IEEE P802.11
Wireless LANs

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| 802.11 bn PHY ad-hoc minutes for the July 2025 Plenary session |
| Date: 2025-07-31 |
| Author(s): |
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Abstract

This document contains the PHY ad hoc meeting minutes for TGbn held on:

* Monday AM1, July 28, 2025
* Tuesday AM2, July 29, 2025
* Wednesday AM1, July 30, 2025
* Thursday AM1, July 31, 2025

## Monday July 28th, 2025 9:00 – 11:00 CET

**Introduction**

1. The Chair (Sigurd Schelstraete, MaxLinear) calls the meeting to order at 09:00 CET.
2. The Chair follows the agenda in 11-25/**1064r1**.
3. Reminder for registration for the Plenary meeting.
4. The Chair reminds everyone to report their attendance by using IMAT system and by sending an e-mail to the Co-chair, Tianyu Wu (Apple), Dongguk Lim (LGE) or the Chair himself if unable to record attendance via IMAT system.
5. The Chair goes through the IPR policy and asks if anyone is aware of any potentially essential patents. **Nobody speaks up.**
6. The Chair goes through the Copyright policy.
7. Discussions on the agenda:
* **PDTs/CRs –**
	+ [25/1315](https://mentor.ieee.org/802.11/dcn/25/11-25-1315-00-00bn-pdt-phy-nltf.docx) PDT-PHY-Nltf Ron Porat
	+ [25/1305](https://mentor.ieee.org/802.11/dcn/25/11-25-1305-00-00bn-cr-for-38-3-15-uhr-preamble-puncturing.docx) CR for 38.3.15 - UHR Preamble Puncturing Oded Redlich
* **Submissions –**
	+ [25/0985](https://mentor.ieee.org/802.11/dcn/25/11-25-0985-02-00bn-a-novel-approach-to-reduce-the-size-of-the-beamforming-feedback-report-in-wi-fi-networks.pptx) A Novel Approach to Reduce the Size of the Beamforming Feedback Report in Wi-Fi Networks Sawaira Ali
	+ [25/1001](https://mentor.ieee.org/802.11/dcn/25/11-25-1001-02-00bn-adaptive-power-boosting-design-for-dru.pptx) Adaptive power boosting design for dRU Sawaira Ali
	+ [25/1329](https://mentor.ieee.org/802.11/dcn/25/11-25-1329-00-00bn-interference-mitigation-pilots-design.pptx) Interference Mitigation Pilots Design Shimi Shilo
	+ 25/0079 Thoughts on IM pilots and other PHY parameters Shengquan Hu
	+ 1340 LDPC Dtm equation for IM Eugene Baik

**PDTs/CRs**

**25/1315r0 PDT-PHY-NLTF (Ron Porat)**

Discussion

No discussion.

**SP1:**

Do you agree to adopt the text proposal in 1315r0 for inclusion in the next draft of 802.11bn?

No Objection

**25/1305r0 CR for 38.3.15 – UHR Preamble Puncturing (Oded Redlich)**

Discussion

No discussion.

**SP2:**

Do you agree to the proposed resolution of the following CID, as proposed in 1305r1?

* CID 344

No Objection

**Technical contributions**

**25/0985r2 A Novel Approach to Reduce the Size of the Beamforming Feedback Report in Wi-Fi Networks (Salim Yahya)**

Discussion

Q: Is the separation done for DL MU-MIMO?

A: Yes.

Q: Not clear on the definition of the grouped beamforming feedback.

A: Instead of sending individual feedback for each STA, proposed to group them to reduce the overhead.

**SP1 in 25/0985r2:**

* **Do you agree to add the following statement to the SFD?**

“A Grouped Beamforming Feedback Matrix shall be utilized to reduce overhead for STAs and to lower computation complexity associated with the received Feedback Matrix”

Discussion

Q: Is the intention of the SP to add to draft text or SFD or just concept level?

A: Target is to put in draft text, but now it can be SFD.

Q: Need to add more details if it is for the draft text. Change ‘the standards’ to ‘the SFD’.

Yes/No/Abs: 16/50/23

**25/1329r0 Interference Mitigation Pilots Design (Shimi Shilo)**

Discussion

Q: Slide 11: for the larger 996 RU, you proposed to have two tone mappers?

A: Yes.

Q: Current tone plan also has some null tones. For zero energy pilots, did you evaluate the gain comparing to the current tone plan?

A: Current Null tones are not sufficient.

Q: Do we need IM pilot for <242 tone RU?

A: I think it is beneficial to support it. We dropped it as compromise. But we can have more discussion.

