IEEE P802.11  
Wireless LANs

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| Minutes for TGbn MAC Ad-Hoc sessions in March 2024 Plenary | | | | |
| Date: 2024-03-11 | | | | |
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Abstract

This document contains the meeting minutes for the TGbn MAC ad hoc sessions in March 2024 Plenary.

Revisions:

* Rev0: Added the minutes from the MAC ad hoc sessions held on March 12 AM2 & PM1, March 13 AM1 & AM2, and March 14 AM2.

**March 12, 2024, AM2 (TGbn MAC ad hoc session)**

Chairman: Srinivas Kandala (Samsung)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex and in Denver (in-person).

**Introduction**

1. The Chair (Srinivas Kandala, Samsung) calls the meeting to order at 10:30. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
2. The Chair reminded the members that they need to register for the plenary in order to attend the meeting.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     + 1) login to [imat](https://imat.ieee.org/attendance), 2) select “802 Wireless Plenary Session” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click the “TGbn (MAC)”” meeting 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 Jeongki Kim ([jeongki.kim.ieee@gmail.com](mailto:jeongki.kim.ieee@gmail.com)), Xiaofei Wang ([xiaofei.wang@interdigital.com](mailto:xiaofei.wang@interdigital.com)), and Srinivas Kandala ([srini.k1@samsung.com](mailto:srini.k1@samsung.com))
4. 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.
5. The Chair goes through the IEEE copyright policy.
6. The Chair asked whether there is comment about agenda in 11-24/235r4.
   1. There were discussion on SP on Header Security.
      1. Want to defer SP or want to present the high level concept of this topic firstly.
      2. There were 15 contributions in the queue. We have to make a progress for this topic.
      3. My presentation is not the technical details. Just the direction of high level concept.
      4. SP is just SP that anyone wants to do.
      5. During the SP, you can point your opinion. We will have Q&A on this.
      6. This is just SP. You can express your opinion.
   2. The agenda was approved.

**Submissions**

1. Pending SPs (TBD) – 20 mins
   1. Converged SP on Header Security [10’] – see next slide
      * C: PAR increases throughput and reduce the latency. What’s the purpose of the SP?
      * C: We may handle other methods for attacker problem without this rule. I don’t think that can solve all issues. Group need to have more discussion on this topic. I will vote for No.
      * C: We can amend the PAR for a security goal for PAR. Can we do the security?
      * Several other group already discussing the security issue. We can handle this issue for those groups.
      * I don’t think this is last minute.
      * UHR goal is latency, reliability, ..

**SP 1 on MAC header security:**

Do you support to define a mechanism in TGbn that provides integrity protection to protect the MAC header for individually addressed Data and Management frames?

* It is TBD whether the mechanism is mandatory or optional.
* It is TBD to protect group addressed Data and Management frames.
* TBD on which fields to protect.

SP result: 86Y/31N/30A

* 1. Converged SP on Roaming [10’] – see next slide

**SP 2 on roaming:**

Do you support to define a mechanism in 11bn that when a non-AP MLD roams from one AP MLD to another AP MLD, the context related to the non-AP MLD is transferred from the one AP MLD to the other AP MLD such that it preserves the data exchange context for the non-AP MLD?  
–Details of the context (ex security association context) that can be transferred are TBD  
–Framework to transfer the context is TBD.

Note: Discussed in several sessions and several submissions discuss similar concept, ref: [23/1908r2](https://mentor.ieee.org/802.11/dcn/23/11-23-1908-02-00bn-seamless-roaming-procedure.pptx), [23/1884r2](https://mentor.ieee.org/802.11/dcn/23/11-23-1884-02-00bn-seamless-roaming.pptx), [23/2157r2](https://mentor.ieee.org/802.11/dcn/23/11-23-2157-02-00bn-seamless-roaming-within-a-mobility-domain.pptx), [23/1996r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1996-00-00bn-improve-roaming-between-mlds.pptx), [23/0322r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0322-00-0uhr-improve-roaming-between-mlds.pptx), [23/1937r1](https://mentor.ieee.org/802.11/dcn/23/11-23-1937-01-00bn-smooth-roaming-follow-up-1.pptx), [23/1897r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1897-00-00bn-thoughts-on-improving-roaming-under-existing-architecture.pptx), [23/1971r2](https://mentor.ieee.org/802.11/dcn/23/11-23-1971-02-00bn-further-thoughts-on-seamless-roaming.pptx)

C: can we say define a mechanism? Mechanism

C: It does not mention which framework will be applied.

