Tentative Minutes of the IEEE P802.11 Working Group

Plenary meeting
University of Twente, Enschede, Netherlands
July 8-12, 1996

Monday, July 8th, 1996, 4:35 PM

The meeting was called to order at 4:35 PM Vic Hayes, chairman IEEE P802.11 in the chair. Bob O’Hara taking notes while the chair keeping motions on the PPT file used on the screen. Stuart Kerry managing document originals and copying and Jon Rosdahl managing distribution and pigeon hole organization. Chris Zegelin handling the attendance list. The agenda document for this meeting is 802.11-96/100.

Objectives for this meeting, all groups

• Process D4 letter ballot result
• Conformance testing
• Japanese call sign
• Reply comments on NPRM 96-8

1. Opening

Agenda available in pigeonholes

1.0 Secretary: Chair taking notes on PPT files and Bob O’Hara making notes.

1.1 Roll Call: People in the room were invited to introduce themselves.

1T The officers of the Working Group are:

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Chair IEEE P802.11-MAC group  Chair IEEE P802.11-PHY group
Advanced Micro Devices  Symbol Technologies Inc.
Phone: +1 408 987 2423  Phone: +1 408 369 2629
Fax: +1 408 987 2800  Fax: +1 408 369 2740
E-Mail: david.bagby@amd.com  E-Mail: deank@psd.symbol.com
1.2 Voting rights:

Participation in debates, moving and seconding is only permitted by voting members, in all 802.11 meetings (at all levels). The subgroup chairs may permit observers to participate in debates.

Voting at the working group level is by voting members only. Chair may permit observers to participate in debate. To become a voting member:
- participate in at least 2 out of 4 consecutive plenary meetings. Voting rights start at third meeting
- participation in at least 75% in meetings, in the room
- one interim may be exchanged for a plenary
- Voting members will get a token to be used at votes

Voting rights can be maintained:
- by participation in 2 plenary meetings within 4 consecutive plenary meetings
- one interim may be substituted for a plenary

Voting rights may be lost:
- after failing to pay the conference fee
- after missing two out of three consecutive letter ballots

Current state of member status:
- 69 - Voting members
- 12 - Aspiring voting members
- 25 - Nearly voting members

1.3 Attendance list, Registration: The attendance list was distributed - 75% attendance according to the attendance list is required to qualify for attending the meeting as a whole, so make sure to sign the book. Copies of the attendance list are handed out before the end of each meeting.
- important for administration of voting rights that the attendance book is used properly.
- sign per meeting (morning, afternoon, evening). Do not sign ahead.
- place initials. Do not cross or underline.
- circle the letter corresponding to the meeting you attend when signing (F=full 802.11, P=PHY, M=MAC group).

Check e-mail addresses in the book:
- some addresses have been struck, or have a $-sign added to the right - those received complaints from the reflector
- please strike your e-mail address if you do not use it
- if you do not disagree to receiving very long files, mark bulk e-mail with yes

1.4 Logistics: Document distribution is done using pigeon holes - you will find your copies and messages in the referenced location in the expanding file folders in the slot in front of your name.

Document distribution:
- sign in for a slot, remember the letter and number
- pigeon holes are file folders with a letter id on each folder and a number on each slot
- in each folder are numbered slots, each of which is 'owned' by a person
- each person owns slot in front of number

Conference fee to be paid through registration office.

Coffee breaks at 10 AM and 3 PM. Noon to 1:00 PM lunch
1.5 Other announcements

1.5.1 General information available on diskette, see Jon
1.5.2 IAPP meeting tonight 8-10 PM
1.5.3 Request for information on patented material and for a license statement
1.5.4 General information from meeting organization
   1.5.1 Two diskettes with general information of 802.11 and the available files since last meeting are available for copying, Jon Rosdahl keeping the diskettes.
   1.5.2 An Inter Access point Protocol presentation will be held tonight from 20:00 - 22:00 PM on invitation of some companies.
   1.5.3 The chair asked for information on patented material known to members and a related license conforming the rules of IEEE if possible.
   1.5.4 The chair gave some general information items regarding the meeting place and the hotels.

