IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IEEE 802.11 TGax, MAC Ad hoc  Sept 2015 Bangkok TGax MAC Ad hoc Meeting Minutes | | | | |
| Date: 2015-09-16 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | Email |
| Brian Hart | Cisco Systems |  |  | brianh@cisco.com |
| Osama AboulMagd | Huawei |  |  | Osama.AboulMagd@huawei.com |

Abstract

TGax, MAC Ad Hoc meeting minutes from the IEEE 802.11 Bangkok session, Sept 12th – 17th, 2015.

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

**Sept 2015 Bangkok Meeting**

**Centara Grand at CentralWorld, Bangkok, Thailand**

**September 13th – 18th, 2015**

**Monday, Sept 14th, 2015, PM1 TGax MAC Ad hoc Session (1:30-3:30)**

1. **The meeting called to order at 1:31pm by Reza Hedayat (Newracom), the co-chair of the TGax MAC Ad hoc**
   1. About 43 people are in the room at this time.
2. **Announcement**
   1. Agenda doc is 11-15/1126r0 is on the server.
   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. [reviewed~~, did not review~~]

1. **The Chair called for presentations**
   1. No requests for additional presentations were made. Reordering of presentations was requested and accepted
2. **The Chair asked for approval of the agenda**
   1. No objection raised
3. **Presentation of contributions**
   1. **“Multiple BSSID element”**
      1. 15/1014r0, presented by Guido R. Hiertz (Ericsson)
      2. Strawpoll 1:

Do you agree to add the following to the IEEE 802.11 TGax Specification Framework?

Add to the end of Clause 6 (MAC): “HE STAs shall support the Multiple BSSID Set.”

* + - 1. Results: 17Y/2N/30A: // Strawpoll achieves >=75% support; will be passed to TGax-Full for a motion
  1. **“802.11ae & 802.11ax”**
     1. 15/1013r1, presented by Guido R. Hiertz (Ericsson)
     2. Strawpoll 1:

Do you agree to add the following to the IEEE 802.11 TGax Specification Framework?

Add to the end of Clause 6 (MAC): “The amendment shall define a HE STA to be a QMF STA.”

* + - 1. Results: 5Y/10N/36A: // Strawpoll does not achieve >=75% support; so will not be passed to TGax-Full for a motion
  1. **“Data field in HE PPDU”**
     1. 15/1033r0, presented by Yongho Seok (Newracom)
     2. Strawpoll 1: // withdrawn
     3. Strawpoll 2:

Do you agree to add the TGax SFD:

6.1 General  
An A-MPDU is transmitted in one of the below contexts

|  |  |
| --- | --- |
| **Name of Context** | **Definition of Context** |
| Data Enabled Immediate Response | The A-MPDU is transmitted outside a PSMP sequence by a TXOP holder or an RD responder or an UL MU responder including potential immediate responses. |
| Data Enabled No Immediate Response | The A-MPDU is transmitted outside a PSMP sequence by a TXOP holder or an UL MU responder that does not include or solicit an immediate response. |
| Control Response | The A-MPDU is transmitted by a STA that is neither a TXOP holder nor an RD responder nor an UL MU initiator that also needs to transmit one of the following immediate response frames:  Ack, BlockAck frame with a TID for which an HT-immediate block ack agreement exists |
| HE single MPDU context | The A-MPDU is transmitted within a HE PPDU and contains a HE single MPDU. |

A Trigger frame is included in A-MPDU contents of Data Enabled Immediate Response, Data Enabled No Immediate Response, Control Response and HE single MPDU contexts

* + - 1. Results: 7Y/ 3N/ 37A: // Strawpoll does not achieve >=75% support; so will not be passed to TGax-Full for a motion
    1. Strawpoll 3:

Do you agree to add the TGax SFD:

6.1 General  
In a downlink MU HE PPDU, at most one A-MPDU is allowed to contain one or more MPDUs that solicit an immediate response, except when an immediate response is carried in UL MU PPDU. In such case, one or more A-MPDUs are allowed to contain one or more MPDUs that solicit an immediate response carried in UL MU PPDU.