C: We have to define what is new and what we want to do.

C: There were many things for this. Roaming MLD. We already discussed it. We can decide functionality first and then we can have further discussions on it.

C: I am strongly against context transfer related text.

C: This is not a mandate proprosal. This is one of the mechanisms for roaming. We can further discuss mandatory or optional later.

SP Result: 100Y/28N/18A

Some offline people could not vote.

If you can’t vote, please post in chat prior to closing poll.

1. [23/2026](https://mentor.ieee.org/802.11/dcn/23/11-23-2026-00-00bn-balanced-wireless-in-device.pptx) Balanced Wireless In-Device Brian Hart [Q&A, 5’]

C: Trigger frame already indicates the priority optional. That will be leveraged?

A: Trigger frame can be possible. It can be supported for both DL/UL

C: RTS++ may not be understand by legacy STAs. Do you have any in mind?

A: I don’t think legacy is valuable for enhancement. We can amend in REVme for it. We can define for UHR.

C: Generally agree with this. Long term way, more dynamic case is unpredictable. Good alignment with us.

C: have this work?

A: need to be flexible for different scenarios. You may not be interruptable.

C: TGbe defined EPCS for priority access.

A: Not a exactly same way. That’s not about a voice or video. SCS characteristic.

C: Priority, who decide the priority? Client angle? QoS defines high priority?

A: Easy answer is voice video are high priority. That’s hard problem. The recipient decides which flow is high priority generally.

C: You don’t need to define long term high priority or low priority.

C: Header is wrong.

C: Agree with the direction generally. It’s priority of its frame or not?

A: initial control frame can carry priority of traffics.

C: plan C, is this long term or short term availability window? How accurate or variation?

C: Do you have specific use cases for this?

A: blooth, UWB , etc.

1. [23/2002](https://mentor.ieee.org/802.11/dcn/23/11-23-2002-01-00bn-in-device-coexistence-and-interference-follow-up.pptx) In-device coexistence and interference follow-up Laurent Cariou

C: Why do you limit the idc to STA?

A: I don’t think we can limit to STA slide. It can be to both side. Dynamic indication can be limit to STA. For AP side, they can be always available. This is straightforward for STA slide.

C: We can add one sentence this can be also for AP.

C: Block ack can include availability. We should allow.

C: what is the definition of "peer STA" in the SPs?

A: it can be STA or AP.

C: slide 10, why should STA request the shorter duration?

A: if STA know the unavailable time, it can indicate it.

C: SP1, what is the unavailability? RX only? TX only?

A: Both RX and TX.

C: do you think we need to optimize to indicate TX only?

A: If it’s unavailable, but it can send it. We can have more discussion.

C: slide 10, AP is TXOP holder? Or STA can be TXOP holder?

A: AP is TXOP holder and STA is TXOP responder. If STA is TXOP holder, we need another ICF.

C: Mobile AP can indicate it for this. This can adopt to AP. Availability/unavailability.

C: slide 10, do you open to broadcast/groupcast for initial control frame?

A: MU-Trigger frame can trigger multiple STAs.

C: In that case, CTS might be issue for that.

1. [23/1963](https://mentor.ieee.org/802.11/dcn/23/11-23-1963-00-00bn-periodical-nss-adjustment-for-an-mld.pptx) Periodical NSS Adjustment for an MLD Yunbo Li

C: how frequently? Several beacon interval?

A: how frequently it will be? This could be more dynamical. Ten ms or hundreds ms.

C: 11be has EMLMR or EMLSR. Similar to EMLMR? What are the particular functionalities?

A: it can exchange periodical availability or unavailability of this.

The session was recessed at 12:30.

**March 12, 2024, PM1 (TGbn MAC ad hoc session)**

Chairman: Srinivas Kandala (Samsung)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex and in Denver (in-person).

