](https://mentor.ieee.org/802.11/dcn/24/11-24-0449-02-00bn-considerations-on-dynamic-subchannel-operation-follow-up.pptx) Considerations on DSO–Follow Up Liuming Lu

C: slide 3, do you have some details of IDC scenarios ?

A: Some allocation is for bluetooth transsmion.

C: It’s not the bluetooth case because the bluetooth is not frequency hopping.

C: OBSS scenarios means it’s suffer from OBSS transmission you can still use SR. Why do you consider?

A: In SR case, low rate may be used. In DSO, high data rate can be used.

C: slide 8, it looks like power save not DSO for reduction of bandwidth.

A: operating parameters should be negotiated.

C: DSO negotiation slide(6), you need just operating bandwidth of STA not maximum operating bandwidth. If STA may change operating bandwidth, they should negotiate it. It may be complicated

C: Figure (slide 8), do you assume DSO operation, STA may switch the channel. STA will not cover primary channel. That’s the typical case.

A:Primary channel can be used for other STAs. Primary 20 need to be occupied.

* 1. [24/0797](https://mentor.ieee.org/802.11/dcn/24/11-24-0797-00-00bn-operating-mode-request.pptx) Operating Mode Request Yongsen Ma

C: We have OMN or OMI.

A: Existing is OMI or OMN just notification. In this case, we want to negotiate request/accepted.

C: What’s the difference of transition from low capa to high capap?

C: If AP operates in low capa, then STA can transmit request of high capa?

C: On high capa, we can get high throughput.

A: You can do this this is just an example. There could be other parameters rather than BW or NSS. EDCA parameters.

The teleconference was adjourned at 12:00 ET.

**June 13, 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%22%20%5Cl%20%227) 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), Jeongki Kim (jeongki.kim.ieee@gmail.com), and Xiaofei Wang (xiaofei.wang@interdigital.com)

|  |  |
| --- | --- |
| Name | Affiliation |
| Aio, Kosuke | Sony Corporation |
| Ajami, Abdel Karim | Apple Inc. |
| Asai, Yusuke | Nippon Telegraph and Telephone Corporation (NTT) |
| Baek, SunHee | LG ELECTRONICS |
| baron, stephane | Canon Research Centre France |
| Baykas, Tuncer | Ofinno |
| Bredewoud, Albert | Broadcom Corporation |
| Byeon, Seongho | SAMSUNG ELECTRONICS |
| Carney, William | Sony Group Corporation |
| Cha, Dongju | LG ELECTRONICS |
| Chaturvedi, Abhishek | Samsung Electronics |
| CHENG, yajun | Xiaomi Communications Co., Ltd. |
| Chisci, Giovanni | Qualcomm Technologies, Inc |
| Chng, Baw | BAWMAN LLC |
| Choi, JinHo | SAMSUNG ELECTRONICS |
| Choi, Jinsoo | LG ELECTRONICS |
| Chung, Chulho | SAMSUNG |
| Ciochina, Dana | Sony Corporation |
| Coffey, John | Realtek Semiconductor Corp. |
| Cui, Yaoshen | TP-Link Corporation Limited |
| Dong, Xiandong | Xiaomi Communications Co., Ltd. |
| Ekkundi, Manasi | SAMSUNG ELECTRONICS |
| Erkucuk, Serhat | Ofinno |
| Fan, Shuang | Sanechips Technology Co., Ltd. |
| Fang, Yonggang | MediaTek Inc. |
| Ganji, Mehdi | Charter Communications |
| Gu, Jaheon | Samsung Electronics Co., Ltd. |
| Gu, Xiangxin | Spreadtrum Communications (Shanghai) Co., Ltd. |
| GUIGNARD, Romain | Canon Research Centre France |
| Ha, Taeyoung | Samsung Electronics Co., Ltd. |
| Handte, Thomas | Sony Group Corporation |
| Hasabelnaby, Mahmoud | Huawei Technologies Canada; Huawei Technologies Co., Ltd |
| Hedayat, Ahmadreza | Apple Inc. |
| Hervieu, Lili | CableLabs |
| Hosseinianfar, Hamid | Ofinno |
| Hsu, Yung Lin | National Taiwan University |
| HUANG, CHIHAN | MediaTek Inc. |
| huang, kaikai | Nokia |
| Huang, Po-Kai | Intel Corporation |
| Inohiza, Hirohiko | Canon |
| Jang, Insun | LG ELECTRONICS |
| Jee, Anand | SAMSUNG ELECTRONICS |
| Jianfei, Cheng | sanechips |
| kamath, Manoj | Broadcom Corporation |
| Kamel, Mahmoud | Interdigital Inc. |
| Kedem, Oren | Maxlinear |
| Kim, Geon Hwan | LG ELECTRONICS |
| Kim, Sang Gook | LG ELECTRONICS |
| Kim, Sanghyun | WILUS Inc. |
| Kishida, Akira | NTT |
| Klein, Arik | Huawei Technologies Co., Ltd |
| Lee, Gwangho | Korea National University of Transportation |
| Lee, Hong Won | LG ELECTRONICS |
| LEE, JOONSOO | Newracom Inc. |
| Li, Weiyi | Spreadtrum Communication USA, Inc |
| Li, Yanchun | Huawei Technologies Co., Ltd |
| Lim, Dong Guk | LG ELECTRONICS |
| LIU, QINGLAI | Panasonic |
| Lou, Hanqing | InterDigital, Inc. |
| Lu, Liuming | Guangdong OPPO Mobile Telecommunications Corp.,Ltd. |
| LU, Yuxin | TCL Industries |
| Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| Ma, Yongsen | SAMSUNG ELECTRONICS |
| Max, Sebastian | Ericsson AB |
| McCann, Stephen | Huawei Technologies Co., Ltd |
| Mehrnoush, Morteza | Apple Inc. |
| Motozuka, Hiroyuki | Panasonic Holdings Corporation |
| Mutgan, Okan | Nokia |
| Namvar, Nima | Charter Communications |
| Neishaboori, Azin | General Motors Company |
| Noh, Si-Chan | Newracom Inc. |
| Norouzi, Sara | Huawei Technologies Canada; Huawei Technologies Co., Ltd |
| Nurani Krishnan, Neelakantan | Apple Inc. |
| Park, Sungjin | Senscomm |
| Patil, Abhishek | Qualcomm Incorporated |
| Petrick, Albert | InterDigital, Inc. |
| Quan, Yingqiao | Spreadtrum Communications (Shanghai) Co., Ltd.; Unisoc (Shanghai) Technologies Co., Ltd. |
| Ratnam, Vishnu | Samsung Research America |
| RISON, Mark | Samsung Cambridge Solution Centre |
| Roy, Rishabh | SAMSUNG ELECTRONICS |
| Sadiq, Bilal | Samsung Research America |
| Sato, Takuhiro | SHARP CORPORATION |
| Shafin, Rubayet | Samsung Research America |
| Shi, Zhenpeng | Huawei Technologies Co., Ltd |
| SUH, JUNG HOON | Huawei Technologies Canada; Huawei Technologies Co., Ltd |
| Sun, Bo | Sanechips Technology Co., Ltd. |
| Taori, Rakesh | Infineon Technologies |
| Tseng, Yen Hsiung | MediaTek Inc. |
| Tsujimaru, Yuki | Canon |
| Wang, Lei | Futurewei Technologies/Huawei Technologies |
| Wang, Ying | InterDigital, Inc. |
| Wee, Gaius | Panasonic Holdings Corporation |
| Wei, Dong | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| Wilhelmsson, Leif | Ericsson AB |
| Wullert, John | Peraton Labs |
| Xia, Qing | Sony Corporation |
| Xiao, Tong | Xiaomi Communications Co., Ltd. |
| Xu, Yanchao | Amlogic |
| YANG, RUI | InterDigital, Inc. |
| Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| Yee, James | MediaTek Inc. |
| Yoon, Yelin | LG ELECTRONICS |
| Zhang, Jiayi | Ofinno |
| Zhao, Yue | Huawei Technologies Co., Ltd |
| Zhou, Lei | H3C Technologies Co., Limited |
| Zhou, Pei | TCL |