2. Approval of the minutes of the previous meeting

2.1 La Jolla meeting 11-96/53

Motion #1: To approve the minutes of the La Jolla meeting

Moved by: Michael Fischer
Seconded by: Wim Diepstarten

Motion Discussion: none

Vote: 21-0-0

Motion #1 passes

2.2 Waltham meeting 11-96/82

Motion #2: To approve the minutes of the Waltham meeting

Moved by: Michael Fischer
Seconded by: Wim Diepstarten

Motion Discussion: none

Vote: 17-0-3

Motion #2 passes

2.3 Matters arising from the minutes: none

2.4 Financial Report Waltham:

WALTHAM Interim 802.11 May 6-9 1996 Expenses

Organized by Raytheon
Tentative Minutes of full WG meeting page 4  Waltham, MA, 6-9 May, 1996

<table>
<thead>
<tr>
<th>Date</th>
<th>Food &amp; Drink</th>
<th>Audio &amp; Visual</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>6MAY96</td>
<td>844.07</td>
<td>1573.43</td>
<td>2417.50</td>
</tr>
<tr>
<td>7MAY96</td>
<td>925.85</td>
<td>476.70</td>
<td>1402.55</td>
</tr>
<tr>
<td>8MAY96</td>
<td>635.30</td>
<td>350.70</td>
<td>986.00</td>
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<tr>
<td>9MAY96</td>
<td>831.68</td>
<td>473.55</td>
<td>1305.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6111.28</td>
</tr>
</tbody>
</table>

49 Attendees @ $100.00 paid each 4900.00

Carry forward excess from last interim meeting 214.20

Raytheon Subsidy 997.08

Motion #3: To approve the financial report of the Waltham meeting

Moved by: Jon Rosdahl
Seconded by: Chris Zegelin

Motion Discussion: none

Vote: Voice vote without dissent

Motion #3 passes

3. Reports

3.1 The Executive Committee, by Vic Hayes

Document 90/105, proposed ISO liaison statement containing comparison between 802.11 and HIPERLAN standard presented and found to be a good starting point. Left for comments from 802.11.

In addition to the neutral comparison, 802.11 was requested to prepare a contribution to ISO from the USA member body to propose 802.11 as the only International standard for wireless LANs.

Jim Carlo is the new Chairperson for IEEE 802, LMSC.

Appointments of non-WG officers

Vice-chair Paul Nicolich
Executive Secretary Buzz Rigsbee
Recording secretary Kelly McClellan
Treasurer Kirk Preiss
Other interested for Vice-chair possible till Tuesday 6 PM

New publication: information report

Many of the good tutorials given in 802 are worth to be published, a new way is being sought, for instance: applications of standards technology. 802.11 showed no objection to pass this to an ad-hoc of 802.
Looking for response to the meeting place being remote from guestroom accommodations.

3.2 The Editors:

Future versions of the draft will be distributed in both WfW V6 and PDF format

3.3 The letter ballot on draft D4.0 results 11/106

Concern was expressed regarding Eran Shpak’s voting status and Tom T’s late No vote. (Note from the chair: at the My meeting the chair had ruled that votes from Nearly voting members would be counted and be valid)

<table>
<thead>
<tr>
<th>Motion #4:</th>
<th>To disallow late letter ballots from Tom T and Ron Mahany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moved by:</td>
<td>Bob O’hara</td>
</tr>
<tr>
<td>Seconded by:</td>
<td>Stuart Kerry</td>
</tr>
</tbody>
</table>

**Motion Discussion:** none

**Vote:** 19-0-3  \[Motion #4 passes\]

<table>
<thead>
<tr>
<th>Motion #5:</th>
<th>To disallow the ballot by John Biddick as not meeting the minimum requirements for a &quot;NO&quot; vote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moved by:</td>
<td>Bob O’hara</td>
</tr>
<tr>
<td>Seconded by:</td>
<td>Michael Fischer</td>
</tr>
</tbody>
</table>

**Motion Discussion:** none

**Vote:** 15-2-5  \[Motion #5 passes\]


5. Adoption of agenda: The agenda was modified to contain destiny of draft and destiny of Regulatory Commission as Unfinished business and Press Release, Iso contribution and Supernet as new business. This was adopted by unanimous consent.

6. Unfinished Business:

6.1 Destiny of the draft standard

The following options were listed:

1. send draft 4.0, as is
2. send draft 4.0+ with only editorial changes
3. send draft 4.1, that addresses only comments on NO votes
4. send draft 4.1+ that addresses NO comments and time-limited other comments
5. send draft 4.1++ that addresses all comments

<table>
<thead>
<tr>
<th>Motion #6:</th>
<th>to work toward sending the draft out for sponsor ballot without requiring a confirmation ballot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moved by:</td>
<td>Chris Zegelin</td>
</tr>
<tr>
<td>Seconded by:</td>
<td>Jon Rosdahl</td>
</tr>
</tbody>
</table>
Motion Discussion: none

Vote: 5-16-1

Motion #6 fails

Motion #7: to process as many comments as possible, so that text is ready at the end of the week to conduct a confirmation ballot, to present any contentious issues to the full working group prior to incorporating changes, and to flag all technical changes that would require a confirmation ballot.

