

Tentative Minutes of the IEEE P802.11 Working Group

**Plenary meeting
Maui, Hawaii
July 10-13, 1995**

Monday, July 10, 1995, 3:30 PM

The meeting was called to order at 3:30 PM Vic Hayes, chairman IEEE P802.11¹⁾ in the chair. Carolyn Heide secretary. Stuart Kerry managing document originals and copying, Tom Baumgartner managing distribution and pigeon hole organization. Leon Scaldefferri handling the attendance list. The agenda document for this meeting is 802.11-95/125.

Objectives for this meeting, all groups

- Prepare draft D2.0 for letter ballot among working group for approval for Sponsor letter ballot
- Review InterOperability Lab involvement

1. Opening

1.0 Secretary: Carolyn Heide is present.

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

1.2 Voting rights:

Voting at the working group level is by voting members only. Chair may permit observers to participate in debate. To become a voting member:

¹⁾The officers of the Working Group are:

Mr. VICTOR HAYES
Chairman IEEE P802.11
AT&T Wireless Comms & Netw. Div.
Phone: +31 3402 76528
Fax: +31 3402 39125
E-Mail: Vic.Hayes@Utrecht.ncr.com

Mr. STUART KERRY
Vice Chairman IEEE P802.11
Symbol Technologies Inc.
Phone: +1 408 369 2634
Fax: +1 408 446 4630
E-Mail: stuart@psd.symbol.com

Mr. DAVE BAGBY
Chair IEEE P802.11-MAC group
Advanced Micro Devices
Phone: +1 408 987 2423
Fax: +1 408 987 2800
E-Mail: david.bagby@amd.com

Ms. Carolyn Heide
Secretary IEEE P802.11
Spectrix Corp.
Phone: +1 708 491 4534
Fax: +1 708 467 1094
E-Mail: 71041.3262@compuserve.com

Mr. JON WALTER ROSDAHL
Vice Chairman IEEE P802.11
Novell Inc.
Phone: +1 801 429 3183
Fax: +1 801 429 7232
E-Mail: jrosdahl@novell.com

Mr. JIM McDonald
Vice-Chair IEEE P802.11-PHY group
Motorola Inc.
Phone: +1 708 576 3169
Fax: +1 708 576 8585
E-Mail: jim_mcdonald@wes.mot.com

Mr. BOB O'HARA
Editor IEEE P802.11
Advanced Micro Devices
Phone: +1 408 987 2421
Fax: +1 408 987 2814
E-Mail: bob.ohara@amd.com

Mr. LEON SCALDEFERRI
Vice Chairman IEEE P802.11
NSA
Phone: +1 301 688 0293
Fax: +1 688 0289
E-Mail: lsscald@alpha.ncsc.mil

Mr. GREG ENNIS
Editor IEEE P802.11
Phone: +1 408 356 4775
Fax: +1 408 358 8991
E-Mail: gennis@netcom.com

- 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 status:

69+1	Voting members (the 1 was excused for missing voting deadline)
15-1	Voting membership lost
17	Nearly Voting members (will become members next time they attend)
44	Aspirant Voting members (have participated once)

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

Coffee breaks at 10 AM and 3 PM. Lunch noon to 1 PM

1.5 Other announcements

1.5.1 Chair for IR group

Tom Baumgartner can chair this meeting and maybe the next two, but that is the only commitment that can be made at this point.

1.5.2 IR Receiver Power Spec, comment received by Vic from a member - refer to IR Group

In draft D1, paragraph 12.3.3.7, receiver sensitivity is defined to be $2E-5$ mW/cm².

Just want to make sure the unit (mW) is O.K. And then, what is the rationale for having for the Energy Detect signal a higher figure ($1E-3$ mW/cm², paragraph 12.3.4.3) ?

1.5.3 PAR extension approved by IEEE Standards Board

There will be a new time limit but that is not yet known.

1.5.4 OSI Object Identifier for 802.11 received

IEEE 802.11 was assigned 10036 (which makes the global identification 1 2 840 10036)

1.5.5 Petitions for High Speed Wireless LANs

WINForum (available on the .11 server now) and Apple (will get it onto the server)

Consequently the FCC requests comment on both

- July 10 for Comments
- July 24 for Reply Comments

2. Approval of the minutes of the previous meeting

2.1 West Palm Beach meeting, Document IEEE P802.11-95/32: approved by consensus

2.2 Salt Lake City meeting, Document IEEE P802.11-95/88: Larry Zuckerman says the minutes are incomplete. One of his two submissions is not included. He will bring a submission of what is required to correct the minutes in the working group meeting on Wednesday. Anyone with other objection should do the same.

2.3 Matters arising from the minutes: none.

3. Reports

3.1 The Executive Committee, by Vic Hayes

- PARs:
 - Multimedia Bridging
 - 802.1D revision
 - Revise/Re-affirm 802.3
 - LLC2, toleration of I-PDUs
- SC6 meeting Brazil
 - December 4-15, 1995
 - Register 802 representatives
 - New Work Item start? No one objects to making a work item proposal. Rich ? volunteers.
- New Operating Rules
- July 96 meeting to Netherlands
- communication from ITU
 - work on RLAN going on
 - guidelines for communication
 - actions to be proposed by .1, .11, .0
 - anyone interested bring input to Vic to take to excomm
- Discontinue GDMO CMIP encoding as mandatory
- Documents distribution
 - 802.3 tutorial half price (\$21)
 - bulletin board: stdsbbs.ieee.org (140.98.1.11)
 - Walter Pienciak 908 562 3805
 - Tuesday 4:30 in office

3.2 The Editors, by Bob O'Hara

- draft 1.2 is available on the server and in a zip file here from Bob.
- the draft is in 3 forms on the server - Word V6 format, Word V2, and Word V6 individual sections.

- changes will be made on the individual section files. To submit changes take the individual section file and cut a piece out of that to make your submission so the editors have just the short piece that can be sucked back into the section file.
- there are some figures that need to be addressed - they display fine on screen but don't print. This is still to be resolved.

3.3 Letter Ballot #1 Salt Lake City Results

This is document 95/132, which is available on the server. 70 persons voted, 66 voting were members. At that time there were 84 members, so the ballot is valid.

All recommendations passed.

3.4 Letter Ballot #2 Salt lake City Results

This is document 95/133, which is available on the server. 71 persons voted, 69 were voting members. At that there were 84 voting members, so the ballot is valid.

The two sections were approved. The two FH motions failed (by 70% and 73 %).

Some people say that they voted no because the vote by which these motions passed the PHY group was so marginal that it indicated they didn't really have agreement within the group. there are some submission which re-address these issues for this meeting, so the PHY group will reconsider the questions.

3.5 San Jose Finances, remain unresolved.

3.6 InterOperability Lab sign-ups

3.7 Radio LAN at the ITU, document 95/136

Draft recommendation in SG9 (fixed services)

Draft questions in SG8 (mobile services)

Vic would like to have this group address this. He will get it distributed.

4. Review of Contributions:

For MAC group - 14, 109, 111?, 135, 137, 138, 139, 140, 141-147, 150

For MAC/PHY group - 118, 122, 136, 148, 149, 157

For PHY group - 103(FH), 134, 151(FH), 152(DS), 153(DS), 155, 156(FH)

Void - 16, 48, 49, 98, 117

5. Adoption of Agenda: shown in the agenda document 95/125

Motion #1: To adopt agenda as modified by additions to "6. Unfinished Business" and "7. New Business".

Moved by: Michael Fischer
Seconded by: Dean Kawaguchi

Motion 1 Discussion: none

Approved by consensus

Motion #1 passes

6. Unfinished Business:

6.1 Matters arising from report

Draft D1.2 available as reported by editor.

Document Distribution changes -

- submissions will be: Word V6 zipped in mailings; Word V6 and V2 zipped on FTP server.
- submissions will be: PowerPoint (PPT) V3 zipped in mailings; PPT V3 and Rich Text Format RTF) on FTP.
- Draft will be: Word V6 zipped and passworded in mailings and FTP; Word V2 on FTP zipped and passworded.

There is some concern about using PPT V3 instead of V4, although people say there are converters available.

Motion #2: To change PPT to V4

Moved by: Rick White
Seconded by: Dave Bagby

Motion 2 Discussion:

Pro: if we are going to use the latest of everything then lets do that. There are converters.

Con: we are tired of supporting Microsoft. There are converters.

