IEEE P802.11
Wireless LANs

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| TGba MAC Ad-hoc Group Meeting Minutes – May 2018 Sessions |
| Date: 2018-05-07 |
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Abstract

Minutes for TGba MAC Ad-hoc Group during the IEEE 802.11 May 2018 interim meeting in Warsaw, Poland, including 3 sessions: Monday PM2, Tuesday PM1, and Wednesday PM2.

Meeting: TGba MAC Ad-hoc Group

Place: Warsaw, Poland.

Ad-hoc Group Chair: Minyoung PARK (Samsung)

Ad-hoc Vice-Chair/Secretary: Yunsong YANG (Huawei)

**Monday May 7th, 2018**

# TGba MAC Ad-hoc Group 16:00-18:00 (PM2) local time

1. Called to order at 16:01 local time by Minyoung Park.
2. Attendance: 36.
3. Approval of agenda (11-18-647r4 on the server and shown on the screen)
* No comments or questions.
* Agenda (r4) is approved unanimously.
1. Review patent policy and guidelines
	* No items identified.
2. Presentation
	* **11-18-0790-00-00ba-spec-text-for-wur-fdma-operation**
		+ Yongho Seok (MediaTek) presented the document.
		+ Question: Can the channel offset be used for indicating 5 MHz channel within the 20 MHz?
			- Response: that is not the agreement.
		+ Question: Is the WUR Beacon only sent in one of the channels.
			- Response: Yes.
		+ Question: Do you intend to allow data on a secondary channel in the FDMA transmission?
			- Response: This document doesn’t cover that case.
		+ Comment: the WUR Beacon should be sent from the primary channel.
		+ Comment: You just need two bits for WUR wakeup channel index.
		+ Comment: the WURx needs to switch back and forth in order to receive the WUR Beacon.
		+ Members expressed that they have contribution related to FDMA as well.
		+ Chair: encourage members to talk offset to consolidate their proposals.
	* **11-18-0878-00-00ba-encoding-for-tbd-fields**
		+ Po-kai Huang (Intel) presented the document.
		+ On the Supported Bands,

Straw Poll: Do you support the following for Supported Bands field in WUR Capabilities element?

Y/N/A = 19/0/1.

* + - On WUR Beacon Period,

Straw Poll: Do you support 2 bytes for WUR Beacon Period in WUR Operation element?

Y/N/A = 13/0/1.

* + - On the Duty Cycle parameters,
		- Comment: If the granularity of Duty Cycle Period Unit is 4usec, and the granularity of “On Duration” is 256usec, we could have a case where the “On Duration” is longer than the Duty Cycle period.
			* Response: those cases should be interpreted as the WUR receiver is always on.

Straw Poll: Do you support the following?

* Duty Cycle Period Units in WUR Operation element has two bytes with unit 4us
* Duty Cycle Period in WUR Mode element has two bytes

Y/N/A = 5/0/8.

* + - On the On Duration parameters,

SP4: Straw Poll: Do you support the following?

* Minimum wake-up duration field in WUR Operation element has 1 byte with granularity 256 us

On Duration field in WUR Mode element has 4 bytes with granularity 256 us

Y/N/A = 8/0/8.

* + - Po-kai will update the spec text based on these SP results.
	+ **11-18-0804-02-00ba-spec-text-for-group-id-negotiation**
		- Lei Huang (Panasonic) presented the document.
		- Question: does the “n” start from 0 or 1?
			* Response: should start from 0.

SP: Do you agree to add the text in the document 18/0804r2 to the 11ba d0.3?

Y/N/A = 6/0/6.

* + **11-18-0748-01-00ba-text-update-for-wur-discovery-frame**
		- Guoqing Li (Apple) presented the document.
		- Editorial comment on bit 8 to 19 should be bits 8 to 19. Accepted.
		- Question on the meaning of “an additional AP identifier”
			* Deleted. Just say the TD Control is set to ….
		- The document is updated as r2.

SP: Do you support adopting the texts in 18/748r2 into TGba 0.3 draft spec?

Y/N/A = 16/0/2.

* + **11-18-0863-02-00ba-text-on-r-4-8-b**
		- Guoqing Li (Apple) presented the document.
		- Question if “a fixed set of all possible WUR channels” should be specified
			* Response: it is not a part of the motion that passed.
		- Comment on the naming of Neighbor WUR AP element.
			* Response: changed it to “an element”.
		- The document is updated as r3.

SP: Do you support adopting texts in 18/863r3 into TGba 0.3 draft spec?

Y/N/A = 11/0/5.

* + **11-18-0836-00-00ba-draft-text-for-wur-frame-format (SP)**
		- Already presented with Q&A in the previous TGba session.
		- No further comments or questions.