Moved by: Keith Amundsen
Seconded by: Dean Kawaguchi

Motion Discussion: none

Vote: 19-1-2

Motion #7 passes

6.2 Destiny of Regulatory Committee

Motion #8: to adjourn for subgroups.

Moved by: Dean Kawaguchi
Seconded by: Nathan Silberman

Motion Discussion: none

Vote: voice vote without dissent

Motion #8 passes

8. Adjourn to subgroups: 12:00 Noon

Monday PM, 6 May, 1996
MAC & PHY subgroups

Tuesday AM & PM, 7 May, 1996
MAC & PHY subgroups

Wednesday AM, 8 May, 1996
MAC & PHY subgroups
Wednesday PM, 9 May, 1996  
Full Working Group

The meeting was reconvened at 1:15 PM, by chairman Vic Hayes, Chris Zegelin secretary.

9. Opening

9.1 Roll Call: People in the room were invited to introduce themselves.

9.2 Document list update:
interim result files are on diskette, make sure that headers and footers are correct on submissions. Diskette with 802.11 general information is available.

9.3 Agenda adjustments: for this afternoon

proposal from the chair to include business from Monday, destiny of Regulatory Commission as Unfinished business and Press Release, Iso contribution and Supernet as new business, right after the opening agenda items. Request for moving cross-group issues up before the Monday business. This was approved.

9.4 Announcements:

9.4.1 Comments on meeting place. Some new findings were added to the list

9.4.2 Compuserve number given earlier was wrong. Please do not use.

9.4.3 Who does not have a badge by now? Nobody.

9.4.4 Logistics of output material. Submissions and reports of meeting are collected by Stuart.

Resolutions of comments will be named revision 1 of the comments set of files, collected by Stuart.

Updated text for the standard: without headers and footers, without document numbers! Will be collected by Stuart. Convergence to single file will be handled by: clauses 1-4: Bob O’Hara, Clauses 5-6: Chris Zegelin, clause 7 and 9: Simon, clause 8, 10 and 11: Michael Fischer, Clause 12, 13, 15 and 16: Mike Trompower, Clause 14: Dean Kawaguchi.


Howard Hall will formulate a position regarding the continued existence of clauses 11, 13 and annex D as they overlap.

9.4.5 A long discussion ensued regarding the numbering of drafts ending into the conclusion that we would stick to motion #7.

10. Cross group Issues

Motion #9: to decline comment #111 of doc.:106 part 3, in clause 9 with: "While in principle this is an improvement, in the interests of minimizing changes and maximizing the chances of a successful confirmation ballot."
Moved by: Wim Diepstraten  
Seconded by: Chris Zegelin  

**Motion Discussion:** none

**Vote:** 10-6-5  
**Motion #9 fails**

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**Motion #10:** to accept comment #111 of doc.: 106 part 5 in clause 9 with: Replace the word "static" with "fixed" when referring to CWmin in 9.2.4; define aCWmin and aCWmax in each PHY MIB, aCWmin: FH=15, DS=31, IR=63; aCWmax: FH=DS=IR=1023; make new PHY MIB objects Get-only to reflect the fact that they have been moved from the MAC (where they needed to be set by the AC according to the PHY type) to the PHY (where they are fixed).

Moved by: Simon Black  
Seconded by: Michael Fischer  

**Motion Discussion:** a long discussion ensued until Bob called for the question, second by Dean. Question called with 13-1-10

**Vote:** 13-1-10  
**Motion #10 passes**

Comment #132 from doc.: 106 part 3 will be resolved from the PHY perspective.

Regarding comment 14 of doc.: 106 part 5:

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**Motion #11:** that the MAC group generate a PHY_CCARST.request when the NAV becomes zero, as previously contained in the MAC state machine.

Moved by: Dean Kawaguchi  
Seconded by: Michael Fischer  

**Motion Discussion:** none

**Vote:** 20-0-0  
**Motion #11 passes**

Regarding comment 16 of doc.: 106 part 5:

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**Motion #12:** that the second paragraph in clause 14.3.3.3.2 with: If any error was detected during the reception of the PLCP_PDU, the PLCP may send a PHY_RXEND.indicate(RXERROR) and terminate the receive procedure before the last bit arrives.

Moved by: Dean Kawaguchi  
Seconded by: Simon Black  

**Motion Discussion:** none

**Vote:** by voice vote without dissent  
**Motion #12 passes**

Regarding comment 25 of doc.: 106 part 5:

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**Motion #13:** to accept resolution of Simon’s comment such that: delete tolerance from clauses 14.8.2 and 14.8.2.1.11 and change clause A.4.5 line 14.65 column 1: “Is the PHY MIB aSIFSTime attribute 28us and is the PHY capable of meeting this performance within the +/-5 us tolerance specified in clause 9.2.3.1?”

