

## July '96 MAC group Report

LLC

**MAC**

PHY

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Michael (virtual Dave) Fischer

## Goals for July '96

- **One goal - Forward Draft to Executive Committee for sponsor ballot.**
  - Based on decision at opening plenary, this is to be done by addressing as many comments as we have time for, identifying the technical vs. editorial changes.
    - » The result will be draft D4.1 (with changes), and D5.0 (the clean version to ballot)
    - » Which possibly will require approval in a 10-day confirmation ballot within 802.11.

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## Misc subjects:

- **Approved March, 1996 MAC minutes**
  - MAC Motion #1: To approve the March 1996 MAC minutes as distributed in document 96/055.
    - » Moved Chris Zegelin, seconded Bob Marshall
    - » MAC vote: 7-0-2
- **Approved May, 1996 MAC minutes**
  - MAC Motion #2: To approve May 1996 MAC results as distributed in document 96/083 (the actual MAC minutes document 96/084 has not been distributed, but 96/083 contains all of the motions and voting results):
    - » Moved Chris Zegelin, seconded Simon Black
    - » MAC vote: 7-0-2

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## This Week's work summary

- **Technical No votes**
  - Only 3 in MAC sections — all resolved
  - Resolutions faxed to no voters not present
    - » Anil S. — 2 votes, agrees to change his no vote
    - » Joe K. — 1 vote, agrees and changes vote to yes
- **Scope of the work: 230 total MAC comments**
  - General, intro, annexes: 32, 6 (T, t), rest (E,e)
    - » (plus 16 PHY comments)
  - Clauses 5-9: 167 (not well catagorized)
  - Clauses 10-11: 31, 17 (T, t), rest (E,e)

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## Tuesday & Wednesday AM work summary

- **Work was done in all MAC clauses**
  - **Introductory, general & intro (clauses 3-4) comments**
    - » All MAC issues addressed, 4 not yet resolved
  - **Clauses 5-6**
    - » All addressed, 3 not yet completed
  - **Clause 7**
    - » All addressed, 2 not yet resolved
  - **Clause 8**
    - » All resolved
  - **Clause 9**
    - » Fewer than 20 unaddressed, work ongoing
  - **Clauses 10-11**
    - » All addressed, 3 not yet resolved

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## Response to technical no votes

- **MOTION:** That we decline the 2 technical no comments from Anil's no vote with the following rationale:
  - **Clause 7, #58:** There is no necessity for the requested change, as it is a simple design optimization rather than a fault in the protocol, as sequence numbers in multicast/broadcast frames can safely be ignored because the Retry bit in those frames will never be set.
  - **Clause 11, #21:** There is no necessity for the requested change, as it is a simple design optimization rather than a fault in the protocol, as sequence numbers in ATIM frames can safely be ignored as the effect of accepting a duplicate ATIM is null.
  - **Moved:** Bob O'Hara, **Seconded:** Wim Diepstraten
  - **MAC Vote:** 9-0-0
  - This response read on telephone to Anil & he agrees that they are acceptable to him provided #19 from 106-6 is accepted (which is editorial & has been incorporated).
  - **Plenary Motion 17:** moved MAC Group, seconded Bob O'Hara, approved by voice vote without dissent

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## Response to technical no vote

- **MOTION:** That we accept comment 136 on clause 9, suggest text from Joe Kubler from technical no vote, but place the text in a separate paragraph after the paragraph indicated in the comment (since the referenced paragraph refers to CF-Pollable stations). This change, however, is a clarification, not a technical change to the standard.
  - Change is not technical because in 9.2.5.4 it is stated that the NAV is updated only when the new duration is greater than the existing duration. In 9.3.2.2 the only conditions which may reset the NAV are CF-End or CF-End+ACK.
  - Moved: Jon Rosdahl, Seconded: Bob O'Hara
  - MAC Vote: 9-0-0
  - Text FAXed to Joe, he agrees & changes his vote to yes.
  - Plenary Motion 18: moved MAC Group, seconded Jon Rosdahl, approved by voice vote without dissent