* + - 1. Results: 17Y/ 0N / 28A: // Strawpoll achieves >=75% support; so will be passed to TGax-Full for a motion
    1. Strawpoll 4: // withdrawn

Mid session attendee count: **about** **75 people in the room.**

* 1. **“Notification of Operating Mode Changes”**
     1. 15/1034r0, presented by Yongho Seok (Newracom)
     2. Strawpoll 1:

Do you agree to add the TGax SFD:

6.2 Power Save  
HE STA may use a notification of its operating mode changes for 802.11ax power saving mechanism

* + - 1. Results: 5Y /0 N / 39A: // Strawpoll achieves >=75% support; so will be passed to TGax-Full for a motion
    1. Strawpoll 2:

6.2 Power Save  
The Operating Mode Notification should specify a clarification for

A channel width that a STA can transmit

A number of spatial streams (Tx NSS) that a STA can transmit

* + - 1. Results: 5Y / 0N / 43A: // Strawpoll achieves >=75% support; so will be passed to TGax-Full for a motion
  1. **“Airtime Analysis of EDCA”**
     1. 15/1114r1, presented by Sean Coffey (Realtek)

1. The Chair [recessed~~, did not recess~~] the MAC ad hoc session at 1:32 pm.

**Monday, Sept 14th, 2015, Evening TGax MAC Ad hoc Session (19:30-22:30)**

1. The meeting called to order at 19:32pm by Reza Hedayat (Newracom), the co-chair of the TGax MAC Ad hoc
2. The chair reminded of attendees of the IEEE IPR policy and procedure
3. Chair approved the agenda
4. Presentation of Contributions
   1. **“Further Study of 11ax Multicast”**
      1. 15/1044r4 presented by Kazuyuki Sakoda
      2. All straw polls of this contributions are not intended for SFD.
      3. Straw Poll 1:

Do you agree that modification to Multicast Diagnostic Request is beneficial to make Multicast Diagnostic Report scalable?

* + - 1. Y/N/A: 14/0/26
    1. Straw Poll 2:

Do you agree to consider any mechanism to avoid the problem caused by the current sequence number and bitmap management for multicast traffic?

* + - 1. Y/N/A:15/0/25
    1. Straw Poll 3:

Do you agree that multicast MPDU aggregation should be more permissive in 802.11ax network than what is defined currently?

* + - 1. Y/N/A:10/0/31
  1. **“Receive Operating Mode Indication for Power Save”**
     1. 15/1060r0 presented by Guoqing Li
     2. Straw Poll 1:

Do you support to add to the SFD a mechanism for a transmitting STA to indicate its RX operating mode, i.e. RX NSS, RX channel width, in a transmitted DATA type MAC header, so that the responding STA shall not transmit a subsequent PPDU using an NSS or channel width value not indicated as supported in the RX operating mode of the transmitting STA.

The responding STA shall not adopt the new NSS and BW until a time TBD.

* + - 1. Y/N/A: 24/0/12
  1. **“MU TXOP Truncation”**
     1. 15/1067r0 presented by Jeongki Kim
     2. Straw Poll 1:

Do you agree to add the following text in SFD? When a STA receives a CF-End from an OBSS STA, if the last NAV update was caused by an Intra-BSS frame, the STA should not reset its NAV\

* + - 1. Y/N/A: 29/0/15
  1. **“11ax Channel Access Procedure”**
     1. 11-15/1063 presented by Chao-Chun (Mediatek)
     2. Straw Poll 1:

Do you agree to add the following text to SFD to the spec framework? The STA determines whether the detected frame is an inter-BSS or an intra-BSS frame by using BSS color or MAC address in the MAC header. If the detected frame is an inter-BSS frame, under TBD condition, uses TBD OBSS PD level that is greater than the minimum receive sensitivity level

NOTE*–*Maybe extra rules need to be added to ensure that all 11ax STAs can make the decision in a consistent manner.

* + - 1. Y/N/A: 29/6/7

55 individuals are present in the room

* 1. **“Recovery Procedures in Cascading Sequence”**
     1. 11-15/1096r0 presented by Jon Son, WILUS
     2. Straw Poll 1:

Do you agree to add the following text into 11ax SFD ?

In cascading sequence, when AP does not receive acknowledgements from a STA after sending DL Data MPDUs, AP may recover using one of the following procedures:

Transmitting a BAR with SSN value set to the SN of the unacknowledged Data MPDUs

Retransmitting unacknowledged Data MPDUs

Transmitting additional Data MPDUs along with a BAR with SSN value set to the SN of the unacknowledged Data MPDUs

* + - 1. Y/N/A: 11/0/32
  1. Straw Poll 2:

For robustness enhancements of control MPDUs in A-MPDU, which options do you prefer?