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Moved by: Dean Kawaguchi  
second by: Naftali Chayat  

**Motion Discussion:** none  

**Vote:** by voice vote without dissent  

Motion #13 passes

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### PICS Proforma

**Motion #14:** that all material in the PICS follow the same format as given in the MAC.  

Moved by: Bob O’Hara  
second by: Chris Zegelin  

**Motion Discussion:** none  

**Vote:** 19-0-1  

Motion #14 passes

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### 6.2 Destiny of Regulatory Committee

At the May meeting a recommendation, moved by Dave Bagby and seconded by Johnny Zweig: “to disband the regulatory committee as soon as it finishes the processing of the business of the previous motion” passed with 7-2-5.

**Motion #15:** that the recommendation of the May interim meeting to disband the Regulatory subcommittee be accepted  

Moved by: Dean Kawaguchi  
second by: Stuart Kerry  

**Motion Discussion:** none  

**Vote:** 8-6-7  

Motion #15 passes

Naftali volunteered to come up with a proposal for new rules.

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### 7. New Business:

#### 7.1 Press release

**Motion #16:** to approve the issuance of a press release, the text of which is in 96/117.  

Moved by: Bob O’Hara  
second by: Stuart Kerry  

**Motion Discussion:** none  

**Vote:** 17-0-3  

Motion #16 passes

#### 7.2 Liaison statement to ISO

**Motion #17:** to approve documents 96/105 and 96/119 to be forwarded to ExCom for submission to ISO.  

Moved by: Bob O’Hara  
second by: Michael Fischer  

**Motion Discussion:** none
Motion #18, to amend to include bracketed terms as definitions of 802.11 terminology

Moved by: Wim Diepstarten
second by: Chris Zegelin

Motion Discussion: none

Vote: unanimous consent

Motion #18 to amend # 17 passes

Vote: 16-0-1

Motion #17 as amended by # 18 passes

7.3 Supernet Postponed till Thursday.

11. PHY resolutions: Not yet available

12. MAC resolutions:

Motion #13: to accept resolution of Simon's comment such that: delete tolerance from clauses 14.8.2 and 14.8.2.1.11 and change clause A.4.5 line 14.65 column 1: “Is the PHY MIB aSIFS Time attribute 28us and is the PHY capable of meeting this performance within the +/-5 us tolerance specified in clause 9.2.3.1?”

Moved by: Dean Kawaguchi
second by: Naftali Chayat

Motion Discussion: none

Vote: by voice vote without dissent

Motion #13 passes

13. Conformance Testing:

Nothing on conformance testing.

14. Evening meeting @ 8 in main room

15. Adjourn: 5:40 PM

Thursday AM, 9 May, 1996
MAC & PHY subgroups

Thursday PM, 9 May, 1996
Full Working Group

The meeting was reconvened at 1:20 PM, by chairman Vic Hayes, Chris Zegelin secretary.
15. Opening

15.1 Announcements

15.1.1 Vic showed the Holland power connector, asked for power strips. Also need phone jacks.
15.1.2 Mystery payments, need to resolve payments.
15.1.3 Doc 96/96 Proposed names.... S/B 96/97

15.2 Document list update: updated the list.

15.3 Agenda adjustments: none

16. Reports

16.1 MAC Group. by Dave Bagby

Goals
We had one goal - Process rest of D3 LB comments and forward D4 for sponsor ballot. We made it. (all but one)

The MAC report is paper 96/93.

Clause 1 Status

• Completed - in Plenary Mar/96

Clause 2 Status

• Completed - in Plenary Mar/96

Clause 3 Status

• Completed - in Plenary Mar/96

Clause 4 Status

• Completed - in Plenary Mar/96

Clause 5 Status

• Completed - in Plenary Mar/96

Clause 6 Status

• Completed - in Plenary Mar/96

Clause 7 Status

• Most comments Adopted in Mar/96 Plenary
• Rest handled this week.
• Details to follow in report.

C7: C#101:
• needed work to supply missing Challenge text element.
  Done - only a reference correction needed so correction was editorial not technical -
  author agrees - comment closed with author consent.

Clause 8 Status

• Completed - in Plenary Mar/96

Clause 9 Status

• Most comments adopted Mar/96 plenary
• 30-40 comments processed this week.
• Details to follow in report.