1. The Chair asked whether there is comment about agenda in 11-24/964r4.
	1. The Chair goes through the submissions.
		1. [24/0525](https://mentor.ieee.org/802.11/dcn/24/11-24-0525-01-00bn-mac-header-data-integrity-with-relaxed-receiver-requirement.pptx) MAC header/data integrity with relaxed RXer req. Li-Hsiang Sun [Q&A]
		2. [24/0443](https://mentor.ieee.org/802.11/dcn/24/11-24-0443-00-00bn-discussion-on-bounded-delay-in-industrial-scenarios.pptx) Discussion on Determining Latency in Industrial Scenarios Yue Xu
		3. [24/0668](https://mentor.ieee.org/802.11/dcn/24/11-24-0668-01-00bn-data-forwarding-within-txop-for-xr-use-cases.pptx) Data-forwarding-within-TXOP-for-XR-use-cases Seongho Byeon
		4. [24/0797](https://mentor.ieee.org/802.11/dcn/24/11-24-0797-00-00bn-operating-mode-request.pptx) Operating Mode Request Yongsen Ma
		5. [24/0318](https://mentor.ieee.org/802.11/dcn/24/11-24-0318-00-00bn-robust-secondary-channel-access.pptx) Robust Secondary Channel Access Yanchun Li
		6. [24/0449](https://mentor.ieee.org/802.11/dcn/24/11-24-0449-02-00bn-considerations-on-dynamic-subchannel-operation-follow-up.pptx) Considerations on DSO–Follow Up Liuming Lu
	2. For 525, need more presentations. It’s ok.
	3. The agenda is approved.

 **Submissions**

1. [24/0493](https://mentor.ieee.org/802.11/dcn/24/11-24-0493-02-00bn-dynamic-channel-switch-operation.pptx) Dynamic channel switch operation Liwen Chu

C: slide 5, STA sets the NAV ..

A: If OBSS detects, it sets basic NAV

C: slide 4, two approaches, we should allow AP can allocate TXS allocation.

A: We assume this is simpler.

C: slide 5, you assuming hidden node issue.

A: OBSS traffic also has soliciting frame and response frames.

C: slide 8, CTS may not be decoded. Non-HT PPDU .. are you talking about implementation or others?

A: channel combination is simpler. This is for SU PPDU. TB PPDU is different.

C: slide 6, how does option 1 work? Intention?

A: This BSRP is dynamic channel pucture.

C: Which option is preferred?

A: Option is better.

C: CTS happens before DSO or after DSO?

A: After DSO

C: slide 5, NAV, baseline update if longer, What is the PPDU longer, wider?

A: If longer and narrow, still , we already use the BW in secondary.

1. [24/0517](https://mentor.ieee.org/802.11/dcn/24/11-24-0517-00-00bn-preallocation-of-subband-for-dso-follow-up.pptx) Preallocation of subband for DSO - follow up Vishnu Ratnam

C: values for subband switching. 20MHz has such a large value. How you got this number? 20MHz STA with larger value. Implementation?

A: Will be longer switch time.

C: Certain architection could be possible?

A: Yes.

C: AP decide whether it responds immediately? whether preallocation is done or not,

C: how about EMLSR device? UHR EMLSR device alternatively supports this?

A: Both can support.

C: Higher value can be adoptted to 80+ STAs.

C: This delay may be 1ms also.

C: slide 5, STA 3, 4 are EMLSR, they should receive ICF.

A: I expect no. How we define the switch back.

A: Depends AP’s preference who transmits CTS or Protection.

C: What’s the switching delay ?

C: slide 7, this is compliciated by AP scheduling, padding for STA 1-2, padding for STA 3-6, Data for STA 1-2 not much.

1. [24/0318](https://mentor.ieee.org/802.11/dcn/24/11-24-0318-00-00bn-robust-secondary-channel-access.pptx) Robust Secondary Channel Access Yanchun Li

C: What happen when AP 1 is busy? Do you have a simulation result?

A: When AP2 queries AP 1, if AP1 is busy? AP 1 responds.

C: Overhead?

C: combination of MAP and NPCA?

A: Indeed, there are some codinations or helping between Aps? There is hidden node issues. This can reduce robustness issue. If there is no hidden node, AP can directly go to secondary channel.

C: how does AP 2 know AP 1’s ? How about other APs ?

A: If AP does not have some STAs that supports switching, it does not solicit the AP1.

1. [24/0591](https://mentor.ieee.org/802.11/dcn/24/11-24-0591-00-00bn-emlsr-secondary-channel-operation.pptx) EMLSR Secondary Channel Operation Morteza Mehrnoush

C: Difference between EMLSR-SC and DSO?

A: Basic behavior is same.

C: EMLSR supports DSO. Addtional capability?

A: generally same. Some limitation.

C: slide 3, what’s the ICF for UHR STA?

C: Slide 5, what’s the initial response after data?

C: What’s the motivation of combining EMLSR with DSO?

A: Mechansim is similar. Both need ICF for channel switching. Both are in a TXOP.

C: Are you assuming EMLSR-SC is in fixed channel? Negotition?

A: AP can schedule the preallocation or negotion.

C: link switch delay + channel switching delay?

A: It’s one shot switch.

The teleconference was adjourned at 12:00 ET.