**Introduction**

1. The Chair (Srinivas Kandala, Samsung) calls the meeting to order at 13:30. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
2. The Chair reminded the members that they need to register for the plenary in order to attend the meeting.
3. The Chair recommends using IMAT for recording the attendance.
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4. 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.
5. The Chair goes through the IEEE copyright policy, guideline, rules, and so on.
6. The Chair asked whether there is comment about agenda in 11-24/235r7.
   1. The agenda was approved.

**Submissions**

1. Pending SPs (TBD) – 20 mins
   1. SP on Relay [10’] – see next slide, Dongguk (defer to Thursday)
   2. SP on Control Security [10’] – see next slide, Po-Kai

**SP 2 on Control Security:**

Do you support to define Trigger frame protection, BlockAck frame protection (variant TBD), BlockAckReq frame protection (variant TBD) in 802.11bn?

* The detailed method is TBD.

C: This is a joint SP with other member’s contributions. Not only for me.

C: In the morning, SP for security was failed. I want to present my contribution before this SP.

C: This topic has been discussed for several months. This topic is clear. We need to have this for UHR for low latency, reliability.

C: What’s the relationship? This is control frame. Not about header. For progress, we need to have SP.

Some audio issues.

C: We are running SP individually.

A: We only consider SP2.

C: Several types of control frame shoud be protected. I support this.

C: We need more disucssion for evaluation of this topic.

C: For example, for eMLSR, STA may not be protected without any protection.

C: It may increase complex and cost.

C: This issue raised for long time ago.

C: 11ba is to save more power. It makes sense.

C: We need to save power in 11bn as well.

SP result: 80Y/61N/21A

1. [23/2007](https://mentor.ieee.org/802.11/dcn/23/11-23-2007-01-00bn-enhancement-of-bsr.pptx) Enhancement of BSR Frank Hsu

C: QoS control field can defined newly for this. This might be complex. We can use other fields (TID or others) of QoS control.

A: It may not be good direction.

1. [23/2063](https://mentor.ieee.org/802.11/dcn/23/11-23-2063-00-00bn-enhanced-acknowledgement-for-low-latency-communication-follow-up.pptx) Enhanced Ack. for Low Latency Communication Follow-Up Tuncer Baykas

C: slide 7, how do you know which device the PPDU came from?

A: It can be based on TXOP that is setup previously.

C: During the TXOP, the OBSS device can also transmit.

1. [23/2023](https://mentor.ieee.org/802.11/dcn/23/11-23-2023-01-00bn-further-discussion-on-non-primary-channel-access.pptx) Further discussion on Non-Primary Channel Access Sindhu Verma

C: There are two types of channel access. Each 20MHz channel access and PIFS operation.

A: We are defining two groups of channel. Overlapping or non-overlapping. I don’t think STA performs PIFS access in 6GHz based on 5G channel access.

C: Each link can be accessed by each EDCA mechanism.

A: Each has two group of channels.

C: Why don’t you make overlapping BSS?

A: There is no regulation issue in this topic.

C: Generally, the concept is good. Slide 5. You have two types of channel access. One is each channel access and the other is channel bonding according to the rule. You have to look at those documents.

A: Wi-Fi already has the channel access.

C: Simulation result 6 or 7. Slide 18. What is the baseline scenario? Is the interference is co-channel interference?

A: CSR is mutual exclusive of this? That is not necessary here. It does not have Spatial reuse in this scenario.

The session was recessed at 15:17.

**March 13, 2024, AM1 (TGbn MAC ad hoc session)**

Chairman: Srinivas Kandala (Samsung)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex and in Denver (in-person).

**Introduction**

1. The Chair (Srinivas Kandala, Samsung) calls the meeting to order at 08:00. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
2. The Chair reminded the members that they need to register for the plenary in order to attend the meeting.
3. The Chair recommends using IMAT for recording the attendance.
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4. 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.
5. The Chair goes through the IEEE copyright policy, guideline, rules, and so on.
6. The Chair asked whether there is comment about agenda in 11-24/235r9.
   1. The agenda was approved.

