

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

**Plenary meeting  
Lake Tahoe, CA  
November 7-11, 1994**

**Monday, November 7, 1994, 4:30 PM**

The meeting was called to order at 4:00 PM Vic Hayes, chairman IEEE P802.11<sup>1)</sup>, in the chair. John McKown vice-chairman. Stuart Kerry managing document originals and copying, Jon Rosdahl managing distribution and pigeon hole organization. Leon Scaldeferri handling the attendance list. The agenda document for this meeting is 802.11-94/244.

### Objectives for this meeting

#### MAC Group

- Everyone should **\*\*READ\*\*** the B3 draft before the November meeting
- Unsettled subjects:
  - Wired Equivalent Security
- Issues log clean up.

---

<sup>1)</sup>The officers of the Working Group are:

Mr. VICTOR HAYES Chairman IEEE P802.11 AT&T Global Information Solutions E-Mail: Vic.Hayes@Utrecht.ncr.com Phone: +31 3402 76528 Fax: +31 3402 39125	Mr. JOHN MCKOWN Vice Chairman IEEE P802.11 Motorola E-Mail: mckown@wes.mot.com Phone: +1 708 538 5235 Fax: +1 708 538 5251	Vacant Secretary IEEE P802.11
Mr. STUART KERRY Vice Chairman IEEE P802.11 Symbol Technologies Inc. E-Mail: stuart@psd.symbol.com Phone: +1 408 369 2634 Fax: +1 408 446 4630	Mr. JON WALTER ROSDAHL Vice Chairman IEEE P802.11 Novell Inc. E-Mail: jrosdahl@novell.com Phone: +1 801 429 3183 Fax: +1 801 429 7232	Mr. LEON SCALDEFERRI Vice Chairman IEEE P802.11 NSA E-Mail: lsscald@alpha.ncsc.mil Phone: +1 301 688 0293 Fax: +1 688 0289
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	Mr. LARRY VAN DER JAGT Chair IEEE P802.11-PHY group Knowledge Implementations Inc. Phone: +1 914 986 3492 Fax: +1 914 986 6441 E-Mail: kiilvdj@attmail.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. GREG ENNIS Editor IEEE P802.11  Phone: +1 408 356 4775 Phone: +1 408 356 4775 E-Mail: gennis@netcom.com	Mr. KERRY LYNN Editor IEEE P802.11 Apple Computer Inc. Phone: +1 408974 2394 Fax: +1 408 974 9793 E-Mail: kerlyn@apple.com	

- DTBS decisions affect lots of issues.
- Encoding proposal.
  - Work going on between mtgs, anticipating a consensus recommendation next meeting.
- In November, plan on (minor) draft tweaking before (internal) 802.11 letter ballot.

**PHY Group**

- Close all open issues
- Resolve specifications and text requirements for the draft specifications of the letter ballot

**1. Opening**

**1.0 Secretary:** Carolyn Heide will do it this meeting.

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

**1.2 Voting rights:**

Participation in the debates, moving and seconding is only permitted by voting members, in all 802.11 meetings (at all levels).

Chairs may permit observers to participate in debate.

Voting rights can be earned by participation in 2 plenary meetings within 4 consecutive plenary meetings

- one interim may be substituted for a plenary,
- participation is to be present in at least 75 % of all meetings in a session.

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 members will get a token to be used at votes.

Voting rights may be lost:

- after failing to pay the conference fee;
- after missing two out of three consecutive letter ballots.

13 voters did not respond to the last two letter ballots

- 1 excused based on level of contributions;
- 12 others listed as Voting membership lost.

Between voting members and sleeping voting members

Those can contact the Chair till December 1, 1994 to ask to be excused giving the reason for not returning or the contributions made.

Voting tokens for this meeting with Chair.

**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)
- place initials. Do not cross or underline.

**1.4 Email addresses:** are causing some problems. Please check your email regularly.

**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:

- via pigeon holes, this makes sure you receive only one copy of handouts
- pigeon holes are file folders with a letter id on each folder
- 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 ETSI sent liaison statement to 802c chair, Doc 94/266**

Which states that further market confusion be avoided and that a better cooperation be established between ETSI and IEEE, possibly through mutual understanding and acceptance of each other's work.

Possibly we should craft a response.

### **1.5.2 FCC activity**

August/September meeting:

FCC published Report to the Secretary Dept of Commerce on their preliminary report for spectrum allocation. Effectively rejecting the 2402-2417 MHz.

Decided on August 20 to publish an NPRM for the re-allocation of 50 MHz etc.

News item also mentioned 2402-2417 MHz band It is always possible that the news item was not correct. We need to wait for the real NPRM. Will get the NPRM as soon as available. Hopefully at the meeting.

**1.5.3. New style manual:** is available for those who need it

### **1.5.4. Copying at the meeting**

If you hit the mailing: you do not need to bring copies. If you missed the mailing: come to the meeting with required copies, including editors.

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

**2.1 Vancouver meeting, Document IEEE P802.11-94/83:** Approval has been delayed because member thought that there was a mistake, but nothing has been heard since, and no one has any comments now.

