IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ARC SC Teleconferences Minutes September 2021 - Interim | | | | |
| Date: 2021-09-013 | | | | |
| 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) |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This document contains the minutes of the IEEE 802.11 ARC SC teleconferences held on 13 September 13:30-15:30 h ET, 14 September 19:00-21:00 h ET, 15 September 11:15-1:15 h ET.

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

**Contents:**

[Monday 13 September 2021 at 13:30-15:30 h ET 3](#_Toc85819353)

[Administration: 3](#_Toc85819354)

[Annex G way forward contribution/discussion 4](#_Toc85819355)

[802.11 TGbe’s evolving multi-link architecture contributions 11-21/0209r0 5](#_Toc85819356)

[Recessed: 15:33 6](#_Toc85819357)

[Tuesday 14 September 2021 at 19:00-21:00 h ET 6](#_Toc85819358)

[Administration: 6](#_Toc85819359)

[TGbe Architecture Contributions/Discussion: 6](#_Toc85819360)

[Recessed: 21:01 h EDT 9](#_Toc85819361)

[Wednesday 15 September 2021 at 11:15-13:15 h ET 9](#_Toc85819362)

[Administration: 9](#_Toc85819363)

[TGbe Architecture Contributions/Discussion: 10](#_Toc85819364)

[Annex G way forward contribution/discussion 11](#_Toc85819365)

[Next Steps: 11](#_Toc85819366)

[Adjourned: 13:14 h EDT 11](#_Toc85819367)

# Monday 13 September 2021 at 13:30-15:30 h ET

## Administration:

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

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting called to order by the Chair 13:30 ET**

Agenda slide deck: [11-21/1293r4](https://mentor.ieee.org/802.11/dcn/21/11-21-1293-04-0arc-arc-sc-agenda-sep-2021.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 – 13 Sep 2021, 13:30 ET:**

* Reminder: 3 meetings this week: Monday 13:30 ET, Tuesday 19:00 ET, Wednesday 11:15 ET
* Attendance, noises/recording, meeting protocol reminders
* Policies, duty to inform, participation rules
* Prior meeting minutes
* Contribution/discussion topics:
  + Annex G way forward
    - <https://mentor.ieee.org/802.11/dcn/21/11-21-1143-07-0arc-frame-exchange-sequence.docx> (~ 60 minutes)
  + 802.11 TGbe’s evolving multi-link architecture contributions
    - <https://mentor.ieee.org/802.11/dcn/21/11-21-0209-00-00be-mlo-broadcast-architecture.pptx> (30 minutes)
  + TGbc architecture
  + IEEE Std 802 revision
  + Other topics?

The Chair reviewed the agenda and called for comments or amendments to the agenda.

A requested was made to add 11-21/0209 (a TGbe document – posted by Mike Montemurro (Huawei)) to the agenda.

11-21/0209 was added to the agenda (as shown above).

The proposed amended agenda was accepted without additional comment.

**Approval of Minutes (slide 19)**

**Move to approve the minutes of:**

June telecons:

June 7: 11-21/0927r0

June 17: 11-21/0994r0

June 21: 11-21/0997r0

July plenary: 11-21/1381r0 Minutes

Moved: Joseph Levy

Second: Harry Bims

**These minutes were approved by unanimous consent**

## Annex G way forward contribution/discussion

**Current plan:**

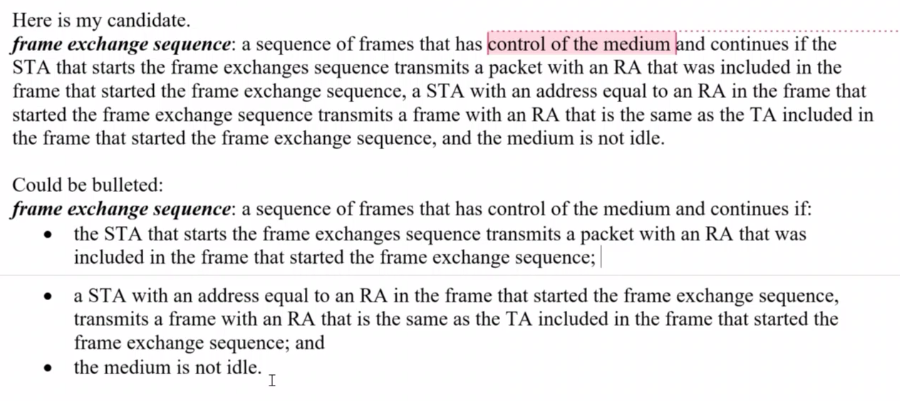
**FExS:** Frame Exchange Sequence

Replace any references in main body text (to Annex G or “FExS” in various spellings) with normative text in-place, add definition(s), etc.