Approved: 16 Opposed: 6 Abstain: 17 *Motion #2 passes*

Mailing will be PPT V4, and on the FTP server will be PPT V3, V4 and RTF.

FTP servers

- atg.apple.com - separate & zip
- ftp.cs.utwente.nl - separate & zip
- stds.ieee.org - separate & zip
- only for last two meetings

BBS

- IEEE, only last 2 meetings

IEEE FTP and BBS has pubic section for last 4 mailings, private section for standards, private section for email archive.

6.2 Testing

Larry Zuckerman will be the convener of the testing group. If interested in participating, contact Larry. The group will meet directly after the full working group on Wednesday.

6.3 95/37 vote

Postponed until Wednesday full working group meeting.

7. New Business

7.1. ITU communication

Postponed to Wednesday full working group so document 95/168 can be circulated.

7.2. Petitions

It is too late for comments, and reply comments have to based on the comments which are not known yet. The standing committee would have to prepare by 7/24 - there isn't enough time. The standing committee needs to be awoken outside of meeting time in the future to handle these things. No action possible at this time.

7.3. Conformance claims

Vic prepared a boiler plate letter to be sent to anyone who was caught claiming conformance, and submitted it to the excom in a motion which was defeated (0,14, 1). Discussion brought problems to light - once one is written, many must be written. You can't just pick on one company. You could cause unfair trade problems legally. Don Loughery took it on as an issue to discuss with the standards office, because something must be done but the chair of a working group is not the appropriate one to do it. Wait and see what excom and Don come up with.

Some people say that 802's job is to make standards, not police them. But doing nothing leaves the field open to anyone to claim whatever they want.

A number of people say "who cares?". Others say that the offenders are getting unfair market advantage and potentially defaming the name of the standard by releasing sub-quality products.

There is a suggestion to send an open letter to the trade press rather than a specific one to offenders. There is a suggestion that we could ask the IEEE for official language for compliance and attach that to the press release to give teeth to some kind of future copyright violation.

Motion #3: **To prepare a press release by IEEE to clarify the status of 802.11 as an unfinished standard, any claims to compliance is deemed fraudulent.**

Moved by: Wayne Moyers
Seconded by: Larry Zuckerman

Motion 3 Discussion:

There is a feeling that the best way to stop false claims is to complete the standard, so let's forget this and get to work.

Motion #4: **To postpone motion 3 indefinitely.**

Moved by: Dave Bagby
Seconded by: Stuart Kerry

Motion 4 Discussion:

People speaking against this motion feel that the level of conformance claiming must be lowered somehow or all companies must start to claim conformance now to avoid being at a market disadvantage.

Ed Geiger calls the question, seconded by Michael Fischer (many ayes, one nay)

Approved: 19 Opposed: 11 Abstain: 8 **Motion #4 passes**

Motion #3 postponed indefinitely

There is a discussion of whether the problem is the press claiming companies are conformant, therefore the companies concerned are innocent victims, or the problem is companies actually making the claim. Many people have seen advertisements, from at least 2 companies, directly claiming conformance.

What the press says is not an issue to the people who are concerned about this. To them it is important to make an effort and take a stand on these false conformance claims being made today. Otherwise years of work are wasted, credibility is lost, and market advantage gained by these intentional misrepresenters. Some still favor everytime a violation is brought to the IEEE's attention a letter begin sent out.

Motion #5: **That a letter be drafted by this group and forwarded to 802 excom taking a position against misrepresentation of 802.11 standard compliance.**

Moved by: Mack Sullivan
Seconded by: Tom Baumgartner

Motion 5 Discussion:

Tom Baumgartner calls the question, seconded by Rick White (all ayes, no nays)

Approved: 16 Opposed: 10 Abstain: 12 **Motion #5 passes**

Mack Sullivan will lead drafting this letter, anyone who wants t help see him directly.

8. Adjourn for subgroups - 6 PM

Tuesday, 11 July, 1995

MAC subgroup & PHY-FH, PHY-DS, PHY-IR ad-hoc groups

Wednesday AM, 12 July, 1995

MAC subgroup & PHY-FH, PHY-DS, PHY-IR ad-hoc groups

Wednesday PM, 12 July, 1995

Full Working Group

The meeting was reconvened at 1:10 PM, by chairman Vic Hayes, Carolyn Heide secretary.

9. Opening

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

9.2 Document List Update: Stuart Kerry isn't here so this is postponed

9.3 Agenda Adjustments: add "9.5 Old Business". add "MAC/PHY Interface Issues" to agenda item 10.

Motion #6: to amend agenda as above.

Moved by: Dean Kawaguchi

Seconded by: Wayne Moyers

Motion 6 Discussion: none

Approved: 28

Opposed: 1

Abstain: 3

Motion #6 passes

9.4 Announcements

9.4.1 Corrections to attendance list MASTER: has been handed out, please see Vic if there are mistakes.

9.4.2 Found West Palm Beach, standards books: please claim if you lost them.

9.4.3 Volunteers for mailing preparation, Thursday evening: Leon Scaldeferri, Tom Baumgartner, Ed Geiger, Dean Kawaguchi, led by Stuart Kerry.

9.4.4 Conformance testing: meeting at 5:30 PM

9.5 Old Business

9.5.1 Re-approve Salt Lake City Financial report: Document 95/108a

Motion #7: To approval modified financial report as in document 95/108a.

Moved by: Wim Diepstraten

Seconded by: Michael Fischer

Motion 7 Discussion: none

Motion #7 passed by consensus

9.5.2 Thoughts about unapproved drafts....

Doc IEEE P802.11-95/170T contains draft of a letter. The IEEE has committed to send out letters to offenders.

9.5.3 ISO NWI report-ad hoc group: Rich Gardner not here, report delayed

10. Cross Group Issues

MAC/PHY Interface Group Report, by Dean Kawaguchi

Motion #8: To accept recommendation of group to remove jabber control

Moved by: Dean Kawaguchi on behalf of MAC/PHY Interface group
 Seconded by: Chris Zegelin

Motion 8 Discussion: none

Approved: 28 Opposed: 3 Abstain: 11 *Motion #8 passes*

Motion #9: To accept the recommendation to adopt 95/38 changes to the service primitives

Moved by: Dean Kawaguchi on behalf of the MAC/PHY Interface Group
 Seconded by: Michael Fischer

Motion 9 Discussion: none

Approved: 36 Opposed: 0 Abstain: 5 *Motion #9 passes*

Motion #10: To accept the recommendation of the group to adopt motion #1 of 95/149Ar1.

Moved by: Dean Kawaguchi on behalf of the MAC/PHY Interface Group
 Seconded by: Michael Fischer

Motion 10 Discussion: none

Approved: 31 Opposed: 1 Abstain: 4 *Motion #10 passes*

False Alarm Rate and CCA Times for FH PHY, P802.11-95/22, Jim Renfro, Raytheon

Author not present

10.7 & 10.8 Edits From May Meeting, P802.11-95/134, Ed Geiger, Apple, D. Kawaguchi, Symbol

Section 10.7 & 10.8 (d1.1) need 2 Meg PHY PMD changes and PHY MIB tables where values are. These are in 95/134 - changes that were made in May.

Motion #11: To adopt changes in 134 to sections 11.7 and 11.8 of d1.2.

Moved by: Dean Kawaguchi on behalf of the FH group
 Seconded by: Jim McDonald

Motion 11 Discussion:

There are additional changes beyond these. They can be made by letter ballot comment

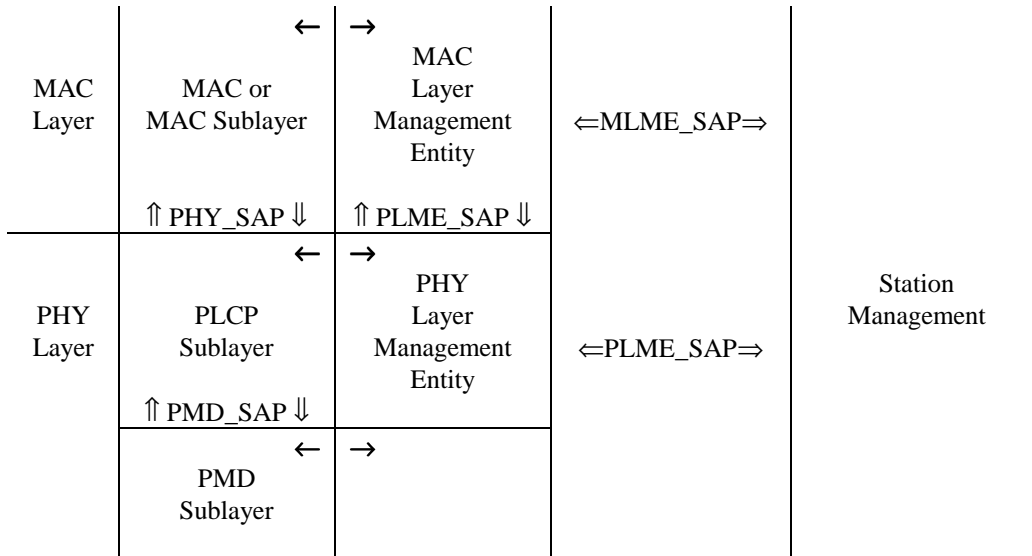
Approved: 24 Opposed: 0 Abstain: 17 *Motion #11 passes*

Proposed Text for Section 7, P802.11-95/118, by Greg Ennis

Section (d1.1 6.0) is currently empty. The goal was to develop a framework that describes layer management that is consistent with rest of the standard. Doesn't describe the function of layer management, just provides the framework to do so.