**Motion #1:** To approve the minutes of the Vancouver meeting.

Moved by: Dave Bagby  
Seconded by: Barry Dobyns

**Motion 1 Discussion:** none

Approved: 60      Opposed: 1      Abstain: 4

**Motion #1 passes**

**2.2 Orlando meeting, Document IEEE P802.11-94/200:**

**Motion #2:** To approve the minutes of the Orlando meeting.

Moved by: Dave Bagby  
Seconded by: Barry Dobyns

**Motion 2 Discussion:** none

Approved by consensus

*Motion #2 passes*

**2.3 San Antonio meeting, Document IEEE P802.11-94/225:** approved by consensus

**Motion #3:**                      **To approve the minutes of the San Antonio meeting.**

Moved by:                      Dave Bagby

Seconded by:                  Bob Buaas

**Motion 3 Discussion:** none

Approved by consensus

*Motion #3 passes*

**2.4 Matters arising from the minutes:** none.

### 3. Reports

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

##### Directed Position

- Removal of WG Chairs and Vice-Chairs
- 5 copies for review and prepare .11 input before Wednesday
- Maurice France, John McKown and Chris Zegelin will prepare the 802.11 comments before Wednesday.

##### ETSI Liaison

- Request to 802.11 to prepare input for response to ETSI
- ETSI got the approval to become liaison to SC6 level and can provide their standards to ISO for adoption
- 802.11 proposal to be available Wed/Thur midnight
- need the tutorial given by ETSI

##### JTC1 meeting

- Cooperation with Internet Society
- transposition of "publicly available standards"
- Premises wiring DIS 11801 to include LAN requirements from SC6

##### SPAsystem

BBS via dial-up & Internet

- See Vic if interested in SPAsystem so he can order books for you.

There was a discussion led by Peter Chadwick about how to get informed input to ITU(R). Peter suggests that we produce a briefing doc on radio LANs for national administration so that delegates to ITU(R) SG 9 are suitably briefed.

Some think sending a liaison would be more appropriate. Peter questions who will pay to send that liaison to Geneva for the meetings.

**Motion #4:**                      **To refer the issue of how to liaise with ITU(R) to a committee headed by Peter Chadwick.**

Moved by:                      Barry Dobyns

Seconded by:                  Leon Scaldeferri

**Motion 4 Discussion:** none

Approved by consensus

*Motion #4 passes*

Chandos Rypinski and Don Johnson join Peter's committee.

Peter started another discussion on addressing the FCC. Dave Bagby pointed out that we have a standing committee for that, and called for the orders of the day.

### 3.2 The Editors, by Bob O'Hara

Everybody should have received 20b3. In order to get draft out for letter ballot the editors will need to have exact text approved and in their hands by close of plenary on Thursday. By the rules it must be available and distributed for approval first. The draft to go out for ballot will get a new number - P802.11D1 (draft 1) and be dated. With it will be a ballot.dot template for Word for Windows 2 that will walk you through the ballot process. Please use this template. A readme file will be there to explain installation and intent. Electronic ballots from this template is the goal. The template works with Word for Windows 2 or Word 6, but Vic needs the results back in the former format.

### 3.3 The Simulators - no report

### 3.4 The Letter Ballot, by Vic Hayes

Complete report is given in doc 94/268

- 93 ballots were returned
- 90 of the 124 voters responded
- All recommendations were approved
- Lowest with 91.86 % support

### 3.5 Oshawa meeting finances, by Vic Hayes

av	765.00	CA\$
food	1916.34	
income 78 @ 77 CA\$	-6006.00	
phone	4.55	
rooms	2220.00	
tax + grat	849.66	
Grand Total	-250.45	

Via Vic 112.35 CA\$

Credit card exchange rate: 1.3672 NLG/CA\$

that makes 153.60 NLG

published exchange rate Aug 29: 1.774 NLG/US\$

Credit to San Antonio meeting 86.59 US\$

Via Orest 138.10 CA\$, money order result: 100.78 US\$

**Motion #5:** To approve the Oshawa financial report.

Moved by: Bob Buaas

Seconded by: Barry Dobyns

**Motion 5 Discussion:** none

Approved by consensus

*Motion #5 passes*

3.6 San Antonio meeting finances, by Mike Fisher - Agenda item postponed.

4. Review of Contributions: document list is document 94/271.

5. Adoption of Agenda :

Joint session will start tomorrow morning so some papers can be heard before subgroups start. It will go until the break. The joint session on Wednesday will start after the afternoon break. The MAC and FH groups may want to meet every evening this week, also opposite the social.

**Motion #6:**                      **To approve agenda as modified.**

Moved by:                      John McKown

Seconded by:                  Barry Dobyns

**Motion 6 Discussion:** none

Approved by consensus

*Motion #6 passes*

Meeting group sizes: MAC 40; FH 25; DS 6; IR 6; HSFH 4 (maybe canceled, joining FH)

6. Unfinished Business:

6.1 Comments on updates of draft Standard: papers will be examined in the subgroups

7. New Business

7.1. Jon Rosdahl asks everyone to please empty pigeon holes after agenda item #8.

7.2. Check bulletin board in the morning for room announcements.

8. Adjourn for subgroups - 6 PM

**Tuesday AM, 8 November, 1994**  
**Full Working Group MAC/PHY Interface**

The meeting was reconvened at 8:33 AM, by chairman Vic Hayes, with Carolyn Heide secretary.

**Proposed Agenda**

Announcements, Thank you to 802.1 and presentations. Agenda adopted by consensus.