Create a new and more useable Annex G with a friendly notation/style and cross-references to main body text for technical details – make it more of an introduction/overview of 802.11 frame exchanges

**Frame Exchange Sequence clean-up:** [**11-21/1143r7**](https://mentor.ieee.org/802.11/dcn/21/11-21-1143-07-0arc-frame-exchange-sequence.docx) **– Graham Smith**

Graham Smith (SR Technologies) – presented/reviewed [11-21/1143r7](https://mentor.ieee.org/802.11/dcn/21/11-21-1143-07-0arc-frame-exchange-sequence.docx)



C – The definition doesn’t seem to cover all the cases: From MU-Transfer the TA can be different – there can be two TAs on a transmit. There is more to it than just the TA.

A – Proposed a modified definition.

C – Other possible issues: NDPA – is a sounding sequence, CTS to self. Given the TA/RA – also there may be issues in the future – with multi-AP will probably cause an issue. Do we need this type of definition?

A – This definition is based on current specification text in the standard. CTS to self is an awkward requirement, this needs to be addressed. If we had a definition that covers 90%, we could always define something as a frame sequence in the specification.

C – With in the FExS – it could be just anything – also during the TXOP.

A – There was desire to distinguish between a TXOP and a FExS. So, trying to pin this down is very hard. TXOP is easy to define. So, these are two different concept TXOP and FExS.

C – The PS requirement is that there is not change during a FExS – so fragmentation is a FExS.

A – We’ve had trouble with PIFs and SIFS

C – There are always two STAs involved, and nothing should change while the exchange is ongoing. What is the issue with two STAs?

A – The problem is with showing all of the different FExSs. the critical thing is it wants to control the medium.

C – The definition of frame exchange – pre .11e, per QoS, and after the TXOP definition – uses the word uninterrupted. Is it possible to have control of the medium (with the introduction of color)? I think the concept of uninterrupted may be helpful. An RTX with no CTS is not a frame exchange – so uninterrupted is the concept we should use in this context.

C – Need to add during a TXOP.

C – Is it competing for specific time and is the time the duration of the frame exchange.

C – It is between a pair of STAs – we need to get down to the next level of detail.

Chair - We are circling back to where we have started.

C – It is not just control of the medium – it is the state between two STAs.

C – There are places in the specification that contradict that view, pointed to specific text.

*Comments from the chat window:*

*Frag sequences are SIFS-separated, I think, so maintain control unless a frame is lost*

*STAs are not allowed to change PM mode within a frag sequence*

*"Power management mode shall not change during any single FExS, as described in Annex G." and Annex G defines a series of frag ack frag ack frag ack as a FES,*

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

*But Annex G also says, "Except where modified by the PIFS attribute, frames are separated by a SIFS or RIFS." So, that applies only to the frag, frag, frag sequences when they are continued with a break.*

*What does "continued with a break" mean?*

*PIFS is used for error recovery during a TXOP. The TXOP holder may use PIFS to recover from an error during a TXOP.*

*If you use the optional ability to take a break during the frag, frag, frag, then Annex G doesn't apply anymore. (Which is a bug in Annex G, because there's no clear way to do that, per the sequences there.)*

C – We can change the specification to fix the fragmentation in the spec.

C – It is concerning to hear that a BF sequence is not a TXOP. In Sounding in 11ac there are no restrictions maybe, but in 11ax it is restricted. Needs to be checked. In 11ac it did not limit BF to a TXOP.

A – TXOP is only for a QoS stations. Therefore, there is an issue with having TXOP in the definition of the FExS.

## 802.11 TGbe’s evolving multi-link architecture contributions [11-21/0209r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0209-00-00be-mlo-broadcast-architecture.pptx)

(30 minutes)

Michael Montemurro (Huawei) presenting [11-21/0209r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0209-00-00be-mlo-broadcast-architecture.pptx) for Discussion.

MLO multi-link operation, how group address frame flow for MLO.

Some discussion on Slide 3

C – This should be for unicast frames only.