In terminology there are differences between this and 95/38. Changing to MLME and PLME (MAC/PHY layer management entity) makes them the same.

The figures need to change to make this picture:



Motion #12: To accept 95/118 for inclusion in the 802.11 draft, with:
 1) remove last sentence of first paragraph after figure 1.
 2) substitute the new figure and terminology to replace figure 1 and 2 (suitably modified)

Moved by: Greg Ennis
 Seconded by: Wayne Moyers

Motion 12 Discussion:
 Section 2 of the draft has a figure that is inconsistent with this, the editors will handle this.

Approved: 39 Opposed: 0 Abstain: 5 **Motion #12 passes**

Proposed Text Change for MIB Variables Section 9 of Draft 1, P802.11-95/122, by Ed Geiger

Distributed copies are incomplete, new copies will be handed out.

This is the result of May joint MAC/PHY work to redefine primitives common to all PHYs.

Motion #13: To accept the text changes in 122 to go into the draft standard

Moved by: Ed Geiger
 Seconded by: Wayne Moyers

Motion 13 Discussion: none

Approved: 33

Opposed: 0

Abstain: 11

Motion #13 passes

Radio LAN work in the International Telecommunications Union Radio communication sector, P802.11-95/136

and

Communication to IEEE 802 on Draft Recommendation R-LAN from ITU-R Working Party 9B, P802.11-95/168, Vic Hayes

Second paper explicitly asks for input from us. Vic requests comments from anyone interested, preferable before the August meeting.

The documents referenced by 95/136 are very old, at least we should advise them of the current state of things. Some education is required, we could send them our next draft.

Bit Error Rate versus Frame Error Rate in Wireless LANs, P802.11-95/151, Nathan Silberman

Presented at PHY group.

Operation in an Interference Limited Environment, P802.11-95/157, Jim McDonald, Motorola

This paper points out a problem, hoping that a solution can be found in forthcoming work.

Discussion:

Stopping the situation from occurring is the best solution, by better CCA and better collision avoidance.

Isn't this entirely a PHY issue? The MAC state machine has no problem with this if the PHY indicated end of signal and start of new reception when signal b started.

Channelization should be used to stop this from happening.

The problem is the PHY is receiving frame a and will just switch to frame b - it won't know a new frame has started just because the signal strength has changed. All the information is useless at that point because the CRC on the finally received data is bad. If there was a way for the MAC to tell the PHY to start looking for a new PLCP header again it might an efficiency gain.

It is just as likely that frame a, frame b, or neither, or both are the frame wanted, - one or both are going to be lost, so who cares. We must validate the CRC before we can even decide to work on the address, so we can't abort things in the middle and restart the PHY. In this situation information is going to be lost.

Careful selection of RSSI level may be used to help situations like this.

The two bit streams will probably be out of synch and clock will be lost. You can try to do something to help, but you will probably lose both. This is a collision, treat it as such.

If you are going to use a non-synchronized protocol, give it up - that's all you can do.

Can't be solved. With the current MAC all frames must be received whether they are for you are not because you have to look at duration. This is a PHY issue - the PHY should be able to detect this situation and terminate message a reception, indicate end of activity for frame a and the start of activity for frame b.

Motion #14: **the Mac State Machine provide the option for a receiving station to reject an incoming compliant IEEE 802.11 transmission as soon as the receiving station determines that the packet is not intended for the station it. Once rejected, the station is free to receive another signal even if that signal begins before the scheduled end of the rejected signal.**

Motion #14 ruled out of order

The motion is ruled out of order because it does not provide corrective text for the draft.

11. PHY Resolutions

11.1 DS Resolutions: none

11.2 IR Resolutions: none

11.3 FH Resolutions**Motion #15:** To use FER in all 802.11 PHY's to verify BER performance of 10^{-5} .

Moved by: Jim McDonald on behalf of PHY group
 Seconded by: Dean Kawaguchi

Motion 15 Discussion:

How can we vote for this without knowing how to do the conversion BER to/from FER?

Approved: 30 Opposed: 2 Abstain: 10 *Motion #15 passes*

Motion #16: That the RF power level tolerance be +/- 3dB nominal temp and voltage.

Moved by: Jim McDonald on behalf of the FH group
 Seconded by: Dean Kawaguchi

Motion 16 Discussion: none

Approved: 26 Opposed: 2 Abstain: 12 *Motion #16 passes*

Motion #17: That the RF power level be defined in dBm.

Moved by: Jim McDonald on behalf of the FH group
 Seconded by: Larry Zuckerman

Motion 17 Discussion: none

Approved: 39 Opposed: 0 Abstain: 5 *Motion #17 passes*

Motion #18: To replace PHY length field related MIB variables with the following 2 variables:
 - MPDU_MAX_LENGTH (static - max MPDU length that the PHY can accept from the MAC or the media)
 - PREF_MAX_MPDU_FRAMNT_LENGTH (dynamic LME) - preferred max MPDU length when using fragmentation in an interference limited environment.

Moved by: Jim McDonald on behalf of the FH group
 Seconded by: Wayne Moyers

Motion 18 Discussion:

This must be handled in the full PHY group first.

Motion #18 withdrawn

Motion #19: The sensitivity is defined as the minimum receiver input signal level required for a FER of 3% for MPDUs of 400 octets generated with pseudo random data. The sensitivity shall be less than or equal to -80 dBm. The reference sensitivity is defined as -80 dBm for the 1 Mb FH PHY specification.

The editors shall also ensure that the following is kept but not duplicated within the specification:

The FER shall be less than or equal to 3% for MPDUs of 400 octets between the receiver input signal ranging from -20 dBm to the sensitivity, across the frequency band of operation.

Moved by: Jim McDonald on behalf of the FH group
 Seconded by: Wayne Moyers

Motion 19 Discussion:

This is assuming no retries.

Still don't know how to convert from FER to BER, so is this better or worse than target rate in PAR? This is for using a set of packets to test sensitivity, it is not performance related. PAR speaks to accuracy of what the MAC/PHY combination passes to the LLC - doesn't tell you how many re transmissions you had to do to get that accuracy, or how much data got through at all. This refers to raw error rate over the air.

Dean Kawaguchi calls the question, seconded by Peter Chadwick (no nays)

Approved: 26 Opposed: 2 Abstain: 14 *Motion #19 passes*

Motion #20:

The sensitivity is defined as the minimum receiver input signal level required for a FER of 3% for MPDUs of 400 octets generated with pseudo random data. The sensitivity shall be less than or equal to -75 dBm. The reference sensitivity is defined as -75 dBm for the 2 Mb FH PHY specification.

The editors shall also ensure that the following is kept but not duplicated within the specification:

The FER shall be less than or equal to 3% for MPDUs of 400 octets between the receiver input signal ranging from -20 dBm to the sensitivity, across the frequency band of operation.

Moved by: Jim McDonald on behalf of the FH group
 Seconded by: Tom Baumgartner

Motion 20 Discussion: none

Approved: 25 Opposed: 1 Abstain: 13 *Motion #20 passes*

12. MAC Resolutions: none

13. Adjourn - 4 PM

Wednesday PM, 12 July, 1995
MAC subgroup & PHY subgroup

Thursday AM, 13 July, 1995
MAC subgroup & PHY-FH, PHY-DS, PHY-IR ad-hoc groups

Thursday PM, 13 July, 1995
Full Working Group

The meeting was reconvened at 1:05 PM, by chairman Vic Hayes, with Carolyn Heide secretary.

