IEEE P802.11
Wireless LANs

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| IMMW SG May 2024 Meeting Minutes |
| Date: 2024-03-16 |
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Abstract

This document contains the minutes for the IMMW SG May 2024 Meeting Minutes.

Revision history:

* Rev0: initial version

Abbreviations:

* C: Comment
* A: Answer

# 1st Meeting: Tuesday, May 14, 2024, PM2, (10:00-12:00 ET)

1. The Chair, Laurent Cariou (Intel), calls the meeting to order. The Chair notifies the attendees that the agenda is in [IMMW SG May 2024 meeting agenda](https://mentor.ieee.org/802.11/dcn/24/11-24-0674-02-immw-immw-sg-may-2024-meeting-agenda.pptx)
	* Note that this is a hybrid meeting, with some participants in person and some participating online through a webex session
	* Need to pay the registration fee to attend
2. IEEE-SA Policies and Procedure

The chair reviews the IEEE-SA Patent Policy:

If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair. Speak up now and respond to this Call for Potentially Essential Patents. **Nobody speaks/writes up**.

1. The chair goes through other guidelines for IEEE WG meetings, Patent-related information, Participation in IEEE 802 Meetings, and Copyright. The Chair asks that it be minuted that the **Copyright Policy** was presented.
2. Chair provides an attendance reminder:

3.1. Please, **record your attendance** during the session by using the IMAT system:

* login to [*imat*](https://imat.ieee.org/attendance)
* select “802 Plenary Mixed-mode Session - November 2023”
* select “C/LM/WG802.11 Attendance” entry
* click “IMMW SG” session that you are attending
1. If you are unable to record your attendance, please, contact Laurent Cariou (laurent.cariou@intel.com) and Volker Jungnickel (volker.jungnickel@hhi.fraunhofer.de) for assistance
2. Motions

Chair reviews the proposed agenda and Minutes from March.

***Move to approve the agenda in doc.*** [***11-24/0674r0***](https://mentor.ieee.org/802.11/dcn/24/11-24-0674-00-immw-immw-sg-may-2024-meeting-agenda.pptx)

*Discussion:*

*C: None*

***Result: Agenda approved with unanimous consent.***

***Move to approve IMMW SG minutes listed below:***

*November plenary:* [***11-24/0585r0***](https://mentor.ieee.org/802.11/dcn/24/11-24-0585-00-immw-immw-sg-meeting-minutes-for-march-plenary-meeting.docx)

***Moved: Volker Jungnickel Seconded: Sang Kim***

*Discussion: None.*

***Result: Approved with unanimous consent.***

1. Submissions
* [**11-24/0723r1**](https://mentor.ieee.org/802.11/dcn/24/11-24-0723-01-immw-sensing-and-ranging-in-immw.pptx) **Sensing and Ranging in IMMW, Tony Xiao Han (Huawei)**

Main Statements: Consider Sensing and Ranging (R/S) in IMMW. Propose design considerations. S/R for IMMW supports commercialization of IMMW. IMMW for S/R using IMMW to supplement sub-7GHz. Resuse of 11bf in IMMW requires minimal redesigns, DMG could be used as reference. Develop IMMW ranging procedure.

Discussion

Q: More on the straw poll: What is the purpose of SP?

A: Ask for the opinion of the group on the proposed design logic. It depends on the group members which sides to consider.

C: Need to keep timelines and focus on main features.

Q: We already have 60 GHz ranging and nobody uses it.

A: We do have a standard but no product. This is the major isuue.

Q: Do you think IMMW should make decisions having R/S in mind?

A: The design philosophy would enhance marketability of IMMW technology.

Q: R/S is not standalone, it needs a radio. Market is not ready for mm-wave. Do we need an additional R/S service on top of IMMW? If 60 GHz is not in the market, there is no PHY onto which to build R/S. R/S don’t want to be there, would just delay the project. Bottomline: What additional advantage/value R/S brings on top of data service? First want to see that IMMW is successful in the market. Putting this on top is a significant standalone activity, even more effort compared to 11bk. Will be somewhat in the size of 11az.

