IEEE P802.11
Wireless LANs

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| Minutes of the May 2015 meeting of the IEEE 802.11ax Multi-User ad hoc group |
| Date: 2015-05-13 |
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Abstract

Meeting minutes of the IEEE 802.11ax Multi-User ad hoc group held during the May 2015 IEEE interim session. Two ad-hoc meetings were held: Tue PM1 and Wed PM1.

**IEEE 802.11 Task Group ax, MU Ad hoc**

**May 2015 Vancouver Meeting**

**Hyatt Regency, Vancouver, Canada**

**May 11th – 14th, 2015**

**Tuesday, May 12th, 2015, PM1 TGax Session (1:30-3:30)**

1. **The meeting called to order by Kaushik Josiam (Samsung), the co-chair of the TGax MU Ad hoc**
	1. About 50 people are in the room.
2. **Announcement**
	1. Agenda Doc.11-15/430 on the server. Rev. 0 is the working document.
	2. Meeting Protocol: The Chair asked to state name and affiliation when speaking for the first time.
	3. Attendance reminder.
		1. The attendance server: https://imat.ieee.org/
3. **The chair reviewed the mandatory 5 slides of P&P.**
	1. Instructions from the WG Chair. [reviewed~~, did not review~~]
	2. Participants, Patents, and Duty to Inform. [reviewed~~, did not review~~]
	3. Patent Related Links. [reviewed, ~~did not review~~]
	4. Call for potentially essential patents.
		1. Chair asked if anyone is aware of potentially essential patents

 [Asked. ~~Did not ask~~]

* + 1. Potentially essential patents

 [None reported. ~~Reported as follows~~]

* 1. Other Guidelines for IEEE WG Meetings.
1. **The Chair called for presentations**
	1. No new presentations, other than those listed in the agenda, were requested.

1. **The Chair asked for approval of the agenda**
	1. No objection raised
2. **Presentation of contributions**
	1. “Frequency Selective Scheduling (FSS) for TGax OFDMA”
		1. 15/568r2, Kome Oteri (InterDigital)
		2. Discussion

C: MIMO considered on top of OFDMA? It needs to be considered.

C: It increases complexity.

C: In slide 9, RU allocation for non-contiguous is assumed. But we don’t have it yet.

C: What’s your assumption of scheduling latency and channel variation? WiFi channel is changed very slowly. We need some result to determine which one is better between FSS and random selection.

C: It requires extra overhead.

C: We cannot decide RU based feedback without any kind of simulation result.

* + 1. Strawpoll
			1. SP#1: Should we consider adding RU based feedback to the SFD?

Vote: Y/N/A: 38/3/42

Not for motion

* + - 1. SP#2: Do you agree to add to the TG Specification Framework?
* 4.x.y The amendment shall include a mechanism for Resource Unit (RU) based feedback

Straw-poll deferred for further discussion

* 1. “Regarding trigger frame in UL MU”
		1. 15/608r0, Tomoko Adachi (Toshiba)
		2. Discussion

Q: In QoS Control field, we have already Queue size.
A: It is only for one TID of data

Q: Any motivation to include AC in TF?

A: Considered primary AC based transmission in 11ac MU-MIMO

* + 1. Strawpoll (Not for motion)
			1. SP#1: What kind of information should be specified in a trigger frame?
* target STAs (TBD, could be MAC address/AID/Group ID)
Unanimous consent
	+ - 1. SP#2: What kind of information should be specified in a trigger frame?
* resource allocation per STA (also vote yes if you think it will be addressed by Group ID)
Unanimous consent
	+ - 1. SP#3: What kind of information should be specified in a trigger frame?
* PPDU duration (TBD, may be exact or maximum)

Unanimous consent

* + - 1. SP#4: What kind of information should be specified in a trigger frame?
* access category
Y/N/A= 5/17/many
	+ - 1. SP#5: For an AP to send the trigger frame for UL MU TX, do you think it is useful if a STA is able to notify the AP of its TX demand by a field something like a More Data field in a frame sent from its side?

Unanimous consent

* 1. “Uplink ACK and BA Multiplexing”
		1. 15/587r0 Reza Hedayat (Newracom)
		2. Discussion

Q: Do we have the text already in the SFD specifying UL MU ACK following DL MU PPDU?

A: Current text is not exactly same with the straw-poll text.

C: No need to have additional redundant text.

Q: What does SP2 text exactly mean? Fixed MCS and frequency resource allocation?

A: Yes

C: No reason to exclude explicit signalling at this point.

* + 1. Strawpoll
			1. SP#1: Do you agree to add the following to 11ax SFD:
* DL MU PPDU may act as Trigger frame for the multiplexed ACK/BA frame that follows the DL MU frame

Vote: Y/N/A= 39/18/22

Straw-poll doesn’t exceed 75% approval

* + - 1. SP#2: Do you agree to add the following to the TG specification framework document:
* A DL MU PPDU shall not signal explicitly the resource assignment for ACK or BA frames that follow the DL MU frame

Vote: Y/N/A= 26/36/19

Straw-poll doesn’t exceed 75% approval

1. The Chair announced the recess of the MU ad hoc session.

**Wednesday, May 13th, 2015, PM1 TGax Session (1:30-3:30)**

1. **The meeting called to order by Kiseon Ryu (LG), the co-chair of the TGax MU Ad hoc**
	1. About 50 people are in the room.
2. **Announcement**
	1. Agenda Doc.11-15/430 on the server. Rev. 1 is the working document.
	2. Meeting Protocol: The Chair asked to state name and affiliation when speaking for the first time.
	3. Attendance reminder.
		1. The attendance server: https://imat.ieee.org/
3. **The chair reviewed the mandatory 5 slides of P&P.**
	1. Instructions from the WG Chair. [reviewed~~, did not review~~]
	2. Participants, Patents, and Duty to Inform. [reviewed~~, did not review~~]
	3. Patent Related Links. [reviewed, ~~did not review~~]
	4. Call for potentially essential patents.
		1. Chair asked if anyone is aware of potentially essential patents

 [Asked. ~~Did not ask~~]

* + 1. Potentially essential patents

 [None reported. ~~Reported as follows~~]

* 1. Other Guidelines for IEEE WG Meetings.
1. **The Chair called for presentations**
	1. No new presentations, other than those listed in the agenda, were requested. Documents to be discussed are 586, 378, 612 and 597.

1. **The Chair asked for approval of the agenda**
	1. No objection raised
2. **Presentation of contributions**
	1. 612: Multi Channel Availability for UL-OFDMA (Woojin Ahn, Yonsei Univ.)

Strawpoll: UL-OFDMA procedure should consider the effect of different channel availability between AP and UL STAs (for information only, no intention to convert to TGax motion)

Y/N/A: 8/0/25

* 1. 597: Beamformed HE PPDU (Yongho Seok. Newracom)

Straw Poll:

**Do you agree to add the TGax Specification Framework:**

* **4.x Multi-user (MU) features**
	+ The amendment shall define a sounding procedure for reporting DL CSI feedback as UL MU mode

Y/N/A: 6/0/Many

Strawpoll meets 75%. Presenter will decide whether to bring this as a TG motion.

* 1. 586: Frequency Diversity Options in OFDMA (Reza Hedayat, Newracom)

Straw poll is postponed after discussion from the floor.

* 1. 378: Channel Sensing in UL OFDMA (Reza Hedayat, Newracom)

Straw poll is postponed after discussion from the floor.

1. **The Chair announced the recess of the MU ad hoc session at 3:30pm.**