14. Opening

14.1 Announcements:

14.1.1 Sponsor ballot info

30 days before our draft is ready for sponsor ballot, IEEE will send out an invitation for ballot

Invitation will go to:

- IEEE 802 addresses and
- Those that have applied for invitations for balloting in the 802.11 ballot group

Two types of entries in the ballot group

- voters, for members of the IEEE or the Computer Society only
- observers, like universities we expect valuable information from

Those that respond to the invitation are expected to actually vote; to make sure the ballot is valid because 75 % return are required

14.1.2 Unapproved drafts

IEEE Standards Office found willing to send letters to claims of conformance to non-existent standards

- details to be worked out, hopefully within 30 days
- first thoughts in pigeonholes, comments and suggestions directly to the chair
- requests have to come from Working Groups Chairs
- Members are requested to send sufficient exhibits if they find subject claims

14.1.3 Mechanisms for sending of draft to ITU in development

The official way to send drafts to ITU is under resolution in the ExCom

Issue is that International Standards bodies are not recognized

ITU-T working on it

May be fastest way is through US delegations

14.1.4 InterOperability Lab

The person who represented IOL last time says some interest has been seen.

One person at this meeting says that their company expressed interest and got no feedback from IOL.

14.1.5 Master attendance list - please update master at back of room if needed

14.1.6 Integrity of Draft with PAR - at sponsor ballot draft will be checked against PAR, so look for that in your letter ballot comments

14.2 Document List Update: everybody give electronic copies to Stuart Kerry. Bob O'Hara needs electronic copies of anything that changes the draft. At 3 PM take anything that is left out of your pigeon hole, after that they are closed.

14.3 Agenda Adjustments: agenda adopted by consensus

15. Reports

15.1 MAC Group, by Dave Bagby

This report uses d1.2 section numbers when referring to draft sections.

Goals from May 95

Send D1.3 (D1.2 + July work) MAC chapters for 802.11 LB approval to forward to Sponsor ballot.

Operating rule will be "no putting decisions off". There will be a decision for all LB issues in D1.3 by the end of the mtg.

Misc Subjects

May MAC minutes approved
Carolyn took minutes this week

Papers Handled this week (numerical order)

95/14: New MAC State Machines
95/109: Response on deferred RTS/CTS Comment
95/111: Updated Comments on Section 4.0
95/135: RSA letter
95/137: Power Management in an Ad-Hoc Network
95/138: Application of WEP to MPDU vs MSDU payload
95/139: Duration ID coding
95/140: Corrections and simplification to PCF
95/141: Section 4 & 7 cleanup comments
95/142: Proposal to correct the DTIM and TIM elements defined in section 4
95/143: Definition of the Power management bits in section 4
95/144: Proposal to add a Data Aging field to the Association and Reassociation frames
95/145: Proposal to extend the Capability Information field
95/146: Proposal to include a "Preferred IV list" in a Beacon frame
95/147: Proposal to include resource indication in beacon frame.
95/149: Harmonization of time encoding
95/150: A delivery only PCF

Full MAC group presentation actions

95/137: Power Management in an Ad-Hoc Network
Moved: to adopt proposal and text from 95/137.
MAC vote: 4,4,6 - failed

95/141: Section 4 & 7 cleanup comments
Moved: to change the name of PSPM to PSM
MAC vote: 6, 2, 4

Motion #21: **To accept this recommendation from the MAC subgroup.**

Moved by: Dave Bagby on behalf of the MAC subgroup
Seconded by: Tom Baumgartner

Motion 21 Discussion: none

Approved: 31 Opposed: 1 Abstain: 7 **Motion #21 passes**

95/146: Proposal to include a "Preferred IV list" in a Beacon frame
Moved: to adopt 95/146
MAC vote: 2, 6, 4 - failed

95/150: A delivery only PCF
Moved: That the text changes to explicitly allow and to indicate the capability of a delivery only PCF, as contained in doc 95/150, be adopted and placed into the draft.
MAC vote: 9, 0, 2

Motion #22: **To accept this recommendation from the MAC subgroup.**

Moved by: Dave Bagby on behalf of the MAC subgroup
 Seconded by: Bob O'Hara

Motion 22 Discussion: none

Approved: 30 Opposed: 1 Abstain: 11 *Motion #22 passes*

95/14: Updated MAC state machines

Moved: that the updated state machines from 95/14 be adopted as an improvement to D1.2 and be incorporated into the next draft revision.

MAC vote: 4, 3, 3

Plenary vote: 36, 2, 7

Motion #23: **To accept this recommendation from the MAC subgroup.**

Moved by: Dave Bagby on behalf of the MAC subgroup
 Seconded by: Bob O'Hara

Motion ruled out of order: no text available for the draft standard.

Ruling appealed by Bob O'Hara, seconded by Wim Diepstraten

Discussion of Appeal

Those in favor of overruling the ruling of the chair say that every effort has been made to make the paper available - it was sent by proper channels for reproduction days ago, it is due to the terrible operation of document service at this meeting that it isn't here. Without the changes to the state machines contained in this document the new draft will get exactly the same comments as the last, which just wastes everyone's time. We should accept this sight unseen based on all of us knowing that the author, Michael Fischer, is a trustworthy frequent contributor to this group. Even is he gives us a document full of smiley faces, it can't be any more wrong than what is in there now. Text available is a subjective thing - it is available electronically and could be handed around in that form right now if we wanted to do it that way.

Those opposed to overruling the chair feel that they need to know what they are voting for or against. Michael's trustworthiness is not the issue - voting for something you haven't seen is simply not a sound practice. Many other times people have brought perfectly valid submission but because those did not contain exact text for the draft they have been ruled out of order. Allowing this motion to continue is one set of rules for some people and another for others.

Vote: those in favor to sustain the ruling of the chair: 14, 24, 8 - **Ruling Overruled**

Motion 23 discussion

Postponed to end of MAC group draft changing motions (in hopes of having some text by then).

Actions by Section

Section 1

No changes made.

Section 2

Minor changes resulting from 95/138
 see section 5.

Section 3

Minor changes resulting from 95/138
 see section 5.

Section 4

Moved: To adopt changed text from 95/142 with exception of last sentence of para 3, pg 4 of paper (relating to concatenated TIMs).

MAC vote: 19, 0, 1

Motion #24: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
Seconded by: Chris Zegelin

Motion 24 Discussion: none

Approved: 39 Opposed: 0 Abstain: 4 *Motion #24 passes*

Moved: to adopt text from 95/139 (re encoding of duration field).
MAC vote: 18, 0, 0

Motion #25: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
Seconded by: Michael Fischer

Motion 25 Discussion: none

Approved: 39 Opposed: 0 Abstain: 3 *Motion #25 passes*

Moved: Change sec 4.3.1.2 - change one octet to two octets as correction to not limit beacon interval to 256 ms.
MAC vote: 21, 0, 1

Motion #26: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
Seconded by: Leon Scaldeferri

Motion 26 Discussion: none

Approved: 43 Opposed: 0 Abstain: 4 *Motion #26 passes*

Moved: to adopt concepts from 95/144 as modified by s4 grp.
- (adds listen interval from MIB to assoc req and reassoc req).
Text is in doc 95/177 (updated sec 4 from this week)
MAC vote: 20, 0, 2

Motion #27: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
Seconded by: Sarosh Vesuna

Motion 27 Discussion: none

Approved: 35 Opposed: 0 Abstain: 5 *Motion #27 passes*

Moved: motion 1 from 95/149AR1
- (changes of ms to Kmicro seconds per paper).
MAC vote: 19, 0, 4
already adopted in Wed WG session

Section 5

95/135: RSA letter
Distributed, no action needed.

Moved: Adopt text from 95/138 w/ additional corrections identified during small group review and to add an alignment octet to the IV field to make IV field 4 octets long.
Text in doc 95/138R1
MAC Vote: 14, 0, 7

Motion #28: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
 Seconded by: Leon Scaldeferri

Motion 28 Discussion:

This is one of the first things that is a less than subtle change. This means a lot more processing is required to do this de/encryption. Moving encrypt down from MSDU to MPDU multiplies processing as must be done for each fragment. This is the right thing to do architecturally, but may mean short term pain. Before this change an implementation would have had to save the state in progress decryption state while all fragments received. This minimizes what needs to be saved, but it does mean that the entire calculation must be done for each fragment - a high processing time cost.

