IEEE P802.11
Wireless LANs

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| IEEE 802.11 Task Group AYMay 2015 Vancouver Meeting Minutes |
| Date: 2015-5-15 |
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Abstract

Task Group AY meeting minutes from the IEEE 802.11 Vancouver session, May 10-15, 2015.

**IEEE 802.11 Task Group AY**

**May 2015 Vancouver Meeting**

**May 10-15, 2015**

**Monday, May 11, 2015, AM2 Session (10:30-12:30)**

1. The meeting was called to order at 10:30 by Edward Au (Marvell Semiconductor), the chair pro-tem for the Vancouver 802.11ay TG meeting.
2. Agenda Doc. IEEE 802.11-15/0496r2
3. The chair reviewed the IEEE-SA Patency Policy, Logistics, and Reminders on Study Group Rules
	1. Chair asked if anyone has any questions about the IEEE-SA patent policy, logistics or reminders. No questions.
	2. Chair reminded all to record their attendance.
4. The chair reviewed the SG meeting time slots and agenda items for the week (see slides 10 and 11 of the agenda)
5. The chair proceeded to discuss the appointment of a secretary for the May 2015 Vancouver meeting.
	1. Jeorge Hurtarte volunteered (previously Jeorge was NG60 secretary).
	2. No other volunteers
	3. Jeorge Hurtarte appointed as secretary for the May 2015 Vancouver meeting.
	4. No objections noted on Jeorge’s appointment.
6. Review of Submissions (slides 15 and 16)
	1. 12 presentations identified for review
	2. Chair asked if there are more submissions to upload them to mentor.
7. The chair reviewed the detailed meeting plan for the week (slide 17)
8. Chair reviewed the Summary from the March 2015 IEEE 802.11 NG60 SG meeting.
9. Motion to approve the March 2015 Berlin Meeting Minutes
	1. Move: Carlos Cordeiro (Intel)
	2. Second: Yan Xin (Huwaei)
	3. Motion to approve:
		1. Yes: 25
		2. No: 0
		3. Abstain: 0
		4. Motion passed. Approved.
10. Chair reviewed the status of the NG60 SG (slides 20-30)
	1. Chair asked if any questions or anything that the group would like to discuss. None.
11. Chair discussed the tentative TG AY document deliverables (slides 31-36)
	1. Deliverables:
		1. Amendment
		2. Usage model
		3. Channel model
		4. Functional requirements
		5. Simulation scenario and evaluation methodology
	2. Chair opened the floor for questions on the document deliverables
		1. Comments on the Usage Model document.
			1. Suggested to have endorsement from the Wi-Fi Alliance organization.
			2. Discussion on whether to send the Usage Model document to the Wi-Fi Alliance or not.
		2. No further questions on the document deliverables
	3. Chair opened the floor for voting on Straw Poll #1 regarding document deliverables proposal (slide 37)
		1. Straw Poll #1 Results:
			1. Yes: 51
			2. No: 0
			3. Abstain: 1
			4. Straw Poll passes
	4. Chair opened the floor for voting on Straw Poll #2 regarding a sending a liaison to the Wi-Fi Alliance requesting feedback on usage scenarios (slide 38)
		* 1. Question on whether it might be appropriate to also get feedback from the Wi-Fi Alliance on the Channel Model document.
				1. No Channel Model document exists yet.
			2. No further questions
			3. Straw Poll #2 Results:
				1. Yes: 51
				2. No: 0
				3. Abstain: 0
				4. Straw Poll passes
12. Chair discussed the two approaches for developing a standard amendment (slides 39-43)
	1. The CFP Approach
	2. The SFD Approach
	3. Chair opened the floor for voting on Straw Poll #3: “Do you prefer the CFP approach or the SFD approach?”
		1. Chair opened floor for discussion on the two approaches
			1. Discussion on historical use of the two approaches.
			2. Chair asked if anyone would like to modify the wording of Straw Poll #3. None.
		2. Straw Poll #3 Results:
			1. CFP: 3
			2. SFD: 36
			3. Abstain: 0
13. Presentations
	1. Presentation by Kazu Takahashi (Panasonic), 60 GHz Band Japanese Regulatory Update, Doc. IEEE 11-15/0594r0. Key points reviewed:
		1. Antenna input power and antenna gain
		2. Occupied bandwidth/Unwanted emission
		3. Technical Conditions Detail (Draft)
		4. Measurement Method
		5. Conclusions:
			1. Japanese new regulation will support long range usage and higher throughput using channel bonding
			2. OFDM based channel bonding would be better to meet unwanted out of band emission.
		6. Opened the floor for discussion
14. Meeting recessed at 11:56 and will resume on Tuesday AM1