A – Let’s discuss this later. Group addressed frames across all affiliated APs should have the same sequence number.

On Slide 5 – the MLD AP is setting the sequence numbers.

On Slide 6 – summarizes the behavior. (STA on the LAN) is the MAC address of the source of the frame.

C – Is the difference between case 1 and case 2 just a question of source.

A – Correct.

C – We should probably also discuss packet number.

A – The PN is assigned by the affiliated AP, but the sequence number is not.

C – We should add how the PN works. Regarding the flow on the DS works. (this was about the note on slide 8)

C – The packet goes to different upper MAC in the legacy and MLD.

A – The “legacy” upper MAC is not processing these frames. There is only one frame on the air.

C – For an individually address frame – the path is different and goes though the legacy upper MAC.

A – The legacy STA is associated with the legacy AP, but the non-AP MLD is associated with the MLD AP.

C – So this is not happening to group addressed traffic?

A – Yes, the transmission is as it is shown. My intent is to take this understanding and make sure the TGbe text is consistent with this view.

C – Regarding the case 2 diagram – after step one – the AP sends the packet to the DS, and doesn’t just transmit it as the local AP.

A – Based on our decision on sequence number, it needs to go through the DS.

C – The packet goes to the DS and the DS sends it back to the AP.

C – So there is no change necessary except for the MLD behavior of setting the sequence number.

## Recessed: 15:33

# Tuesday 14 September 2021 at 19:00-21:00 h ET

## Administration:

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

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting called to order by the Chair 19:04 ET**

Agenda slide deck: [11-21/1293r6](https://mentor.ieee.org/802.11/dcn/21/11-21-1293-06-0arc-arc-sc-agenda-sep-2021.pptx)

**Agenda Slides 4-14:**

**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:**

* Attendance, noises/recording, meeting protocol reminders
* Policies, duty to inform, participation rules
* Contribution/discussion topics:
  + 802.11 TGbe’s evolving multi-link architecture contributions
  + Annex G way forward
  + TGbc architecture
  + IEEE Std 802 revision
  + Other topics?

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.

**ARC other issues** (slide 16 of the agenda deck) – presented by the Chair.

C – Has the uplink architecture for TGbc been completed?

R – There doesn’t seem to be significant architecture issues with UL architecture as it uses management frames.

## TGbe Architecture Contributions/Discussion:

[**11-21/0209r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-0209-00-00be-mlo-broadcast-architecture.pptx) **– any further review?**

Updates per 9/13 telecon:

Clarify flow examples, step 2/3, on affiliated APs (maybe different color?)

Change step 4s to step 5, for OTA transmission

Don’t add “data frame” as synonym for MSDU

[**11-21/1111r7**](https://mentor.ieee.org/802.11/dcn/21/11-21-1111-07-00be-mld-architecture-part-2.docx) **– updates to 11-21/0577 to add legacy operation and group addressed frame handling.**

There were requests for review of 11-21/0209r0 -

Chair – noting that there are clean ups as listed above under Updates per 9/13 telecon:

Mike Montemurro provided review of [11-21/0209r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0209-00-00be-mlo-broadcast-architecture.pptx)

C – A request was made to review the group addressed frames discussion on slides 6/7/9

Slide 9 and the associated addressing on slide 10 were reviewed: the sequence number being set at the MLD AP – the upper MLD MAC sends it to both affiliated APs.

C – This is just a duplicate individually addressed frame, so it should be ok, the MLD AP will only pass one of the duplicate frames.

Consensus there is no problem with duplicate unicast frames.

C – Concern about wording on the DS distribution was expressed, the DS sends broadcast frames to all entities on the DS not just the LAN, MLD AP, and affiliated APs (as shown in the drawing).

A – Agreed.

C – Doesn’t legacy just works as always does?

A – Not really since the sequence number is assigned by the MLD AP – so the legacy AP does not send the group addressed frame – the MLD AP distributes the sequence number to the 2.4 and 5 GHz APs.

C – So if they are not on the same BSS – they get the group address frame?

A – Yes, all APs on the DS will broadcast the group address frame.

C – Looing at 3 and 4 – the AP will have two group addressed frames on from the DS and one from the MLD AP. So, the frame from the DS to the affiliated STA is not sent?

A – Text is needed to state that number 3 is ignored at the legacy AP.

Consensus – It is an implementation detail how 3 is “ignored” at the legacy affiliated AP.