**Announcements**

1. MAC capability should not be limited to current PHYs
2. If you transfer a file to the drop directory, please ask by email Kerry Lynn, Vic Hayes **and** Bob O'Hara to transfer it to the appropriate directory.
3. IEEE copying is only for documents generated by the meeting proceedings.
4. Availability of coffee/tea extended: 9:30-11:30 AM and 1:30-3:30 PM.

5. Register for sponsor ballot pool .11 - only for IEEE or CompSec members.

### Thank you to 802.1

Vic would like to send the following message to 802.1 -

802.11 wishes to express its gratitude to 802.1 to share the burden of full meeting rooms to rescuing 802.11 from

- being overheated or frozen;
- exposure to toxic fumes and noise from the heater;
- interference between subgroup meetings; and
- living on a damp floor.

802.1 has proven the atmosphere of cooperation.

**Motion #7:**                      **To approve sending this message to 802.1.**

Moved by:                      Tom Baumgartner

Seconded by:                  Jon Rosdahl

**Motion 7 Discussion:** none

Approved by voice vote unanimously

*Motion #7 passes*

### Presentations

#### DTBS specification details, P802.11-94/258, by Wim Dipestraten

Intent is to explain to PHY what the involvement of the PHY is in what the MAC wants to do. To discuss this now so the PHY groups can discuss it in their meetings, and resolve this at next joint meeting by making the proposed motions.

#### **Discussion:**

There is concern that some PHYs may have a very short pulse that could be easily confused with noise. In those cases passive priority mechanism may make more sense.

A high priority station could lock out low priority traffic for a long time. This may be a concern but higher layer can have a knowledge of load and avoid drowning out others. Low priority stations could raise their priority if they are having trouble getting through. Perhaps only a certain amount of high priority traffic should be allowed.

There is some feeling that since this provides only a high priority not a guarantee of a packet going out at a specific time, it is not TBS. This is a characteristic of DTBS - high priority traffic will experience load dependency just as normal traffic. The priority minimizes the delay variance, but bounded is not guaranteed.

The exact text for the draft is to be circulated soon. No motions can be entertained until it as been circulated.

#### Tx-Power Control Provision in the MAC, P802.11-94/259, by Wim Diepstraten

**Point of Order,** Dave Bagby - This is a proposal for new MAC functionality and we have voted not to allow new functionality. Would like a straw poll if group wants to hear it anyways. Wim points out that this mechanism has been being proposed since the time when new functionality was still allowed.

Straw poll - in favor of hearing the presentation: (yes:23, no:6, abstain:23)

#### **Discussion:**

There is concern over the RSSI level being to old to be of value when it is used. Possibly RSSI levels at far range of sensitivity are more interesting. This submission does not address the algorithm for determining

RSSI level, rather a simple way to change the level. Some people object to putting in hooks for something for which there is no proven requirement. Others support inclusion of the hooks. Regulatory trends that may force us to an etiquette, the FCC wants us to be more courteous about power use.

**Multirate provisions in the MAC, P802.11-94/247, by Wim Diepstraten**

Bob O'Hara protests presenting another tutorial on a subject we have heard about many times before without presenting the exact changes proposed to the draft standard. Chair says this meeting was specifically scheduled for tutorial on subjects that need to be evaluated for inclusion in the standard during the week.

Straw Poll: Objection to hearing the presentation of 94/247 - very few

**Point of Clarification**, Dave Bagby: hasn't this been rejected 3 times in a row at previous meetings? Wim says 94/164 describes problems of the MAC in association with multiple rates. One of the things evaluated previously was whether separate rates per BSS was a solution. The result was mixed rate support which was included in the PHYs, which creates an association problem for the MAC.

**Discussion:**

Any frame with duration must be sent at the basic rate - what about fragment frames? That duration field is echoed back in the ack. What about a station that hears the fragments and not the ack? These issues are not associated with multi-rate, this can happen with hidden stations also.

To do this proposal do we need the solution proposed in 164 - if this is adopted without those must that be adopted too? No, the other proposal makes the handling of those issues more efficient.

There is a concern that this would have problems in overlapping adhoc networks. No, because control frames always go at the basic rate.

APs have to go at all rates, so when new rates are supported the growth path this is intended to solve breaks. Not really, the AP has to be replaced but the old and new stations can coexist.

There is concern over the intellectual property issues that arose with document 164 - see the presentation section "distinction between proposal and claims of '732". Also a member of the group says that informally a patent attorney has told him that this is no problem. That member believes that the probability of patent infringement being enforced is zero, and that even if it was he would be the expert witness called and would testify that there is no infringement. That satisfied the concerns of the worried group members.

**Motion #8:**                      **to adopt the recommendations in document 94/247 as the basic mechanism for the support of multi rate PHYs in the MAC.**

Moved by:

Wim Diepstraten

Between the chairman and Bob O'Hara they decide that this motion cannot be handled now because the draft standard text, although in the pigeon holes right now, has not been available for everyone to read yet. The plenary Wednesday at 3:30 is the time for this motion.

***Motion #8 not seconded***

13. Adjourn - 10:08 AM

**Tuesday AM, 8 November, 1994**

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

**Tuesday PM, 8 November, 1994**

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



**Tuesday Evening, 8 November, 1994**  
**MAC subgroup & PHY-FH, PHY-DS, PHY-IR ad-hoc groups**

**Wednesday AM, 9 November, 1994**  
**MAC subgroup & PHY-FH, PHY-DS, PHY-IR ad-hoc groups**

**Wednesday PM, 9 November, 1994**  
**Full Working Group MAC/PHY Interface**

The meeting was reconvened at 3:30 PM, by chairman Vic Hayes, with Carolyn Heide secretary.