**25/0079r0 Thoughts on IM pilots and other PHY parameters (Shengquan Hu)**

Discussion: No Discussion.

**25/1340r1 LDPC DTM equation for IM (Eugene Baik)**

Discussion: No Discussion.

**Recess**

The meeting is Recessed at 10:50 CET.

## Tuesday July 29th, 2025 11:30 – 13:30 CET

**Introduction**

1. The Chair (Sigurd Schelstraete, MaxLinear) calls the meeting to order at 11:30AM CET.
2. The Chair follows the agenda in 11-25/**1064r4**.
3. Reminder for registration for the Plenary meeting.
4. The Chair reminds everyone to report their attendance by using IMAT system and by sending an e-mail to the Co-chair, Tianyu Wu (Apple), Dongguk Lim (LGE) or the Chair himself if unable to record attendance via IMAT system.
5. The Chair goes through the IPR policy and asks if anyone is aware of any potentially essential patents. **Nobody speaks up.**
6. The Chair goes through the Copyright policy.
7. Discussions on the agenda:

**Straw Polls –**

* + 9 SPs on IM (Shimi Shilo and Shengquan Hu and Eugene Baik)

**PDTs/CRs –**

* + [25/1084](https://mentor.ieee.org/802.11/dcn/25/11-25-1084-00-00bn-cr-for-38-3-5-interference-mitigation.docx) CR for 38.3.5 (Interference Mitigation) Shimi Shilo 3C
	+ [25/1173](https://mentor.ieee.org/802.11/dcn/25/11-25-1173-00-00bn-cc50-cr-for-misc-cids-of-data-filed.docx) CC50 CR for misc CIDs of Data filed Chenchen Liu 22C
	+ [25/1189](https://mentor.ieee.org/802.11/dcn/25/11-25-1189-00-00bn-cc50-cr-for-misc-cids-in-subclause-38-3.docx) CC50 CR for misc CIDs in sub-clause 38.3 Bo Gong 15C
	+ [25/1353](https://mentor.ieee.org/802.11/dcn/25/11-25-1353-00-00bn-miscellaneous-phy-cids.docx) Miscellaneous PHY CIDs Youhan Kim 8C
	+ [25/1369](https://mentor.ieee.org/802.11/dcn/25/11-25-1369-00-00bn-mcs-14.docx) MCS 14 Youhan Kim PDT
	+ 25/1138 CC50 CR on DRU in 38.3.2.1 - Group 3 Mahmoud Kamel 6C

**Straw Polls**

**SP1: (Shimi on IM) [25/1329r0]:**

* Do you support to add the following to the 11bn SFD:
	+ when IM is used, the LDPC tone mapper operates on both data and IM pilot tones

Discussion

Q: Updated some SP text by author.

Q: Compare to other proposals using fixed tone IM pilot. Implementation seems simpler.

A: You can have equivalent implementation to get identical result.

Q: LDPC tone mapper is same as before, so no concern on the SP.

Y/N/Abs: 72/7/15

**SP2: (Shimi on IM) [25/1329r0]:**

* Do you support to add the following to the 11bn SFD:
	+ the IM pilots are located contiguously at the input to the LDPC tone mapper, before the data QAMs.

No Objection

**SP3: (Shimi on IM) [25/1329r0]:**

* Do you support to add the following to the 11bn SFD:
	+ the number of IM pilots is
		- 26 for a 242-tone RU
		- 52 for a 484-tone RU
		- 98 for a 996-tone RU
		- 2x98 for a 2x996-tone RU
		- 4x98 for a 4x996-tone RU

Discussion

Q: Are these numbers also for non-OFDMA? Will IM be used in OFDMA/non-OFDMA cases?

A: These are number for each RU size. There will be later SPs on other restrictions.

No Objection

**SP4: (Shengquan on IM) [0079r1]:**

* Do you support to add the following into 11bn SFD?
	+ IM pilots are only applied for non-punctured full bandwidth SU transmission.

Discussion

Q: Is there SU PPDU defined?

A: Change to SU transmission.

Q: Some technical comments not on SP text.

Q: Is the for UL or DL? Not for TB PPDU?

A: Both DL and UL. Not for TB PPDU, only SU transmission.

No Objection

**SP5: (Shengquan on IM) [0079r1]:**

* Do you support to add the following into 11bn SFD?
	+ When IM is applied, the value of D\_TM for LDPC tone mapper is as below:
		- 9 for 242-tone RU for non-DCM
		- 9 for 484-tone RU for non-DCM
		- 10 for 996-tone RU for non-DCM (same value is used for each 80MHz frequency subblock when PPDU bandwidth is 160MHz and 320MHz)

Discussion

Q: There are other implementations to only apply D\_TM to data.