C – It is preferred to keep the spec text very light – we could address over the air step 5.

A – Concern was stated that some implementations may not do this correctly and may cause interop problems. Therefore, this should be captured in the specification, and it should be clearly stated.

C – How complete are the TGbe discussions at this time – has this been discussed in detail?

A – It has been presented once.

C – [11-21/1260r1](https://mentor.ieee.org/802.11/dcn/21/11-21-1260-01-00be-proposed-resolution-to-11be-cc36-cids-on-group-addressed-data-frame-duplicate-detection.docx) “Proposed resolution to 11be cc36 CIDs on group addressed data frame duplicate detection” Qi Wang (Apple Inc.) presented in TGbe and there was offline discussions. The text light, but requires a synchronization number, the requirement is clear.

C – As long as all the cases have been covered – the SN/PN and PS buffering, etc. This needs to be confirmed, but there are currently no known problems.

A – This presentation was created to work through all the details.

C – The proposal that the MLD AP maintains the sequence number, but how the MLD AP interacts with the affiliated APs is outside the scope of the standard,

C – It is not clear that all cases have been considered.

C – Once the broadcast packet has an assigned sequence number and is sent to the affiliated APs everything else follows.

C – There were no changes to PS. So, it should not be affected.

C – Still need to check if there are any concerns.

Chair - We will come back to this.

A – When generating this document, it was an exercise to check for concerns. If you took this MLD thing out – from the over the air point of view it is the same as what happens now. There is no problem with serving legacy STAs. There is no exception for group address MPDUs they are all sent through the MLD AP setting the sequence number as required.

C – On the next slides – the Affiliated AP receives a group addressed frame, but it doesn’t process it?

A – When the group addressed frame comes from the DS it blindly distributes it to all attached APs and MLD APs, but the affiliated APs need to ignore this frame from the DS and only transmit the MLD APs sequence numbered group addressed frame. The affiliated AP need to coordinate with the MLD AP.

C – Is it the responsibility of the affiliated AP to discard that frame when it receives it?

Agreed

Chair – Thanked the Author for providing this document and discussion.

A – r1 will be posted later this week.

Chair – Pointed to slides 4-18 and the loop back as items that may need further review to ensure clarity in the specification. Requesting that others review this material.

[**11-21/1111r7**](https://mentor.ieee.org/802.11/dcn/21/11-21-1111-07-00be-mld-architecture-part-2.docx) – Mark Hamilton presenting.

Added group addressed stuff – from 11-21/0209r0

Moving the PS – concerns discuss in the document (page 9) – see notes related to 11-21/0209

[11-21/1260r1](https://mentor.ieee.org/802.11/dcn/21/11-21-1260-01-00be-proposed-resolution-to-11be-cc36-cids-on-group-addressed-data-frame-duplicate-detection.docx)provides a new sequence number space.

A – Concern about how legacy will deal with a new sequence number space.

Discussing the Baseline space – all the individually address data frames have a space. The only MSDUs going through the baseline space currently. So, the using the Baseline space may be ok.

The stack ordering is the main concern. Note the PS stacking is before the sequence number assignment – concern that this may not work.

C - [11-21/1260r1](https://mentor.ieee.org/802.11/dcn/21/11-21-1260-01-00be-proposed-resolution-to-11be-cc36-cids-on-group-addressed-data-frame-duplicate-detection.docx) text modified it.

A – If it is a new space then legacy may be confused.

C – What is the question?

A – Regardless of the choice of the sequence number space, how does PS buffering interact with the sequence numbering and the sequence number.

C – This seem to be a baseline problem. If you do what you do today, you just buffer it and you just transmit it with the sequence number assigned by the MLD AP.

A – The concern is that the sequence is assigned prior to the PS queuing.

C – The ordering is implementation. How the implementation assigns and buffers or buffers and assigns, is just implementation.

C – Packet ordering is important; it is done in the PS buffer. I want to ensure the frames are delivered in order.

C – Is it in order, or not in order.

C – Why do you think it could be out of order? Not all frames get buffered in the same way. We should look a [11-21/1260r1](https://mentor.ieee.org/802.11/dcn/21/11-21-1260-01-00be-proposed-resolution-to-11be-cc36-cids-on-group-addressed-data-frame-duplicate-detection.docx), and the details, this document is proposing to use a different space. There is concern that using a different space is an issue for legacy.