**9. Opening**

**9.1 Roll Call:** skipped

**9.2 Document list update:** many copies were made (39,096 pages), people should be better about bringing copies.  
It is pointed out that most of those documents were created here on the fly and so had to be copied here.

**9.4 Announcements**

Vic announces that because the ballot motion may be passed tomorrow, he has asked Bob Egan to draft a press release to go through for excom approval tomorrow evening.

Agenda adjustment - MAC/PHY ad hoc group report removed since there was no meeting. Documents 94/241 and 94/259. Also on Tuesday it was decided that 94/247 should have related motions made now.

**Motion #9:**                      **To accept this agenda.**

Moved by:                      Barry Dobyns

Seconded by:                  Bob O'Hara

**Motion 9 Discussion:** none

Approved: by consensus

*Motion #9 passes*

**10. Presentations**

**Proposed Revision to PHY\_SAP Service Primitives, P802.11-94/241, by Dean Kawaguchi**

**Motion #10:**                      **To accept the changes on the class definitions to section 8 of B3 with the text that is in doc 92/241.**

Moved by:                      Dean Kawaguchi

Seconded by:                  Ed Geiger

**Motion 10 Discussion:**

The editors are not clear what is to be changed - but they are willing to work it out off line.

**Call the question:** Wayne Moyer, second Barry Dobyns (the ayes have it)

Approved: 63

Opposed: 0

Abstain: 3

*Motion #10 passes*

Changes to Draft Standard to implement Doc IEEE P802.11-94/247, P802.11-94/247b,  
by Pablo Brenner

**Motion #11:** To adopt the recommendations in 94/247b as the basic mechanisms for the support of Multi rate Phy's in the MAC.

*as amended by motion 12:*

To adopt the recommendations in 94/247b as the basic mechanisms for the support of Multi rate Phy's in the MAC and change section 9.1.4.17, 9.1.3.2 and 9.1.2 to replace BSS with ESS.

Moved by: Wim Diepstraten

Seconded by: Barry Dobyns

**Motion 11 Discussion:**

Dave Bagby asks for clarification that what is meant is by adopt recommendations - to adopt text is the meaning.

**Motion #12:** add "and change sec 9.1.4.17, 9.1.3.2 and 9.1.2 to replace BSS with ESS.

Moved by: Barry Dobyns

Seconded by: Michael Fischer

**Motion 12 Discussion:** none

Approved by consensus

*Motion #12 passes*

Approved: 41

Opposed: 12

Abstain: 12

*Motion #11 passes*

Detailed Draft Standard text changes to support DTBS, P802.11-94/258x, by Wim Diepstraten

**Motion #13:** Not all PHY standards need to support the coexistence mechanisms for the optional DTBS service provisions.

Moved by: Wim Diepstraten

Seconded by: Jan Boer

**Motion 13 Discussion:**

There is a concern about consistency with the PAR, with MAC supporting different PHYs ranging from 1 to 20 Mbits. This motion recognizes that DTBS may be of more interest to higher speed PHYs than lower.

**Motion #14:** add sentence "each PHY will specify if it supports this or not as part of its standard".

Moved by: Dave Bagby

Seconded by: Leon Scaldeferri

**Motion 14 Discussion:**

Since all PHYs can listen to the channel and the MAC can back off, the passive part of this requires no new functionality. If it is always supported this amendment might be superfluous.

Some of the PHY specifications are already being printed - this amendment creates unnecessary work.

Approved: 8

Opposed: 37

Abstain: 17

*Motion #14 fails*

**Motion 13 Discussion (con't):**

If some other mechanism is found in the future for DTBS this motion might preclude using it.

Having it optional per PHY puts PHYs on an uneven basis. If a high speed PHY implements it and a low speed PHY doesn't, then they can never be compatible by having the high speed one rate switch down to the lower speed.

There is fear that people will use it because it is penalty free way to get priority service, not for DTBS at all.

There is some objection because this is only a mechanism without any specification of how to use it, it is only a partial solution.

**Call the question:** Barry Dobyns, second Bob Egan (all ayes, no nays)

Approved: 7

Opposed: 37

Abstain: 15

**Motion #13 fails**

**Motion #15:**

**That the MAC shall implement the access priority mechanism as described in the proposal as documented in 94/258x.**

Moved by:

Wim Diepstraten

Seconded by:

Michael Fischer

**Motion 15 Discussion:**

Objections because this not a complete solution. As only a priority access method it will be abused.

Jan Boer says that the DS PHY is already completely compatible with this including the active priority mechanism.

**Call the question:** Tom Tsoulogiannis, second Barry Dobyns (one nay, many ayes)

Approved: 7

Opposed: 35

Abstain: 18

**Motion #15 fails**

#### **Tx-Power Control Provisions in the MAC, P802.11-94/259, by Wim Diepstraten**

Discussed in the MAC group for some time then moved to continue discussion here. No motions made in the MAC group on this subject.

**Motion #16:**

**to add a fixed field to the CTS and Ack frame to report the received RSSI level.**

Moved by:

Wim Diepstraten

Seconded by:

Pablo Brenner

**Motion 16 Discussion:**

This is a meaningless waste of bandwidth for IR. There is a suggestion of using optional elements in some way to this. Once again there is objection to adopting an incomplete solution.

