IEEE P802.11
Wireless LANs

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| ARC SC Mixed Mode Minutes July 2023 – Plenary |
| Date: 2023-07-13 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Joseph LEVY | InterDigital Communication, Inc. | 111 W 33rd StreetNew York, NY 10120 | +1.631.622.4139 | jslevy@ieee.org  |
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Abstract

This document contains the minutes of the IEEE 802.11 ARC SC mixed mode meeting held on 11 July 2023 at 8:00-10:00 h CEST and 13 July 2023 at 13:30-15:30 h CEST.

Note: Highlighted text are action items. A- precedes comments from the document’s author, C- precedes comments, R- precedes responses to comments.

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# Tuesday 11 July 2023 at 8:00-10:00 h CEST

## Administration:

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

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting called to order by the Chair 8:05 CEST**

Agenda slide deck: [11-23/0576r3](https://mentor.ieee.org/802.11/dcn/23/11-23-0576-03-0arc-arc-sc-agenda-may-2023.pptx)

**Agenda Slides 4-15:**

**Registration Reminder**

**Reminders to Attendees**

**Call for Patents:**

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

**IEEE SA Copyright Policy:**

The chair reviewed the Copyright policy.

**Participation:**

The chair reviewed the participation policy.

**Approval of the Agenda (Slides 16)**

* Two meeting slots this week, Tues 8:00 and Thurs 13:30
* Attendance, noises/recording, meeting protocol reminders
* Policies, duty to inform, participation rules
* Approve meeting minutes (slide 18)
* Contribution/discussion topics:
	+ IEEE Std 802 project
		- For 802REVc: Define “IEEE 802 Network”
	+ Annex G way forward (slide 27)
	+ WBA liaison on QoS: [11-23/0838r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0838-00-0000-wba-liaison-re-qos.docx)
* Next steps (slide 28)

The Chair reviewed the agenda and called for comments and additions.

No discussion. Approved by unanimous consent.

**Approval meeting minute**

Motion to approve the minutes of:

May interim: [11-23/0651r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0651-00-0arc-arc-sc-mixed-mode-minutes-may-2023-interim.docx)

June 12 and 26 telecons: [11-23/1039r1](https://mentor.ieee.org/802.11/dcn/23/11-23-1039-01-0arc-arc-sc-12-and-26-june-2023-teleconference-minutes.docx)

* Moved: Harry Bims
* Seconded: James Gilb
* Discussion called for; no discussion was had.
* Result: UC

## IEEE Std 802 project – 802REVc

Background:

* IEEE Std 802 is undergoing a revision update
	+ Background/overview information is here: [11-23/0468r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0468-00-0000-802revc-status-march-2023.ppt)
	+ 802.1 is handling the official process, and is holding 802.1 Working Group letter ballots
* WG11 (802.11) held a comment collection
	+ Results: [11-23/0282r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0282-00-0000-cc44-p802-revc-d1-0-comments.xlsx)
* Overall comments submitted/disposition: [ec-23/0057r4](https://mentor.ieee.org/802-ec/dcn/23/ec-23-0057-04-00EC-802-revc-comments-wg-lb1.ods)
* Does ARC have any follow-up? Check on “802.11” submitted comments’ status
* Assignment: Define “IEEE 802 Network”

**Define “IEEE 802 Network”**

* Reminder of discussion on teleconferences (slides 22-25, notes on 26), especially existing “definitions” on slide 22
* Proposal for definition (Max Riegel, teleconference updates):

*IEEE 802 ® network: an interconnected group of two or more devices that forward user data frames according to IEEE 802 medium access control (MAC) addresses, and IEEE 802 MAC addresses identify the endpoints of the communication.*

Discussion:

C - Is it a technical definition or is it an abstract concept.

C – The original concern was the current definition requires using 802 protocols – and 802.11 does not require using 802 protocols in the DS, so this definition seems to exclude an 802.11 DS based network from being an IEEE 802 network. Supported the proposed definition.