**Submissions**

1. Pending SPs (TBD) – 20 mins
   1. SP on Power Save [10’] – see next slide

**SP 1 on Power Save:**

Do you agree to define in 11bn a power save mode for a STA that is a UHR Mobile AP or a UHR non-AP STA wherein the STA may transition from a lower capability mode to a higher capability mode upon reception of an initial control frame

* Lower capability mode (e.g., 20 MHz BW, one SS, limited data rates, PPDU format)
* Higher capability mode (e.g., operating BW, NSS and MCSs, with at least one higher capability than that in the lower power capability mode)
* Initial Control frame is TBD
* Whether that applies for a non-mobile AP is TBD
* *Note: Discussed in several sessions and several submissions discuss similar concept, ref: [23/1875](https://mentor.ieee.org/802.11/dcn/23/11-23-1875-01-00bn-power-save-proposal-for-non-ap-mobile-ap.pptx),* [*23/2003*](https://mentor.ieee.org/802.11/dcn/23/11-23-2003-01-00bn-client-power-save.pptx)*,* [*23/1965*](https://mentor.ieee.org/802.11/dcn/23/11-23-1965-02-00bn-dynamic-power-save-follow-up.pptx)*,* [*23/1936*](https://mentor.ieee.org/802.11/dcn/23/11-23-1936-00-00bn-ap-mld-power-save-follow-up.pptx)

C: Why do you want to restrict only the periodic?

A: this is SP 1.

C: Ok

101Y/11N/23A

* 1. SP on Power Save [10’] – see next slide

**SP 2 on Power Save:**

Do you agree to define in 11bn a mechanism to allow a STA to optionally indicate or update a periodic unavailability in time to its peer STA

* Expectation is to use existing protocols
* Applies when the peer STA(s) supports the mechanism

*Note: Discussed in several sessions and several submissions discuss similar concept, ref: [23/2040](https://mentor.ieee.org/802.11/dcn/23/11-23-2040-01-00bn-enabling-ap-power-save-follow-up.pptx),* [*23/2002*](https://mentor.ieee.org/802.11/dcn/23/11-23-2002-02-00bn-in-device-coexistence-and-interference-follow-up.pptx)*,* [*23/1103*](https://mentor.ieee.org/802.11/dcn/23/11-23-1103-00-0uhr-in-device-interference-discussion.pptx)*,* [*24/0097*](https://mentor.ieee.org/802.11/dcn/24/11-24-0097-00-00bn-ap-power-management-follow-up.pptx)

C: does it cover AP indicates non-AP STA the unavailability?

A: It can cover both AP and non-AP STA?

C: It can already be supported by existing TWT SP. Why do you propose? SP text is too general so that I can not know what’s the new.

C: Is that what you presented yesterday?

A: No, this is based on the PS contribution two months ago.

C: SP text need to be discussed. P2P TWT can already be supported in existing standard.

A: This is high level direction.

C: Clarify the STA is AP? Not clear because AP in SP 1. What’s the purpose of this SP? We can cover the STA is AP.

A: STA is both AP and non-AP STA.

C: But, in SP1, you exclude the AP.

A: That’s the different mechanism.

Let’s defer this now.

1. [23/2126](https://mentor.ieee.org/802.11/dcn/23/11-23-2126-00-00bn-low-latency-channel-access-follow-up.pptx) Low latency channel access follow up Dmitry Akhmetov

C: The security type, hacker who just repeats the signal to transmit.

C: EDCA parameters are adopted in Beacon frame. Standard point of view is ok. But market point of view, we need to think about it. Some one can transmit this and has gone.

C: slide 4, STA 1 and STA 2 can be 11be device. But, we already support the latency for devices. How can you affects.

A: Yes. 460 covers it for legacy STA. There is no many affect to legacy devices.

C: DS should be different acroym from distribute system.

C: What is intuition here on slide 30 for latency improvement?

A: Mainly for throughput .

C: There are multiple BSSs it can be collided. BSS color.

A: Ok, we can be unified for it.

C: slide 13, in third one. Why Yellow one is better than other?

C: if in BSS part of STA use , other legacy STAs don’t use. What’s the performance of legacy STA?

A: 460 addresses that issues. We can futher discuss it.

C:

1. [23/2127](https://mentor.ieee.org/802.11/dcn/23/11-23-2127-00-00bn-11bn-power-save.pptx) 11bn Power Save Jeongki Kim

C: Allocation duration STAs not assigned going into doze, then how much gain will be achieved with current PS mode, intra-PPDU power save.