Some feel that there is no demonstrated functional requirements for tx power control. If a working algorithm was proposed that might be ok, but hooks to support a possibly un-needed function is a bad idea. If its needed make it a requirement, if not then leave it out.

A standard way to calibrate the RSSI level is needed. Otherwise it is relative, vendors numbers may be have different meaning.

**Call the question:** Tom Tsoulogiannis, second by Chandos Rypinski (many ayes, one nay)

Approved: 14

Opposed: 38

Abstain: 13

**Motion #16 fails**

#### **11. PHY Issues about MAC/PHY Interface**

A motion is to be made concerning 94/68r5 and an errata sheet for it, 94/242. Dean Kawaguchi presents 94/242, which are the changes that turn r5 into r6.

The recommendation to bring this to plenary in FH ad hoc group was adopted by (13,0,0). Overall PHY voted to bring to plenary by (20,0,0).

**Motion #17:** Accept 94/68r5 plus errata, document 94/242, which summarizes the document 94/68r6 into draft standard.

Moved by: Jim McDonald  
Seconded by: Wayne Moyer

**Motion 17 Discussion:**

Why does the PHY have to know what the MAC contention backoff slot time is, and why 50 usec? This is the minimum time FH PHY can tell MAC it's ok, based on tx/rx switch and ramp up time. You have to check a minimum of one antenna in a slot time. Also if the slot time is known, maximum time can be used for CCA. When MAC decides to tx, tells PHY. PHY takes 'collision window' time to get on air. When you do CCA if not synchronized then you could try to do CCA during that collision window and return false result. May only have time to look at the channel once and you want to increase the odds of doing it when there is signal there.

**Call the question:** Barry Dobyns, second Bob Buaas (many ayes, one nay)

Approved: 51      Opposed: 0      Abstain: 8      **Motion #17 passes**

The following motion passed in the IR ad hoc group (5,1,0) and in the PHY subgroup (11,0,4).

**Motion #18:** resolved that the proposed text changes in 256 be incorporated into the draft standard in section 12 in its next revision.

Moved by: Barry Dobyns  
Seconded by: Tom Baumgartner

**Motion 18 Discussion:** none

Approved: 41      Opposed: 0      Abstain: 14      **Motion #18 passes**

The following motion passed in the IR ad hoc group (6,0,0) and in the PHY subgroup (13,0,3).

**Motion #19:** resolved that the changes in 94/288 be incorporated into the draft standard 802.11d1 section 12 before that standard is published for letter ballot.

Moved by: Barry Dobyns  
Seconded by: Tom Baumgartner

**Motion 19 Discussion:** none

Approved: 36      Opposed: 0      Abstain: 17      **Motion #19 passes**

12. MAC Issues about MAC/PHY Interface: none (because 94/259 was on the agenda)

13. Adjourn - 5:29 PM

**Wednesday Evening, 9 November, 1994**  
**Mac & PHY subgroups**

**Thursday AM, 10 November, 1994**  
**MAC subgroup & PHY-FH, PHY-DS, PHY-IR ad-hoc groups**

**Thursday PM, 10 November, 1994**  
**Full Working Group**

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

#### 14. Opening

**9.1 Roll call:** everyone in the room was invited to introduce themselves.

##### 14.1 Announcements:

1. Standing committee for regulatory issues.

Vic Hayes (chair), Don Johnson, Wayne Moyers, Chandos Rypinski and Jim McDonald are the current members of the group..

File comments on or before December 19/94. Required to file reply-comments on or before Jan 3/95. Anyone wishing to make comments do so within one week.

2. There will be a call for papers in the next mailing, for magazine articles.

3. Attendance list circulating for corrections, check your email address.

If you want to be on the email and haven't received a test message from Vic by Friday next week please contact Vic (preferable by email).

4. Intellectual Property

In several session the chair had made requests for information regarding protected material in proposals or drafts.

IEEE Standards operations manual requires a notice in the foreword if implementation of the standard requires the use of a patent.

Now that the specification is at the current level, the chair expects that participants can better decide whether they have IP interests and accepts declarations of such interests and willingness to support licensing on reasonable terms and conditions

The chair encourages sharing of as much technical information as possible for the progress of the draft.

**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

Straw poll: who is going to the January meeting: about 40.

#### 15. Reports

**15.4 ETSI liaison adhoc group, 94/291,** by Wayne Moyers

**Motion #20:** that we send 291 as a proposal for liaison statement to ETSI.

**as amended by motion 21:**

that we not send 291 as proposal for liaison statement to ETSI.

Moved by: Wayne Moyers

Seconded by: Naftali

**Motion 20 Discussion:**

John McKown thinks this letter is purely negative, achieves nothing.

**Motion #21:**                    **To amend by adding "not" before send.**

Moved by:                    John McKown  
Seconded by:                Barry Dobyns

**Motion 21 Discussion:**

It can be sent to the excom, they will ignore it if it's not meaningful enough.  
There are some inaccuracies about the 2.4 GHz band availability worldwide.