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## General & Annexes

- **Summary: 48 total comments**
  - 28 resolved (27 in MAC, 1 in opening plenary)
    - » 1 (96/106-2, comment #24) accepted in principle but requires someone to write the ASN.1
  - 4 not yet completed
    - » 3 (96/106-2, comments #32, #33, #45) require further discussion or commenter input in MAC group
    - » 1 (96/106-6, comment #1) on IP, handle in Full WG
  - 16 comments from 96/106-2 (#s 1-3, 11-16, 30, 34-37, 43, 46) are PHY related & not being handled by MAC group.
- **MOTION:** That resolution of 28 MAC comments from from general, intro & annexes (see 96/106-2r1) be accepted as approved in MAC group.
  - » Move Bob O'Hara, second Jon Rosdahl/Chris Zegelin
  - » MAC Votes: 10-0-0 (G&A), 9-0-0 (clauses 3 & 4)
  - » Plenary Motion 19: moved MAC Group, second Bob O'Hara, approved by voice vote without dissent

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## Clauses 5 & 6

- **Summary: 31 total comments**
  - 28 resolved (actually 27, since 1 was a duplicate)
  - 3 remain open (96/106-3, comments #11, #30, #39) for further discussion in MAC group
- **MOTION: That resolution of 28 comments from from clauses 5 & 6 (see 96/106-3r1) be accepted as approved in MAC group.**
  - Moved Ravi Nalamati, seconded Chris Zegelin
  - MAC Vote: 10–0–1
  - Plenary Motion 20: moved MAC Group, seconded Ravi Nalamati, approved by voice vote without dissent

## Clause 7

- **Summary: 50 total comments**
  - 43 from 96/106–3, 7 from 96/106–6
    - » 1 resolved as part of technical NO votes
    - » 47 resolved that are not part of technical NO votes
      - 1 (96/103-6, #87) needs coordination w/ clause 11
    - » 2 (96/106-3, comments #57, #69) require further discussion in MAC group
- **MOTION: That resolution of 47 comments from from clause 7 that are not part of technical NO votes (see 96/106-3r1 and -6r1) be accepted as approved in MAC group.**
  - Moved Simon Black, seconded Wim Diepstraten
  - MAC Vote: 10–0–0
  - Plenary Motion 21: moved MAC Group, seconded Wim Diepstraten, approved by voice vote without dissent

## Clause 10

- **Summary: 2 total comments**
  - all resolved
- **MOTION: That resolution of all comments from from clause 10 (see 96/106-4r1) be accepted as approved in MAC group.**
  - Moved Michael Fischer, seconded Chris Zegelin
  - MAC Vote: 10–0–0
  - Plenary Motion 22: moved MAC Group, second Chris Zegelin, approved by voice vote without dissent

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## Clause 11

- **Summary: 30 total comments**
  - 29 from 96/106–4, 1 from 96/106–6
    - » Comment #1 in 96/106-3 is duplicated as comment #22 in 96/106-4, and is being considered under the later of these two numbers.
  - 26 resolved Tuesday (24 from 106–4, 1 from 106–6)
  - 1 resolved Wednesday as part of technical No votes
  - 3 (96/106-4, comments #17, #22, and #30) need additional discussion in MAC group.
- **MOTION: That resolution of 26 comments from from clause 11 that are not part of technical NO votes (see 96/106-4r1 and -6r1) be accepted as approved in MAC group.**
  - Moved Michael Fischer, seconded Simon Black
  - MAC Vote: 10–0–0
  - Plenary Motion 23: moved MAC Group, second Chris Zegelin, approved by voice vote without dissent

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## Clause 8

- **Clause 8 Summary: 11 total comments**
  - all resolved
  - These require consistency changes Clauses 10 & 11
    - » Which were already needed due to inconsistencies between these clauses and the (correct) values in Annex D (!)
- **MOTION: That resolution of 11 comments from from clause 8 (see 96/106-3r1) and corresponding consistency changes to clauses 10 & 11 be accepted as approved in MAC group.**
  - Moved Michael Fischer, seconded Simon Black
  - MAC Vote: 9–0–0
  - Plenary Motion 24: moved MAC Group, seconded Ravi Nalamati, passed by plenary vote 18-0-1