A: If the STA is hidden from assigned STA, the STA can not do Intra-PPDU PS. In UL procedure, AP triggers multiple STAs so that the unassigned STA can easily enter the doze state based on the Intra-PPDU PS. But, in TXS procedure, AP assigned only one STA. Hidden in TXS can be more possible than in UL procedure. Intra-PPDU PS may be lower in unassigned STA.

C: slide 6, what happens if the TXOP does not initiate, and the STA doesn’t transmit CTS

A: that is the detail of this procedure, in that case, AP can transmit again MU-RTS or to other STA, but AP already knows that STA3 enters doze state, so AP will not transmit to STA3

1. [23/2147](https://mentor.ieee.org/802.11/dcn/23/11-23-2147-00-00bn-improved-uhr-seamless-roaming-for-multi-link-device.pptx) Improved UHR Seamless Roaming for MLD Hui Che

Discussion: None.

1. [23/2150](https://mentor.ieee.org/802.11/dcn/23/11-23-2150-00-00bn-low-sta-cost-uhr-seamless-roaming-for-multi-link-device.pptx) Low STA Cost UHR Seamless Roaming for MLD Hui Che

Discussion: None.

The session was recessed at 10:00.

**March 13, 2024, AM2 (TGbn MAC ad hoc session)**

Chairman: Srinivas Kandala (Samsung)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex and in Denver (in-person).

**Introduction**

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4. 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.
5. The Chair goes through the IEEE copyright policy, guideline, rules, and so on.
6. The Chair asked whether there is comment about agenda in 11-24/235r10.
   1. The agenda was approved.

**Submissions**

1. Pending SPs (TBD) – 20 mins

* **SP 1 on Relay:**
* Do you support to define a relay protocol in 11bn?
  + A UHR relay forwards frames between an AP and a non-AP STA.
  + The details of the relay protocol are TBD.
  + *Note: Discussed in several sessions and several submissions discuss similar concept, ref:* [*22/1908r1*](https://mentor.ieee.org/802.11/dcn/22/11-22-1908-01-0uhr-uhr-rate-vs-range-enhancement-with-relay.pptx)*,* [*23/1138r1*](https://mentor.ieee.org/802.11/dcn/23/11-23-1138-01-0uhr-features-to-consider-for-efficient-relay-operation.pptx)*,* [*23/1139r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1139-00-0uhr-relay-transmission-in-uhr.pptx)*,* [*23/1146r1*](https://mentor.ieee.org/802.11/dcn/23/11-23-1146-01-0uhr-relaying-for-low-latency-traffic-in-uhr.pptx)*,* [*23/1175r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1175-00-0uhr-uhr-relay-follow-up.pptx)*,* [*23/1450r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1450-01-0uhr-consideration-on-uhr-relay-architecture.pptx)*,* [*23/1517r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1517-00-0uhr-follow-up-on-the-relay-transmission.pptx)*,* [*23/1518r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1518-00-0uhr-evaluation-for-the-relay-transmission.pptx)*,* [*23/1450r1*](https://mentor.ieee.org/802.11/dcn/23/11-23-1450-01-0uhr-consideration-on-uhr-relay-architecture.pptx)*,* [*23/1838r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1838-00-00bn-follow-up-on-the-relay-transmission.pptx)*,* [*23/1839r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1839-00-00bn-evaluation-for-the-relay-transmission.pptx)*,* [*23/1840r2*](https://mentor.ieee.org/802.11/dcn/23/11-23-1840-02-00bn-relay-for-11bn.pptx)*,* [*23/1889r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1889-00-00bn-considerations-for-relay-operation-in-next-generation-wi-fi-networks.pptx)*,* [*23/1899r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1899-00-00bn-relay-operation-for-11bn.pptx)*,* [*23/1928r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1928-00-00bn-considerations-for-relay-operation-in-next-generation-wi-fi-networks-part-2.pptx)*,* [*23/1948r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1948-00-00bn-txop-sharing-based-ul-relaying.pptx)*,* [*23/1969r0*](https://mentor.ieee.org/802.11/dcn/23/11-23-1969-00-00bn-consideration-on-uhr-relay-architecture.pptx)*,* [*23/1955r1,*](https://mentor.ieee.org/802.11/dcn/23/11-23-1955-01-00bn-considerations-for-relay-operation-in-next-generation-wi-fi-networks-part-3.pptx)[*23/2217r1*](https://mentor.ieee.org/802.11/dcn/23/11-23-2217-01-00bn-some-thoughts-on-relay-improvement.pptx)*,* [*24/74r0*](https://mentor.ieee.org/802.11/dcn/24/11-24-0074-00-00bn-relay-operation-follow-up.pptx)*,* [*24/105r0*](https://mentor.ieee.org/802.11/dcn/24/11-24-0105-00-00bn-txop-for-relay-communication-in-11bn.pptx)*,* [*24/385r0*](https://mentor.ieee.org/802.11/dcn/24/11-24-0385-00-00bn-discussion-on-11bn-relay-operation.pptx)*,* [*24/386r0*](https://mentor.ieee.org/802.11/dcn/24/11-24-0386-00-00bn-lower-mac-relay-follow-up.pptx)