**June 17, 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 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%22%20%5Cl%20%227) 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), Jeongki Kim (jeongki.kim.ieee@gmail.com), and Xiaofei Wang (xiaofei.wang@interdigital.com)

|  |  |
| --- | --- |
| Name | Affiliation |
| Adachi, Tomoko | TOSHIBA Corporation |
| Aio, Kosuke | Sony Corporation |
| Ajami, Abdel Karim | Apple Inc. |
| Asterjadhi, Alfred | Qualcomm Incorporated |
| Au, Kwok Shum | Huawei Technologies Canada; Huawei Technologies Co., Ltd |
| Baek, SunHee | LG ELECTRONICS |
| Baykas, Tuncer | Ofinno |
| Byeon, Seongho | SAMSUNG ELECTRONICS |
| Carney, William | Sony Group Corporation |
| Cha, Dongju | LG ELECTRONICS |
| Chisci, Giovanni | Qualcomm Technologies, Inc |
| Choi, JinHo | SAMSUNG ELECTRONICS |
| Chu, Liwen | NXP Semiconductors |
| Cui, Yaoshen | TP-Link Corporation Limited |
| Das, Subir | Peraton Labs |
| Dong, Xiandong | Xiaomi Communications Co., Ltd. |
| Erkucuk, Serhat | Ofinno |
| Fan, Shuang | Sanechips Technology Co., Ltd. |
| Fang, Yonggang | MediaTek Inc. |
| Gu, Jaheon | Samsung Electronics Co., Ltd. |
| Gu, Xiangxin | Spreadtrum Communications (Shanghai) Co., Ltd. |
| Gupta, Binita | Cisco Systems, Inc. |
| Ha, Taeyoung | Samsung Electronics Co., Ltd. |
| Haider, Muhammad Kumail | Meta Platforms, Inc. |
| Hasabelnaby, Mahmoud | Huawei Technologies Canada; Huawei Technologies Co., Ltd |
| Hedayat, Ahmadreza | Apple Inc. |
| Hosseinianfar, Hamid | Ofinno |
| Hsu, Yung Lin | National Taiwan University |
| huang, kaikai | Nokia |
| Inohiza, Hirohiko | Canon |
| Inoue, Kyosuke | SHARP CORPORATION |
| Jang, Insun | LG ELECTRONICS |
| Jia, Boqi | Huawei Technologies Co., Ltd |
| Kalamkar, Sanket | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| Kamel, Mahmoud | Interdigital Inc. |
| Kandala, Srinivas | Samsung |
| Kim, Geon Hwan | LG ELECTRONICS |
| Kim, Jungjun | Samsung Electronics Co., Ltd. |
| Kim, Sang Gook | LG ELECTRONICS |
| Kim, Sanghyun | WILUS Inc. |
| Kim, Suhwook | SAMSUNG ELECTRONICS |
| Kishida, Akira | NTT |
| Klein, Arik | Huawei Technologies Co., Ltd |
| Koo, Jonghoe | SAMSUNG ELECTRONICS |
| Lanante, Leonardo | Ofinno |
| Lee, Hong Won | LG ELECTRONICS |
| LEE, JOONSOO | Newracom Inc. |
| Levy, Joseph | InterDigital, Inc. |
| Li, Weiyi | Spreadtrum Communication USA, Inc |
| Lim, Dong Guk | LG ELECTRONICS |
| Lim, Yeon Geun | Newracom Inc. |
| Lou, Hanqing | InterDigital, Inc. |
| Lu, Liuming | Guangdong OPPO Mobile Telecommunications Corp.,Ltd. |
| LU, Yuxin | TCL Industries |
| Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| Ma, Yongsen | SAMSUNG ELECTRONICS |
| Mehrnoush, Morteza | Apple Inc. |
| Minotani, Jun | Panasonic Holdings Corporation |
| Montemurro, Michael | Huawei Technologies Co., Ltd |
| Motozuka, Hiroyuki | Panasonic Holdings Corporation |
| Mutgan, Okan | Nokia |
| Naik, Gaurang | Qualcomm Technologies, Inc |
| Namvar, Nima | Charter Communications |
| Neishaboori, Azin | General Motors Company |
| Nogami, Toshizo | SHARP CORPORATION |
| Nurani Krishnan, Neelakantan | Apple Inc. |
| Palayur, Saju | Maxlinear Inc |
| Park, Minyoung | Intel Corporation |
| Park, Sungjin | Senscomm |
| Patil, Abhishek | Qualcomm Incorporated |
| Petrick, Albert | InterDigital, Inc. |
| Qi, Yue | Samsung Research America |
| Quan, Yingqiao | Spreadtrum Communications (Shanghai) Co., Ltd.; Unisoc (Shanghai) Technologies Co., Ltd. |
| Ratnam, Vishnu | Samsung Research America |
| Roy, Rishabh | SAMSUNG ELECTRONICS |
| Ryu, Kiseon | NXP Semiconductors |
| Sadiq, Bilal | Samsung Research America |
| Sakamoto, Ryunosuke | SHARP CORPORATION |
| Sato, Takuhiro | SHARP CORPORATION |
| Seo, Sangho | Broadcom Corporation |
| Serizawa, Kazunobu | Advanced Telecommunications Research Institute International(ATR) |
| Shafin, Rubayet | Samsung Research America |
| Shi, Zhenpeng | Huawei Technologies Co., Ltd |
| Shirakawa, Atsushi | SHARP CORPORATION |
| Singh, Aditi | Charter Communications |
| Talarico, Salvatore | Sony Corporation |
| Tanaka, Yusuke | Sony Corporation |
| Taori, Rakesh | Infineon Technologies |
| Tseng, Yen Hsiung | MediaTek Inc. |
| Urabe, Yoshio | Panasonic Holdings Corporation |
| Wang, Lei | Futurewei Technologies/Huawei Technologies |
| Wang, Ying | InterDigital, Inc. |
| Wee, Gaius | Panasonic Holdings Corporation |
| Wei, Dong | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| Xia, Qing | Sony Corporation |
| Xiao, Tong | Xiaomi Communications Co., Ltd. |
| Xu, Yanchao | Amlogic |
| Xu, Yue | Huawei Technologies Co., Ltd |
| Yamada, Ryota | SHARP CORPORATION |
| Yang, Jay | ZTE Corporation |
| Yang, Jimmy | Moxa Inc. |
| Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| Yoon, Yelin | LG ELECTRONICS |
| Zhang, Jiayi | Ofinno |
| Zhao, Yue | Huawei Technologies Co., Ltd |
| Zhou, Pei | TCL |

1. The Chair asked whether there is comment about agenda in 11-24/964r7.
	1. The Chair goes through the submissions.
	2. Technical Submissions-Feedback + Relay Part 1:
		1. [24/0783](https://mentor.ieee.org/802.11/dcn/24/11-24-0783-00-00bn-non-ap-sta-triggered-dso.pptx) Non AP STA Triggered DSO Chaoming Luo
		2. [24/0264](https://mentor.ieee.org/802.11/dcn/24/11-24-0264-01-00bn-timing-information-sharing-for-next-generation-wlans.pptx) Timing Information Sharing for Next Generation WLANs Peshal Nayak
		3. [24/0531](https://mentor.ieee.org/802.11/dcn/24/11-24-0531-00-00bn-buffer-status-for-low-latency.pptx) Buffer Status for Low Latency Liangxiao Xin
		4. [24/0385](https://mentor.ieee.org/802.11/dcn/24/11-24-0385-00-00bn-discussion-on-11bn-relay-operation.pptx) Discussion on 11bn Relay Operation Kosuke Aio
		5. [24/0650](https://mentor.ieee.org/802.11/dcn/24/11-24-0650-01-00bn-a-case-for-opportunistic-relaying.pptx) A case for opportunistic relaying Bilal Sadiq
		6. For 525, need more presentations. It’s ok.
	3. The agenda is approved.