A: One point is timeline, the other is focus.

C: Would like to understand what to get out of it.

**Straw Poll:**

***Do you agree that Sensing and ranging support/operation should be defined in IMMW?***

***Y / N / A = 52 / 54 / 23***

***Do you support considering separate SG(s) for sensing and ranging support/operation for IMMW?***

Discussion

C: It may be ways too early. Do not support it.

C: SP should be in working group

A: Still want to run it.

**Y / N / A = 57 / 25 / 26**

* [**11-24/0805r1**](https://mentor.ieee.org/802.11/dcn/24/11-24-0805-01-immw-reachability-of-mmwave-link.pptx) **Reachability of mmWave Link , Insik Jung (LG Electronics)**

Main statements: Multi-link reachability without using mm-wave link: Propose to conduct AP-side reachability estimation. Model with two links (sub-7 GHZ/mm-wave). Methods how to deternine open parameters in IMMW PL models based on knowledge of distance, obtained from sub-7 GHz measurements. Parameters need to be delivered from non-AP STA. Procedure during ML setup.

Discussion

C: Shaddow fading probability is high in mm-wave. Hard to predict from sub-7GHz link which has more multipath. May create false alarms.

Q: What is the purpose here, just association, or should it be frequently updated?

A: Only estimation at setup phase is handled here. Operation phase needs furher consideration. If there is beacon, it is fine. Otherwise, we have to estimate distance.

Q: What is difference to TX power control? Will this deliver better TX power control?

A: Think about it.

C: 1. If I am correct, the proposal in the 11be contribution DCN508 to add the link reachability parameters were not adopted in 11be. 2. To establish a link in mmWave band, beamforming is typically required. Simply using the power parameters to estimate if a link is reachable or not may not be sufficient or accurate without doing an actual beamforming procedure to see if a link can be established.

* [**11-24/0821r0**](https://mentor.ieee.org/802.11/dcn/24/11-24-0821-00-immw-considerations-about-the-immw-par.pptx) **Considerations about the IMMW PAR, Yue Xu (Huawei)**

Main statement: Add KPIs to the PAR. E.g. add 10 Gbit/s max TP at client side. Two SPs.

Q: Appreciate the thinking of the SPs. Maybe it is a bit premature to say we want 10 Gbit/s. More having an easily implementable mm-wave solution on the market. Better to go for lower complexity than for higher data rate. Suggest not to include such requirement yet, because focus should be different. Maybe for 2nd/3rd generation of this technology, this is appropriate.

A: Agree that focus is on low complexity. Nonetheless, think that it makes sense to add 10G based on recent market forecasts and demands of future applications.

C: Focus should not be high throughput but low cost/complexity.

Q: Very similar comment, completely different focus. Want first to see something happening in the marketplace.

A: Should serve next gen apps.

***SP1: Do you agree that adding ‘High bandwidths are needed to support WLAN mmWave devices’ data rates in the range of gigabits per second (Gbps).’ in the ‘Section 5.5 Need for the project’ of IMMW SG PAR?***

***Y / N / A = 36 / 51 / 29***

***SP2: Do you agree that adding ‘High bandwidths are needed to support WLAN mmWave devices’ data rates in the range of gigabits per second (Gbps).’ in the ‘Section 5.5 Need for the project’ of IMMW SG PAR?***

***Y / N / A = 35 / 45 / 21***

* [***11-24/0823r***](https://mentor.ieee.org/802.11/dcn/24/11-24-0823-01-immw-further-simplifications-to-promote-immw-adoption.pptx)***1 Further simplifications to promote IMMW adoption, Bilal Sadiq (Samsung Electronics)***

Main statements: Downlink-only mm-wave. Uplink mm-wave will be used if it works/is needed. Leaving out TX at device side may be better for minimum viable product. Many arguments for mm-wave apply also to this scenario. mm-wave is the most expansive radio. Collaborative action is the key. MPE limits will prohibit the use of mm-wave in the UL. Improve RX chain by removing TRX switch. UL-DL coverage mismatch for mm-wave, due to larger antenna array. 75% more power consumption for mm-wave compared to sub-7 GHz for same BW. Lower cost, power, complexity will reduce barrier to IMMW adoption.