C: Other mechanisms may allow this protocol already like mesh.

C: I support this SP.

C: We have existing mechanisms as Laurent said. I don’t see any difference. I don’t know what’s the difference.

C: I’m favor in the SP. There are many contribution to support and handle the relay

C: Why do you want to restrict only the periodic?

A: this is SP 1.

C: Ok

C: This can be more efficient than mesh.

C: One hop or two hops.

C: Against due to existing protocol.

Result: 110Y/78N/23A

* + SP on Power Save [10’]

SP2: Do you agree to define cross link power save signaling• allowing a non-AP MLD to indicate to its associated AP MLD that supports it, in a frame sent on one enabled link, the power management mode for one or more of its affiliated non-AP STAs• whether support for the mechanism is mandatory or optional is TBD[23/2003, 24/0602]

C: I want to run the MLD PS on the same topic.

C: I have to follow the SP. I need to receive the SP text. I don’t have any objection.

C: what’s the support?

C: does it allowed to PM bit indication or other indication?

Result: 122Y, 22N, 32A

SP3: Do you agree to define in 11bn a power save mode for a non-AP MLD wherein the non-AP MLD may transition from a lower capability mode to a higher capability mode upon reception of an initial control frame• Lower capability mode (e.g., single link, 20 MHz BW, one SS, limited data rates, PPDU format)• Higher capability mode (e.g., more links, higher operating BW, NSS or MCSs)

C: This is new one for ML based on the previous per-link power save.

C: This is multi-power saving operation. I’m not ready to be fine with this. I want to defer this for more discussion.

C: Before making this decision, we have to look at all related contributions.

C: This should be per-link. You can signal the cross-link.

A: Per-link power save from low power to high power is already passed. This is new one for multi-link.

C: Cross-link signaling should be discussed. This operation should be per-link.

SP is deferred.

* 1. [23/2211](https://mentor.ieee.org/802.11/dcn/23/11-23-2211-00-00bn-txop-bandwidth-expansion.pptx) TXOP bandwidth expansion Shawn Kim

C: Slide 4 or 5, how do you know the duration of the second channel?

A: STA does not know the duration of TXOP in the second channel

C: You don’t know whether the secondary is busy or idle.

C: What’s new operation?

A: The spec does not allow this operation.

C: Option 1, TXOP holder is baseline. Your proposal is option 2.

A: Option 1 is better. The spec need to specify this procedure.

C: What’s missing in baseline?

A: need to limit the condition for the operation.

C: initial frame is MU-RTS frame, are you open for the frame type.

C: How to set the duration in frame exchange?

A: the duration of the short PPDU?

C: Yes

A: it can be set to whole TXOP. After TXOP, it will not be extended

C: Then, other STA may not get the channel during period.

A: That’s for the TXOP holder.

C: Why not using PIFS?

A: PIFS is one of options. But there is some issues like regulation.

C: Do you have any evaluation on this short frame exchanges? Gain?

A: This short PPDU can be preemptable PPDU like 1ms.

C: After resp frame, you perform CCA whether the secondary is idle or busy. How long?

A: It can be PIFS.