 **Submissions**

1. [24/0783](https://mentor.ieee.org/802.11/dcn/24/11-24-0783-00-00bn-non-ap-sta-triggered-dso.pptx) Non AP STA Triggered DSO Chaoming Luo

C: It is for the coex indication? Is there anything new change for DSO?

A: STA indicates DSO transmission.

C: I think Coex indication may be enough. AP may reject the request?

A: AP may be decision point.

C: You don’t want a separate indication.

C: Why do you need switch delay? STA already is in 80MHz. No hardward change.

A: In thate case, STA may not need the delay. For 20MHz only case, it may need it.

C: slide 5, what’s the source of the interference? OBSS transmission? You do know the start time of interference.

A: This can be in-device interference. STA may not know OBSS interference.

C: In that case, STA usually has indication for the time period. I think this can be indicated earlier than the BA. When does STA can indicate it in BA?

C: You can use response frame for this. STA 1 is 80MHz? This is not DSO operation case.

A: Yes, IT can be DL OFDMA case.

C: Although STA indicates in BA, AP does not do confirmation? This might be issue.

A: That’s possible.

C: slide 6, this is with TXOP? STA2 indicates the DSO .

C: IDC DSO, exmaple 1, STA 1 has full bandwidth capability. You can decouple several mechanism. This is not actual DSO. New wording may be confusing.

1. [24/0264](https://mentor.ieee.org/802.11/dcn/24/11-24-0264-01-00bn-timing-information-sharing-for-next-generation-wlans.pptx) Timing Information Sharing for Next Generation WLANs Peshal Nayak

C: this is more valuable information.

C: what’s you focusing on? Delay bound?

A: Delay bounds is good parameters. AP does not know when the packet is arrived at the STA side?

A: Delay bound is not enough for AP scheduling. Without traffic pattern, delay bound is not useful.

C: Some information is not converged.

C: 11be spec defines a lot of time information in QoS characteristic. I’m not sure which parameters are missing.

A: STA may not know traffic arrival time and cannot provide it in QoS element.

C: slide 10, this is another scenario. 11be defines this time informaiton between AP and STA.

C: type information, is it for the type of information of MSDU?

A: I need further discussion on it. There are different approaches. That is open for exactly signaling.

C: It’s not a straightforward for STA side.

A: Need more discussion

C: Overall, important topic. Too much information may be overhead. Delay bound arrival time is in 11be.

C: how to provide this information? For implementation, how does the STA retransmit data?

A: timestamp is related to TSF timer.

1. [24/0531](https://mentor.ieee.org/802.11/dcn/24/11-24-0531-00-00bn-buffer-status-for-low-latency.pptx) Buffer Status for Low Latency Liangxiao Xin

C;, slide 8, why T1 predictable in this case? How get the information?

A: It can get from UL, application layer already has round trip delay. This is a historical information. This might be out of .11.

C: This duration is dynamic or static?

A: This is statistic. It depends on implementation.

C: Service is application layer. There is lack of way to provide information from application layer to Mac layer within STA side?

A: We can provide interface to provide from app layer to mac layer.

C: You’re considering DL?

1. [24/0385](https://mentor.ieee.org/802.11/dcn/24/11-24-0385-00-00bn-discussion-on-11bn-relay-operation.pptx) Discussion on 11bn Relay Operation Kosuke Aio

C: I wondering about cross link results. Are you considering / what’s assumption of MCS FCS check?

A: we assume FCS check of each MPDUs? For coventional, relay node knows packets with the previous SN of the lost packet.

C: That can be argument.

C: slide 9, what will happen in transmission failed in the txop sharing?

A: When packet error happens from relay node to STA? I only assume transmission is complete within TXOP. It may be out of TXOP limts. Relay nodes can try to retransmit at next TXOP.

C: We should take account.

C: Do you assume the TXOP sharing or EDCA?

1. [24/0650](https://mentor.ieee.org/802.11/dcn/24/11-24-0650-01-00bn-a-case-for-opportunistic-relaying.pptx) A case for opportunistic relaying Bilal Sadiq

Presented not finished.

Adjourned at 21:00 ET

**June 24, 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 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%22%20%5Cl%20%227) 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), Jeongki Kim (jeongki.kim.ieee@gmail.com), and Xiaofei Wang (xiaofei.wang@interdigital.com)

