IEEE P802.11  
Wireless LANs

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| ARC SC teleconferences minutes 05 April 2021 | | | | |
| Date: 2021-04-05 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Joseph LEVY | InterDigital Communication, Inc. | 111 W 33rd Street New York, NY 10120 | +1.631.622.4139 | [jslevy@ieee.org](mailto:jslevy@ieee.org) |
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Abstract

This document contains the minutes of the IEEE 802.11 ARC SC teleconference held on 05 April 2021 at 13:00-15:00 h ET.

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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# Monday 05 April 2021, 13:00-15:00 h ET

## Administration:

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

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting called to order by the Chair 13:02 ET**

Agenda slide deck: [11-21/0575r1](https://mentor.ieee.org/802.11/dcn/21/11-21-0575-01-0arc-arc-sc-agenda-apr-5-2021.pptx)

**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:**

* **Attendance, noises/recording, meeting protocol reminders**
* **Policies, duty to inform, participation rules**
* **Annex G way forward contribution/discussion:**
  + **Remove Annex G –** [**11-21/0578r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-0578-00-0arc-obsolete-annex-g.docx) **– Graham Smith**
  + **Replace Annex G with some other notation/style –** [**11-21/0414r2**](https://mentor.ieee.org/802.11/dcn/21/11-21-0414-02-0arc-draft-examples-of-a-proposed-notation-for-frame-exchange-sequence-sequences-in-annex-g-of-802-11-2020.docx) **– Harry Bims**
  + **Limit the scope of Annex G?**
* **Next Steps**

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 accepted without comment.

Chair reviewed agenda deck slide 16 – The ARC other topics slide and discussed ongoing ARC activities.

Chair reviewed the status of Annex G – slide 17

C – noted slide 17 is messed up regarding Mark Hamilton’s affiliation. Noted – will be corrected.

## Contributions:

**Remove Annex G –** [**11-21/0578r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-0578-00-0arc-obsolete-annex-g.docx) **(**[**11-21/0433r1**](https://mentor.ieee.org/802.11/dcn/21/11-21-0433-01-0arc-obsolete-aneex-g.docx)**) – Graham Smith**

**(Note shown as R1 as changes are expected.)**

Long discussion – multiple people saying there needs to be a place where frame exchange sequence listed, described, defined. Graham feels Annex G does not provide any value.

**Replace Annex G with some other notation/style –** [**11-21/0414r2**](https://mentor.ieee.org/802.11/dcn/21/11-21-0414-02-0arc-draft-examples-of-a-proposed-notation-for-frame-exchange-sequence-sequences-in-annex-g-of-802-11-2020.docx) **– Harry Bims**

C - EMBF – is trying to provide an accurate and precise description than the text.

R – This contribution is proposing a high level summary.

C – With a structured language – you get a compiler to check the validity and you can generate test vectors/cases. It can be used to generate automated test sequence.

A – when people are doing plugfest – they are not using EMBF to validate exchanges. I would like to see a mechanism that allows feedback from the field into Annex G. I don’t see this being used to generate test vectors. I don’t methods to generate automatic test scripts are being used.

R - ETSI is doing this – they use the EMBF to generate a test sequence and their methods allow for feedback. It is important to have a descriptive language.

A – But “we” don’t have people willing to do the work, no one want to generate the “EMBF”.

C – We need a formal definition of what a frame exchange sequence is – but this approach making Annex G less formal.

R – It would be normative and provide the modes where they are valid – so the reader on a high level will understand where the frame sequences are used and what they are.

Chair – The intent is to be complete enough, to provide a normative reference.

C – Having normative text and a normative annex – is problematic.

R – It would be a higher level description and a low level description in the text, so they won’t conflict.

C – In ETSI – we state which normative reference takes precedence.

C – This has some merit – but G.3.1 is not a frame exchange sequence – this is a message sequence chart. Which is not the same as a frame exchange sequence.

C – It is not clear in the standard what a frame exchange sequence is and what it is not.

C – What is covered by this method? Figures are very useful, the frame exchanges in figures, diagrams and timelines – do we need to cover the what ifs that are in many places in the standards. It doesn’t seem necessary to do so, what should Annex G do.