A: This is consistent with the earlier SP. This SP described the tone plan, there is no limit on implementation.

No Objection

**SP6: (Shengquan on IM) [0079r1]:**

* Do you support to add the following into 11bn SFD?
	+ IM pilots have values of 0’s (i.e. Zero-Energy).

No Objection

**SP7: (Shengquan on IM) [0079r1]:**

* Do you support to add the following into 11bn SFD?
	+ Nsd\_short values when IM pilots are applied are as shown in the Table below

|  |  |  |
| --- | --- | --- |
| **RU/MRU** | **Nsd\_IM & Nsp\_IM** | **Nsd\_short\_IM** |
| **Nsd\_IM** | **Nsp\_IM** | **MCS=[0:13,17,19,20,23** |
| 242 | 208 | 26 | **48** |
| 484 | 416 | 52 | **108** |
| 996 | 882 | 98 | **216** |
| 2x996 | 1764 | 196 | **444** |
| 4x996 | 3528 | 392 | **888** |

No Objection

**SP8: (Shengquan on IM) [0079r1]:**

* Do you support to add the following into 11bn SFD?
	+ The number of spatial streams is defined as below if IM is used:
		- For DL: limited to one spatial stream

Discussion

Q: Change to ‘For DL: limited to one spatial stream’

No Objection

**SP9: (Shengquan on IM) [0079r1]:**

* Do you support to add the following into 11bn SFD?
	+ IM is not applicable when MCS 15 is used.

Discussion

Q: Remove ‘pilot’ in the last line. Just general IM is not applicable for MCS15.

No Objection

**SP10: (Eugene on IM) [1340r2]:**

* Do you support adding the following to the TGbn SFD:
	+ The LDPC Dtm equation for IM-mode is defined as:
	+ , where 𝛾 = static, CBW-specific offset amount
	+ The term 𝛾 in the LDPC Dtm equation for IM-mode is defined to be $\left⌊\frac{D\_{TM}}{2}\right⌋$ , or equivalently:
		- 4 for CBW20
		- 4 for CBW40
		- 5 for CBW80 and above

Y/N/Abs: 75/3/27

**PDTs/CRs**

**25/1084r1 CR for 38.3.5 (Interference Mitigation) (Shimi Shilo)**

Discussion

Q: Some corrections and editorial comments on the PDT.

Q: Need to provide more details on definition of parameters such as NSP, NSP,IM etc.

Q: Need to capture the SPs on 1SS in DL, no MCS15 etc in the PDT.

Q: How to handle power difference between LTF and data tones? Do we want to explain it in the PDT?

A: Agree to address the comments in the PDT and present again later this week.

**25/1173r0 CC50 CR for misc CIDs of Data field (Chenchen Liu)**

Discussion

Q: Some editorial comments.

A: Updated the PDT to address the comments.

**SP11:**

Do you agree to the proposed resolution of the following CIDs, as proposed in 1173r1?

* CID 123, 348, 349, 350, 351, 352, 601, 1095, 1096, 1097, 1184, 1208, 1645, 1963, 1964, 2075, 2330, 2784, 3532, 3541, 3542, 3543

No Objection

**25/1189r0 CC50 CR for misc CIDs in sub-clause 38.3 (Bo Gong)**

Discussion

Q: Some clarification questions and editorial comments.

Q: CID 2323 is already resolved in 1173r1 CID 349.

A: Will update to r1.

Presentation not finished. Continue in next session.

**Recess**

The meeting is Recessed at 13:30 CET.

## Wednesday July 30th, 2025 9:00 – 11:00 CET

**Introduction**

1. The Chair (Sigurd Schelstraete, MaxLinear) calls the meeting to order at 9:00AM CET.
2. The Chair follows the agenda in 11-25/**1064r6**.
3. Reminder for registration for the Plenary meeting.
4. The Chair reminds everyone to report their attendance by using IMAT system and by sending an e-mail to the Co-chair, Tianyu Wu (Apple), Dongguk Lim (LGE) or the Chair himself if unable to record attendance via IMAT system.
5. The Chair goes through the IPR policy and asks if anyone is aware of any potentially essential patents. **Nobody speaks up.**
6. The Chair goes through the Copyright policy.
7. Discussions on the agenda:

