

## Tentative Minutes of the IEEE P802.11 Working Group

**Interim meeting  
Waltham, MA  
May 6-9, 1996**

**Monday, May 6th, 1996, 8:30 AM**

The meeting was called to order at 8:45 AM Vic Hayes, chairman IEEE P802.11<sup>1)</sup> in the chair. Chris Zegelin secretary. Stuart Kerry managing document originals and copying and Whoever managing distribution and pigeon hole organization. Chris Zegelin handling the attendance list. The agenda document for this meeting is 802.11-96/73.

### Objectives for this meeting, all groups

- Continue processing of D3 LB
- Send WG Letter Ballot D4
- Resolve any multirate issues
- Japanese call sign resolution
- Conformance testing
- FCC wishlist
- France and Spain Hop patterns

### 1. Opening

Notes: general notes not available.

**1.0 Secretary:** (Temporary) Chris Zegelin.

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

**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 put on hotel bill (see later) 2 PM Tues.

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

**1.5 Other announcements**

**1.5.1 \$130 raised for Leon Scaldeferri and donated to Chesapeake Habitat for Humanity in Baltimore, Maryland, on request of the family.**

**1.5.2 Help Preparing next mailing, Thursday evening:** Stuart Kerry, Ian, Brian,

**2. Approval of the minutes of the previous meeting**

**2.1 Last meeting minutes were lost, No quorum available to approve last minutes**

**2.2 Matters arising from the minutes:** none

**3. Reports**

**3.1 The Executive Committee,** by Vic Hayes

Document 90/67 presented

Need to compare 802.11 with HyperLAN.

802.11 assigned to make a new proposal for approval at July ExCom meeting

Looking for editors for international ISO SC6

**3.2 The Editors:**

problems with draft. It is printable with win95, but win3.x word 6.0c has problems. This needs to be resolved. No other issues

**3.3 The Standing Committee on Regulatory**

Rules summarised in doc 96/78

Needs 5 members plus a chair

**4. Review of contributions:** Several new contributions. Not listed here.

**5. Other business:**

Question about new PHY's. May need new PAR. Ask PHY group if they want to move forward. Not enough info on intent of 3 Mbit/s to know how to proceed. 1st draft, schedule impacts. Plenary needs to make a decision.

**Motion #1:** *Moved that PHY group study the feasibility of incorporating higher data rate PHY's into the current version of the standard and report back to the plenary.*

Moved by:                   Zweig  
Seconded by:               Pablo

**Motion Discussion:**

Want more info on impact

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**Motion #2:** *to postpone till Wed plenary.*

Moved by: Pablo  
 Seconded by: Zweig

**Motion Discussion:**

Want more info on impact

Vote: 15/0/4

**Motion #2 passes**

**Motion #1 postponed till Wed Plenary**

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**6. Unfinished Business:**

**6.1 Multi-rate**

Get it duplicated and out for review. Postponed till Wednesday. No objections

**6.2 Liaison statement to ISO**

Postponed till July and pre-discuss on reflector. No objections

**6.3 Editor for ISO**

September meeting in Guernsey.

**7. New Business:**

Johnny requests status report on where we are with schedule. Review now. Progress of standard.

**7.1 Broadcast/Multicast**

MAC issue, not full plenary. Refer to MAC group and review on Wednesday.

**7.2 Press Release**

Wait for proposal. Press release, Bob Egan will work to make this happen. Leakage from reflector deemed a problem

**7.3 Progress of standard**

Wanted a status update on where we are on the standard.

**Discussion:**

Could not capture discussion on version that is sent to sponsor ballot. The question is "what happens if we fail confirmation ballot?". "How do you define consensus?". Johnny asks for a queue. Got one. What confirmation ballot means was explained. We will not change the letter ballot question. Based on 802.11 charter to working group, Chair to determine. The major issue centers around the difference between getting a 75% vote that states "forward the draft" and the perceived need for much better than 95% YES votes in order to get through the executive committee. The request is that the groups decision be followed, and not allow the chair alone to make a the decision as to when to forward to sponsor ballot.

**Note form Chair:** In later discussions the chair understood that the issue was that, according to the rules, 802.11 need to pass a motion to reconsider the LB decision to include the comments.

**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 rules is available.

**9.3 Agenda adjustments:** for this afternoon

Multirate: covered in MAC group

Broadcast/Multicast: covered in MAC group

Press Release

Asked for objections to keeping the meeting schedule as proposed. There were no objections from the floor.