C – The spec should define the format that is used to provide these sequences. There are different ways to do this. It can be captured without getting too complicated.

C – The nesting idea is important – the rudimentary sequence can be used to provide structures that can be nested to describe sequence.

C – There are many places in the specification that imply that a Frame will be ACKed – however the text doesn’t explicitly state so.

C - (\* This rule defines all of the allowable frame exchange sequences \*)frame-exchange-sequence = ( [CTS] (Management +broadcast | Data +group) ) |( [CTS | RTS CTS | PS-Poll] {frag-frame Ack} last-frame Ack ) |(PS-Poll Ack) |hcf-sequence |mcf-sequence |s1g-sequence;

Question – If an intended sequence cannot be completed in a single TXOP – is it still a frame exchange sequence?

R – There are places in which a response message can exchange outside the TXOP.

C – This is confusing.

C – There are critical frame exchange sequence – that should not be interrupted. But there are other sequences that are not “frame exchange sequences” that don’t need to have restrictions on the behavior.

C – Agreeing – there are things within a single TXOP.

C – There are procedures, that are called frame exchange sequences. This needs to be corrected.

C – The term frame exchange sequences is not appropriate. An atomic uninterruptable operation.

C – We need to understand procedures and frame exchange sequences. So, there is value in the scope of defining the atomic sequences.

10.3.2.13 –

Question – Is it clear for “atomic” is always client server – or can the STAs switch rolls? Also, group transmissions are interesting.

Question – Does anyone have an example of “frame exchange sequence” being used to describe a more general frame exchange?

C - There seems to be various definitions of a frame exchange. Until there is agreement on what is a frame exchange is, we can’t hope to define a frame exchange sequence.

C – Need to sort out the difference between a frame exchange/frame exchange sequence.

C – The document doesn’t capture any if/then/else – exchanges. But it could try to do so. It can be added to this basic format. Having something like this is forcing the consideration of these issues and will hopefully bring clarity to the standard.

C – Frame exchange sequence is only used for “atomic” frame exchange sequence, and the term frame exchange is used to describe frame exchanges within a “frame exchange sequence”.

Chair – I don’t think we have consensus on how to proceed.

There was some agreement that we don’t have consensus.

C – Asking for an example of the use of frame exchange sequence to a “non-atomic” frame exchange sequence.

C – on page 2108 – 2020 standard. – (this seems to be related to retries)

C – This is two frame exchange sequences.

Question – Figure 10-46 is this a frame exchange, or a frame exchange sequence as it states in the text?

Chair – Until we get to the root problem – we will not be able to make progress on this.

Chair – The next meeting on this topic is in 3 weeks.

Chair – The ARC SC will have a TGbe discussion on Thursday.

Chair – Thanks to Harry and Graham.

## Next Steps:

Upcoming Teleconferences:

* Annex G
  + April 26: 13:00 ET, 2 hours
* TGbe concepts
  + April 8: 19:00 ET, 2 hours
  + April 29: 19:00 ET, 2 hours
* Contributions requested/expected:

## Adjourned: 14:58 h EDT

**Attendance:**

| **Name** | **Affiliation** |
| --- | --- |
| Aboulmagd, Osama | Huawei Technologies Co., Ltd |
| Au, Kwok Shum | Huawei Technologies Co., Ltd |
| Bims, Harry | Bims Laboratories, Inc. |
| Hamilton, Mark | Ruckus/CommScope |
| Levy, Joseph | InterDigital, Inc. |
| Montemurro, Michael | Huawei Technologies Co., Ltd |
| Petrick, Albert | Jones-Petrick and Associates, LLC. |
| RISON, Mark | Samsung Cambridge Solution Centre |
| Roy, Richard | SRA International |
| Smith, Graham | SR Technologies |
| Stanley, Dorothy | Hewlett Packard Enterprise |
| Torab, Payam\* | Facebook |
| Wang, Lei | Futurewei Technologies |
| yi, yongjiang | Futurewei Technologies |

\* Added based on Webex participants list.