SP: DO YOU AGREE WITH THE PROPOSED CHANGES PROVIDED IN 11-18/0836R0?

Y/N/A = 14/0/4.

* + **11-18-0774-00-00ba-vulnerability-in-wur-beacon-and-its-impacts-on-wake-up-operation**
		- Yunsong Yang (Huawei) presented the document.
		- Question: The attacker can do the same on the regular Beacon, do we have a solution for that? If not, would it help by just solving the problem on the WUR?
			* Response: it is much harder to attack on the regular 802.11 Beacon without being discovered. The AP’s PCR is on. So, the AP may detect the faked or replayed Beacons. But it is not the case for the WUR.
		- Comment: If the attacker wants, he can simply block all wakeup frames to this STA.
			* Response: that requires the attacker to jam every wakeup frame to the STA, including the re-transmissions as well. That will increase the chance for the attacker being exposed. But in the attack model described in this presentation, the attacker only jam the first few WUR Beacons. After that, the attacker doesn’t need to block anymore because the WURx is still off when the AP transmits the legitimate WUR Beacons.
		- Alfred: Which part of this presentation is against the security spec text that I have?
			* Response: This presentation shows that just by using MIC doesn’t mean that the wakeup operation will be secure. The use of TSF as the IPN for the MIC calculation can cause issue for the wakeup operation.
		- The group is out of time. The chair encourages more offline discussion on the issue.
1. Recessed at 18:00 local time.

**Tuesday May 8th, 2018**

# TGba MAC Ad-hoc Group 13:30-15:30 (PM1) local time

1. Called to order at 13:32 local time by Minyoung Park.
2. Attendance: 28.
3. Approval of agenda (11-18-647r5 on the server and shown on the screen)
* No comments or questions.
* Agenda (r5) is approved unanimously.
1. Review patent policy and guidelines
	* No items identified.
2. Presentation
	* **11-18-0835-00-00ba-draft-text-for-secure-wur-frame-format**
		+ Alfred Asterjadhi (Qualcomm) presented the document.
		+ Question on if BIP is the right protocol to use.
			- Response: Try to reuse the existing protocol.
		+ Question: Can we make Bit 7 Protected/Reserved?
			- Response: right now it is reserved for non-wakeup frame types.
		+ Question on if the use of protection is dynamically configured by the indicator bit.
			- Response: No, that is not the case. The configuration is done by the PCR.
		+ Comment on if it is appropriate to use ITGK for all WUR frames.
			- Response: prefer to use individual key, which will be different from the baseline BIP. But the goal is not to define a new authentication scheme. Try to reuse as much as possible.
		+ SP deferred as a member requests more time to review the text.
	* **11-18-0929-00-00ba-spec-text-for-starting-time-indication-of-wur-beacon-and-duty-cycle-operation**
		+ Po-kai Huang (Intel) presented the document.
		+ Question: what is the unit for the starting time?
			- Added the unit of usec.
		+ Comment on the last two sentence being unnecessary.
			- Deleted them.
		+ The document is updated to r1.

Straw Poll: Do you support adopting texts in 18/929r1 into TGba 0.3 draft spec?

Y/N/A = 7/0/0.

* + **11-18-0791-00-00ba-preamble-punctured-wur-fdma-transmission**
		- Yongho Seok (MediaTek) presented the document.
		- Comment on that the conclusion depends on the 11ax, which is not there yet.
		- Comment that the Primary channel concept doesn’t apply to WUR.

Straw Poll 1: Do you support the following preamble punctured WUR FDMA transmission?

* When an AP that supports the preamble punctured HE MU PPDU transmission on the 802.11 main radio meets one of the following conditions on a WUR channel assigned from non-primary channels,
	+ busy
	+ idle but there is no pending Wakeup frames to transmit in the WUR channel
* the AP does not transmit any signal to the corresponding WUR channel but it can transmit Wakeup frames on other idle channels.

Y/N/A = 10/0/4.

* + **11-18-0822-02-00ba-wur-fdma-channel-access**
		- Rojan Chitrakar (Panasonic) presented the document.
		- Question: on Slide 7, what is the Null signal?
			* Response: it is a signal with the WUR waveform.
		- Comment on that rather than filling the primary channel with garbage signal, why not let other STA to use the channel for transmission.
		- Commented on the last sub-bullet in SP1 being unnecessary.
			* Removed the last sub-bullet

Straw Poll 1: Do you agree that a WUR AP may transmit the Legacy Preamble and BPSK-Mark followed by a “NULL Signal” on the empty WUR channel in the Primary 20 MHz during WUR FDMA transmission?