Approved: 23 Opposed: 0 Abstain: 24 **Motion #28 passes**

Section 6

Moved: That the operating rules for processing responses to the D1.3 (and subsequent) letter ballots within 802.11 be updated as follows:

a) Explicitly allowing the rejection of comments which request the addition or removal of significant functionality, but do not provide analytical, empirical, or simulation results that support the technical decision being requested.

b) Explicitly allow votes of "approve, with comments" for the purpose of placing into the technical record of this working group analytical, empirical, or simulation results in support of (disputed) functionality already in the standard.

MAC vote: ruled out of order.

Discussion:

This was considered a procedural motion that dealt with rules outside the scope of the MAC subgroup. It was basically an objection to letter ballot rejects that just said remove this without any reason why. Vic believes that he has made this clear in his voting rules.

The specific origin of this motion was set of comments which asked for the removal of significant functionality, saying that the complexity caused by it is not worth benefits of keeping it. The rationale provided for removal was equal to or better than the rationale for including the functionality in the first place. So what is the basis on which people can resolve no votes like this?

Moved: That the text changes relating to the PCF, contained in document 95/140 be adopted and placed into the draft standard.

MAC vote: 10, 0, 11

Motion #29: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
 Seconded by: Michael Fischer

Motion 29 Discussion: none

Approved: 26 Opposed: 0 Abstain: 20 **Motion #29 passes**

Moved: That the following text be added to the end of section 4.4:

- ?) Beacon – Data/end*
- ?) Data* – ACK – Data/end*
- ?) Data* – *CF-Ack – Data/end*
- ?) Data+CF-Poll – Data+CF-Ack – Data/end*
- ?) Data+CF-Poll – RTS – CTS – Data – ACK – Data/end*
- ?) Data+CF-Poll – Null – Data/end*
- Where "Data*" can be any of the Data sub-types,
- "Data/end*" can be any of the Data or CF-End sub-types,
- and "*CF-Ack" can be Data+CF-Ack or CF-Ack(no data)

MAC vote: 17, 0, 3

Motion #30: **To accept this recommendation from the MAC subgroup.**

Moved by: Dave Bagby on behalf of the MAC subgroup

Seconded by: Michael Fischer

Motion 30 Discussion: none

Approved: 37 Opposed: 0 Abstain: 8 **Motion #30 passes**

Moved: That the connection mechanism be removed from the draft standard, but the means by which to encode connection IDs in the Duration/ID field be reserved in order to allow the future inclusion of connection-oriented services. This involves:

- Removing sections 3.2.3, 4.3.2.6, and 6.3.6.
- Modifying section 4.1.2.3 to list the coding of connection IDs as a reserved usage (exact text to be written by editors, as this section is undergoing update by the section 4 sub-group)
- Editorial changes to other sections as needed for consistency.

MAC vote: 14, 2, 2

Motion #31: **To accept this recommendation from the MAC subgroup.**

Moved by: Dave Bagby on behalf of the MAC subgroup

Seconded by: Leon Scaldeferri

Motion 31 Discussion:

There is fear that this is one of the last remaining vestiges of TBS, which the PAR requires us to support. (Although there is a suggestion that what the PAR requires is support of a 'voice service', not actually TBS.) Removing this gets us farther and farther away from support of TBS.

Others say that this motion just removes some frames that are undefined and the use of which is unspecified. There have been requests for people to bring submissions addressing these frames and their use, but none have been received.

Approved: 33 Opposed: 3 Abstain: 10 **Motion #31 passes**

Section 7

No changes from MAC work - section filled in by 95/118 adopted in Wed WG session.

Section 8

Moved: To adopt text on screen from Bob O's machine in 8.1.2 re TSF timer language.

Defined TSF timer sync mechanism.

Text is in doc 95/178 (updated sec 8 text)

MAC vote: 11, 4, 6

Motion #32: **To accept this recommendation from the MAC subgroup.**

Moved by: Dave Bagby on behalf of the MAC subgroup

Seconded by: Sarosh Vesuna

Motion 32 Discussion: none

text in 178

Approved: 26 Opposed: 1 Abstain: 16 **Motion #32 passes**

Moved: To adopt 8.1.2.3 text re sync timer accuracy as shown by Bob's screen (TSF timer complement to previous motion's text for recv end).

Text is in doc 95/178 (updated sec 8 text)

MAC vote: 12, 2, 7

Motion #33: **To accept this recommendation from the MAC subgroup.**

Moved by: Dave Bagby on behalf of the MAC subgroup
 Seconded by: Michael Fischer

Motion 33 Discussion:

Bob O'Hara displays section 8.1.2.3 with the changes concerned.

Approved: 33 Opposed: 0 Abstain: 9 *Motion #33 passes*

Moved: To accept text on screen from bob O in sec 8.1.3.2.2 re active scanning procedure text improvement.

Text is in doc 95/178 (updated sec 8 text)

MAC vote: 16, 1, 1

Motion #34: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
 Seconded by: Leon Scaldeferri

Motion 34 Discussion: none

Approved: 30 Opposed: 0 Abstain: 14 *Motion #34 passes*

Moved: To adopt text shown on screen in sec 8.2.1.4 re descriptive text for fig 8-4.

Text is in doc 95/178 (updated sec 8 text)

MAC vote: 12, 0, 4

Motion #35: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
 Seconded by: Simon Black

Motion 35 Discussion: none

Approved: 32 Opposed: 0 Abstain: 11 *Motion #35 passes*

Moved: To adopt improved MIB text in 8.4.1.1

Text is in doc 95/178 (updated sec 8 text)

MAC vote: 11, 0, 1

Motion #36: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
 Seconded by: Leon Scaldeferri

Motion 36 Discussion: none

Approved: 29 Opposed: 0 Abstain: 13 *Motion #36 passes*

Moved: to accept changes to MIB and associated text in sec 8 by the sec 8 working groups.

This completes all the D1 LB comment processing!

Text is in doc 95/178 (updated sec 8 text)

MAC vote: 18, 0, 2

Motion #37: To accept this recommendation from the MAC subgroup.

Moved by: Dave Bagby on behalf of the MAC subgroup
 Seconded by: Bob O'Hara

Motion 37 Discussion: none

Approved: 33 Opposed: 0 Abstain: 11 *Motion #37 passes*

Motion 23 Discussion (con't)

Michael Fischer displays Document 95/14, and walks very briefly through the state machines therein. There is no intention to change anything, just to reflect functions as there are now.

Wayne Moyers calls the question, Carolyn Heide calls the question (no nays)

Approved: 36

Opposed: 2

Abstain: 7

Motion #23 passes

D1.3 LB motion:

Moved: That chapters 1 through 8 of D1.3 be submitted to the 802.11 voting membership via letter ballot for approval to forward for sponsor group ballot.

Mac vote: 16, 1, 3

Motion #38: To accept this recommendation from the MAC subgroup.

as amended by motion 51:

That the entire draft of D1.3 be submitted to the 802.11 voting membership via letter ballot for approval to forward for sponsor group ballot.

Moved by: Dave Bagby on behalf of the MAC subgroup

Seconded by: Leon Scaldeferri

Motion 38 Discussion:

The motion says chapters 1-8 because the MAC group didn't feel they should make motions for other subgroups' sections.

There is a discussion of timing. The draft will probably be in people's hand either the first or third week of August. The ballot period minimum is 30 days, but we may choose 40 days. There are 6 weeks between now and the next interim meeting, so it will fall in the middle of the ballot period. There are 10 weeks between that meeting and the next, so the ballot could go out and be returned in that period. Either way the first time available to discuss the ballot comments is the November meeting. Releasing it after the next meeting gives us more time to make it better and increase the odds of its being accepted by the ballot.

There is a statement that the FH PHY could use the extra time as well, although there is plenty of work to do on conformance testing to occupy the August meeting. Releasing after the next meeting can do no harm, can only do good.

Some speak for releasing from this meeting because that is what we said we were going to do, more discussion time provides nothing but more discussion.

Motion #39: To postpone Motion 38 until after PHY report.

Moved by: Dean Kawaguchi

Seconded by: Ed Geiger

Motion 39 Discussion:

We need to know the state of the entire document before we can vote. Peter Chadwick calls, seconded by Tom Baumgartner (one nay)

Approved: 36

Opposed: 5

Abstain: 7

Motion #39 passes

Goals for Aug 95

- Work on D1.3 LB comments (if any...)
- Consider Ad-hoc, ad-hoc pwr mgt group's input.
- Outline Conformance Statements to correspond to D1.3, flesh out to match draft text.