Some discussion on word changes to improve the definition, some proposals discussed were:

* Add “a computer network of”
* Change “devices” to end stations, stations, entities, or layer 2 entities
* Change “forward” to exchange
* Change “data frames” to “frames”
* Remove “user data frames”

“Agreed” draft proposal of the definition to be provided to 802REVc:

*IEEE 802 ® network: an interconnected group of two or more devices that forward data between end stations that are identified by IEEE 802 MAC addresses.*

**EPD/LPD**

* Review of [11-20/0174r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0174-00-0arc-epd-and-lpd-terminology-misalignment-in-ieee-std-802-1-and-802-11.pptx) – note author was not present.
* [1-23/0017r1](https://mentor.ieee.org/802.1/dcn/23/1-23-0017-01-Mntg-proposed-resolution-of-cid-109-in-wg-ballot-of-p802-revc-d1-0.docx) (Note: 802.1 Mentor)
Chair – Roger was looking to stop using EPD and LPD. Why this is being proposed in not clear.
C – The concern is about the encoding – if it is an Ethernet, it should be based on LSAP encoding. There was support for EPD and LSAP was forced on 802 – for new standards – but you need to support LSAPs to be an 802 network.

Chair called for a motion for what we should adopt – no one provided a motion. ARC position is we take no position on this, but we will continue to monitor and consider the EPD/LPD issues.

**Other 802.11 relevant (or perhaps unique) topics**

* Review 802.1AC mapping from ISS to 802.11 MAC SAP interface
* Consider any changes to remove 802.2/LLC terms?
* 802.11’s “Portal”, and mapping to/usage of IEEE Std 802 terminology
The P802REVc editor requested 802.11 ARC review 802.11’s “Portal” mapping/usage to 802REVc.

## Recessed 9:42 h CEST.

# Thursday 13 July 2023 at 13:30-15:30 h CEST

## Administration:

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

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting called to order by the Chair 13:32 CEST**

Agenda slide deck:

**Agenda Slides 4-15:**

**Registration Reminder**

**Reminders to Attendees**

**Call for Patents:**

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

**IEEE SA Copyright Policy:**

The chair reviewed the Copyright policy.

**Participation:**

The chair reviewed the participation policy.

**Approval of the Agenda (Slides 16)**

* Two meeting slots this week, Tues 10:30 and Thurs 13:30
* Attendance, noises/recording, meeting protocol reminders
* Policies, duty to inform, participation rules
* Approve meeting minutes (slide 18)
* Contribution/discussion topics:
	+ IEEE Std 802 project (Tuesday)
	+ Annex G way forward (Thursday)
	+ WBA liaison on QoS: [11-23/0838r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0838-00-0000-wba-liaison-re-qos.docx)
* Next steps

The Chair reviewed the agenda and called for comments and additions.

Discussion on the order of the items, agreed to maintain the order. No additions were made, approved by unanimous consent.

## 802REVc

A brief review of the status of IEEE 802REVc letter ballot comment resolution was provided:

Joseph Levy (InterDigital) reviewed [11-23/1295r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1295-00-0000-802revc-status-update.ppt)

There was no additional discussion.

## Annex G way forward

Harry Bims (Bims Laboratories) presented [11-23/0880r1](https://mentor.ieee.org/802.11/dcn/23/11-23-0880-01-0arc-revised-annex-g-containing-example-frame-exchange-sequences.docx)

C – EBNF not easy to understand or use. The latest amendments have not completed the work update Annex G. But the clarity provided to EBNF does have value, even if it is not widely understood. Making annex G informative is helpful, but creating an informative index as proposed may not be helpful, it may be better to remove it all. The decision is between to providing information and not doing anything at all.

C – A frame exchange sequence is “not” a way to control the media – it is an agreement between two STAs to complete something.

C = Strong support adding examples of frame exchange sequences, in particular for 802.11be and 802.11bn.

A – The main purpose of providing an informative annex is to provide examples. By only providing examples it is much easier to update annex G, so it will be easier keep the annex up to date.

Chair – asking for feedback.

A – I would like feedback on the example for FES. Also comments on the mapping of sequences to STA types would be appreciated. Suggestions for examples is requested. Lastly a CSMA frame exchange sequence is difficult find in the normative text, so it would be helpful to provide one in the annex.

C – Support for keeping the annex and updating it. Note, some of the examples are not widely used/adopted, the examples should be for widely used sequences. Future amendments not like this as it may cause additional work and generate additional comments to be resolved.

Chair – We need to decide if this is a worthwhile effort and if it is worth maintaining.

C – Questioning if the table is correct and is it helpful to promote understanding? There are multiple types of sequence protection from a power/transmission perspective or exchange protection. Also, which sequences So this may add to the confusion.