**Tuesday, May 12, 2015, AM1 Session (08:00-10:00)**

1. The meeting was called to order at 08:00 by Edward Au (Marvell Semiconductor), the chair pro-tem for the Vancouver 802.11ay TG meeting.
2. Agenda Doc. IEEE 802.11-15/0496r2
3. The chair reviewed the IEEE-SA Patency Policy, Logistics, and Reminders on Study Group Rules
	1. Chair asked if anyone has any questions about the IEEE-SA patent policy, logistics or reminders. No questions.
	2. Chair reminded all to record their attendance.
4. Chair invited the WG Chair, Adrian Stephens (Intel), to provide an overview of the selection process of the Chair of the TG AY, per Doc. IEEE 802.11-15/0484r0, slides 12-14
	1. Floor opened for discussion
		1. Several questions raised on the process to follow
		2. Without a documented mechanism, it is not clear how the Task Group can develop a recommendation/selection process. Why don’t have a Task Group chair election?
		3. Will it be better for Working Group to determine the recommendation process before the Task Group comes up with a recommendation? Further, significant time may be spent on discussing on the selection process, which may affect the Task Group progress.
		4. Other Working Groups currently use appointment process. Working Group chair is typically the best person to do appointment.
		5. Working Group chair withdraw the appointment that was sent to the Working Group reflector.
		6. The appointment/selection procedure is applied for Task Group only. There is no criteria for Study Group.
	2. Chair to be selected and confirmed in July, thus allowing time for members to recommend candidates and candidates to obtain commitment from their employers.
5. Presentations
	1. Presentation by Kerstin Johnsson (Intel), 11ay Usage Model for Wearables, Doc. IEEE 11-15/0624r0. Key points reviewed:
		1. The document introduces a usage model: “High-end Wearables in Public Spaces” for 11ay. It provides details/requirements of this usage model and discusses how it differs from existing use cases in 11ay.
		2. Heterogeneous Wearables in Public Spaces
			1. Environment
			2. Preconditions
			3. Applications
			4. Traffic Conditions
		3. Opened the floor for discussion
	2. Presentation by Jian Luo (Huawei), Channel Sounding for 802.11ay, Doc. IEEE 11-15/0631r0. Key points reviewed:
		1. The document shows the next options for 60 GHz channel sounding scenarios, presents six possible scenarios and discusses the requirements of the measurement set ups to make the results comparable and useful for channel modeling at 802.11ay.
		2. Floor opened for discussion
	3. Presentation by Rob Sun (Huawei), IEEE 802.11 TGay Use Cases, Doc. IEEE 11-15/0625r1. Key points reviewed:
		1. This document discusses the use cases for 11ay which are in line with requirements within 11ay proposed PAR/CSD documents.
		2. Floor opened for discussion
6. Discussion about cancelling either Tuesday PM 3, Wednesday AM 1, or Thursday AM 2 meeting time slots.
	1. No objections noted to cancel Wednesday AM 1.
7. Meeting recessed at 10:50 and will resume on Tuesday PM3