**9.4 Announcements:**

Hard to handle votes from nearly voting members, will be taken into account. There needs to be a clarification of the rules.

John Reed; when he published NPRM 96-8: Comments due June 19: Reply comments Jul. 19

Receipts for the \$100 fee are available from Vic. They did not appear on the Hotel bill

Plan is to get D4 out this meeting, vote, resolve comments in July and then go for confirmation ballot. There are changes to the schedule as per the agenda. Need a Quorum to go to sponsor ballot.

Will change rule for removing people from the voting roles, i.e. Interim meeting before the earliest valid plenary meeting will not be counted. So that:

Int, Plen, Int, Plen, Int, Plen, Int, Plen

100, 100, 0, 0, 0, 0, 0 ends voter status

100, 100, 0, 0, 50, 0, 0, 10 ends voter status

AMP has offered meeting rooms for the August meeting in Harrisburg. Made reservation for 5 day meeting. Need count for hotel reservation. Cost \$65 per night. Meeting fees are about \$15 per day.

July meeting: Hotel reservations closes at the end of May.

Issue raised that August meeting is just before labor day. Some people may not attend as a result. Further questions about the requirements and limitations of the confirmation vote, after the July meeting. The answer to this could effect our ability to go to sponsor ballot. Discussion on the meaning of confirmation ballot.

**10. Cross group Issues**

**10.1 Multiple rates**

The multiple rate vote in the MAC group was 14:0:2. The paper with the changes has been stuffed. There are some impacts on the PHY clauses. Dean pointed out that the FH PHY does multirate CCA. addressed the intent of the requirements in FH group. May need to make minor adjustments to text to make everything consistent.

**10.1 Broadcast/Multicast**

The MAC group does not need bring this to the main group at this time.

**10.4 Press release**

Why is there going to be a press release. Need to work on perception that draft is not moving forward. There is no proposal on the floor.

**11. PHY resolutions**

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<b>Motion #3:</b>	<b>To accept the France and Spain hop patterns in 96/68</b>
Moved by:	The PHY Group
Seconded by:	Jim Renfro
<b>Motion Discussion: ???</b>	

Vote: 27:0:1 *Motion #3: passes*

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<b>Motion #4:</b>	<b>Changes made to paragraph 14.3.3.2.1 by changing the time to 22 <math>\mu</math>s. from 20 <math>\mu</math>s. and adding the words "synchronous" and "asynchronous" to the text. Additionally, add the sentence to paragraph 14.6.15.3 " that starts synchronously with respect to slot times as specified in subclause 14.3.3.2.1" and "In the presence of any 802.11 compliant 1 Mbit/s FH PHY signal above -85 dBm that starts asynchronous with respect to slot times as specified in subclause 14.3.3.2.1, the PHY shall signal busy with 70% probability of detection during the preamble within the CCA assessment window."</b> <b>(Note that this was copied from a file, not from the presentation CJZ)</b>
Moved by:	The PHY Group
Seconded by:	Art
<b>Motion Discussion:</b>	

Vote: 21:0:7 *Motion #4: passes*

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<b>Motion #5:</b>	<b>To expand the rate field from one bit to two.</b>
Moved by:	The PHY Group
Seconded by:	Naftali
<b>Motion Discussion:</b> Clarified that reserved fields are not to be used by conformant implementations. The reason for the change was to allow a current radio to understand what to do with CCA for a rate that it doesn't know about. Question called by Jim Renfro ?? Passed	

**Motion #6 to amend:** To amend the motion to change the coding for the two reserved rates to “undefined higher rate A and B”

Moved by: Johnny Zweig  
Seconded by: ??

**Motion Discussion:** .That the PHY layer has some indicator to know that something is different.

Vote: 21:3:6 *Motion #6: passes Motion #5 amended*

**Motion #7 to amend:** To amend the motion to add the text “that compliant devices may never send the 10,11 codes”

Moved by: Art Lashbrook  
Seconded by: Pablo

**Motion Discussion:** .

Vote: 15:5:4 *Motion #7: passes Motion #5 amended*

**Motion #8:** To refer the previous motion back to the FH PHY group for review.

Moved by: Art Lashbrook  
Seconded by: Jim Renfro

**Motion Discussion:**

Vote: unanimous *Motion #8: passes Motion #5 as amended referred back to the PHY group*

**Motion #9:** Accept the following text changes to FH section.... lots of text re CCA algorithm. This includes accommodation of unspecified higher rates.