C9-C# 102, 103

• PS poll etc

Motion #14:    decline 102, 103 withdrawn, text added to clarify actions
  • The MAC group, 2nd Wim

Plenary Vote: 19, 0, 3 Motion #14: passes

C9-C# 108

Motion #15:    accept - only send CTS if nav clear
  • The MAC group, 2nd Johnny

Plenary Vote: 20, 0, 3 Motion #15: passes

C9-C# 112

Motion #16:    back off after xmit, rec=accept
  • The MAC group, 2nd Michael

Plenary Vote: 19, 0, 2 Motion #16: passes

C9-C# 122

Motion #17:    collapse 2 overlapping sub section text re directed MPDU
  • The MAC group, 2nd Michael

Plenary Vote: 18, 0, 3 Motion #17: passes

C9-C# 136

Motion #18:    delete some text from 9.2.8 (explanatory)
  • The MAC group, 2nd Simon

Plenary Vote: 18, 0, 1 Motion #18: passes

C9-C# 149
Motion #19: contradiction fixed re CF ack vs null data frame

- The MAC group, 2nd Michael

Plenary Vote: 19, 0, 1

Motion #19: passes

C9-C# 150

Motion #20: clarify sentence re PCF issuing of some fame types

- The MAC group, 2nd Michael

Plenary Vote: 19, 0, 0

Motion #20: passes

C9-C# 155

Motion #21: adding word to 9.2.5.2 re when use back-off detail

- The MAC group, 2nd Johnny

Plenary Vote: 16, 0, 0

Motion #21: passes

C9 - C#105

- frame exchg sequences doc 96/76

Motion #22: adopt 96/76 as amended by MF and discussion - revised paper provided by JZ to for edit into clause 9 text.

- The MAC group, 2nd Johnny

Plenary Vote: 18, 0, 0

Motion #22: passes

C9: C142

Motion #23: re resetting NAV condition.

- The MAC group, 2nd Michael

Plenary Vote: 18, 0, 1

Motion #23: passes

C9, C#: 126, 137

- clarifies PCF operation re getting on medium - requires sensing before.

Motion #24: MIB change for DTIM default value. from 5 to 1.

- The MAC group, 2nd Wim

Plenary Vote: 19, 0, 1

Motion #24: passes

C9: c#: 133, 134, 135, 130, 113 Back off and Retry

- clause 9.2.5.3

Motion #25: error recov responsibility of initiating sta of fame sequence

Docs error cases
clarifies retry limits and counts

- The MAC group, 2nd Johnny
Plenary Vote: 19, 0, 1  

**Motion #25:** passes

Clause 9: 139, 138

- **Time Out Stuff**

  **Motion #26:** ACK and CTS subclauses added para to deal how time out is detected, distinguishes different cases.
  mostly wording improvement.

  - The MAC group, 2nd Johnny

Plenary Vote: 20, 0, 1  

**Motion #26:** passes

C9 - C#154 -

- frags in order (not MSDUs in order)

  **Motion #27:** accept.

  - The MAC group, 2nd Michael

Plenary Vote: 20, 0, 1  

**Motion #27:** passes

Clause 10 Status

- Completed - in Mar/96 plenary.

Clause 11 Status

- Most handled in Mar 96 Plenary
- remainder processed this week.
- details to follow:

Clause 11: C#43, 42

**Motion #28:** re clarification of PSP - must get, vs can get data from AP reopened in Mar plenary - swapped 42/43 so that 42 is rec
changes clause 11.2.1.4f

- The MAC group, 2nd Simon

Plenary Vote: 19, 0, 0  

**Motion #28:** passes

Clause 11 C#17:

- re randomization of beacons at TBTT

  **Motion #29:** change 11.1.2.2

  - The MAC group, 2nd Simon

Plenary Vote: 19, 0, 0  

**Motion #29:** passes

Cross Clause Subjects

BC/MC reliability
May 1996

Doc: IEEE P802.11-96/82

- Clause 9: C#21: multi-cast reliability from Jan (multiple comments)
- bc cast reliability Clause 11 C# 14,44,59

**Motion #30:**
- to adopt 96/15 and 96/16
  - The MAC group, 2nd Johnny

Plenary Vote: 4, 7, 10

**Motion #30: fails**
- Comments still open - not closed.

Multi-rate

- Clause 7: C#72,74
- Clause 9: C#9
- Clause 11: c#67,91,92,100,102
- General c#124

**Motion #31:**
- Move to accept 96/79R1 + change to encoding of supported rates, and incorporate into draft, and close related LB comments accordingly.
- The MAC group, 2nd Johnny

Plenary Actions:
- Amended to be as above “except for the portion of 96/79R1 which pertains to clause 14 and 15.
- The MAC group, 2nd Johnny

Plenary vote on amended motion: 16, 0, 1

**Motion #31: passes**

General and Annex Comments

- most handled in Mar 96 Plenary
- Remainder processed this week
- Details to follow

**general C#1:**

- explicit that CF frames not used outside Cf period

**Motion #32:**
- accepted D3.1 statement added to 9.3.3.5
  - The MAC group, 2nd Tom

Plenary Vote: 11, 0, 2

**Motion #32: passes**

**general C#121 -**

- unable to process - refers to previous letter ballot comment with out any specific reference
- fails comment instructions.