**PDTs/CRs –**

* + [25/1189](https://mentor.ieee.org/802.11/dcn/25/11-25-1189-00-00bn-cc50-cr-for-misc-cids-in-subclause-38-3.docx) CC50 CR for misc CIDs in sub-clause 38.3 Bo Gong 15C
	+ [25/0848](https://mentor.ieee.org/802.11/dcn/25/11-25-0848-01-00bn-uhr-elr-pilot-tones-clarification.docx) UHR ELR Pilot Tones Clarification Sigurd Schelstraete PDT SP
	+ [25/1353](https://mentor.ieee.org/802.11/dcn/25/11-25-1353-00-00bn-miscellaneous-phy-cids.docx) Miscellaneous PHY CIDs Youhan Kim 8C
	+ [25/1369](https://mentor.ieee.org/802.11/dcn/25/11-25-1369-00-00bn-mcs-14.docx) MCS 14 Youhan Kim PDT
	+ [25/1138](https://mentor.ieee.org/802.11/dcn/25/11-25-1138-00-00bn-cc50-cr-on-dru-in-38-3-2-1-group-3.docx) CC50 CR on DRU in 38.3.2.1 - Group 3 Mahmoud Kamel 6C
	+ [25/1380](https://mentor.ieee.org/802.11/dcn/25/11-25-1380-00-00bn-cc50-remaining-phy-cids.docx) CC50 remaining PHY CIDs Ross Jian Yu 4C
	+ [25/1084](https://mentor.ieee.org/802.11/dcn/25/11-25-1084-00-00bn-cr-for-38-3-5-interference-mitigation.docx) CR for 38.3.5 (Interference Mitigation) Shimi Shilo 3C

**Submissions –**

* + [25/1349](https://mentor.ieee.org/802.11/dcn/25/11-25-1349-01-00bn-scrambler-seed-used-in-ds-cts-frame-follow-up-with-fixed-ra-field.pptx) Scrambler seed used in DS-CTS frame (follow up) with fixed RA field Hari Ram Balakrishnan
	+ [25/1001r2](https://mentor.ieee.org/802.11/dcn/25/11-25-1001-02-00bn-adaptive-power-boosting-design-for-dru.pptx) Adaptive Power Boosting Design for dRU Sawaira Ali

**PDTs/CRs**

**25/1189r0 CC50 CR for misc CIDs in sub-clause 38.3 (Bo Gong)**

Discussion

Q: Some clarification questions and comment to remove duplicated resolutions to some CIDs.

A: Addressed the comments and updated to r1.

**SP1:**

Do you agree to the proposed resolution of the following CIDs, as proposed in 25/1189r1?

* CID 1174, 1175, 1642, 2308, 2309, 3535, 3730, 2254, 2323, 2324, 2325, 2326, 2327, 2328, 2329

No Objection

**25/0848r1 UHR ELR Pilot Tones Clarification (Sigurd Schelstraete)**

**SP2**: Do you agree to incorporate the proposed text modification in document 11-25/0848r1 into the next version of the 802.11bn draft?

No Objection

**25/1353r1 Miscellaneous PHY CIDs (Youhan Kim)**

Discussion

No Discussion

**SP3:**

Do you agree to the proposed resolution of the following CIDs, as proposed in 25/1353r2?

* CID 1629, 3302, 2284, 2772, 1154, 3560, 2283, 934

No Objection

**25/1369r1 MCS14 (Youhan Kim)**

Discussion

No Discussion

**SP4:**

Do you support to instruct the TGbn Editor to update the 11bn amendment with the proposed text updates specified in 11-25/1369r1 (removes residual text on MCS 14)?

No Objection

**25/1138r0 CC50 CR on DRU in 38.3.2.1 – Group 3 (Mahmoud Kamel)**

Discussion

Q: CID 300 and 2252: Suggest to reject the comment or defer the CID.

Q: Some editorial comments.

A: Changed the resolution of CID 300 and 2252 to reject and removed the related text. Updated to r1.

**SP6:**

Do you agree to the proposed resolution of the following CIDs, as proposed in 25/1138r1?

* CID 300, 443, 570, 927, 928, 2252

No Objection

**25/1380r1 CC50 remaining PHY CIDs (Ross Jian Yu)**

Discussion

Q: Some editorial comments and the author updated to r2.

**SP5:**

Do you agree to the proposed resolution of the following CIDs, as proposed in 25/1380r2?

* CID 962, 1659, 1660, 955

No Objection

**25/1084r2 CR for 38.3.5 (Interference Mitigation) (Shimi Shilo)**

Discussion

Q: ‘full bandwidth’ may not be correct terminology. Proposed to change to more precise wording.

Q: Does UHR modulated fields include UHR STF and UHR LTF? May need to distinguish data and STF/LTF in the text.

Q: Some editorial comments.