|  |  |
| --- | --- |
| Name | Affiliation |
| Adachi, Tomoko | TOSHIBA Corporation |
| Aio, Kosuke | Sony Corporation |
| Ajami, Abdel Karim | Apple Inc. |
| Asterjadhi, Alfred | Qualcomm Incorporated |
| Baek, SunHee | LG ELECTRONICS |
| Bian, Tong | Panasonic |
| Byeon, Seongho | SAMSUNG ELECTRONICS |
| Carney, William | Sony Group Corporation |
| Cha, Dongju | LG ELECTRONICS |
| CHENG, yajun | Xiaomi Communications Co., Ltd. |
| Chisci, Giovanni | Qualcomm Technologies, Inc |
| Choi, JinHo | SAMSUNG ELECTRONICS |
| Choi, Jinsoo | LG ELECTRONICS |
| Das, Subir | Peraton Labs |
| Dong, Xiandong | Xiaomi Communications Co., Ltd. |
| Erkucuk, Serhat | Ofinno |
| Fan, Shuang | Sanechips Technology Co., Ltd. |
| Fang, Yonggang | MediaTek Inc. |
| Fischer, Matthew | Broadcom Corporation |
| Ghosh, Chittabrata | Apple Inc. |
| Gu, Jaheon | Samsung Electronics Co., Ltd. |
| Gu, Junrong | Clourney Semiconductor |
| Gu, Xiangxin | Spreadtrum Communications (Shanghai) Co., Ltd. |
| GUIGNARD, Romain | Canon Research Centre France |
| Gupta, Binita | Cisco Systems, Inc. |
| Ha, Taeyoung | Samsung Electronics Co., Ltd. |
| Haider, Muhammad Kumail | Meta Platforms, Inc. |
| Hamilton, Mark | CommScope |
| Hart, Brian | Cisco Systems, Inc. |
| Hasabelnaby, Mahmoud | Huawei Technologies Canada; Huawei Technologies Co., Ltd |
| Hedayat, Ahmadreza | Apple Inc. |
| Helwa, Sherief | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| Hervieu, Lili | CableLabs |
| Hosseinianfar, Hamid | Ofinno |
| HUANG, CHIHAN | MediaTek Inc. |
| huang, kaikai | Nokia |
| Huang, Po-Kai | Intel Corporation |
| Inohiza, Hirohiko | Canon |
| Jang, Insun | LG ELECTRONICS |
| Jee, Anand | SAMSUNG ELECTRONICS |
| Jianfei, Cheng | Sanechips |
| Kakani, Naveen | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| Kalamkar, Sanket | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| Kandala, Srinivas | Samsung |
| Kim, Geon Hwan | LG ELECTRONICS |
| Kim, Jeongki | Ofinno |
| Kim, Jungjun | Samsung Electronics Co., Ltd. |
| Kim, Sang Gook | LG ELECTRONICS |
| Kim, Sanghyun | WILUS Inc. |
| Kim, Suhwook | SAMSUNG ELECTRONICS |
| Kishida, Akira | NTT |
| Klein, Arik | Huawei Technologies Co., Ltd |
| Kuo, Chih-Chun | MediaTek Inc. |
| Lanante, Leonardo | Ofinno |
| Lee, Hong Won | LG ELECTRONICS |
| LEE, JOONSOO | Newracom Inc. |
| Li, Weiyi | Spreadtrum Communication USA, Inc |
| Lim, Dong Guk | LG ELECTRONICS |
| Lim, Yeon Geun | Newracom Inc. |
| Liu, Zhe | sanechips |
| Lou, Hanqing | InterDigital, Inc. |
| Lu, Liuming | Guangdong OPPO Mobile Telecommunications Corp.,Ltd. |
| LU, Yuxin | TCL Industries |
| Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| Ma, Yongsen | SAMSUNG ELECTRONICS |
| Minotani, Jun | Panasonic Holdings Corporation |
| Motozuka, Hiroyuki | Panasonic Holdings Corporation |
| Mutgan, Okan | Nokia |
| Namvar, Nima | Charter Communications |
| Nayak, Peshal | Samsung Research America |
| Neishaboori, Azin | General Motors Company |
| Noh, Si-Chan | Newracom Inc. |
| Park, Sungjin | Senscomm |
| Patil, Abhishek | Qualcomm Incorporated |
| Patwardhan, Gaurav | Hewlett Packard Enterprise |
| Quan, Yingqiao | Spreadtrum Communications (Shanghai) Co., Ltd.; Unisoc (Shanghai) Technologies Co., Ltd. |
| Ratnam, Vishnu | Samsung Research America |
| Ryu, Kiseon | NXP Semiconductors |
| Sadiq, Bilal | Samsung Research America |
| Sakamoto, Ryunosuke | SHARP CORPORATION |
| Schelstraete, Sigurd | MaxLinear |
| Seo, Sangho | Broadcom Corporation |
| Shafin, Rubayet | Samsung Research America |
| Shi, Zhenpeng | Huawei Technologies Co., Ltd |
| Shirakawa, Atsushi | SHARP CORPORATION |
| Singh, Aditi | Charter Communications |
| Talarico, Salvatore | Sony Corporation |
| Tanaka, Yusuke | Sony Corporation |
| Taori, Rakesh | Infineon Technologies |
| Tseng, Yen Hsiung | MediaTek Inc. |
| Wang, Lei | Futurewei Technologies/Huawei Technologies |
| Wang, Qi | Apple Inc. |
| Wang, Ying | InterDigital, Inc. |
| Wee, Gaius | Panasonic Holdings Corporation |
| Wei, Dong | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| Wullert, John | Peraton Labs |
| Xia, Qing | Sony Corporation |
| Xiao, Tong | Xiaomi Communications Co., Ltd. |
| Xu, Yanchao | Amlogic |
| Yamada, Ryota | SHARP CORPORATION |
| Yang, Jay | ZTE Corporation |
| Yang, Jimmy | Moxa Inc. |
| Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| Yoon, Yelin | LG ELECTRONICS |
| Yukawa, Mitsuyoshi | Canon |
| Zhao, Yue | Huawei Technologies Co., Ltd |
| Zhou, Lei | H3C Technologies Co., Limited |

1. The Chair asked whether there is comment about agenda in 11-24/964r10.
	1. The Chair goes through the submissions.
	2. Technical Submissions-P2P Part 2 + QoS + NPCA Part 1:
		1. [24/0650](https://mentor.ieee.org/802.11/dcn/24/11-24-0650-01-00bn-a-case-for-opportunistic-relaying.pptx) A case for opportunistic relaying Bilal Sadiq
		2. [24/0819](https://mentor.ieee.org/802.11/dcn/24/11-24-0819-01-00bn-twt-for-relay.pptx) TWT for relay Li Yan
		3. [24/0887](https://mentor.ieee.org/802.11/dcn/24/11-24-0887-00-00bn-consideration-on-relay-operation-for-11bn.pptx) Consideration on Relay operation for 11bn Liuming Lu
		4. [24/0392](https://mentor.ieee.org/802.11/dcn/24/11-24-0392-00-00bn-enhancements-on-base-channel-peer-to-peer-p2p-communications.pptx) Enhancements on Base-Channel P2P Communications Rubayet Shafin
		5. [24/0393](https://mentor.ieee.org/802.11/dcn/24/11-24-0393-00-00bn-enhancements-on-off-channel-peer-to-peer-p2p-communications.pptx) Enhancements on Off-Channel P2P Communications Rubayet Shafin
	3. The agenda is approved.

 **Submissions**

1. [24/0650](https://mentor.ieee.org/802.11/dcn/24/11-24-0650-01-00bn-a-case-for-opportunistic-relaying.pptx) A case for opportunistic relaying Bilal Sadiq

C: slide 8, clarify the path loss calculation?

A: end to end throughput can be improved by relay.

C: how can the AP know what candidates the relay is? location?

A: This is just how much gain the relay has. This contribution does not cover that.

C: diversity may be misleading

A: misunderstand. Where does the multiuser diversity come from in this contribution? For best E2E throughput? Multiuser diversity at the scale of shadow fading.

1. [24/0819](https://mentor.ieee.org/802.11/dcn/24/11-24-0819-01-00bn-twt-for-relay.pptx) TWT for relay Li Yan

C: What types of TWT agreement do you consider for relay operation?