15.2 PHY Group, Jim McDonald

Motion: Replace MPDU_MAX_LENGTH_1Mb & MPDU_MAX_LENGTH_2Mb fields of MIB variables with the following two variables

- MPDU_MAX_LENGTH (Static)

maximum MPDU length that the PHY can accept from the MAC or the media

- PREF_MAX_MPDU_FRAMNT_LENGTH. (Dynamic LME)

preferred maximum MPDU length when using fragmentation in an interference limited environment

14/0/0 passed in F H Group

19/0/0 passed in the PHY

Motion #40: To accept this recommendation from the PHY subgroup.

Moved by: Jim McDonald on behalf of the PHY subgroup

Seconded by: Larry Zuckerman

Motion 40 Discussion:

This is the same parameter as before in terms of fragment size, only now is changeable through the LME interface. The fragment threshold parameter in the MAC MIB does the same thing -why do we need two of them? That number will be PHY dependent due to the interference limited nature of the PHYs. The Mac needs to take that value from across the LME from the PHY. On what basis does the PHY modify this, because the MAC mechanism designed for fragmentation is dynamic already? The MAC can decrease or increase that number by set/get functions. The PHY does not change that variable, the MAC can change it through the LME.

Against this motion is having two parameters doing the same thing. This is functionality we already have put into the wrong place. The PHY doesn't do fragmentation and shouldn't have nothing to do with it.

The PHY group feels strongly about making a recommendation about what that number should be. The MAC needs to get these values from the PHY initially. In favor of this motion is allowing them a way to specify this. This is an improvement to the description we have of these parameters we have already.

Approved: 25 Opposed: 10 Abstain: 8 **Motion #40 fails**

Motion: that MPDU_MAX_LENGTH be 2047 octets for the FH PHY.

12/4/0 passes FH Group

19/0/2 passes in PHY

Motion #41: To accept this recommendation from the PHY subgroup.

as amended by motion 42:

That MPDU_MAXIMUM_LENGTH be 2047 octets for the FH PHY.

as amended by motion 43:

That MPDU_MAXIMUM_LENGTH be 2047 octets for the FH PHY, 2¹⁶-1 octets for the DS PHY.

Moved by: Jim McDonald on behalf of the PHY subgroup

Seconded by: Larry Zuckerman

Motion 41 Discussion:

Motion #42: To amend by replacing MPDU_MAX_LENGTH with MPDU_MAXIMUM_LENGTH.

Moved by: Dean Kawaguchi

Seconded by: Tom Baumgartner

Motion 42 Discussion:

Tom Baumgartner calls the question, seconded by Dean Kawaguchi (no nays)

Approved: 33 Opposed: 1 Abstain: 9 **Motion #42 passes**

Motion 41 Discussion (con't)

Motion #43: To amend by adding "2¹⁶-1 octets for the DS PHY".

Moved by: Jan Boer

Seconded by: Larry Peterson

Motion 43 Discussion:

Tom Baumgartner calls the question, seconded by Dean Kawaguchi (no nays)

Approved: ayes Opposed: 2 nays *Motion #43 passes by consensus*

Motion 41 Discussion (con't)

Why have a maximum so much larger than the MAC MSDU maximum? Because that is what the limit is, regardless of what the MAC is going to do with it. This is information about the PHY for the MAC to use to control the media as it pleases.

Does this mean that the MAC has to have a buffer that big in case you receive something that large? Some say yes, some no.

Tom Baumgartner calls the question, seconded by Peter Chadwick (no nays)

Approved: 24 Opposed: 6 Abstain: 12 *Motion #41 passes*

Motion: that PREF_MAX_MPDU_FRGMNT_LNGTH be set to 400 Octets for the FH PHY.

6/2/5 Passes FH Group

Motion #44: **To accept this recommendation from the PHY subgroup.**
as amended by motion 45:

That MPDU_CURRENT_MAX_LENGTH be set to 400 Octets for the FH PHY.

as amended by motion 46:

That MPDU_CURRENT_MAX_LENGTH be set to 400 Octets for the FH PHY and be set to 2400 octets for the DSSS PHY.

Moved by: Jim McDonald on behalf of the PHY subgroup

Seconded by: Dean Kawaguchi

Motion 44 Discussion:

Motion #45: **To amend to change PREF_MAX_MPDU_FRGMNT_LNGTH to MPDU_CURRENT_MAX_LENGTH**

Moved by: Dean Kawaguchi

Seconded by: Peter Chadwick

Motion 45 Discussion:

This variable means the value to which to fragment (current value in FH PHY is zero, so this needs changing).

Approved: 23 Opposed: 2 Abstain: 15 *Motion #45 passes*

Motion 44 Discussion (con't)

Motion #46: **To amend by adding " and be set to 2400 octets for the DSSS PHY"**

Moved by: Jan Boer

Seconded by: Peter Chadwick

Motion 46 Discussion: none

Approved: ayes Opposed: no nays *Motion #46 passes by consensus*

Motion 44 Discussion (con't):

Definition of this variable: current maximum MPDU length which the MAC has determined to use. PHY can use value to time out state machine if channel busy longer than the time it takes to receive an MPDU of this length. Based on that definition there is fear that there is a misconception on the part of the PHY group, and some study needs to be given to the MAC state machines and the MIB before these things can be properly straightened out.

Motion #47: **To table motion 44.**

Moved by: Ed Geiger

Seconded by: Larry Peterson

Motion 47 Discussion:

There is a statement that the standard may work even without all these things being specified yet. This should not stop us from releasing the standard.

Approved: 34 Opposed: 0 Abstain: 5 ***Motion #47 passes***

Motion #44 tabled

For the FH PHY, the preferred fragment length when fragmenting a frame has a default value of 400 Octets. This variable can be modified by the LME

10/0/5 passes FH Group

19/0/2 passes in PHY

Motion #48: **To accept this recommendation from the PHY subgroup.**

Motion #48 tabled by consensus

Motion:

-MPDU_MAX_LENGTH = (2¹⁶)-1 Octets

-PREF_MAX_MPDU_FRAMNT_LENGTH. = 2400 Octets

13/0/7 passes PHY

Motion #49: **To accept this recommendation from the PHY subgroup.**

Motion #49 tabled by consensus

DS PHY Group Report, by Jan Boer

Motion #50: **To accept the changes in doc 176 to be incorporated into the draft standard.**

Moved by: Jan Boer on behalf of the PHY subgroup

Seconded by: Larry Peterson

Motion 50 Discussion:

There is an objection that document 95/176 is not complete - according to Jan the remaining changes are all editorial and will be included by the editors. There is an appendix on document 176 that can be made into the last section of the document.

There is concern that the DS PHY CCA works on the basis of not just energy, but decoding that energy. Therefore when there is a collision and the frames cannot be decoded, the CCA will not work. That could be seen as a clear channel and others will add to the collision. Jan says that correlation will be seen when two stations transmit at the same time. It is easy to pick out one signal - your implementation is not conformant if you can't.

Jim McDonald calls the question, seconded by Dave Bagby (no nays)

Approved: 21 Opposed: 1 Abstain: 14 ***Motion #50 passes***

IR PHY Group Report, by Tom Baumgartner

Rui Valades will write a paper, 95/179, addressing the question that was put to the group earlier this week.

PHY MIB Report, by Ed Geiger

Motion: to approve following (but has decided not to make any motion) Ref Doc 1195122, 1195180

PHY MIB Changes

Remove:

- CCA_WATCHDOG_TIMER_MAX
- CCA_WATCHDOG_COUNT_MAX
- CCA_WATCHDOG_TIMER_MIN
- CCA_WATCHDOG_COUNT_MIN

Change:

- SUPRT_DATA_RATES to SUPRT_DATA_RATES_TX
- MPDU_MAX_LNGTH_1M to MPDU_MAXIMUM_LENGTH

Add:

- PREF_MAX_MPDU_FRGMNT_LNGTH

Change:

- nanoseconds to microseconds
- tx power level units from mWatts to dBm +/- 3 dB

PHY MIB Variables Discussed:

- OPERATING_TEMP_RANGE
 - Type 1
 - Type 2
- PWR_DWN_MODES
 - 01 = no power support
 - 02 = sleep
- SLEEP_WAKEUP_TIME
- RESET_STARTUP_TIME

Administrative interruption: is there objection to extending meeting time until decision on what to do with draft - no objection.

Discussion:

What is the MAC going to do with operating temperature? Perhaps it can used for something.