C – Maybe additional discussion with the author of [11-21/1260r1](https://mentor.ieee.org/802.11/dcn/21/11-21-1260-01-00be-proposed-resolution-to-11be-cc36-cids-on-group-addressed-data-frame-duplicate-detection.docx) is warranted please contact the author Qi.

C – This diagram doesn’t agree with [11-21/0209r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0209-00-00be-mlo-broadcast-architecture.pptx), the group addressed all of the frames to the MLD AP – the affiliated APs buffers the frames.

C – What about management frames.

R – Management frames have their own sequence number space.

R – If the legacy space is not used and there is a new space new – there may be an issue. Before QoS you could mix up the orders of the frames, but not now.

C – Even in before QoS – there was a shared sequence number space.

C – For the baseline there is no need to have a different sequence number spaces for group address – but it is possible to have one. If this is a problem, it should also be addressed in legacy requirements. [11-21/1260r1](https://mentor.ieee.org/802.11/dcn/21/11-21-1260-01-00be-proposed-resolution-to-11be-cc36-cids-on-group-addressed-data-frame-duplicate-detection.docx) is based on what is in the baseline and the baseline doesn’t address this issue.

C – Two comments 1) the deferred queuing – is it a necessary? For PS deferred queuing is necessary before sequence number assignment. Please confirm this.

R – If we can reverse these it will be ok.

C – 2nd Comment: 2) There are requirements that the sequence numbers are strictly increasing, so we should be ok. Dedicated sequence number are not necessary, but they need to be strictly increasing - If there is a strong history behind, please share it, if not is doesn’t matter.

C – Maybe this is TGme issue.

C – The address and index number, the QoS data frame – has specified requirements for the receiver side. Look at the receiver sequence number behavior, these requirements are not on the TX side. In 10-6 we have group addressed – QoS – individual or group addressed is a table.

C – But [11-21/1260r1](https://mentor.ieee.org/802.11/dcn/21/11-21-1260-01-00be-proposed-resolution-to-11be-cc36-cids-on-group-addressed-data-frame-duplicate-detection.docx) created a new space?

R – Then the issue is legacy.

R – If this something legacy has – then it is ok.

C – Legacy works.

C – In the base line is there is only for individually addressed group frames. If the base line is only for individually address – which it is – then this is ok.

R – This is not only for individually addressed frames. There is not a lot of complexity in clause 5.

Moving page 3 – 9/13 on 9/9 comment.

A drawing of the non-AP MLD –

C – At any given time there is only one instantiation for a non-AP MLD, so what is purpose of an affiliated STA for the non-AP MLD.

C – Why is there only one instantiation of the non-AP STA or MLD?

R – There is only one instantiation at any given instant of time. While the hardware may support multiple instantiations, the logical device only has one instantiation for the current association.

Moving on to page 6 –

Definition of a link seems to be missing from the spec. The base line does have definition of a link – which is an SAP to SAP connection. Any thoughts and comments on the definition of link?

No comments.

Page 8 – The diagram was updated to relabel the Affiliated AP and MLD AP

C – Regarding mixed mode operation (MLO and legacy). It should be MLO and non-MLO - or should it be MLD and non-MLD?

A – If the specification is describing a device, MLD and non-MLD should be used. If the specification is describing behavior, then MLO and non-MLO are preferred.

Mark needs to catch up on the TGbe documents as noted in the note below 4-29c

C – Supplicant in this context is the standards term. (page)

C – It should be SA.

C – Is there a term to include all GTK/IGTK, …. Keys, so the text can be more compact?

C – There is no term that for group of keys.

C – It may be a good idea to create such a term to make the text more compact and readable.

The Chair – shared his thoughts on what will be discussed at the next call, Wednesday 11:15-13:15 h ET.

## Recessed: 21:01 h EDT

# Wednesday 15 September 2021 at 11:15-13:15 h ET

## Administration:

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

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting called to order by the Chair 19:04 ET**

Agenda slide deck: [11-21/1293r7](https://mentor.ieee.org/802.11/dcn/21/11-21-1293-07-0arc-arc-sc-agenda-sep-2021.pptx)

**Agenda Slides 4-14:**

**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:**

* Attendance, noises/recording, meeting protocol reminders
* Policies, duty to inform, participation rules
* **Contribution/discussion topics:**
  + 802.11 TGbe’s evolving multi-link architecture contributions
  + Annex G way forward
  + TGbc architecture
  + IEEE Std 802 revision
  + Other topics?
* **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.