1) Assigning relatively robust positions to Control MPDUs in A-MPDU - 5

2) Repetition of Control MPDU in A-MPDU – 3

3) Applying robust MCS to Control MPDU in A-MPDU - 3

**Tuesday, Sept 14th, 2015, AM2 TGax MAC Ad hoc Session (10:30-12:30)**

1. The meeting called to order at 10:31pm by Reza Hedayat (Newracom), the co-chair of the TGax MAC Ad hoc
2. The chair reminded of attendees of the IEEE IPR policy and procedure
3. Chair approved the agenda
4. Presentation of Contributions
   1. **“ACK/BA frame for UL MU under cascading structure”**
      1. 15/1098r1, presented by Narendar Madhavan (Toshiba)
      2. Strawpoll 1:

Do you think we should be able to multiplex unicast BA and multi-STA BA?

* + - 1. Results: 13Y / 0N / 16A: // Strawpoll is a simple strawpoll
  1. **“Trigger Frame Channel Access”**
     1. 15/1116r1, presented by Jinsoo Ahn (Yonsei Universitry)
     2. Strawpoll 1:

Do you agree to add to the TG Specification Frame work document?

x.y.z. DL-OFDMA shall reuse sharing an EDCA TXOP for DL-MU-MIMO.

* + - 1. Results: 6Y / 0N / 34A: // Strawpoll achieves >=75% support; so will be passed to TGax-Full for a motion
    1. Strawpoll 2:

Do you agree to add to the TG Specification Frame work document?

x.y.z. Spec shall define new EDCA parameter values(TBD) of trigger frame.

* + - 1. Results: 6Y / 22N / uncountedA: // Strawpoll does not achieve >=75% support; so will not be passed to TGax-Full for a motion
    1. Strawpoll 3:

Do you agree to add to the TG Specification Frame work document?

x.y.z. Spec shall define a trigger frame as a control frame without retransmission

* + - 1. Results: 6Y / 22N / uncountedA: // Strawpoll achieves >=75% support; so will be passed to TGax-Full for a motion
    1. Strawpoll 4:

Do you agree with that in case of trigger frame failure, next frame transmission shall use doubled CW?

* + - 1. Results: 4Y / 16N / manyA: // Strawpoll is a simple strawpoll
  1. **“High Efficiency in Accessing the Medium”**
     1. 15/1115r1, presented by Sean Coffey (Realtek)
     2. Strawpoll 1:

“Do you agree it’s worth pursuing a roster base approach”

* + - 1. Results: 11Y / 2N / 29A: // Strawpoll is a simple strawpoll

72 individuals are present in the room.

* 1. **“Buffer Status Report”**
     1. 15/1120r0, presented by Alfred Asterjadhi (Qualcomm)
     2. Strawpoll 1:

Do you agree to add to 11ax SFD:

Non-AP STAs support using the QoS Control field in QoS Data and QoS Null frames to report per-TID Buffer Status Information

?

* + - 1. Results: 27Y / 0N / 11A: // Strawpoll achieves >=75% support; so will be passed to TGax-Full for a motion
    1. Strawpoll 2:

Do you agree to add to 11ax SFD:

An AP can poll STAs for buffer status reports using the frame carrying the trigger info

* The poll can request for specific buffer status information with TBD granularity.
  + - 1. Results: 35Y / 0N / 12A: // Strawpoll achieves >=75% support; so will be passed to TGax-Full for a motion
  1. **“HE A-Control field”**
     1. 15/1121r0, presented by Alfred Asterjadhi (Qualcomm)
     2. Strawpoll 1:

Do you agree to add to 11ax SFD:

The spec shall define an HE variant (of the VHT variant) of the HT Control field that carries one or more control fields for HE control information?

B0 and B1 of the HT Control field in this case are set to 1

The control fields can be called HE Control field

* + - 1. Results: 30Y / 0N / 18A: // Strawpoll achieves >=75% support; so will be passed to TGax-Full for a motion

1. The Chair [recessed~~, did not recess~~] the MAC ad hoc session at 12:32 pm.