End of PHY group reports, therefore ...**Motion 38 Discussion (con't)**

Motion #51: To amend motion 38 first sentence to say "entire draft" instead of chapters 1 through 8.

Moved by: Tom Baumgartner

Seconded by: Jan Boer

Motion 51 Discussion: none

Approved: ayes Opposed: no nays **Motion #51 passed by consensus**

Motion 38 Discussion (con't):

In favor of the motion - we have a schedule which says we are to release to letter ballot in July and we should stick to it. We can't play with the document forever.

Bob O'Hara calls the question, seconded by Tom Baumgartner

Call of the Question ruled out of order: chair in favor of hearing one person in opposition to the motion.

Ruling appealed by Dave Bagby, seconded by Tom Baumgartner

Vote: those in favor to sustain the ruling of the chair: 22, 17, 2 - **Ruling Stands.**

Against the motion: This meeting should pass a motion instructing the interim meeting in August to release the draft to ballot. Activities this afternoon have shown that there are many things that still need straightening out. A chance to read the changes made from this meeting and get together to improve the result, without having the pressure of resolving the old comments left can do nothing but improve the quality of the document and increase its chances of passing the letter ballot vote. The timing is such that no schedule slippage results - the results of the letter ballot will be available by the November meeting either way. No harm, only benefit can result.

Chair now has heard one comment in favour and one against - vote to call the question (many ayes, 2 nays)

Approved: 25 Opposed: 16 Abstain: 2 *Motion #38 passes*

Straw poll: 40 days ballot period: 30 in favor; 30 day ballot period: 4. in favor.

Although this motion specified d1.3, the release version will be d2.0 . This document will not have revision marks. There will be a d1.3 with revision marks.

15.3 Conformance Test, by Larry Zuckerman

1. MISSION STATEMENT INTRODUCTION

A. The IEEE P802.11 PAR requires an "Addendum" or "Annex" to the Standard specifications, which contains sufficient equipment bench test procedures to eliminate all ambiguities and thereby ensure that the intent of the writers is communicated. It is the consensus of opinion that without tests, some of the specifications could be either misconstrued or even manipulated. Indeed, maximum mental clarity on the efficacy of the specifications within the standard (other than building the systems and discovering all the flaws by real world experience) is obtained by figuring out how one would test them. Even the preliminary discussions on test methods which took place during a small part of the January session in San Jose resulted in second thoughts about some of the specifications. The participants quickly realized, for instance, that inasmuch as the antenna system is an integral part of any Wireless LAN Adapter, it could not in general be removed for compliance testing.

2. QUALIFICATIONS SHEETS

3. ATTENDEES & OTHER INTERESTED PARTIES

Peter Chadwick (Minutes), Haewook Choi, Haim Harel, Jerry Loraine, Jim McDonald, Wayne Moyers, Mitsuji Okada, John Sonnenberg, Larry Zuckerman, Johnny Zweig, Michael Fischer.

4. NEED FOR REPRESENTATION FROM ALL SUBGROUPS

The committee appears to be under-represented by MAC, DS, and IR.

5. IDEAS

- A. Stockpile and review test documents of existing standards.
- B. Consider the requirement for "Design for Test" product implementations
- C. Consider designing the tests to encourage working with well equipped & unbiased testing labs.

6. WORKING TIME SLOTS

- A. Ongoing communications
- B. Devote much committee time in August,
While not much else can be done, waiting for letter ballots for D2.0
- C. In November & January, extend sessions to Friday

7. ACTION ITEMS

Review Draft Standard & rough out a list of test categories
Further contact with Univ of NH
Write a Project Plan
Gather test plans for existing standards

8. CHAIRMANSHIP

Not discussed
Zuckerman acted as Chairman. Issues involving definitive permanent decision:
Does he need more MAC knowledge?
Will his supervisor approve the added commitment to 802.11?
Is his affiliation to an organization which already has an 802.11 chairman a problem?

9. CLOSING COMMENTS

This effort should have been started in earnest 4 months ago.
In order to complete this effort on time:

Use time between sessions for work, discussions, & consensus building.
 Avoid "pet" engineering methods. Stick to the middle of the road. Don't worry about obtaining the "best or most clever, unique, etc." solutions. Copy other testing solutions wherever possible.

16. Unfinished Business

16.0.1 Approval of Salt Lake City minutes 95/88 - deferred to next meeting

16.0.2 Document 95/37 - withdrawn from consideration this meeting

16.1 Recap of Output Documents:

Timings

Fridays Plenary meeting	Jul 14
Draft in Vic's office	Jul 28
Draft mailing	Aug 4
Interim meeting	Sep 1
Closure of 40 day LB	Sep 14
Result on FTP	Sep 28

Ballot on Draft Standard

Motion #52: To send the draft to the liaison group for information subject to the availability of official paths to be resolved by the excom.

Moved by: Tom Baumgartner
 Seconded by: Leon Scaldeferri

Motion 52 Discussion: none

Approved: ayes Opposed: no nays *Motion #52 passes by consensus*

16.2 Recap of Document Distribution: not attendance list. Everything else as usual.

16.3 Next Meeting

Objectives for next meeting

- consider ad hoc groups' input
- outline conformance requirements to correspond to d1.3

Mailing Dates: July 21, 1995

16.4 Future Meetings: no change

16.5 Other Intermediate Meetings: none

17. New Business: a note that there is no host for the January meeting yet.

18. Closure - meeting adjourned at 5:30 PM.

Tentative Meeting Schedule

Date	Month	Year	Place	Type	Location	Host
28-31	Sept	1995	Schaumburg, IL	Inter	Marriott	Motorola
6-10	Nov	1995	Montreal, PQ	Plenary	Queen Elizabeth	
TBD	Jan	1996	TBD	Inter	TBD	TBD
11-15	March	1996	La Jolla, CA	Plenary	Hyatt Regency	
TBD	May	1996	TBD	Inter		TBD
8-12	July	1996	Netherlands	Plenary	University of Twente	
TBD	Sep	1996	TBD	Inter		TBD
11-15	Nov	1996	Vancouver, BC	Plenary	Hotel Vancouver	
10-14	March	1997	Irvine, CA ??	Plenary	Irvine Marriott ??	
7-11	Jul	1997	Lahaina, HI ??	Plenary	Hyatt Regency Maui ?	
10-14	Nov	1997	Vancouver, BC ??	Plenary	Hotel Vancouver ??	

Appendix 1

Attendance list

Title and first name	Last name	status	Company	communications
Mr. JEFF	ABRAMOWITZ		3Com Corporation	+1 408 764 5974 jeff_abramowitz@3mail.3com.com
Mr. STAFFAN	ALEXIUS		Telia Research AB	+46 40 105131 staffan.alexius@malmo.trab.se
Mr. SATOSHI	BABA	voter	NTT Corporation	+81 43 211 3352 baba.satoshi@nsc-host.nsc.cae.ntt.jp
Mr. DAVID	BAGBY	voter	Advanced Micro Devices	+1 408 749 5425 david.bagby@amd.com
Mr. C. THOMAS	BAUMGARTNER	voter	Spectrix Corp.	+1 708 491 4534 ctb8@aol.com
Mr. SIMON	BLACK	voter	Symbionics Networks Ltd	+44 1223 421025 sab@symbionics.co.uk
Mr. JAN	BOER	voter	AT&T WCND Utrecht	+31 3402 97483 jan.boer@utrecht.attgis.com
Mr. ALESSANDRO M.	BOLEA	voter	Raytheon Company	+1 508 490 1857 alessandro_m_bolea@ccmail.ed.ray.com
Mr. PETER E.	CHADWICK	voter	GEC Plessey Semiconductors Inc.	+44 1793 518080 gecp.peterc@applelink.apple.com
Dr. JONATHON Y.	CHEAH		Solectek Corporation	+1 619 450 1220 X3069 jcheah@airlan.com
Dr. KWANG-CHENG	CHEN	voter	National Tsing Hua University	+886 35 715131 x4054 chenkc@ee.nthu.edu.tw
Dr. HAE WOOK	CHOI	voter	Electronics & Telecoms Research Inst	+82 42 860 6841 hwchoi@cadvax.etri.re.kr
Dr. Y.	DALLAL		Consultant	+972 9 978637
Mr. RAJIV	DHINGRA		Symbol Technologies Inc.	+1 408 369 2617 rajivd@psd.symbol.com
Mr. WIM	DIEPSTRATEN	voter	AT&T WCND Utrecht	+31 3402 97482 wim.diepstraten@utrecht.attgis.com
Mr. GREG	ENNIS	voter		+1 408 356 4775 gennis@netcom.com
Mr. DAN	ERICSON		MACOM	+1 508 442 4966
Mr. JOHN	FAKATSELIS	voter	HARRIS Corporation M/S 62A-028	+1 407 729 4733 jfakat01@ccmail.mis.semi.harris.com
Mr. MATTHEW	FISCHER	voter	Advanced Micro Devices	+1 408 749 5403 abl matt@brahms.amd.com
Mr. MICHAEL	FISCHER	voter	Digital Ocean Inc.	+1 210 614 4096 mfischer@child.com
Mr. ROLAND	FOURNIER	voter	Advanced Micro Devices	+1 408 749 5439 roland.fournier@amd.com