Discussion

Q: Tanks for nice contribution, many interesting points, will stimulate more discussion in the TG phase. DMG already discussed and specified this. Lots on this to discuss. Major differences to original 11-24/0823r0 were noted. Work should be inside the existing PAR, no change is actually needed. It is just like additinal feature.

A: Agree, is already permitted inside the PAR. IMMW can push a lot of data in the DL. Maybe good to send ACK over other technology, same as using light communication.

Q: Interesting contribution. DL-onle would not support P2P mm-wave transmission use case. Control signal was currently limited to sub-7 GHz channel. Bluetooth is also in the low band with large coverage, what is your consideration?

A: Not proposing to kill UL mm-wave. Permit an operation with an AP where you are out of UL coverage range. Adding the ACK on other link needs to be defined.

Q: May require more complicated design.

A: Disagree that combining feedback on primary link adds complexity. It will also add a lot of value. If it adds a lot of value and enables minimum viable product, the effort is justified.

Q: One of the concerns is ACK. You want to keep the whole thing simple. Not many use cases where this will happen. What are the new changes needed?

Q: This is more a TG discussion, bring it back by then.

1. The Chair reviewed the current PAR and CSD documents.

[**11-24/0116r2**](https://mentor.ieee.org/802.11/dcn/24/11-24-0116-02-immw-immw-draft-proposed-par.docx) **IMMW Draft proposed PAR**

Statements not in doc: No changes in the PAR since lat time. Just to polish with Robert and create pdf.

[**11-24/549r**](https://mentor.ieee.org/802.11/dcn/24/11-24-0549-01-immw-immw-draft-proposed-csd.docx)**2 IMMW Draft proposed CSD**

Statements not in doc: Minor changes were introduced.

Please check both documents for the final discussion tomorrow.

**Recess at 11:55 ET**

# 2nd Meeting: Wednesday, May 15, 2024, PM2, (10:00-12:00 ET)

1. The Chair, Laurent Cariou (Intel), calls the meeting to order. The Chair notifies the attendees that the agenda is in [IMMW SG May 2024 meeting agenda](https://mentor.ieee.org/802.11/dcn/24/11-24-0674-02-immw-immw-sg-may-2024-meeting-agenda.pptx)
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1. The chair goes through other guidelines for IEEE WG meetings, Patent-related information, Participation in IEEE 802 Meetings, and Copyright. The Chair asks that it be minuted that the **Copyright Policy** was presented.

 Chair provides an attendance reminder:

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	1. If you are unable to record your attendance contact Laurent Cariou (laurent.cariou@intel.com) and Volker Jungnickel (volker.jungnickel@hhi.fraunhofer.de) for assistance.
1. Motions

***Move to approve the agenda in doc.*** [***11-24/0647r***](https://mentor.ieee.org/802.11/dcn/24/11-24-0674-00-immw-immw-sg-may-2024-meeting-agenda.pptx)***2***

*Discussion: None*

*Result:* ***Agenda approved with unanimous consent.***

Review PAR and CSD

[**11-24/0116r3**](https://mentor.ieee.org/802.11/dcn/24/11-24-0116-03-immw-immw-draft-proposed-par.docx) **IMMW draft proposed PAR, Laurent Cariou (Intel)**

PAR and CSD Motions.

The chair reviewed the PAR in [**11-24/0116r3**](https://mentor.ieee.org/802.11/dcn/24/11-24-0116-02-immw-immw-draft-proposed-par.docx)and the CSD in [**11-24/0549r3**](https://mentor.ieee.org/802.11/dcn/24/11-24-0549-03-immw-immw-draft-proposed-csd.docx).