**Motion #33:**
- closed - we looked, no action requested -
  - The MAC group, 2nd Johnny

Plenary Vote: unan

**Motion #33: passes**

**general C#122 -**

- minimally conforment network statement per PAR requested.
- rec add def to clause 3 and ref in PICs.

**Motion #34:**
- to add in clause 3 (defs) the following:
A minimally conforment IEEE P802.11 network is one in which there are at least two Stations in a single BSA which are conforment with P802.11.

- The MAC group, 2nd Tom

**Plenary Vote:** 15, 0, 1

**Motion #34:** passes

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**general C#123 -**

- connection, connectionless, voice service (VH) no action requested in comment

**Motion #35:** accepted without action and closed.

- Action requested (none) accepted
- The MAC group, 2nd Michael

**Plenary Vote:** 12, 0, 4

**Motion #35:** passes

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**General: Editorial comments**

- 107 thru 111, 114, 115, 120, 125, 126, 128 editorial
- Editors will process for D4.0

**General: Notation**

**Motion #36:**

- General C#127 k vs. K - Fixed in D3.1 -
- The MAC group, 2nd Michael

**Plenary Vote:** 13, 0, 2

**Motion #36:** passes

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**General: Patents**

- general c#2: dissatisfaction with Patent due diligence / procedure following.

**Motion #37:** refer to Vic to answer re procedure part and for contact to Apple.

Plenary motion: to close w/o taking action (mover says intent is to not take action wrt to draft text) on basis that comment is not technical in nature.

- Bob, 2nd Keith

**Plenary vote:** 15, 1, 1

**Motion #37:** passes

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**MAC Work note:**

From here on in report the comment tables (rev 7) have not yet been updated at time of report to reflect thurs morn actions - this needs to result in rev 8 of tables for mailing.

**Annex: State machine**

- general c#113 - state machines

**Motion #38:** to close with “we have a volunteer to update the annex” - comment author accepts resolution.

- The MAC group, 2nd Chris

**Plenary Vote:** 15, 1, 1

**Motion #38:** passes

---
State machines update 96/2

Motion #39: that we adopt what MF has today for informative annex update and completed updates to be made avail to editors before D4.0 is published.

• The MAC group, 2nd Michael

Plenary Vote: 12, 1, 3

Motion #39: passes

PICS Update

• general c#s: 3 thru 9, 104, 105, 106, 112 - PICs issues.
  - 3, 4 are editorial.
  - recs:
    - 3 accepted, 4 ed - ed’s get, 5 fixed in text, 6 fixed in text
    - 7- done, 8 same as 7, 9 accepted. text rewritten.
    - 104 missing refs to clause 5 & 6 - accepted - text done
    - 105 accepted by mar 96 motion 8, 106 accept
    - 112 accept - text not drafted yet. needs sec 9.

Motion #40: to accept recs for PICs comments, PICs text done so far, and remainder of PICs text will be given to editors in time for D4.0 creation.

• The MAC group, 2nd Simon

Plenary Vote: 13, 0, 1

Motion #40: passes

ASN doc for MIB

• 96/89

Motion #41: to accept 96/89 as ASN MIB code and insert into a normative annex, any discrepancy between ASN code and this week’s work is considered editorial and editors will make the new annex consistent, also a statement will be added to annex that Annex takes precedence over other clauses in case of conflict.

• The MAC group, 2nd: Tom

Plenary Vote: 10, 1, 3

Motion #41: passes

C7 C#34 TBTT and Next Dwell

Motion #42: to decline comment on basis that comment is new functionality and does not have complete proposed text

• The MAC group, 2nd: Johnny

Plenary Vote: 11, 2, 3

Motion #42: passes

C7 # 35 when can change MIB?

Motion #43: decline comment and close comment with “you may change any MIB attribute whenever the std allows it - the operational wisdom of such action should be considered before doing so.”

• The MAC group, 2nd: Chris
Plenary Vote: 15, 0, 2  

---

Motion #43: passes

Multiple MSDUs 96/91R1

---

Motion #44: to adopt text in 96/91R1 except for the 2nd to last paragraph of the submission beginning with the word ‘the station shall insure that there is no group-addressed…’

- The MAC group, 2nd: Johnny

---

Plenary Vote: 17, 1, 1  

---

Motion #44: passes

SIFS tolerance

---

Motion #45: that we insert into 9.2.3.1 “an 802.11 implementation shall not cause SIFS to vary from the nominal value by more than +/- 10% of aSlotTime for the PHY in use.”