Moved by: The PHY Group  
Seconded by: Johnny Zweig

**Motion Discussion:** The CCA algorithm changes will only work for rates higher than 2 Mbit/s.

Vote: 16:1:10 *Motion #9: passes*

DS PHY presentation

**Motion #10:** To accept changes to DS PHY to accommodate multirate. Actual text was long.

Moved by: The DS PHY group  
Seconded by: Wim

**Motion Discussion:** Asked the MAC guys who worked on multirate if this was compatible. Answer was yes.

Vote: 14:0:8 *Motion #10: passes*

Conformance testing: Slide with some of the discussion. Decided to add two PLME parameters to aid with conformance testing.



**Motion #11:** To add the text to provide the two optional but recommended test PLME parameters.

Moved by: The DS PHY group  
Seconded by: Mike Trompower

**Motion Discussion:**

Vote: 12:1:10 *Motion #11: passes*

IR PHY presentation

responded to comment that the CRC16 was different from all other 802.11.

**Motion #12:** To bring clause 16.2.4.6 into alignment.

Moved by: The PHY group  
Seconded by: Michael

**Motion Discussion:** None

Vote: 19:0:4 *Motion #12: passes*

**Motion #13:** To accept the recommendation as outlined in document 96/58 by the FH group to bring to the full working group a request to provide an official 802.11 position on the NPRM 96-8.

Moved by: The PHY group  
Seconded by: Stuart Kerry

**Motion Discussion:** The Chair ruled the motion out of order.

*Appeal #1.*

Appeal discussed with most in favor of appeal..

Vote: 0:18:6 **Chair overruled**

*Call the question by Dave Bagby; second by Dean passed*

Vote: 9:6:8 *Motion #13: passes*

**12. MAC resolutions:**

There is a question about the tolerance on the SIFS time. The question is not about the absolute times, just how the value is specified. The tolerance is really on the MAC prc delay. The proposal is to make the tolerance 10% of the slot time. The PHY will then provide the lower bound.

**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**

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**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

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**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

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**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**

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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**

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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**

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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**

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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

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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

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Cross Clause Subjects

BC/MC reliability

- Clause 9: C#21: multi-cast reliability from Jan (multiple comments)
- bcast 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

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- 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.

**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

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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

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

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

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 writ to draft text) on basis that comment is not technical in nature.

- **Bob, 2nd Keith**

plenary vote: 15, 1, 1

**Motion #37: passes**

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

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**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?

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**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

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**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

- Clause 7: C#6

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**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...

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**Motion #46:** adopt 96/90.

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

the last motion...

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**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**

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**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**

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**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.

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**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**

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**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.

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*Motion #49 :* *to accept 96/79R1 + change to encoding of supported rates, and incorporate into draft, and close related LB comments accordingly.*

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*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**

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**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**

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*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**

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**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



## Appendix 1

### Attendance list

Title and first name	Last name	status	Company	communications
Mr. Keith B.	Amundsen		Raytheon Company 4483 keith_b_amundsen@raytheon.com	+1 508 470
Mr. Carl F.	Andren		HARRIS Corporation M/S 62A-028 724 7535 candren@harris.com	+1 407
Mr. David	Bagby	<b>voter</b>	Advanced Micro Devices 5425 david.bagby@amd.com	+1 408 749
Mr. Steven	Bass		Genreal Scanning Inc. 1300 X246 sbass@world.std.com	+1 617 275
Mr. John	Biddick		Intermec Corporation 2600 X6647 jbiddick@intermec.com	+1 206 348
Mr. Simon	Black	<b>voter</b>	Symbionics Networks Ltd 421025 sab@symbionics.co.uk	+44 1223
Mr. Jan	Boer	<b>voter</b>	Lucent Technologies WCND 97483 jan.boer@att.com	+31 3060
Mr. Pablo	Brenner	<b>voter</b>	BreezeCom 6459127 pablo@breezecom.com	+972 3
Mr. Naftali	Chayat	<b>voter</b>	BreezeCom 8423 naftali@madge.com	+972 3 645
Mr. Albert	Claessen		NCR +1 404 623 7017 albert.claessen@atlantaGA.attgis.com	
Mr. Ken	Clements		Innovation on Demand 5027 Ken@InnovationOnDmnd.com	+1 408 353
Mr. David C.	Davies		Digital Equipment Corp. 5866 davies@wanton.lkg.dec.com	+1 508 486
Mr. Wim	Diepstraten	<b>voter</b>	Lucent Technologies WCND 97482 wim.diepstraten@att.com	+31 3060
Mr. Robert J.	Egan	<b>voter</b>	The Gartner Group 3828 bobe@ids.net	+1 401 769
Mr. Darwin	Engwer	<b>voter</b>	XIRCOM 2500 dengwer@xircom.com	+1 415 691
Mr. Greg	Ennis	<b>voter</b>	+1 408 358 5544 gennis@netcom.com	