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## Status Thursday PM

- **Processing MAC comments nearly complete:**
  - Introductory, general & intro (clauses 3–4) comments
    - » All but 2 (on one topic) MAC comments resolved
  - Clauses 5–6: All comments resolved
  - Clause 7: All comments resolved
  - Clause 8: All comments resolved
  - Clause 9: All comments resolved
  - Clauses 10–11: All comments resolved
  - **The changes due to accepted comments are all editorial:**
    - » The changes are for consistency, clarity, and to correct editing artifacts and bring informative text up to date.
    - » The editorial vs. technical discriminator for changes to the draft is not how the commenter classified the comment. The criterion is whether the change alters the behavior of the protocol, as observed at one of the exposed interfaces.
    - » Another way to consider this is by asking whether an implementation based on {the proper selection among inconsistencies in} D4.0 will interoperate with an implementation based on D5.0

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## Approval of Weds/Thurs results

- Because work was done by a plurality of small groups, and finished shortly before start of closing plenary, these are not organized into large, sequential blocks.
- 96/106-3, comments #11 & #39 on the lack of MSDU delivery service & power management service definitions in clauses 5 & 6.
  - MAC MOTION #12: That we decline comments #11 & #39 from 96/106-3 (on MSDU delivery service & power management service) due to lack of available text in the comment and insufficient time to create such text without the risk of introducing unintended side effects.
  - Moved: Bob O'Hara, second: Howard Hall
  - MAC Vote: 2-0-5
  - Plenary Motion 29: moved MAC group, second Simon Black, passed by plenary vote 19-0-1.

## Approval of Weds/Thurs results

- Updated resolution of Anil's no vote — he requested that we incorporate material into 9.2.8 from comment 19 in 96/106-6 (which we would probably have done anyway):
  - MAC MOTION #13: That clause 9.2.8 be amended to read: "The receiving station shall keep a cache of recently received <source-address, sequence-number, fragment-number> tuples. A receiving STA may omit tuples obtained from broadcast/multicast or ATIM frames from the cache."
  - NOTES: This is an editorial change to 9.2.8 "source-address" is corrected to "contents of the address2 field" in a subsequent motion
  - Moved: Simon Black, seconded: Wim Diepstraten
  - MAC vote: 8-0-2
  - Plenary Motion 30: moved: MAC group, second: Ravi Nalamati, passed by plenary vote: 20-0-0



## Approval of Weds/Thurs results

- **Complete 96/106-3, comment #30, resolving the question about whether an AP is implicitly in State 3 with regards to the DS.**
  - **MAC MOTION #14:** To add statement to clause 5.5 to indicate that AP is always in state 3 because it is inherently able to communicate with the DS.
  - **NOTE:** This is a clarification of existing functionality regarding access to and communication with/over the DS. This does not change the requirement that stations authenticate with an AP before communicating via DS.
  - **Moved:** Chris Zegelin, **seconded:** Wim Diepstraten
  - **MAC vote:** 11-0-0
  - **Plenary Motion 31:** moved: MAC group, second: Ravi Nalamati, passed by plenary vote: 20-0-1.

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## Approval of Weds/Thurs results

- **Complete 96/106-3, comment #57**
  - **MAC MOTION #15:** To decline comment #57 from 96/106-3 because
    - » 1) Service class is per-MSDU, not per-STA, so the requested behavior (sending strictly ordered broadcasts/multicasts twice) is inappropriate.
    - » 2) The broadcast address is defined in IEEE 802-1990 so we should leave this alone.
  - **Moved:** Simon Black, **seconded:** Chris Zegelin
  - **MAC vote:** 10-0-0
  - **Plenary Motion 32:** moved: MAC group, second: Simon Black, passed by plenary vote: 21-0-0.