- The MAC group, 2nd: Michael

---

Plenary Vote: 16, 0, 1  

---

Motion #45: passes

96/90 MSDU order

- 2 Service classes, one ordered strictly, the other not.

96/92 MSDU order

- maintain order at service interface instead of actual media order.

Discussion (re)ordering...

Motion #46: adopt 96/90.

- The MAC group, 2nd: Michael
- Plenary Vote: 12, 3, 4

the last motion...

Motion #47: that we incorporate the 2nd to last paragraph of 96/91r1 into draft 4.0 with the addition of the words “of strictly ordered service class” after “outstanding MSDU or MMPDU”.

- The MAC group, 2nd: Michael

---

Plenary Vote: 13, 1, 2  

---

Motion #47: passes

The chair ruled that discussion and vote on the frame re-ordering paper 96/90 was out of order because it was not consistent with the charter for the interim.

Appeal #2: Michael,

Vote 7/10/3 to support the chair  
Chair’s ruling overruled

Goals for July 96
Processing D4 LB comments.

**Break @ 3:05 for 15 minutes**

**16.2 PHY Group**

**16.2.1 FH PHY Report,**

Dean Kawaguchi gave the FH PHY report. Started with a recap of the motions that were passed yesterday.

The minutes for the PHY report contains all of the details about the report and this is not repeated here.

---

**Motion #48:**

Accept the following changes for multi-rate and CCA:
1) the PLCP rate field was expanded to three bits to indicate rates from 1.0 to 4.5 Mbit/s in 0.5 Mbit/s steps,
2) the text was modified to reflect changes in the CCA detection algorithm and the addition of the capability of holding CCA BUSY for the calculated duration of an unsupported rate,
3) the text was modified in the receive procedure to pass the byte count and data rate of an unrecognized rate to the CCA procedures

moved by the PHY group, second by Johnny Zweig

---

Plenary vote 15, 0, 3  
Motion #48 passes

---

**16.2.2 Full PHY Group Report,**

**Japanese call sign**

- straw pole
  1. Leave as is
  2. Add call sign to every packet
  3. Delete all references to Japan in standard
     - vote 4,3,2

- No action: the default is to leave it as is.

**16.2.3 DSSS Group Report** by Jan Boer

**All issues were addressed yesterday**

**16.3 Return to talk about MAC multirate work**

There was a motion on the floor that was postponed to this time.

---

**Motion #49 :**

to accept 96/79R1 + change to encoding of supported rates, and incorporate into draft, and close related LB comments accordingly.

---

**Motion #50 to amend #49:**

Replace the original motion to amend to state “except for the portions of 96/91R1 that pertain to clauses 14 and with the following change....”.

---

Vote 16:0:0  
Motion #50 passes: Motion #49 amended

Vote 16:0:1 (clapping)  
Motion #49 passes
16.3 Press release

Nothing available

17. Unfinished Business

Naftali mentioned that Dean would present his paper 96/98

Motion to add period to address completion of letter ballot comments.

17.0 Completion

| Motion #51: | to close letter ballot comments with resolution to decline C9 #21 80 89 114 120 125 163, C11 #14 44 59 with the technical justification “there is sufficient functionality in the draft to accomplished what is requested.” |

Moved by: Bob O’Hara: Johnny seconds.

Vote: 7:5:2  | Motion #51 fails

Chair ruled that it is not necessary to address all comments before proceeding to a new letter ballot.

17.1 Recap of Output Documents

17.2 Recap of document distribution

Two documents sent later. Also FH PHY minutes.

17.3 Next Meeting in Netherlands

17.4 Future Meetings: see chart. Hoping to not have to have interim meeting after July when the standard goes to sponsor ballot.

17.5 Other Intermediate Meetings: none

18. New Business:

Document 96/98: Proposal for 802.11 reply to FCC NPRM 96-8 presented by Dean Kawaguchi
doc 96/39,

Motion #52 : “direct the regulatory committee to use doc 96/98 as the basis for its response to the NPRM 96-8”

Moved by Dean on behalf of Naftali. Chris 2nd

Chair rules motion #52 out of order.

Appeal #3 by Dean, second by Stuart.

Vote: 1:7:3  | Chair overruled.
Question called, by voice vote

Vote 8:1:4  

Motion #52 passes as recommendation.

Motion #53: “To disband the regulatory committee as soon as it finishes processing the business of the previous motion”

Moved by Dave Bagby, second by Johnny

Vote 7, 2, 5  

Motion #53 passes as recommendation.