A: Individual TWT is enough. But consider multiple relay candidates. Broadcast way is preferred. We can schedule all relay candidates. B-TWT is a single way/

C: slide 6, why AP sends a notification to relay candidates? We don’t need to notify all candidates. We can selection one or some of them.

A: You’re right. We can select some of them.

C: Relay may accept the TWT agreement request?

1. [24/0887](https://mentor.ieee.org/802.11/dcn/24/11-24-0887-00-00bn-consideration-on-relay-operation-for-11bn.pptx) Consideration on Relay operation for 11bn Liuming Lu

C: slide 6, Non-AP STA receives MU-RTS. Two STAs have different primary channels. How does it work?

A: AP can transmit MU-RTS using non-HT dup with the all contents. Non-AP STA receives it on C2 and Relay receives it on C1.

C: relay has two links. One has front while the other is backhaul. Question is all PPDUs are aligned.

A: PPDU alignment is a good choice. NSTR issue can be solved. Received PPDU simutaneously. More flexible TX can be considered.

C: slide 7, S1G relay, easyMesh. What’s difference? I know easymesh is based on S1G relay.

A: S1G relay is based on 11 relay. Easy mesh is specified by WFA. EasyMesh is focusing on management of relay device, AP and non-AP Sta. S1G relay is based on MAC layer.

C: Slide 5, what is the power impact of relay device to help the STA? Relay device is other device. Relay device opportunistically helps other devices. What’s the motivation of the help?

A: In this example, relay device is mobile device.

C: We have to think about the power impact.

C: slide 6, requirement is restricted due to NSTR issue. PPDU 1 and 2 should be aligned. What’s the use case of this?

A: They may be different uplink and downlink traffic . PPDU alignment are not required. There is NSTR interference.

C: Why do you need e2e Ack? The last Ack?

A: Do you mean e2e QoS? E2E Ba agreement needs to be negotiated. Need further consideration.

1. [24/0392](https://mentor.ieee.org/802.11/dcn/24/11-24-0392-00-00bn-enhancements-on-base-channel-peer-to-peer-p2p-communications.pptx) Enhancements on Base-Channel P2P Communications Rubayet Shafin

C: This is very important. AP need to know the QoS characteristics. Medium time.

C: What’s the possible in Tgbe? SCS and TXS mode 2 already there. I don’t we need P2P Group indication. Have to clarify central or distributed cases?

C: STAs within group will complete using EDCA. Group STA’s can have a chance of collision.

A: The resource is protected by AP. The STAs in the group can access the channel.

C: slide 8, how the STA 1-3 know who is the first?

A: One option is starting the contending the channel.

C: Then there may be the collision between STAs. Double the CW. Do you assume all traffics arrive at the same?

C: Who’s making the request? We have to think about the request part.

A: How to access the channel is up to P2P group.

Adjourned at 21:00ET

**June 27, 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 10:00 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%22%20%5Cl%20%227) 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), Jeongki Kim (jeongki.kim.ieee@gmail.com), and Xiaofei Wang (xiaofei.wang@interdigital.com)