**Call the question:** Tom Baumgartner, second Frederic Bauchot (many ayes, no nays)

Approved: 24                Opposed: 5                Abstain: 16

**Motion #21 passes**

**Motion 20 Discussion (con't):**

**Call the question:** Barry Dobyns, second Stuart Kerry (many ayes, no nays)

Approved: 20                Opposed: 4                Abstain: 24

**Motion #20 passes**

**15.1 MAC/PHY interface ad hoc:** no report

**15.2 MAC Group, by Dave Bagby**

August MAC minutes approved

Papers / subjects / motions

August papers  
None

**WDS**

248: B3 extension for WDS  
no motions made

254: Frame header improvements  
no motions made

Discussion of 248, 254, resulted in a joint proposal (290r1) for WDS support.

270: Direct addressing vs MIDs.

Presentation skipped due to compromise motion w/o objection of authors.

290: A compromise Proposal for Revision to the MAC Frame Formats to Support WDS.

One revision to 290 to reflect desired header field order.

290 and 290R1 major points:

248 base

Reorg fields within headers like 254.

EP bit included

Wim's data (re MID miscorrelation) to be considered on merits when avail.

290R1 Motion: MAC vote: 27-1-6 Passed

**Motion #22:**                    **To adopt 290r1 as presented.**

Moved by:                    the MAC group  
Seconded by:                Leon Scaldeferri

**Motion 22 Discussion:** none

Approved: 39                Opposed: 0                Abstain: 6

**Motion #22 passes**

248 B3 Section 2 corrections:

MAC vote: 19-0-7 Passed

**Motion #23:** that the corrections to B3 sec 2 contained in slides 77 thru 86 of 94/248A be adopted and incorporated into the next draft (the text / diagram needed is contained in those slides).

Moved by: the MAC group  
Seconded by: Chris Zegelin

**Motion 23 Discussion:** none

Approved: 37      Opposed: 0      Abstain: 6

*Motion #23 passes*

Elements

240: elements for bss sync.

MAC vote: 21-1-6 Passed

**Motion #24:** to adopt the changes from page 4 of 94/240 - w/o bottom sentence.

Moved by: the MAC group  
Seconded by: Phil Belanger

**Motion 24 Discussion:** none

Approved: 39      Opposed: 0      Abstain: 7

*Motion #24 passes*

282: Elements encodings.

Motion: to adopt the changes proposed in 94/282.

MAC vote: 10-14-4 Failed

255: Selective Insertion, a constrained alternative to elements.

Motion: MAC vote: 16-4-4 Passed

**Motion #25:** to adopt usage rules A thru D from slide 6 doc 94/255A and the element format picture from slide 5 from 94/255a. Remove the phrase "and selective insertion codes" from bullet D on slide 6 of 94/255A and change bullet A to "... and shall be used after any fixed fields in the payloads of such frames."

Moved by: the MAC group  
Seconded by: Wim Diepstraten

**Motion 25 Discussion:** none

Approved: 31      Opposed: 0      Abstain: 17

*Motion #25 passes*

Misc MAC specs

285 - mac specification issues.

motion: MAC vote: 20-0-3 Passed

**Motion #26:** That timing synchronization be maintained in a ad-hoc network, by adjusting a synchronized station timing reference to be the average of itself and any time-stamp received from another station in that network.

Moved by: by the MAC group  
Seconded by: Simon Black

**Motion 26 Discussion:** none

Approved: 39      Opposed: 0      Abstain: 8

*Motion #26 passes*

285 - mac specification issues.

motion: MAC vote: 21-0-2 passed

**Motion #27:** that the estimated power saving state of another station be based on the power mgt info xmitted by that station and additional info available locally (such as history of failed transmission attempts) which may be deemed relevant.

Moved by: by the MAC group  
Seconded by: Tim Phipps

**Motion 27 Discussion:** none

Approved: 37      Opposed: 0      Abstain: 10

*Motion #27 passes*

285 - mac specification issues.

motion 3: MAC Vote: 17-1-9 Passed

**Motion #28:** That in a network there shall be al least one node that is awake any given time to respond to probes. In an ad-hoc network probe responses shall be sent by the station that sent the last beacon. Stations do not need to cancel a pending probe response transmission if they observe a successful probe response from another sta in the same network.

Moved by: by the MAC group  
Seconded by: Tim Phipps

**Motion 28 Discussion:** none

Approved: 33      Opposed: 0      Abstain: 13

*Motion #28 passes*

Security

249: Wired Equiv Privacy

Adopted with modification that:

The specific PRNG algorithm used within the proposal shall be unspecified in the draft at this time (and the issues referred to be left open). Reviewers are encouraged to comment in letter ballot responses on appropriate PRNG algorithms for consideration.

The "WEP algorithm specification" section of doc 94/249, when transferred into the draft, shall be replaced with the text: "Reviewers are encouraged to comment on appropriate PRNG algorithms for adoption by 802.11."

Original MAC adoption vote: 23-2-2 Passed

Modification adoption MAC vote: 19-3-8 Passed

**Motion #29:** To accept proposal including modifications:  
As on page 3 of 94/249: That the following detailed changes (derived from draft 20B3) be adopted and incorporated in the 20B4 802.11 draft standard and the Issues 6.6 and 6.10 be closed to reflect the adoption of the WEP proposal.

The specific PRNG algorithm used within the proposal shall be unspecified in the draft at this time (and the issues referred to be left open). Reviewers are encouraged to comment in letter ballot responses on appropriate PRNG algorithms for consideration. The "WEP algorithm specification" section of doc 94/249, when transferred into the draft, shall be replaced with the text: "Reviewers are encouraged to comment on appropriate PRNG alg for adoption by 802.11".