## TGbe Architecture Contributions/Discussion:

[**11-21/1111r8**](https://mentor.ieee.org/802.11/dcn/21/11-21-1111-08-00be-mld-architecture-part-2.docx)**-MLD Architecture Part 2, Mark Hamilton (Ruckus/CommScope)**

(Updates to 11-21/0577 to add legacy operation and group addressed frame handling.)

Left off while updating Figure 4-29c – the labels have been updated.

C – It should be non-MLO Data Frames not non-MLD Data Frames

C – On the TGbe call today – the affiliated AP is only the lower MAC/PHY – and the “legacy” AP is a different entity.

The definitions may need to be revisited.

C – If we bring the legacy AP as part of the description –

Chair: This conversation seems to be happening in TGbe and they are looking possible new solutions. There may be a different proposal on how this will be dealt with in the specification.

It was noted that we should provide this document to TGbe as part of that discussion.

Still need to check the single supplicant – but it seems to be ok.

From 11-21/209 – there is need for some changes to align the documents.

Regarding the non-AP MLD – there is no “legacy” STA upper MAC.

So, the split is different from that of the MLD AP. There for the functions are different.

Discussion on queuing and how the non-AP MLD handles routing to the “lower MACs” and PHYs.

No conclusion.

Suggestion to clean up the bottom of the MAC stack figure – to end in the PHY SAP (e.g., PHY SAP 1, PHY SAP N)

A discussion on how this document can/should be provide to TGbe was had. The conclusion was it should be shared soon.

Is 11-21/209 queued up for TGbe? Chair of TGbe - not to my knowledge.

Some concern was expressed about if all the details work, but nothing specific was noted.

Last paragraph of clause 5 has minor changes to reference the diagrams.

Review of figure 7.2 – no discussion.

Note there is also an appendix with the bottom line result. There is nothing new being introduced in the appendix.

When should we hand this off to TGbe – are we ok with being informal?

No comments.

Call for additional co-authors, no one came forward.

Will do one more editorial pass will be done.

## Annex G way forward contribution/discussion

[**11-21/1516r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-1516-00-0arc-proposal-annex-g-frame-exchange-sequence.docx)**-Proposal (Annex G) FExS, Graham Smith (SR Technologies)**

Discussed.

For items on the way ahead:

1. Agree on definition.
2. List specific edits required where “FExS(s)” needs to be changed to “frame exchange(s)” as identified in D0.0 (submitted to 11me against the CIDs)
3. Same exercise for D0.3 looking at each occurrence and checking it is an uninterrupted sequence
4. Look also at frame exchanges to make sure these are not really FExSs.

There were no objections to the way ahead.

Switching to the second half – what to do with Annex G?

For clarity, we need an Annex G to explain what a FExS is. But it need not be normative. An informative annex would be use full. Also, the format in Annex G is difficult to read. Some of these thoughts are provided in 11-21/0414r2. To make more readable and easier to be kept up to date. This would make the job of maintaining Annex G much easier.

It is useful for Annex G to show how specific FExS work?

Discussion was had on if Annex G be informative or normative.

Concerns were raised about where the behavior is specified: should it be in the PHY clause or in Annex G.

C – The plan is to replace the entire Annex G with a new Annex G.

Chair - So should a new Annex G be normative or informative?

Way forward:

Consider scope/purpose for a “new” Annex G.

Decide if Annex G is normative or informative.

## Next Steps:

* **Contributions requested/expected:**
  + TGbe architecture topics
  + Annex G
* **November planning**
  + 2 slots
  + New Annex G
* **Next Teleconference(s):**
  + Sept to Nov teleconference plan… 2 telecons
    - Conflicts to avoid: TGbe, REVme, TGbd, AANI, TGbh
    - Split topics across times, to get equal access in different time zones
    - Monday 1PM ET? Thursday 7PM ET?
    - Dates to avoid??
  + Will be coordinated with other TG chairs, and announced later

## Adjourned: 13:14 h EDT

Final Agenda: [11-21/1293r8](https://mentor.ieee.org/802.11/dcn/21/11-21-1293-08-0arc-arc-sc-agenda-sep-2021.pptx), ARC closing report September 2021: [11-21/1554r0](https://mentor.ieee.org/802.11/dcn/21/11-21-1554-00-0arc-arc-closing-report-sept-2021.pptx)