* 1. [24/0031](https://mentor.ieee.org/802.11/dcn/24/11-24-0031-00-00bn-deterministic-backoff.pptx) Deterministic Backoff Menzo Wentink

C: IPT is important parameter. Non-buffer traffic, how do you count IPT after the last transmission? STA is non full buffered traffic. If New traffic is coming,

A: At that time, if the queue is idle and traffic happens, then IPT will be 0.

C: slide 4, initial tx , IPT is 0.

A: That table is for bracket. Initial frame is only random backoff.

C: Is there any fairness issue?

C: Is this only applied for best effort? Other AC?

A: You can use video and voice. But high improvement is for best effort than AC\_VO.

* 1. [24/0042](https://mentor.ieee.org/802.11/dcn/24/11-24-0042-00-00bn-thoughts-on-flexible-control-frames.pptx) Thoughts on Flexible Control frames George Cherian

C: BA should be secure.

C: how about aggregated multiple MAC frames?

A: We don’t have control frame aggregation.

The session was recessed at 12:30.

**March 14, 2024, AM2 (TGbn MAC ad hoc session)**

Chairman: Srinivas Kandala (Samsung)

Secretary: Jeongki Kim (Ofinno)

This meeting took place using a webex and in Denver (in-person).

**Introduction**

1. The Chair (Srinivas Kandala, Samsung) calls the meeting to order at 10:00. The Chair introduces himself and the Secretary (Jeongki Kim, Ofinno).
2. The Chair reminded the members that they need to register for the plenary in order to attend the meeting.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     + 1) login to [imat](https://imat.ieee.org/attendance), 2) select “802 Wireless Plenary Session” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click the “meeting that you are attending. TGbn (MAC)”
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim.ieee@gmail.com](mailto:jeongki.kim.ieee@gmail.com)), Xiaofei Wang ([xiaofei.wang@interdigital.com](mailto:xiaofei.wang@interdigital.com)), and Srinivas Kandala ([srini.k1@samsung.com](mailto:srini.k1@samsung.com))
4. 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.
5. The Chair goes through the IEEE copyright policy, guideline, rules, and so on.
6. The Chair asked whether there is comment about agenda in 11-24/235r12.
   1. The agenda was approved.

**Submissions**

1. Pending SPs (TBD) – 20 mins

**SP 1 on DSO:**

Do you agree that TGbn will define a mechanism where a non-AP STA can be allocated resources dynamically (i.e., on a per-TXOP basis) outside of its current operating bandwidth and within the associated AP’s BSS bandwidth?

Note: Discussed in several sessions and several submissions discuss similar concept, ref: [11-22/2204](https://mentor.ieee.org/802.11/dcn/22/11-22-2204-00-0uhr-dynamic-subband-operation.pptx), [11-23/2141](https://mentor.ieee.org/802.11/dcn/23/11-23-2141-00-00bn-further-discussion-on-dynamic-subband-operation.pptx), [11-23/843](https://mentor.ieee.org/802.11/dcn/23/11-23-0843-01-0uhr-considerations-on-dynamic-subchannel-operation.pptx), [11-23/1496](https://mentor.ieee.org/802.11/dcn/23/11-23-1496-00-0uhr-emlsr-dynamic-subband-operation.pptx), [11-23/1892](https://mentor.ieee.org/802.11/dcn/23/11-23-1892-00-00bn-thoughts-on-dynamic-subchannel-operation.pptx), [11-23/2027](https://mentor.ieee.org/802.11/dcn/23/11-23-2027-02-00bn-considerations-for-dso-sub-band-switch-delay.pptx), [11-24/591](https://mentor.ieee.org/802.11/dcn/24/11-24-0591-00-00bn-emlsr-secondary-channel-operation.pptx)

SP is deferred.

**SP2 on NPCA:**

Do you support to define in 11bn a mode of operation that enables a STA to access the secondary channel while the primary channel is known to be busy due to OBSS traffic or other TBD conditions?

– The mode of operation shall not assume that the STA is capable to detect or decode a frame and obtain NAV information of the secondary channel concurrently with the primary channel.

– A BSS shall only have a single NPCA primary channel (name TBD) on which the STA contends while the primary channel of the BSS is known to be busy due to OBSS traffic or other TBD conditions.