Moved by: by the MAC group  
Seconded by: Michael Fischer

**Motion 29 Discussion:** none

Approved: 41      Opposed: 2      Abstain: 8

*Motion #29 passes*



802.10 Liaison action:

**Action item** for Vic - we need a magic number for this algorithm from 802.10.

State machines

253: Updated MAC state machines

Paper did not arrive at mtg.

DTBS

258: DTBS draft text

Some discussion, paper handled in Joint M/P session.

Multi-rates

247: Multirate Provisions in the MAC

Some discussion, paper handled in Joint M/P session.

MAC frame check sequence

245: Need for partial MAC frame check sequence checking.

802.2 liaison not present at mtg, no one to present paper, paper not discussed.

Do we have an 802.2 liaison and could we invite them to present this to us? No one knows,  
but if they exist, they are invited to come talk to us.

B3 comments

251: Comments on B3

Points important to authors:

mobility

Authentication

compression

privacy in ad-hoc

DTBS channel access mechanism missing.

no actions asked for by the authors, just informative before LB comments.

More Function

283 - Liberating the more function.

Motion 1: Mac vote: 26-0-3 Passed

**Motion #30:** To permit Stations, as well as APs, to use the More indication when additional buffered frames are present.

Moved by: by the MAC group

Seconded by: Michael Fischer

**Motion 30 Discussion:** none

Approved: 43      Opposed: 0      Abstain: 8

*Motion #30 passes*

Motion 2: MAC vote: 24-1-5 Passed

**Motion #31:** To combine the Sequence number and Fragment number fields into a 16-bit field, while reducing the size of the Fragment number sub-field to 4 bits with a corresponding increase in the size of the Sequence Number sub-field.

Moved by: by the MAC group

Seconded by: Wim Diepstraten

**Motion 31 Discussion:** none

Approved: 38      Opposed: 1      Abstain: 12

*Motion #31 passes*

Motion 3: MAC vote: 26-1-3 Passed

**Motion #32:** To adopt the frame header changes affecting the More, Power management, Fragment Number, and Sequence Number fields described in submission 94/283A.

Moved by: by the MAC group  
Seconded by: Michael Fischer

**Motion 32 Discussion:** none

Approved: 32      Opposed: 0      Abstain: 12

**Motion #32 passes**

WLAN requirements

284: Boeing paper re req for wlan  
no author present  
No paper avail for mac group  
not discussed.

TX power control

259: MAC TX power control  
Discussed, handling moved to joint M/P session.

PCF Based TBS

269: PCF TBS  
Motion: MAC Vote: 15-1-8 Passed

**Motion #33:** to adopt paper 269v2 into draft std w/o the last 2 lines from page 3 of 269v2.

Moved by: by the MAC group  
Seconded by: Tim Phipps

**Motion 33 Discussion:**

A history review on the subject of TBS is in order: We started with a PCF TBS. We replaced it with the DTBS, and voted to have only one TBS and that was DTBS. But the DTBS proposals keep getting rejected. So adopting this reverses previous decisions.

There are some who are against this because PCF TBS had problems before and still does now.

There are those who are for it because PCF TBS may have some problems, but we can't get a DTBS that works. Its essential that there be some TBS in 802.11 and the PCF way of implementing fits nicely with PCF service as it exists, almost free on top of async PCF. Also, the DTBS is a priority service, not a TBS.

The impact on the existing draft is that it will contain 2 TBSs.

Approved: 24      Opposed: 8      Abstain: 18

**Motion #33 passes**

Type dependent DIFS

257: Type Dependent DIFS  
No motion made by author.

CF-Async simplified.

252: Simplified Contention Free  
Motion: MAC vote:18-2-12

**Motion #34:** To adopt the changes to contention free async operation, including frame types / subtypes, usage rules, IFS duration, etc. as defined in doc 94/252 and to modify the updates to section 4.1.2.1.2 to designate the "reserved" frame type (type code = 11) as "time bounded" frame type.

Moved by: by the MAC group  
Seconded by: Michael Fischer

**Motion 34 Discussion:** none

Approved: 30

Opposed: 0

Abstain: 16

*Motion #34 passes*

MIB

293 MIB results from mon ad-hoc mtg

Motion: MAC vote: 28-0-6 Passed

**Motion #35: to adopt MIB changes recommended from Monday ad-hoc MIB mtg.**

Moved by: by the MAC group

Seconded by: Simon Black

**Motion 35 Discussion:** none

Approved: 39

Opposed: 0

Abstain: 10

*Motion #35 passes*

Goals for next meeting

Pushed Off schedule:

None!

Need guidance from 802.11 chair:

Subject limitations resulting from the open LB during the mtg?

Other work required? Conformance / test?

Motion: MAC group results: (1) Held as scheduled: 22; (2) Canceled. 3; (3) Abstain. 8

**Motion #36: resolved that the mac group recommends that the January mtg be:****1) Held as scheduled****2) Canceled****3) Abstain**

Moved by: by the MAC group

Seconded by: Frederic Bauchot

**Motion 36 Discussion:**

Barry Dobyns asks the chairman to rule the motion out of order as it has no meaning other than to provoke a discussion.