19. Closure: meeting adjourned at 5:05 PM.

Tentative Meeting Schedule

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## Appendix 1

### Attendance list

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<th>Area and phone</th>
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<tr>
<td>Mr. Keith B. Amundsen</td>
<td></td>
<td>Raytheon Company</td>
<td>+1 508 470</td>
</tr>
<tr>
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<td><a href="mailto:keith_b_amundsen@raytheon.com">keith_b_amundsen@raytheon.com</a></td>
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<tr>
<td>Mr. Carl F. Andren</td>
<td></td>
<td>HARRIS Corporation M/S 62A-028</td>
<td>+1 407 724 7535</td>
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<td><a href="mailto:candren@harris.com">candren@harris.com</a></td>
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<tr>
<td>Mr. David Bagby</td>
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<td>Advanced Micro Devices</td>
<td>+1 408 749 5425</td>
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<tr>
<td>Mr. Steven Bass</td>
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<td>Genreal Scanning Inc.</td>
<td>+1 617 275</td>
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<tr>
<td>Mr. John Biddick</td>
<td></td>
<td>Intermec Corporation</td>
<td>+1 206 348</td>
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<td><a href="mailto:jbiddick@intermec.com">jbiddick@intermec.com</a></td>
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<tr>
<td>Mr. Simon Black</td>
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<td>+44 1223</td>
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<td>Mr. Jan Boer</td>
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## Appendix 1

### Attendance list (continuation)

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<td>Mr. Bob</td>
<td>O'Hara</td>
<td>voter</td>
<td>Advanced Micro Devices</td>
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<td>Mr. Al</td>
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<td>voter</td>
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<td>Mr. Thomas Siep</td>
<td>Texas Instruments</td>
<td>+1 214 997</td>
<td><a href="mailto:siep@ti.com">siep@ti.com</a></td>
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</tbody>
</table>
## Appendix 1
### Attendance list (continuation)

<table>
<thead>
<tr>
<th>Title and first name</th>
<th>Last name</th>
<th>status</th>
<th>Company</th>
<th>communications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Joel</td>
<td>Silberman</td>
<td></td>
<td>Raytheon</td>
<td>+1 508 470</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:joel_silberman@ccmail.ray.com">joel_silberman@ccmail.ray.com</a></td>
</tr>
<tr>
<td>Mr. Dave</td>
<td>Strohschein</td>
<td></td>
<td>University of New Hampshire</td>
<td>+1 603 862</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:das@iol.unh.edu">das@iol.unh.edu</a></td>
</tr>
<tr>
<td>Mr. Bert</td>
<td>Sullam</td>
<td></td>
<td>Seattle Silicon Corp</td>
<td>+1 206 957</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4422 x101 <a href="mailto:bert@seasil.wa.com">bert@seasil.wa.com</a></td>
</tr>
<tr>
<td>Mr. Mack</td>
<td>Sullivan</td>
<td>voter</td>
<td>Proxim Inc.</td>
<td>+1 415 960</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>1630 <a href="mailto:mack@proxim.com">mack@proxim.com</a></td>
</tr>
<tr>
<td>Mr. Mike</td>
<td>Trompower</td>
<td>voter</td>
<td>Aironet Wireless Comms. Inc.</td>
<td>+1 330 665</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>7920 <a href="mailto:mtrom@aironet.com">mtrom@aironet.com</a></td>
</tr>
<tr>
<td>Mr. Tom</td>
<td>Tsoulogiannis</td>
<td>voter</td>
<td></td>
<td>+1 416 299 1954</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:tomt@interlog.com">tomt@interlog.com</a></td>
</tr>
<tr>
<td>Ms. Donna A.</td>
<td>Woznicki</td>
<td>voter</td>
<td>Digital Equipment Corp.</td>
<td>+1 508 486</td>
</tr>
<tr>
<td></td>
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<td>5085 <a href="mailto:woznicki@lkg.mts.dec.com">woznicki@lkg.mts.dec.com</a></td>
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<tr>
<td>Mr. Chris</td>
<td>Zegelin</td>
<td>voter</td>
<td>Symbol Technologies Inc.</td>
<td>M.S. 160</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>+1 408 369</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>2667 <a href="mailto:chrisz@psd.symbol.com">chrisz@psd.symbol.com</a></td>
</tr>
<tr>
<td>Mr. Johnny</td>
<td>Zweig</td>
<td>voter</td>
<td>XIRCOM</td>
<td>+1 415 691</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2500 <a href="mailto:grshnrk@aol.com">grshnrk@aol.com</a></td>
</tr>
</tbody>
</table>