**Tuesday, May 12, 2015, PM3 Session (19:30-21:30)**

1. The meeting was called to order at 19:30 by Edward Au (Marvell Semiconductor), the chair pro-tem for the Vancouver 802.11ay TG meeting.
2. Agenda Doc. IEEE 802.11-15/0496r2
3. The chair reviewed the IEEE-SA Patency Policy, Logistics, and Reminders on Study Group Rules
	1. Chair asked if anyone has any questions about the IEEE-SA patent policy, logistics or reminders. No questions.
	2. Chair reminded all to record their attendance.
4. Presentations
	1. Presentation by Alexander Maltsev (Intel), NG60 channel modeling plan, Doc. IEEE 11-15/0614r0. Key points reviewed:
		1. Channel model requirements
		2. NG60 use cases and modeling scenarios
		3. Experimental measurements
		4. Q-D channel model methodology
		5. Summary / Next steps
		6. Floor opened for discussion
	2. Presentation by Artyom Lomayev (Intel), Verification of IEEE 802.11ad Channel Model for Enterprise Cubical Environment, Doc. IEEE 11-15/0630r0. Key points reviewed:
		1. This contribution presents the results of channel model verification for enterprise cubicle environment by means of experimental measurements using Intel product implementing IEEE 802.11ad standard for wireless docking scenario.
		2. The results of this work prove the feasibility of the IEEE 802.11ad model for SISO systems which can be used in the next generation of WLAN standards.
		3. Proposing to extend the IEEE 802.11ad for cubicle environment to support MIMO and channel bonding for NG60.
		4. Floor opened for discussion
	3. Presentation by Artyom Lomayev (Intel), Experimental Measurements for Short Range LOS SU-MIMO, Doc. IEEE 11-15/0632r1. Key points reviewed:
		1. This work presents the results of non-coherent channel measurements for the LOS short range SU-MIMO system.
		2. Two practical configurations for 2x2 MIMO scheme exploiting antennas spatial separation and polarization discrimination were experimentally investigated.
		3. It was shown that antennas spatial separation by 30 cm creates the difference in the direct and interfered links more than 15.0 dB for the distances up to 2 m.
		4. Cross polarization factor and therefore links separation for the perfect matching of the TX and RX antennas can achieve ~23.0 – 24.0 dB.
		5. Channel impulse responses measured @ 2.64 GHz sample rate for both direct and interfered links in the LOS conference room environment include one main tap and do not contain any significant reflection taps.
		6. Floor opened for discussion
	4. Presentation by Yan Xin (Huawei), 802.11ay timeline, Doc. IEEE 11-15/0609r0. Key points reviewed:
		1. Overview of Timelines for 802.11ac,11ax and 11ad
		2. Proposed Timeline for 802.11ay
		3. Floor opened for discussion
		4. Straw Poll:
			1. Do you agree with the timeline presented as the time estimates for the work in 802.11ay?
			2. Yes: 48
			3. No: 0
			4. Abstain: 4
5. Meeting recessed at 21:12 and will resume on Wednesday PM2

**Wednesday, May 13, 2015, PM2 Session (16:00-18:00)**

1. The meeting was called to order at 04:00 by Edward Au (Marvell Semiconductor), the chair pro-tem for the Vancouver 802.11ay TG meeting.
2. Agenda Doc. IEEE 802.11-15/0496r5
3. The chair reviewed the IEEE-SA Patency Policy, Logistics, and Reminders on Study Group Rules
	1. Chair asked if anyone has any questions about the IEEE-SA patent policy, logistics or reminders. No questions.
	2. Chair reminded all to record their attendance.
4. Presentations
	1. Presentation by ShangHyun Chang (Samsung), A view on IEEE 802.11ay, Doc. IEEE 11-15/0636r0. Key points reviewed:
		1. What type of new functional features need to be focused on to enable the pre-discussed NG60 use cases
		2. What kind of technical aspects need to be considered to establish functional requirements from the key features.
			1. Floor opened for discussion
	2. Presentation by Daniel Schneider (Sony), A Non-uniform constellations for 64QAM, Doc. IEEE 11-15/0601r0. Key points reviewed:
		1. Investigation of non-uniform constellation for 64-QAM
		2. Simulations in the presence of phase noise
		3. NUC gain is maintained or even increased
		4. Optimization of QAM promising technology for .11ay
		5. Next steps: further optimizations of NUCs
		6. Floor opened for discussion
	3. Presentation by Hakan Persson (Ericsson), Beam Selection for Hybrid MIMO Precoding, Doc. IEEE 11-15/0627r0. Key points reviewed:
		1. Optimal beams can be different according to MIMO mode, e.g., maximum number of streams.
		2. In some situations, it is useful for the transmitter to know the optimal beams for different MIMO modes.
		3. Receiver may need to feedback multiple sets of beamforming indices (each for one MIMO mode).
		4. Further study may be required for the design of feedback in11ay.
		5. Floor opened for discussion
	4. Presentation by Monisha Ghosh (InterDigital), Relay Enhancements For 802.11ay, Doc. IEEE 11-15/0635r0. Key points reviewed:
		1. This contribution briefly reviews the key features of the relay specification in 802.11ad and proposes two areas for enhancements:
			1. Range extension
			2. Bi-directional relay capability
		2. Floor opened for discussion
5. Meeting recessed at 17:35 and will resume on Thursday AM2