PAR Motion:

***Believing that the PAR contained in the document referenced below meets IEEE-SA guidelines,***

***Request that the PAR contained in*** [***11-24/0116r3***](https://mentor.ieee.org/802.11/dcn/24/11-24-0116-03-immw-immw-draft-proposed-par.docx) ***be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.***

***Moved by [] on behalf of IMMW SG***

***IMMW SG vote:***

 ***Moved: Claudio da Silva, Seconded: George Cherian,***

Discussion

Q: Needs more time to discuss. Lot of ongoing projects. Not rush into completing the PAR.

A: No indication that major changes are needed. As Chair, work should be completed now.

Q: Consider more time to discuss.

A: It is surprising that people come to the mic just now. Timeline is in the scope of the TG.

Q: Speak in favour of completing this Motion. It is fair to all the people who contributed to the discussion. If there should be any inconsistency, it should have been detected by now. Change requests should come in via contributions, not while discussing the final Motion.

A: Agree.

Q: Note the stability of the PAR. Other groups have delayed their timelines. What was the impact of that? If we approve it now, TG will meet first time in November, which is 6 months from now. We should be contribution-driven.

C: Speak in favor of approving PAR document. It is complete. Clearly state what part is missing.

C: We had a contribution about DL only, and requested to add it. But after the discussion, it was clear, that the PAR covers even this request. Shows it is ready. We are commited to work on it. Move on to the TG phase and continue technical discussion there.

C: Also support the Motion.

 ***Result: Y / N / A = 130 / 49 / 27***

***Result: Motion failed.***

CSD Motion

***Believing that the CSD contained in the document referenced below meets IEEE-SA guidelines,***

***Request that the CSD contained in*** [***11-24/0549r3***](https://mentor.ieee.org/802.11/dcn/24/11-24-0549-03-immw-immw-draft-proposed-csd.docx) ***be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.***

***Moved by [] on behalf of IMMW SG***

***IMMW SG vote: . / . / .***

***Moved: Abhishek Patil, Seconded: Sang Kim***

***Result: 122 / 50 / 24***

***Result: Motion failed.***

Discussion:

Q: In favor of PAR and CSD. Going into the WG and discuss ways around getting the necessary majority in the study group.

A: Would be good to get clearer indications from NO voters what the issues are.

Q: Not too far from 75%, maby only 10 votes. Use the time until Friday to get those votes.

A: SG goes from Plenary to Plenary. Has time until March to resolve this.

Q: Lots of votes, try the group to have more discussion in July.

A: Asking for organizing 5-6 sessions in July.

C: Maybe fewer sessions are enough.

Q: Need clearer comments what parts of the PAR are missing. Having more time in July would take time away from other groups which have a lot of work to do. Should find an efficient procedure.

A: There maybe other NO-voters.

Q: Question to No voters to give more color what is wrong. Please, the 50 should come foreward and say what it is. There is no way in the procedures to know who they are. Please come forward and express your opinins

C: Can we have a counted vote?

A: Cannot run the same Motion again. Could be a procedural vote

Q: Move to reconsider the same question.

A: Needs a second.

***Motion to reconsider.***

***Moved by Marc Emmelmann, seconded by Micky Metha***

Discussion

Q: Such Motion can only be moved by NO voter.

A: As Chair, I would allow this Motion.

Q: I am not sure if you can do that. I formally object and ask for checking that the rules are kept.

A: The Chair is running the meeting. We generally follow Roberts rule.

Q: How can we ensure that NO voters can be identified?

A: WG Chair: Only the prevailing side can make such Motion.

Q: Request: Are there NO Voters to Move or Second this Motion to reconsider?

A: Result: Nobody to move this.

**There is no Motion on the floor.**

1. Goal for July 2024: Continue to converge
2. Teleconference/ad-hoc plan
* No telecon plans for now
* Will announce them with 10 days notice
1. AoB

C: There are still 50 NOs. NO voters should come forward and inform the group.

1. Adjourn at 11:00 ET