IEEE P802.11  
Wireless LANs

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| ARC SC Teleconference Minutes May 24 2018 | | | | |
| Date: 2018-05-24 | | | | |
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Abstract

This document contains the minutes of the IEEE 802.11 ARC SC Teleconference held on 24 May 2018 at 12:00 EDT.

Note: Highlighted text are action items.

**Administration:**

**Chair: Mark Hamilton, Ruckus/Arris**

**Vice Chair/Secretary Joseph Levy, InterDigital**

**Meeting call to order in by Chair 12:18 EDT – (delay due to technical issues with join.me),**

Proposed agenda:

1. Call to order, Introduction & Policy reminders
2. Attendance
3. Review of discussions on P802.11ba, from May session in Warsaw
   1. <https://mentor.ieee.org/802.11/dcn/18/11-18-0884-01-0arc-802-11ba-architecture-discussion.pptx>
   2. <https://mentor.ieee.org/802.11/dcn/18/11-18-0942-00-0arc-arc-sc-meeting-minutes-may-2018.docx>
4. Continue discussion on 11ba architectural concepts – prepare for joint session in July
   1. Proposed “state machine view” of 11ba:
   2. <https://mentor.ieee.org/802.11/dcn/18/11-18-1020-00-0arc-discussion-on-wur-802-11ba-states.pptx>
   3. <https://mentor.ieee.org/802.11/dcn/18/11-18-1016-00-0arc-wur-state-diagram-proposal-hamilton.vsdx>
      1. STA & AP architecture model of 11ba:
   4. <https://mentor.ieee.org/802.11/dcn/18/11-18-1017-00-0arc-wur-multi-ap-reference-model.vsd>
5. AOB
6. Adjourn

**Introduction & Policy Reminders:**

The Chair briefly reviewed the administrative information and pointed out that:

Teleconferences are subject to IEEE policies and procedures, see:

– IEEE Patent Policy

– Patent FAQ

– Letter of Assurance Form

– Affiliation FAQ

– Anti-Trust FAQ

– Ethics

– 802 LMSC P&P

– 802 LMSC OM

– 802 WG P&P

– IEEE802.11 WG OM

**Call for Patents:**

The Chair reviewed the Patent policy and called for potentially essential patents – there was no response to the call.

**Approval of the Agenda:**

The Chair reviewed the agenda and called for comments or amendments to the agenda – there was no response to the call

The proposed agenda was approved by unanimous consent.

**Attendance:**

Attendance was taken. The following made there their attendance known:

Mark Hamilton (Ruckus/ARIS)

Joseph Levy (InterDigital)

Ganesh Venkatesan (Intel)

Dick Roy (SRA)

Gauray Patwardhan (HPE)

Graham Smith (SR Technologies)

Jon Rosdahl (Qualcomm)

Dorothy Stanley (HPE)

Shahrnaz Azizi (Intel).

**Review of discussions on P802.11ba, from May session in Warsaw**

1. <https://mentor.ieee.org/802.11/dcn/18/11-18-0884-01-0arc-802-11ba-architecture-discussion.pptx>
2. <https://mentor.ieee.org/802.11/dcn/18/11-18-0942-00-0arc-arc-sc-meeting-minutes-may-2018.docx>

Reviewed the status, reviewing the above documents – the minutes noted above actually point to the TGba minutes which contain the minutes of the joint session: <https://mentor.ieee.org/802.11/dcn/18/11-18-0999-00-00ba-meeting-minutes-may-2018.docx>

Chair - stated we are working to define a State diagram, but there is currently no agreement that it is necessary for the diagram to be in the 802.11ba amendment.

**Continue discussion on 11ba architectural concepts – prepare for joint session in July**

1. Proposed “state machine view” of 11ba:

Joseph Levy presented [https://mentor.ieee.org/802.11/dcn/18/11-18-1020-00-0arc-discussion-on-wur-802-11ba-states.pptx.](https://mentor.ieee.org/802.11/dcn/18/11-18-1020-00-0arc-discussion-on-wur-802-11ba-states.pptx.%20)  Starting on slide 3.

Assumption 1: For a STA with a WURx – WUR mode is only available if the STA is in a legacy Power Management mode and has negotiated a WUR mode with its associated AP.

Was discussed and not agreed.

The consensus view is that PS mode parameters are either established during association or with a frame exchange between the non-AP STA and the AP it is associated with when the non-AP STA is in the Active state. After PS mode parameters are agreed the non-AP STA may move into a PS state by sending a frame to the AP with the Power Management subfield of the Frame Control field set to 1 and then receiving an ACK of the frame from the AP. After sending the ACK the non-AP STA the AP will follow the procedures to support the non-AP STA is in PS state (mode). These procedures will support the non-AP STA in its various PS mode states: Awake state, Doze state, WURx Awake state or WURx Doze state. This applies to all flavors of PS mode including WUR mode. Action Joseph Levy to update 11-18/1020 to reflect this understanding.

Assumption 2: To insure assumption 1: WUR mode can only be negotiated with the associated AP once the STA is in Power Management mode, therefore the negotiation occurs when the STA is in the Awake state.

Was discussed and not agreed. Basically, do to assumption 1 not being agreed. The PS mode parameters are negotiated while the non-AP STA is in Active state. Once the non-AP STA sets the Power Management subfield 1 and an ACK is received the AP will assume the non-AP STA is in the negotiated PS state and will buffer packets intended for the non-AP STA and will inform the non-AP STA, at the appropriate time, that the AP has buffered packets for non-AP STA or will send an WUR wake up frame at an appropriate time. The non-AP STA may change its state to Active at any time by sending a frame to the AP with the Power Management subfield is set to 0. The non-AP STA may change its state to a legacy PS mode by sending a suspend WUR mode frame to the AP with the Power Management subfield set to 1. The AP will then follow procedures consistent with the non-AP STA being in the previously negotiated legacy PS mode. Action Joseph Levy to update 11-18/1020 to reflect this understanding.

Assumption 3: A STA in Power Management mode can only transmit or receive PRC frames when it is in Awake mode

This was basically agreed, with the understanding that this is from the AP point of view as non-AP STA can transmit or receive frames at any time. Action Joseph Levy to update 11-18/1020 to reflect this understanding.

Assumption 4: The PRC of STA is in WUR mode (WURx Awake or WURx Doze) is unable to transmit or receive frames

This was basically agreed, with the understanding that this is from the AP point of view as non-AP STA can transmit or receive frames at any time. Action Joseph Levy to update 11-18/1020 to reflect this understanding.

There was some concern expressed that when a non-AP STA wakes itself up it should tell the AP what PS mode it is in and not rely on the AP remembering what the negotiated PS mode was. But, others did not see a problem with relying on the AP.

Assumption 5: A STA in WUR mode (a subset of Power Management mode) can only receive WUR frames in WURx Awake state.

This was basically agreed, with the understanding that this is from the AP point of view. Action Joseph Levy to update 11-18/1020 to reflect this understanding.

Assumption 6: A STA in WUR mode, in WURx Doze state cannot receive or send any frames.

This was basically agreed, with the understanding that this is from the AP point of view. Action Joseph Levy to update 11-18/1020 to reflect this understanding.

Action Joseph Levy to update 11-18/1020 to update the other slides to be in line with agreed assumptions.

Discussion to continue on the ARC reflector and at the next scheduled ARC Teleconference: 21 June 2018 @ 12:00 EDT.

**Adjourned: 13:30 EDT**