Mr. John	Fakatselis	<b>voter</b>	HARRIS Corporation M/S 62A-028 729 4733 jfakat01@ccmail.mis.semi.harris.com	+1 407
Mr. Matthew	Fischer	<b>voter</b>	Advanced Micro Devices 5403 ablmatt@brahms.amd.com	+1 408 749
Mr. Michael	Fischer	<b>voter</b>	Digital Ocean Inc. 4096 mfischer@child.com	+1 210 614
Mr. George	Fishel	<b>voter</b>	AMP Inc. 6161 grfishel@amp.com	+1 717 592

## Appendix 1

### Attendance list (continuation)

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Mr. Perry	Froggie		HARRIS Corporation M/S 62A-028 729 5642	+1 407
Mr. Ian	Gifford	voter	M/A-COM Inc. 4650 giffordi@corp.macom.com	+1 508 442
Mr. Howard J.	Hall	voter	WINDATA 0170 X345 howardh@wireless.windata.com	+1 508 952
Mr. Victor	Hayes	voter	Lucent Technologies WCND 97528 vic.hayes@att.com	+31 3060
Mr. Ted	Hupper		Digital Equipment Corp. 5235 t_hupper@irocz.enet.dec.com	+1 508 486
Mr. Kevin	Karcz		University of New Hampshire 1008 kjk@iol.unh.edu	+1 603 862
Mr. Dean M.	Kawaguchi	voter	Symbol Technologies Inc. 2629 deank@psd.symbol.com	+1 408 369
Mr. Stuart J.	Kerry	voter	Symbol Technologies Inc. 2634 stuart@psd.symbol.com	+1 408 369
Mr. Brian	Khabbaz		M/A-COM Inc. 2910 khabbazb@corp.macom.com	+1 508 656
Mr. Joseph J.	Kubler	voter	Norand Corporation 1850 kublerj@norand.com	+1 303 442
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Mr. Ravi P.	Nalamati	voter	Digital Equipment Corp. 5189 nalamati@irocz.enet.dec.com	+1 508 486
Mr. Bob	O'Hara	voter	Advanced Micro Devices 4952 bob.ohara@amd.com	+1 408 749
Mr. Al	Petrick	voter	HARRIS Semiconductor MS 58-96 729 4944 apetrick@ccmail.mis.semi.harris.com	+1 407
Ms. Vickie	Prescott	voter	Digital Equipment Corp. 7086 prescott@lkg.mts.dec.com	+1 508 486

Mr. James A.	Renfro	<b>voter</b>	Raytheon Company 1934 james_a_renfro@ccmail.ed.ray.com	+1 508 490
Mr. William	Roberts	<b>voter</b>	American Microsystems Inc. 4690 x6514 wroberts@poci.amis.com	+1 208 233
Mr. Jeff	Schwarz		Digital Equipment Corp. 7575 schwartz@lkg.dec.com	+1 508 486
Mr. Roy	Sebring		Intermec Corporation 1740 rsebring@intermec.com	+1 206 356
Mr. Thomas	Siep	<b>voter</b>	Texas Instruments 6479 siep@ti.com	+1 214 997



## Appendix 1

### Attendance list (continuation)

Title and first name	Last name	status	Company	communications
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Mr. Dave	Strohschein		University of New Hampshire 1529 das@iol.unh.edu	+1 603 862
Mr. Bert	Sullam		Seattle Silicon Corp 4422 x101 bert@seasil.wa.com	+1 206 957
Mr. Mack	Sullivan	<b>voter</b>	Proxim Inc. 1630 mack@proxim.com	+1 415 960
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Mr. Tom	Tsoulogiannis	<b>voter</b>	+1 416 299 1954 tomt@interlog.com	
Ms. Donna A.	Woznicki	<b>voter</b>	Digital Equipment Corp. 5085 woznicki@lkg.mts.dec.com	+1 508 486
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