* The “NULL Signal” may be any signal in WUR waveform that fulfills the following conditions:
	+ Same length as the longest WUR Signal within the WUR PPDUs

Y/N/A = 9/1/3.

* + - Will be updated as r3.
1. Recessed at 15:30 local time.

**Wednesday May 9th, 2018**

# TGba MAC Ad-hoc Group 16:00-18:00 (PM2) local time

1. Called to order at 16:08 local time by Minyoung Park due to equipment issue.
2. Attendance: 20.
3. Approval of agenda (11-18-647r7r0 on the server and shown on the screen)
* No comments or questions.
* Agenda (r7) is approved unanimously.
1. Review patent policy and guidelines
	* No items identified.
2. Presentation
	* **11-18-0835-01-00ba-draft-text-for-secure-wur-frame-format**
		+ Alfred (Qualcomm) presented the changes made in the document.

Straw Poll 1: Do you support to incorporate the spec text provided in 11-18/0835r1 and its inclusion to the latest TGba draft (D0.3)?

Y/N/A = 9/0/3.

* + **11-18-0830-02-00ba-sta-wake-up-using-bss-parameter-update-counter**
		- Xiaofei Wang (InterDigital) presented the document.
		- Question: what is BPUC?
			* Response: it is just a name of the counter that has been adopted.
		- Question: How long is AP-CSN?
			* Response: 1 byte.
		- Question: Why need to indicate this counter in PCR?
			* Response: The counter value may change after the STA enters the WUR mode. But the STA needs to know what the value is before entering the WUR mode in order to know there has been a change.
		- Comment on SP1: we have not decided on the number of bits for this counter in the WUR frame.
			* Response: that is OK. This is independent of that.

SP1: Do you agree that the current value of BPUC (BSS Parameter Update Counter) should be indicated to the STA before it enters WUR mode:

Y/N/A = 8/0/3.

SP2: Which option of indicating the current value of BPUC do you prefer?

* 1: BPUC is indicated as a part of WUR negotiation process
* 2: BPUC is indicated as a part of WUR Operation element
* 3: BPUC is derived from another counter, e.g., AP-CSN
* 4. Abstain

Result: 1/2/3/4 = 5/6/0/4.

* + **11-18-0437-03-00ba-bss-parameters-update-notification-follow-up**
		- Ming Gan (Huawei) presented the document.

SP1: Do you agree the following text?

(As shown on slide 6)

Y/N/A = 8/0/4.

SP2: Do you agree the following text?

The WUR STA that receives a Counter field that contains a value that is different from the previously received Counter field shall follow the procedure defined in 11.2.3.17 subject to its PCR delay constraints.

Y/N/A = 10/0/2.

SP3: Do you agree the following text?

(As shown on slide 8)

Y/N/A = 13/0/2.

* + **11-18-0834-00-00ba-clarifications-on-wur-pcr-interactions**
		- Alfred Asterjadhi (Qualcomm) presented the document.
		- Commented on that if the Wakeup frame is missed by the WURx, it will take much longer time for the AP to find out in order to re-transmit the Wakeup frame.
		- Question: on Slide 6, what kind of frame is the Poll in the picture?
			* Response: it is a generic poll.
		- Comment on SP1 text: add in the wakeup frame

SP1: Do you agree to use Transmit ID in WUR Wake-up frames to indicate group addressed delivery in the PCR?

Y/N/A = 13/0/4.

SP2: Do you agree with the amended text in slides 9, 10, and 11?

Y/N/A = 9/0/6.

* + **11-18-0831-00-00ba-format-for-group-addressed-wake-up-frames**
		- Xiaofei Wang (InterDigital) presented the document.
		- Comment: the retransmitted Wakeup frame shouldn’t wake up the WURx again, since the PCR is on now.
			* Response: there could be the case where the group members have different On period patterns.
			* Comment: in that case, the grouping is wrong.
		- Question: What is the difference between option 3 and option 1?
			* Response: in option 3, only those group members with a matching WID will wake up.
		- Comment on SP1 text: although 11ba defines multiple way of multicast wakeup, a vendor tends to implement just one way instead of a combination.
		- SP1: skipped.

SP2: Do you agree that:

* A Multicast Counter field should be added to the group addressed WUP for Option 1 (group addressed wake up frame containing a GID)?

Y/N/A = 1/1/10.

* + **11-18-0895-01-00ba-addressing-in-vl-wake-up-frame**
		- Woojin Ahn (WILUS) presented the document.
		- Question: how much power can be saved?
			* Response: don’t know yet.
		- SP deferred as we are out of time.
1. AOB: none.
2. The MAC ad-hoc adjourned at 18:00 am local time with no objections.