Appendix 1

Attendance list

Title and first name	Last name	status	Company	communications
Mr. KEITH S.	FURUYA	voter	XIRCOM	+1 415 691 2500 kfuruya@xircom.com
Mr. RICH	GARDNER		Rising Star Research	+1 303 274 1900 rgardner@netcom.com
Mr. ED	GEIGER	voter	Apple Computer Inc.	+1 408 974 4907 edg@apple.com
Mr. ZHI-YAN	GUAN		Philips Research	+1 914 945 6305 zyg@philabs.philips.com
Mr. DENNIS	HARA		Seattle Silicon	+1 206 957 4422 renfield!hara@ole.cdac.com
Mr. HAIM	HAREL		NEXUS Telecomm Systems Ltd	+972 3 5714382
Mr. VICTOR	HAYES	voter	AT&T WCND Utrecht	+31 3402 97528 Vic.Hayes@Utrecht.attgis.com
Ms. CAROLYN L.	HEIDE	voter	Spectrix Corp.	+1 708 491 4534 71041.3262@compuserve.com
Mr. DAVID TAL	HELLER	voter	RDC Communications Ltd.	+972 2 6519311/3 davidh@rdc.active.net.il
Mr. BRADLEY	HERRIN	voter	Standard Microsystems Corporation	+1 714 707 2376 bradley.herrin@smc.com
Dr.Eng. TOMOAKI	ISHIFUJI		HITACHI Central Research Lab.	+81 423 23 1111 ishifuji@crl.hitachi.co.jp
Mr. YOSHIYUKI	KAMISHIMA		NEC Corporation	+81 44 435 1231 kami@lsi.tmg.nec.co.jp
Mr. DEAN M.	KAWAGUCHI	voter	Symbol Technologies Inc.	+1 408 369 2629 deank@psd.symbol.com
Mr. STUART	KERRY	voter	Symbol Technologies Inc.	+1 408 369 2634 stuart@psd.symbol.com
Mr. MIKIO	KIYONO	voter	NEC Systems Lab.	+1 415 528 5901 mikio@ccgate.sj.nec.com
Mr. JOSEPH J.	KUBLER	voter	Norand Corporation	+1 303 442 1850 kublerj@norand.com
Mr. JERRY	LORAIN	voter	Symbionics Networks Ltd	+44 1223 421025 jl@symbionics.co.uk
Mr. ANDY J.	LUQUE		Open Communications Technology	+1 503 389 6512
Mr. RONALD	MAHANY	voter	Norand Corporation	+1 319 369 3552 mahanyrl@norand.com
Mr. BOB	MARSHALL	voter	Philips Semiconductors	+1 408 991 2722 marshall@scs.philips.com
Mr. NOBUO	MATSUO		Matsushita Electric Works R&D Lab Inc.	+1 408 433 3386 mat@ca.mew.com

Appendix 1

Attendance list

Title and first name	Last name	status	Company	communications
Mr. JIM	McDONALD	voter	Motorola Inc. jim_mcdonald@wes.mot.com	+1 708 576 3169
Dr. AKIRA	MIURA	voter	Panasonic Technologies Inc. miura@tadw.research.panasonic.com	+1 415 858 1000
Mr. WAYNE D.	MOYERS	voter	WiSE Communications Inc wayne@tetherless.com	+1 408 338 7562
Mr. BOB	O'HARA	voter	Advanced Micro Devices bob.ohara@amd.com	+1 408 749 4952
Mr. MITSUJI	OKADA	voter	NEC Electronics Inc. mokada@asic.mtv.nec.com	+1 415 965 6549
Mr. ROGER	PANDANDA	voter	MCS Corp roger_pandanda@mcsc.com	+1 619 558 9300
Mr. LARRY	PETERSEN	voter	AMI Semiconductors lpeterse@poci.amis.com	+1 208 234 6735
Mr. AL	PETRICK	voter	HARRIS Semiconductor apetrick@ccmail.mis.semi.harris.com	MS 5B-096 +1 407 729 4944
Mr. GIDEON	PRAT		Intel Israel (74) Ltd. gideon@iil.intel.com	+972 4 655669
Ms. MIRI	RATNER	voter	LANNAIR mirir@lannet.com	+972 3 6459134
Mr. MICHAEL	ROTHENBERG	voter	LANNAIR ieee_802.11-distr@lannet.com	+972 3 6458422
Mr. ANIL K.	SANWALKA		Neesus Datacom Consultants anil@interlog.com	+1 416 724 8127
Mr. LEON S.	SCALDEFERRI	voter	NSA R22 lsscald@alpha.ncsc.mil	+1 301 688 0293
Mr. RICH	SEIFERT		Networks and Communications Consulting seifert@netcom.com	+1 408 996 0922
Mr. MASANORI	SHIBAYAMA		NTT Corporation shibayama.masanori@nsc-host.nsc.cae.ntt.jp	+81 43 211 3352
Mr. ERAN	SHPAK		Air Access Ltd. airaxs@netvision.net.il	+972 9 982606
Mr. NATHAN	SILBERMAN	voter	Nortel snathan@ix.netcom.com	+1 415 940 2283
Mr. DON	SLOAN	voter	Aironet dons@telxon.com	+1 216 665 7917
Mr. GREG	SMITH		GEC Plessey Semiconductors Inc. smith_g@lincoln.gpsemi.com	+44 1522 502476
Mr. MARVIN	SOJKA	voter	Telxon Corp. msojk@telxon.com	+1 216 665 7918

Appendix 1

Attendance list

Title and first name	Last name	status	Company	communications
Mr. JOHN	SONNENBERG	voter	Pulse Engineering Inc. johnsonnenberg+asdcorp%pulse@mcimail.com	+1 619 674 8360
Dr. WALTER C.	SOTELO	voter	Fujitsu Systems Busines of America Inc walters@fsba.com	+1 408 654 2052
Mr. MACK	SULLIVAN	voter	Proxim Inc. mack@proxim.com	+1 415 960 1630
Mr. MIKE	TROMPOWER	voter	Aironet Wireless Comms. Inc. mtrom@aironet.com	+1 216 665 7920
Mr. TOM	TSOULOGIANNIS	voter	+1 416 299 1954 tomt@interlog.com	
Mr. RUI T.	VALADAS	voter	Universidade de Aveiro rv@zeus.ci.ua.pt	+351 34 381937
Ms. JEANINE	VALADEZ	voter	Advanced Micro Devices jeanine.valadez@amd.com	+1 408 749 5206
Mr. SAROSH	VESUNA	voter	Symbol Technologies Inc. saroshv@psd.symbol.com	+1 408 369 2657
Mr. RICHARD E.	WHITE	voter	Motorola Inc. rick_white@wes.mot.com	+1 708 576 7878
Mr. IWEN	YAO	voter	RN Communications Inc.	+1 508 256 4950
Mr. RALPH C.	YEAGER		IBM Corporation ralphy@vnet.ibm.com	+1 919 543 3779
Mr. HYUN	YOE		Sunchon National University yhyun@sunchon.sunchon.ac.kr	
Mr. CHRIS	ZEGELIN	voter	Symbol Technologies Inc. M.S. 160 chrisz@psd.symbol.com	+1 408 369 2667
Mr. TIMOTHY M.	ZIMMERMAN		Norand Corporation zimmermt@norand.com	+1 319 369 3471
Mr. ILAN	ZORMAN		LANNEX	+972 6425543
Mr. LAWRENCE H.	ZUCKERMAN	voter	Advanced Micro Devices larry.zuckerman@amd.com	+1 408 749 4934
Mr. JOHNNY	ZWEIG		XIRCOM jzweig@xircom.com	+1 415 965 5964