|  |  |
| --- | --- |
| Name | Affiliation |
| Abouelseoud, Mohamed | Apple Inc. |
| Aio, Kosuke | Sony Corporation |
| Ajami, Abdel Karim | Apple Inc. |
| Asai, Yusuke | Nippon Telegraph and Telephone Corporation (NTT) |
| Baek, SunHee | LG ELECTRONICS |
| Baykas, Tuncer | Ofinno |
| Bian, Tong | Panasonic |
| Bredewoud, Albert | Broadcom Corporation |
| Byeon, Seongho | SAMSUNG ELECTRONICS |
| Carney, William | Sony Group Corporation |
| Cha, Dongju | LG ELECTRONICS |
| Chaturvedi, Abhishek | Samsung Electronics |
| Chen, Junbin | TP-Link Global Inc. |
| CHENG, yajun | Xiaomi Communications Co., Ltd. |
| Chisci, Giovanni | Qualcomm Technologies, Inc |
| Choi, Jinsoo | LG ELECTRONICS |
| Chu, Liwen | NXP Semiconductors |
| Chung, Chulho | SAMSUNG |
| Cui, Yaoshen | TP-Link Global Inc. |
| Das, Subir | Peraton Labs |
| Erkucuk, Serhat | Ofinno |
| Fan, Shuang | Sanechips Technology Co., Ltd. |
| Fang, Yonggang | MediaTek Inc. |
| Fischer, Matthew | Broadcom Corporation |
| Fujimori, Yuki | Canon Research Centre France |
| Ghosh, Chittabrata | Apple Inc. |
| Gu, Jaheon | Samsung Electronics Co., Ltd. |
| Gu, Xiangxin | Spreadtrum Communications (Shanghai) Co., Ltd. |
| Gupta, Binita | Cisco Systems, Inc. |
| Ha, Taeyoung | Samsung Electronics Co., Ltd. |
| Hamilton, Mark | CommScope |
| Handte, Thomas | Sony Group Corporation |
| Hasabelnaby, Mahmoud | Huawei Technologies Canada; Huawei Technologies Co., Ltd |
| Hedayat, Ahmadreza | Apple Inc. |
| Hervieu, Lili | CableLabs |
| Ho, Duncan | Qualcomm Technologies, Inc |
| Hsu, Ostrovsky | Xiaomi Communications Co., Ltd. |
| Hsu, Yung Lin | National Taiwan University |
| HUANG, CHIHAN | MediaTek Inc. |
| huang, kaikai | Nokia |
| Huang, Po-Kai | Intel Corporation |
| Inohiza, Hirohiko | Canon |
| Jang, Insun | LG ELECTRONICS |
| Jee, Anand | SAMSUNG ELECTRONICS |
| Kakani, Naveen | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| Kalamkar, Sanket | Qualcomm Incorporated; Qualcomm Technologies, Inc |
| kamath, Manoj | Broadcom Corporation |
| Kamel, Mahmoud | Interdigital Inc. |
| Kandala, Srinivas | Samsung |
| Karthik, S. G. | SAMSUNG ELECTRONICS |
| Kedem, Oren | Maxlinear |
| Kim, Geon Hwan | LG ELECTRONICS |
| Kim, Jeongki | Ofinno |
| Kim, Jungjun | Samsung Electronics Co., Ltd. |
| Kim, Sanghyun | WILUS Inc. |
| Kishida, Akira | NTT |
| Klein, Arik | Huawei Technologies Co., Ltd |
| Koo, Jonghoe | SAMSUNG ELECTRONICS |
| Kuo, Chih-Chun | MediaTek Inc. |
| Lanante, Leonardo | Ofinno |
| Lee, Gwangho | Korea National University of Transportation |
| Lee, Hong Won | LG ELECTRONICS |
| LEE, JOONSOO | Newracom Inc. |
| Levy, Joseph | InterDigital, Inc. |
| Li, Weiyi | Spreadtrum Communication USA, Inc |
| li, yan | ZTE Corporation |
| Li, Yanchun | Huawei Technologies Co., Ltd |
| Li, Yunbo | Huawei Technologies Co., Ltd |
| Lim, Dong Guk | LG ELECTRONICS |
| Lim, Yeon Geun | Newracom Inc. |
| Liu, Zhe | sanechips |
| Lorgeoux, Mikael | Canon Research Centre France |
| Lou, Hanqing | InterDigital, Inc. |
| Lu, Liuming | Guangdong OPPO Mobile Telecommunications Corp.,Ltd. |
| LU, Yuxin | TCL Industries |
| Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| Ma, Yongsen | SAMSUNG ELECTRONICS |
| McCann, Stephen | Huawei Technologies Co., Ltd |
| Montemurro, Michael | Huawei Technologies Co., Ltd |
| Motozuka, Hiroyuki | Panasonic Holdings Corporation |
| Mutgan, Okan | Nokia |
| Namvar, Nima | Charter Communications |
| Nayak, Peshal | Samsung Research America |
| Neishaboori, Azin | General Motors Company |
| Noh, Si-Chan | Newracom Inc. |
| Nurani Krishnan, Neelakantan | Apple Inc. |
| Park, Sungjin | Senscomm |
| Patil, Abhishek | Qualcomm Incorporated |
| Patwardhan, Gaurav | Hewlett Packard Enterprise |
| Petrick, Albert | InterDigital, Inc. |
| Pettersson, Charlie | Ericsson AB |
| Quan, Li | ZTE Corporation |
| Quan, Yingqiao | Spreadtrum Communications (Shanghai) Co., Ltd.; Unisoc (Shanghai) Technologies Co., Ltd. |
| Ratnam, Vishnu | Samsung Research America |
| RISON, Mark | Samsung Cambridge Solution Centre |
| Rosdahl, Jon | Qualcomm Technologies, Inc. |
| Rosenzweig Arbel, Gil | Renesas Electronics Corporation |
| Roy, Rishabh | SAMSUNG ELECTRONICS |
| Ryu, Kiseon | NXP Semiconductors |
| Sadiq, Bilal | Samsung Research America |
| Sato, Takuhiro | SHARP CORPORATION |
| Schelstraete, Sigurd | MaxLinear |
| Serizawa, Kazunobu | Advanced Telecommunications Research Institute International(ATR) |
| Sevin, Julien | Canon Research Centre France |
| Shi, Zhenpeng | Huawei Technologies Co., Ltd |
| Shirakawa, Atsushi | SHARP CORPORATION |
| siaud, isabelle | Orange |
| Son, Ju-Hyung | WILUS Inc. |
| Sun, Bo | Sanechips Technology Co., Ltd. |
| Sung, Hyeonjun | WILUS Inc. |
| Talarico, Salvatore | Sony Corporation |
| Tanaka, Yusuke | Sony Corporation |
| Val, Inaki | MaxLinear, Inc. |
| Wang, Lei | Futurewei Technologies/Huawei Technologies |
| Wang, Qi | Apple Inc. |
| Wang, Ying | InterDigital, Inc. |
| Wee, Gaius | Panasonic Holdings Corporation |
| Wei, Dong | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| Xia, Qing | Sony Corporation |
| Xiao, Tong | Xiaomi Communications Co., Ltd. |
| Xu, Yanchao | Amlogic |
| Yan, Zhongjiang | Northwestern Polytechnical University |
| Yang, Haorui | China Mobile |
| Yang, Jay | ZTE Corporation |
| Yang, Jimmy | Moxa Inc. |
| Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| Yee, James | MediaTek Inc. |
| Yoon, Yelin | LG ELECTRONICS |
| Zhao, Yue | Huawei Technologies Co., Ltd |
| Zhong, Ke | Ruijie Networks Co.,Ltd. |
| Zhou, Lei | H3C Technologies Co., Limited |

1. The Chair asked whether there is comment about agenda in 11-24/964r10.
	1. The Chair goes through the submissions.
		1. [24/0403](https://mentor.ieee.org/802.11/dcn/24/11-24-0403-00-00bn-managed-on-channel-p2p-communication.pptx) Managed on-channel P2P communication Inaki Val
		2. [24/0393](https://mentor.ieee.org/802.11/dcn/24/11-24-0393-00-00bn-enhancements-on-off-channel-peer-to-peer-p2p-communications.pptx) Enhancements on Off-Channel P2P Communications Rubayet Shafin
		3. [24/0397](https://mentor.ieee.org/802.11/dcn/24/11-24-0397-00-00bn-support-for-end-to-end-qos.pptx) Support for end-to-end QoS Binita Gupta
		4. [~~24/0463~~](https://mentor.ieee.org/802.11/dcn/24/11-24-0463-00-00bn-qos-enhancements-for-uhr.pdf) ~~QoS enhancements for UHR Dibakar Das~~
		5. 24/0486 Some considerations on non-primary channel access Ming Gan
		6. [24/0670](https://mentor.ieee.org/802.11/dcn/24/11-24-0670-00-00bn-different-view-problems-of-npca.pptx) Different view problems of NPCA Shawn Kim
	2. The agenda is approved.

**Some members are also having trouble joining the call via Webex.**

 **Submissions**

1. [24/0403](https://mentor.ieee.org/802.11/dcn/24/11-24-0403-00-00bn-managed-on-channel-p2p-communication.pptx) Managed on-channel P2P communication Inaki Val

C: Is this group small group? Who decides the group?

A: The number of STAs may be limited.

C: It will be beneficial if you can mention the use cases of multiple traffic arrivals to multiple STAs.

C: Group ID, AID need to be changed. We need to consider.

C: how does the STA who is the order? Why should AP trust the data aggregation for unassociated STA? There may be untrust issue.

C: Trust is based on the request by the associated STA. AP can trust. All STAs need TXOP. AP can allocate TXOP based on traffic pattern. For collision, this is very group and collision rate is very low.

C: According to channel access rule, the TXOP holder transmits.

A: There is reverse direction protocol.

1. [24/0393](https://mentor.ieee.org/802.11/dcn/24/11-24-0393-00-00bn-enhancements-on-off-channel-peer-to-peer-p2p-communications.pptx) Enhancements on Off-Channel P2P Communications Rubayet Shafin

C: slide 9, how can ap exchange this frames? All AP set defines the channel. Where channel AP try to use for this frame exchanges?

A: This is a general question for MAP. CTDMA, there is a discovery phase. Announce phase, AP can annoucne it.

C: In negotiation, AP exchanges the channel info.

C: slide 8, there may be many P2P group.

C: regarding the recommended P2P channel, is it within operating channel or outside channel?

A: It could be outside channel.

C: How can the AP recommend?