Note: Discussed in several sessions and several submissions discuss similar concept, ref: [11-23/2005r1](https://mentor.ieee.org/802.11/dcn/23/11-23-2005-01-00bn-non-primary-channel-access-npca.pptx), [11-23/2023r1](https://mentor.ieee.org/802.11/dcn/23/11-23-2023-01-00bn-further-discussion-on-non-primary-channel-access.pptx), [11-24/70r1](https://mentor.ieee.org/802.11/dcn/24/11-24-0070-01-00bn-some-details-about-non-primary-channel-access.pptx), [11-24/458r0](https://mentor.ieee.org/802.11/dcn/24/11-24-0458-00-00bn-considerations-on-non-primary-channel-access.pptx), [11-24/486r0](https://mentor.ieee.org/802.11/dcn/24/11-24-0486-00-00bn-some-considerations-on-non-primary-channel-access.pptx), [11-24/538r0](https://mentor.ieee.org/802.11/dcn/24/11-24-0538-00-00bn-sp-based-non-primary-channel-access.pptx), [11-23/1935r1](https://mentor.ieee.org/802.11/dcn/23/11-23-1935-01-00bn-secondary-channel-usage-follow-up.pptx), [11-23/1913r2](https://mentor.ieee.org/802.11/dcn/23/11-23-1913-02-00bn-secondary-channel-access-operation.pptx), [11-23/1911r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1911-00-00bn-secondary-channel-access-and-frame-transmission.pptx)

SP results: 99/42/26

1. [**24/0052**](https://mentor.ieee.org/802.11/dcn/24/11-24-0052-00-00bn-seamless-roaming-details.pptx) **Seamless Roaming details Duncan Ho**

C: Do we need actual mechanisms?

C: Who is sending the request?

A: XR device.

C: Is there any trust issue?

C: How you expecting the AP to determine which AC or which the laptop is using send …?

C: How will the XR device know what the laptop is transmitting any packet?

C: Conclusion said you need only 1 bit. But other slides includes uplink T class.

A: I didn’t modify it.

1. [24/0073](https://mentor.ieee.org/802.11/dcn/24/11-24-0073-00-00bn-thoughts-on-proxy-scs.pptx) Thoughts on proxy SCS Guogang Huang

C: The procedure is in baseline. We don’t need to define mode 1, 2, ….. We had better have general text for it.

A: Intention is not defining different modes.

C: Generally, high level is aligned.

C: Regarding DL frame from AP1, you only consider from the specific AP?

A: signaling should be discussed more.

C: You gets UL/DL data from controller. Why do you want to change the DS mapping?

A: Depending on the architecture.

C: You mentioned the PN/SN can be transferred on contenxt transfer. How about the security conext? PTK or GTK,…

A: That’s under discussion. It may be included in step 5.

1. [24/0074](https://mentor.ieee.org/802.11/dcn/24/11-24-0074-00-00bn-relay-operation-follow-up.pptx) Relay operation follow-up Guogang Huang

C: What is the reason of splitting the MLD upper MAC and lower MAC ?

A: In my understanding, relay STA is associated with the AP MLD. If not the AP cannot notice there is a relay.

C: It will have some cost issues.

C: Relay Sta indicates during the association it’s the power constrains device. Could you elaborate it? Device is battery power. Does it mean Device is lower max power. If it’s really indicated, that is a power constraints device, which step or procedure can help the power constraints relay?

A: Here, the power constraints, relay is a battery power. How to preserve the power I need to think about it. We can have more discussion this.

C: Is there any message flow happening from AP MLD to relay AP as well?

C: slide 4, framework. Non-AP MLD set up direct link AP MLD. How about outslide of range? Is it possible?  
A: Yes.

A: We can expand the coverage for seamless roaming. We can reuse the roaming.

1. [24/0083](https://mentor.ieee.org/802.11/dcn/24/11-24-0083-00-00bn-smooth-roaming-follow-up-2.pptx) Smooth roaming follow up 2 Liwen Chu

C: What context can be tranfer is currently based on the SP is TBD. What context is transfer?

C: EMLSR AP MLD is complicated. I’m not sure we should define it.

A: Some are related to the data transmit and receptions. This is not enough. We also need to define service negotiated with the server. EMLSR we do not have roaming AP MLD.

C: I’m not sure we should define EMLSR with two serving AP MLDs.

The session was adjourned at 12:30.