A: Will have more discussion and run SP later.

**Straw Polls**

**SP7: (Ross on CSR) [25/1182r2]:**

* Do you agree to add the following into 11bn SFD?
	+ In the Co-SR transmission, 4xLTF + 0.8 us GI shall not be used.

Discussion

Q: Editorial comment to add ‘LTF’

No Objection

**Submissions**

**25/1349r2 Scrambler seed used in DS-CTS frame (follow up) with fixed RA field (Hari Ram Balakrishnan)**

Discussion

Q: On the summary slide, why Hamming distance 24(112) show worse sensitivity than 25(97)?

A: The sensitivity includes everything from packet detection to decoding etc. The performance difference is not from Hamming distance.

Q: For sensitivity, some other values bring better performance

A: We should take both PAPR and sensitivity into consideration.

General discussion on cancelling AM2 on Wednesday.

**Recess**

The meeting is Recessed at 10:52 CET.

## Thursday July 31st, 2025 9:00 – 11:00 CET

**Introduction**

1. The Chair (Sigurd Schelstraete, MaxLinear) calls the meeting to order at 9:00AM CET.
2. The Chair follows the agenda in 11-25/**1064r11**.
3. Reminder for registration for the Plenary meeting.
4. The Chair reminds everyone to report their attendance by using IMAT system and by sending an e-mail to the Co-chair, Tianyu Wu (Apple), Dongguk Lim (LGE) or the Chair himself if unable to record attendance via IMAT system.
5. The Chair goes through the IPR policy and asks if anyone is aware of any potentially essential patents. **Nobody speaks up.**
6. The Chair goes through the Copyright policy.
7. Discussions on the agenda:

**Straw Polls**

**PDTs/CRs –**

* + [25/1084r2](https://mentor.ieee.org/802.11/dcn/25/11-25-1084-03-00bn-cr-for-38-3-5-interference-mitigation.docx) CR for 38.3.5 (Interference Mitigation) Shimi Shilo [SP]

**Submissions –**

* + [25/1001r2](https://mentor.ieee.org/802.11/dcn/25/11-25-1001-02-00bn-adaptive-power-boosting-design-for-dru.pptx) Adaptive Power Boosting Design for dRU Sawaira Ali

**Submissions – EVM**

**Straw Polls**

**SP1:SP on DS-CTS (Hari) [11-25/1349r2]:**

Do you agree to include the following into the 11bn SFD?

* SCRAMBLER\_INITIAL\_VALUE used in DS-CTS frame is [0, 0, 0, 0, 0, 1, 0], i.e. Value 32.

Discussion

Q: Add ‘Value 32’ at the end.

No Objection

**SP2:** Do you agree the update the text in Pg 119, Line no 48 of D0.3 as follows.

The (#339)DS-CTS frame shall be transmitted in a non-HT PPDU or non-HT PPDU duplicate format, using 6 Mb/s data rate, and SCRAMBLER\_INITIAL\_VALUE is fixed as [0, 0, 0, 0, 0, 1, 0] (seed value = 32).

Note to editor: Please add the highlighted text to D0.3

Discussion

Q: Some editorial comments to highlight part of the SP text.

No Objection

**SP3:** **SP1 on CBF (Qisheng) [25/1024, 25/248]:**

* **Do you agree to add the following to the TGbn SFD?**
	+ The CoBF Sounding Invite frame carries the following information:
		- Bandwidth
		- Punctured Channel Information

Discussion

Q: Add ‘Only’ to emphasis that the information is only carried in Invite frame not the response frame.

Q: Not clear whether the Invite frame is also defined for the sounding sequence.

A: We do defined sounding Invite and sounding response in SFD.

No Objection

**PDTs/CRs**

**25/1084r3 CR for 38.3.5 (Interference Mitigation) (Shimi Shilo)**

Discussion

No discussion.

**SP4:**

Do you agree to the proposed resolution of the following CIDs, as proposed in 25/1084r3?

* CID 209, 1620, 2794

No Objection

**Submissions**

**25/1001r2 Adaptive Power Boosting Design for dRU (Sawaira Ali)**

Discussion

Q: Comments on SP text not clear enough and need more offline discussions.

Q: Understandable to lowering the power but not clear how to boost the power.

Q: Request to defer the SP.

A: Will defer the SP and continue discussions.

**Straw Polls**

**SP5:** Do you agree to add the following at the end of [38.3.22.1](https://38.3.22.1) General in D0.3?

-In the Co-SR transmission, 4x LTF + 0.8 us GI shall not be used.

No Objection

**Adjourn**

The meeting is Adjourned at 9:45AM CET.