C: slide 6, quite likely AP will be coordinating /recommending.

C: channel condition changes time by time. Which channel AP choose?

A: AP has all channel planning. It’s not scanning. There is a point view.

C: Promising does not work.

1. [24/0397](https://mentor.ieee.org/802.11/dcn/24/11-24-0397-00-00bn-support-for-end-to-end-qos.pptx) Support for end-to-end QoS Binita Gupta

C: why do you add them in SCS Request? Already there in TSPEC of ADDTSRequest.

A: TSPEC has a lot of parameters. 11be chosen the enhanced mechanism

C: slide 9, status code, you like to add new status code. Is there any difference from SCS status code = accept and time setting value?

A: this is provisional allocation. AP may or may not allow.

1. 24/0486 Some considerations on non-primary channel access Ming Gan

C: adjancent , NPCA will follow the baseline rule about the 20MHz channel TX rule.

A: There is a gap for both bandwidth

C: without NPCA, AP and STA will operate in full BW.

Adjoured at 12:00ET

**July 8, 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 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%22%20%5Cl%20%227) 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), Jeongki Kim (jeongki.kim.ieee@gmail.com), and Xiaofei Wang (xiaofei.wang@interdigital.com)
5. The Chair asked whether there is comment about agenda in 11-24/964r10.
	1. The Chair goes through the submissions.
		1. [24/0670](https://mentor.ieee.org/802.11/dcn/24/11-24-0670-00-00bn-different-view-problems-of-npca.pptx) Different view problems of NPCA                                            Shawn Kim
		2. [24/0829](https://mentor.ieee.org/802.11/dcn/24/11-24-0829-00-00bn-further-considerations-on-non-primary-channel-access.pptx) Further Considerations on Non-Primary Channel Access            Jeongki Kim
		3. [24/0463](https://mentor.ieee.org/802.11/dcn/24/11-24-0463-00-00bn-qos-enhancements-for-uhr.pdf) QoS enhancements for UHR                                                    Dibakar Das
		4. [24/0518](https://mentor.ieee.org/802.11/dcn/24/11-24-0518-01-00bn-troubleshootingmetricsfouhr.pptx) Troubleshooting Metrics for UHR                                            Jerome Henry

* 1. The agenda is approved.

**Submissions**

1. [24/0670](https://mentor.ieee.org/802.11/dcn/24/11-24-0670-00-00bn-different-view-problems-of-npca.pptx) Different view problems of NPCA                                            Shawn Kim

C: in slide 7, for the requirement of P-channel STA, do you assume that the STA needs to detect and decode ICR on nP-channel and P channel? Or you assume that the STA decodes only on nP-channel?

A: I assume the both channels.

C: Then does it conflict with the current agreement in SFD? In the current agreement, the STA does not do the operation on primary channel and non-channel simultaneously.

A: We can consider only the CCA results on both channels.

C: What if the STA on the primary channel receives the RTS and sets the NAV based on the RTS?

A: STAs on primary channels can reset the NAV by using NAVtimeout rule.

C: How does the AP distinguish legacy STA and nP-channel STAs?

A: Previously AP knows which STA is legacy STA, P-channel STAs, or nP-channel STAs. Based on the address field of RTS, AP can distinguish it.

C: slide 8, RTS sent on nP-channel happens based on the OBSS frame that the AP detects?

A: Yes.

1. [24/0829](https://mentor.ieee.org/802.11/dcn/24/11-24-0829-00-00bn-further-considerations-on-non-primary-channel-access.pptx) Further Considerations on Non-Primary Channel Access            Jeongki Kim

C: slide 12, both AP and STA don’t update the OBSS NAV. How does the AP and STA know the end of the OBSS PPDU? Always monitors OBSS frames on primary channel?

A: Assume that the AP and non-AP STA get the length of OBSS PPDU from L-SIG part.

C: previous slide, trying to understand. Non-AP STA has no NAV in ICF but AP has OBSS NAV in ICR, they can do frame exchanges at least until the end of the PPDU but later AP could send the data to non-AP STA on the non-primary channel without switching back to primary channel?

A: In this example, AP gets OBSS NAV but non-AP STA does not obtain OBSS NAV. AP can provide OBSS NAV in the response frame. Then, non-AP STA can know that the total length of OBSS NAV.

C: What is the duration value of initial control frame?

A: Duration can be decided based on the uplink data.

C: Your intention is indicating the NAV value in ICF?

A: Firstly, non-AP STA transmits the ICF, then, non-AP STA does not know OBSS NAV. STA can not set the duration to longer than OBSS PPDU length.

1. [24/0463](https://mentor.ieee.org/802.11/dcn/24/11-24-0463-00-00bn-qos-enhancements-for-uhr.pdf) QoS enhancements for UHR                                                    Dibakar Das

C: Out of order delivery, I assume the PN window is not always necessary. Duration of PN window is for replay check. Once we have this MAC header protection, we don’t need PN window. MAC header protection is new replay issue.

A: I had a discussion. The conclusion is independent. Let me check again.

C: The PN window may be special design because the recipient we don’t know because the first frame’s PN window is frame not received by recipient.

C: TID 8-14 Option 1 is better because AP TID-to-link mapping if it wants to map based on the low latency traffic to specific links, if you do this special TID for special STAs may not be good.

C: slide 9, why do we need new key? That seems maybe not necessary maybe creates another complication .

C: Valid issue we need to solve here we already discussed it in ax and be. we decided to not add TID 8-14 in this SCS mechanism.

C: But the TID 8-14 need some changes like TID-to-link mapping to modify. Im’t not sure.

A: Basically, the MAC header design , we don’t need change we have 4 bit TID.

C: Option 1, this mapping of SCS streams flows to the different TIDs. Will they be happening at layer 2? Where do you think this mapping happens?

A: TS to UP mapping should be same as today right now TID is separated.

1. [24/0518](https://mentor.ieee.org/802.11/dcn/24/11-24-0518-01-00bn-troubleshootingmetricsfouhr.pptx) Troubleshooting Metrics for UHR                                            Jerome Henry

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

* + - 11bn shall define a mechanism to exchange reliability metrics between the AP and the STA for trouble shooting

Result: Y/N/A: 29T/27/44 (116T, 34Y, 31N, 51A)

C: when we say shall define a mechanism, what would we define new one? Against this if we decide something.

C: Based on the contribution, you want to address some trouble shooting case. Because 11 already has a lot of information for AP and STA.

C: This is not mandatory. It’s just trouble shooting. This is in the direction of addressing the reliability issue in wi-fi. Does this have to do directly particular UHR features or other people in this group are discussing?

A: This topic has been discussed before.

C: whether belongs to bn or REVme or next.

C: Probably it’s a good idea to narrow down what’s the functionality what’s the additional metics what’s the existing protocols already allowed,…

Adjoured at 21:00ET