A – Frame sequences can be confusing. Providing examples will hopefully help the reader understand and provide a pointer to the normative text for further understanding. e.g., the NAV value does not always control the sequence.

C – There are two options: 1) the NAV could be set for the whole TXOP or 2) a TXOP could be protected, by each packet being sent during the TXOP. So maybe it is not about control sequences – but control of the media.
*"10.23.2.9 TXOP limits the duration of a TXOP is the time a STA obtaining a TXOP (the TXOP holder) maintains uninterrupted control of the medium[…]"*
*From clause 3, "NOTE—Control of the wireless medium might be maintained across multiple frame exchange sequences throughother mechanisms, see, for example, 10.23.2.8 (Multiple frame exchange sequences in an EDCA TXOP(#109))."*

A – Different clauses seem to describe FES differently. Getting rid of FES terminology is probably not possible. The points of ambiguity may need to be dealt with in the maintenance group (TGm).

C – Regarding new projects, it is right time, and we have the right group of people to develop examples for this annex. There is cost but giving 1 or 2 examples for the new technology would be very helpful. People may be interested in providing examples so that it is clear how things work/are used.

C – Discussing inner and outer medium access is beyond the point where this document is useful for a novice reader – the specification is piled up and so complex that it is hard to understand what applies to what. It may be a futile task to provide the understanding within the spec, maybe it should be a different document. Without a tutor right beside you I see no chance to understand what is going on.

A – The intent is to help people to understand what is going on by providing this annex and to keep tighter control of the explanation and understanding within the WG. EBNF is exacting, but not very available to where people are currently.

Way forward is to continue this discussion on the ARC reflector.

## WBA liaison –

Ganesh Venkatesan (Intel Corporation) presented [11-23/1206r1](https://mentor.ieee.org/802.11/dcn/23/11-23-1206-01-0000-wba-e2e-qos-qos-over-wi-fi-links.pptx) (r1 Updated the link to WP – so that it is assessable.)

Skipping to slide 8 – future phases:

The author is looking for feedback on high level protocols – 802.1Qbb – this is a way to set a schedule for transmission. In 11ax there are trigger frames, how one gets the schedule from the .1 layer into the .11 layer is not clear. The timing is defined in .1 specification and/or IETF RFCs.

C – Where to start? Should one start with .1 or IETF specifications or mechanisms?

A – Will provide some information as to where the information is – so we can start the discussion.

C – It is important to understand these non-802.11 mechanisms and how they relate to 802.11 as it is usually at the interface (between non-802.11 and 802.11) that things get stuck. 802.11 is at the edge of then network and should support these mechanisms. WBA is looking to build new use cases.

C – This list is of future phases – this is a dynamic optimization problem – this is kind of what the AIML TIG is looking at – they are looking for improvements (over existing algorithms) to these issues.

A – For any AIML engine to work it needs the information, the focus of this work is to provide the interface/information to progress any AIML solution.

A – CAKE (Common Applications Kept Enhanced) – is an attempt to keep the mechanisms where they are and deal with buffer bloat and clear the bottle necks – 802.11 can address some of these bottle necks.

Chair – Way forward – Ganesh to provide some information so it is clear what we are discussion. Ganesh will provide some information when available from WBA trials.

## Next steps

* Contributions requested/expected:
	+ Annex G – Reflector discussion.
	+ 802REV definition of IEEE 802 Network, and other topics
	+ QOS topic
* July session planning
	+ 1 or 2 slots? 2
	+ Topics? Annex G, 802REVc, WBA QoS liaison presentation
* Next Teleconference(s):
	+ - Monday 1pm ET Aug 7 and Aug 28
	+ Will be coordinated with other TG chairs, and announced later

## Action Items:

1. The P802REVc editor requested 802.11 ARC review 802.11’s “Portal” mapping/usage to 802REVc.
2. Way forward is to continue discussion on the ARC reflector for Annex G.
3. Ganesh will provide some information as to where the information is – so we can start the discussion.
4. Ganesh will provide some information when available from WBA trials.

## Adjourned: 15:35 h CEST

Final Agenda: [11-23/0968r6](https://mentor.ieee.org/802.11/dcn/23/11-23-0968-06-0arc-arc-sc-agenda-july-2023.pptx)

Closing Report: [11-23/1306r0](https://mentor.ieee.org/802.11/dcn/23/11-23-1306-00-0arc-rc-closing-report-july-2023.pptx)