**Thursday, May 14, 2015, AM1 Session (10:30-12:30)**

1. The meeting was called to order at 10:30 by Edward Au (Marvell Semiconductor), the chair pro-tem for the Vancouver 802.11ay TG meeting.
2. The chair introduced the recording secretary for this session, Jeorge Hurtarte (Teradyne).
3. Agenda Doc. IEEE 802.11-15/0496r6
4. The chair reviewed the IEEE-SA Patency Policy, Logistics, and Reminders on Study Group Rules
	1. Chair asked if anyone has any questions about the IEEE-SA patent policy, logistics or reminders. No questions.
	2. Chair reminded all to record their attendance.
5. Presentations
	1. Presentation by Alexander Maltsev (Intel Corporation), Channel Measurements Plan Proposal for IEEE 802.11ay, Doc. IEEE 11-15/0685r0. Key points reviewed:
		1. The purpose of this presentation is to propose the plan for the channel measurement campaign in the frame work of IEEE 802.11ay channel model development
		2. Floor opened for discussion
	2. Presentation by Rob Sun (Huawei), IEEE 802.11 TGay Use Cases, Doc. IEEE 11-15/0625r2. Key points reviewed:
		1. This document discusses the use cases for 11ay which are in line with requirements within 11ay proposed PAR/CSD documents
		2. Floor opened for discussion
6. Chair proceeded to discuss Straw Poll #2 regarding Doc. IEEE 11-15/0671r0, IEEE 802.11 Liaison to WFA Requesting Feedback on Next Generation 60GHz (NG 60) Usage Scenarios
	* 1. Opens floor for discussion and edits of the document
		2. Chair asked if there are any further questions. None noted.
			1. Straw Poll #2
				1. Do you agree to forward the usage model document IEEE 11-15/0625r2 to the WFA in May 2015 and request WFA input prior to July 2015 plenary?

Chair asked if there are any objections to the Straw Poll #2

No objections noted.

1. Chair proceeded to discuss Motion #2 regarding TG Documents.
	1. Move to accept the proposal to develop documents covering the following components:
		1. Usage model
		2. Channel model
		3. Functional requirements
		4. Simulation scenario and evaluation methodology
	2. No questions or comments noted
	3. Move: SangHyun Chang
	4. Second: HanGyu Cho
		1. Yes: 39
		2. No: 0
		3. Abstain: 1
			1. Motion passes
2. Chair proceeded to discuss Motion #3 regarding Usage Model.
	1. Move to accept document 15/0625r2 as Task Group AY initial draft on usage models and recommend the Working Group chair that he forwards the document to Wi-Fi Alliance.
		1. No questions or comments noted
		2. Move: Ian Sherlock
		3. Second: Carlos Cordeiro
		4. Yes: 37
			1. No: 0
			2. Abstain: 1
			3. Motion passes
3. Chair proceeded to discuss Motion #4 regarding WFA Liaison Letter.
	1. Move to accept the liaison letter 15/0671r0 and grant the Working Group chair editorial rights to the letter.
		1. No questions or comments noted
		2. Move: Rakesh Taori
		3. Second: Carlos Cordeiro
			1. Yes: 36
			2. No: 0
			3. Abstain: 0
			4. Motion passes
4. Chair proceeded to discuss Motion #5 regarding Selection Procedure.
	1. Move to accept to include Specification Framework Document as the selection procedure.
		1. No questions or comments noted
		2. Move: Rakesh Taori
		3. Second: Osama Aboul-Magd
			1. Yes: 36
			2. No: 0
			3. Abstain: 1
			4. Motion passes
5. Chair proceeded to discuss Motion #6 regarding Task Group Timeline
	* 1. Move to accept the proposed timeline presented in 15/0609r2 as the timeline for Task Group AY.
		2. No questions or comments noted
		3. Move: Yan Xin
		4. Second: Lei Huang
		5. Yes: 36
			1. No: 0
			2. Abstain: 0
			3. Motion passes
6. Chair proceeded to discuss the teleconference schedule of agenda document slide 68.
	1. No objections or comments noted
7. Chair proceeded to discuss the Goals for July 2015 Plenary per agenda document slide 69
	1. No objections or comments noted
8. The TG AY May 10-15, 2015 Vancouver Meeting adjourned at 11:32.