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## Approval of Weds/Thurs results

- **Complete 96/106-3, comment #69**
  - **MAC MOTION #16: To decline comment #69 from 96/106-3 because this is a request for new functionality & similar proposals have been voted down on at least 2 previous occasions.**
  - **Moved: Jon Rosdahl, seconded: Wim Diepstraten**
  - **MAC vote: 10-0-0**
  - **Plenary Motion 33: moved: MAC group; second: Jon Rosdahl, approved by voice vote without dissent**

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## Approval of Weds/Thurs results

- **Complete 96/106-3, comment #76**
  - **MAC MOTION #17: To decline comment #76 from 96/106-3 because this is a request for a minor technical improvement, the inclusion of which is unjustifiable at this late date.**
  - **Moved: Simon Black, seconded: Jon Rosdahl**
  - **MAC vote: 8-0-2**
  - **Plenary Motion 34: moved: MAC group, second: Simon Black, approved by voice vote without dissent**

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## Approval of Weds/Thurs results

- **Complete 96/106-3, comment #87**
  - **MAC MOTION #18:** To resolve comment #87 from 96/106-3 by changing the text in 6th paragraph of 7.3.2.1 to read:
    - » Each bit in the traffic-indication virtual bitmap shall correspond to traffic buffered for a specific station within the BSS that the AP is prepared to deliver at the time the beacon or probe response frame is transmitted. If bit number N is shall be 0, if there are no directed frames buffered for the station whose Station ID is N. If any directed frames for that station are buffered, and the AP is prepared to deliver them, bit number N in the traffic-indication virtual bitmap is shall be 1. A PC may decline to set bits in the TIM for CF-Pollable stations is does not intend to poll (see clause 11.2.1.5)
  - and in 11.2.5.1. (c) delete the words “CF-Pollable”
  - **Moved:** Wim Diepstraten, **seconded:** Simon Black
  - **MAC vote:** 11-0-0
  - **Plenary Motion 35:** **moved:** MAC group, **second:** Wim Diepstraten, **approved by voice vote without dissent**

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## Approval of Weds/Thurs results

- **Approval of a group of Clause 9 comments**
  - **MAC MOTION #19:** To approve the proposed resolution of comments #130 through #146 from 96/106-3 (see 96/106-3r1), other than #136 (already approved on Wednesday in plenary motion #18).
  - **NOTE:** None of these result in technical changes.
  - **Moved:** Ravi Nalamati, **seconded:** Bob O'Hara
  - **MAC vote:** 9-0-1
  - **Plenary Motion 36:** **moved:** MAC group, **second:** Ravi Nalamati, **approved by voice vote without dissent**

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## Approval of Weds/Thurs results

- **Approval of a group of Clause 9 comments**
  - **MAC MOTION #20:** To approve the proposed resolution of comments #101 through #126 from 96/106-3 (see 96/106-3r1)
  - **NOTE:** None of these result in technical changes.
  - **Moved:** Simon Black, **seconded:** Wim Diepstraten
  - **MAC vote:** 10-0-0
  - **Plenary Motion 37:** moved: MAC group, second: Wim Diepstraten, approved by voice vote without dissent

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## Approval of Weds/Thurs results

- **Complete 96/106-4, comment #17**
  - **MAC MOTION #21:** To decline comment #17 from 96/106-4 because this is a request for a minor technical improvement, the inclusion of which is unjustifiable at this late date.
  - **Moved:** Jon Rosdahl, **seconded:** Wim Diepstraten
  - **MAC vote:** 9-0-1
  - **Plenary Motion 38:** moved: MAC group, second: Jon Rosdahl, approved by voice vote without dissent

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## Approval of Weds/Thurs results

- **Complete 96/106-4, comment #22**
  - **MAC MOTION #22: To decline comment #22 from 96/106-4 because this is a non-trivial functional change, which may be useful, but is incomplete as proposed, because the problem identified extends beyond the cited Association and Reassociation frames to (at least) Authentication frames, and perhaps to other management frame types.**
  - **Moved: Wim Diepstraten, seconded: Jon Rosdahl**
  - **MAC vote: 7-0-2**
  - **Plenary Motion 39: moved: MAC group, second: Simon Black, approved by voice vote without dissent**

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## Approval of Weds/Thurs results

- **Complete 96/106-4, comment #30**
  - **MAC MOTION #23: To decline comment #30 from 96/106-4 because this is a non-trivial functional change for which the impact has not been adequately investigated, and for which the need has not been substantiated.**
  - **Moved: Jon Rosdahl, seconded: Chris Zegelin**
  - **MAC vote: 8-0-2**
  - **Plenary Motion 40: moved: MAC group, second: Chris Zegelin, approved by voice vote without dissent**

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## Approval of Weds/Thurs results

- **Complete 96/106-2, comment #45**
  - MAC MOTION #24: To approve comment #45 from 96/106-2 to incorporate the changes to the MAC PICS to properly describe the optional characteristics of the PCF.
  - NOTE: This also corrects an error in the PICS for PS-Poll, which was shown as being transmitted only by APs rather than only by non-APs.
  - Moved: Simon Black, seconded: Bob O'Hara
  - MAC vote: 9-0-0
  - Plenary Motion 41: moved: MAC group, second: Keith Amundsen, approved by voice vote without dissent

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## Approval of Weds/Thurs results

- **Complete 96/106-6, comments #11, #17, #18**
  - MAC MOTION #25: To decline comments #11, #17, and #18 from 96/106-6 due to lack of text provided by the commenters and the lack of time to generate such text (in a form which did not produce new, undesired side effects or inconsistencies). (see 96/106-6r1)
  - Moved: Simon Black, seconded: Jon Rosdahl
  - MAC vote: 7-0-3
  - Plenary Motion 42: moved: MAC group, second: Simon Black, approved by voice vote without dissent

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## Approval of Weds/Thurs results

- **Approval of a group of Clause 9 comments**
  - MAC MOTION #26: To approve the proposed resolution of comments #13, #14, #15, #16, and #20 from 96/106-6. (see 96/106-6r1)
  - NOTE: None of these are technical changes.
  - Moved: Bob O'Hara, seconded: Chris Zegelin
  - MAC vote: 10-0-0
  - Plenary Motion 43: moved: MAC group, second: Simon Black, approved by voice vote without dissent

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## Approval of Weds/Thurs results

- **Complete 96/106-3, comments #34 & #35**
  - MAC MOTION #27: To resolve comments #34 and #35 from 96/106-3 to replace the text from 5.7.1 and delete references to state machines in 9.1.5 (see 96/106-3r1)
  - Moved: Jon Rosdahl, seconded: Wim Diepstraten
  - MAC vote: 8-1-1
  - Plenary Motion 44: moved: MAC group, second: Jon Rosdahl, approved by voice vote without dissent

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## Remaining Open Comments

- The following {non-PHY} comments have not been addressed:
  - 96/106-6, #1 (about patent procedures, not MAC issue)
  - 96/106-2, #32 & #33
    - » These are two, diametrically opposed suggested dispositions of the MAC state machines in Annex C. #32 calls for replacing the current, out-of date state machines with updated versions, #33 calls for removing the state machines entirely.
  - Plenary Motion 45 (from floor): The state machine content from Annex C be deleted and replaced with "TBD". The informative Annex shall remain. This will close comments #32 & #33 from 96/106-3.
    - » moved: Simon Black, seconded: Bob O'Hara passed by plenary vote: 16-0-5.
  - NOTE: Michael Fischer has stated he will provide updated state machines that closely match D5.0 for review (via the FTP server) prior to the next meeting at which it will be possible to make changes to the draft (such as re-inserting state machines).

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## Goals for Next Meeting

- If the request for letter ballot is approved, there is not going to need to be an August meeting, and the only goal for November, 1996 is to process sponsor ballot responses and have a revised draft for re-ballot or forwarding, as appropriate.
- If a confirmation ballot proves to be necessary, there needs to be an August meeting, with the only goal being to resolve the issues from the confirmation ballot, allowing us to proceed to sponsor ballot.

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## MAC group report

- **That's all for now...**
  - virtual Dave would like to get back to being real Michael
  - and looks forward to real Dave's return next meeting