*Motion #36 ruled out of order*

The chairman of the MAC group asks for guidance from the 802.11 chairman - if we have the draft out for letter ballot out in January, what can we work on during the January meeting? Vic will not disclose any of the ballot contents until the ballot is closed, so early results cannot be discussed. There is feeling in the room that the group could work on anything that does not have anything to do with the document out for ballot. Lots of people suggest conformance testing. It is clear from a straw poll taken in the MAC that there won't be a quorum at the January meeting anyway, so nothing binding will get done.

On the subject of conformance testing there is some concern that in general the excom has halted all conformance work because it wasn't worth the effort because no one wants to do it.

What does this body produce as a final product (so we can identify pieces that need to be done)? Vic says: pix performa; PAR says test suite standards, level of detail up to us. For physical part of standard some test standard needs to be available. For the MAC it is not so clear, MAC can decide among themselves.

What about the Boeing contribution, document 94/284, which does not address only the MAC, it is of equal interest to PHY since it deals with requirements? Is it still possible to deal with it this meeting? There is "new business" still to come on the agenda, but the paper was just handed out very recently today, people have not probably had a chance to review it. The group expresses the sentiment that we are always interested in new input, and would welcome a future presentation.

Anyone who has a chance to read the paper and would like to follow up, Everett Rigsbee would welcome the input.

In order to have a consistent draft for letter ballot review and because plenary session has rejected DTBS support 3 times:

**Motion #39:**                      **that the reference to the DTBS service be removed from the B3 draft.**

Moved by:                      Dave Bagby  
 Seconded by:                  Barry Dobyns

**Motion 39 Discussion:**

**The chair rules this motion out of order**, because not part of the MAC group report.

**The ruling is appealed** by Tom Baumgartner, second Barry Dobyns

In favour of ruling the motion out of order: (4, 30, 9). **The motion stands.**

Dave doesn't like making this motion because he prefers DTBS, but he can't live with the result, two TBSs in the standard, and one of them empty.

Lots of people are in favor of DTBS, but not of the methods proposed so far.

If we try to throw out everything in the draft that is incomplete, inconsistent, and just doesn't work we will probably be here until the January meeting. The letter ballot comments will point out if what this motion is trying to do is desired.

It is possible to have a draft with place holders for features that aren't developed enough to put in yet. Other standards have passed 802 and ISO with entire chapters "Subject for future work." This encourages future work, lets people know future direction.

Approved: 11                  Opposed: 29                  Abstain: 8

**Motion #39 fails**

### 15.3 PHY Group

#### 1. FH Group Report, by Jim McDonald

The motion "Accept 94/68r5 plus errata, document 94/242, which summarizes the document 94/68r6 into draft standard" was accepted by the Joint MAC-PHY Group.

The motion "to require 75% vote in the FHSS PHY working group to bring motions to change the FHS PHY to the PHY and Plenary after Doc 94/68 is accepted by the Joint MAC/PHY 802.11 committee" was passed by the FHSS working group.

**Discussion:**

Dave Bagby, as MAC chair, objects that the second motion is inappropriate, it conflicts with the rules. Vic says the rules document 102r doesn't specify work group rules. Dave says Vic has informed him it is simple majority vote in the MAC group. Jon Rosdahl says in Orlando Vic ruled that all groups should operate the same.

There is some feeling that if this helps them make consensus without wasting plenary time that's up to them.

Vic rules that subgroups should work on their drafts and have all decisions be made on 50% group vote before bringing them to plenary.

#### 2. IR PHY Group Report, by Barry Dobyns

**IR PHY Accomplishments at November 1994 Meeting:**

The IR PHY is done, despite the bad FOV stuff. Both Adriano M. and Tom B. agree that it is broken. Sigh.

Resolved that the proposed text changes in 11-94/256 be incorporated into the draft standard in section 12 in it's next revision

IR PHY 5-1-0

Phy 11-0-4

Plenary 41-0-14

Resolved that the changes in 11-94/288 be incorporated into the draft standard p802.11d1 section 12 before that standard is published for letter ballot.

IR PHY 6-0-0

PHY 13-0-3  
Plenary 36-0-17

**Tentative agenda for the Infrared Baseband PHY ad-hoc working group for the 1995 January Meeting.**

Technical Inaccuracies the Draft P802.11d1

12.3.3.9 *Receiver Field of View* is defined in a way that will permit conformant devices to operate in a way inconsistent with the intent of the standard. Several papers from R.Samdahl and R.Valadas have been presented on this material already.

Operating Temperature Specifications

12.3.4.3 *Energy detect*: numbers need better definition

Renumbering in section 12.3.x to separate and make more clear receive and transmit

Additional work not for Draft P802.11d1

Begin crafting the PICS Proforma (conformance testing) text.

Likely suspects for conformance tests: 12.3.3.1 - 12.3.3.9, 12.3.4.2, 12.3.4.3

Begin crafting the *Informative Annex*, including a bibliography.

**3. DS PHY Group Report, by Jan Boer**

Minutes approved

Related issues:

- PLCP header
- MAC/PHY I/F
- JAPAN CENTER FREQUENCY
- Slot time

DS position on:

DTBS  
MULTIRATE  
Power Control

6 motions accepted

Issued revised doc 50r5 (proposed DS standard)

Motion 1: to correct the example for PLCP CRCFIELD (11.2.3.6) to reflect the changed signaling field (no functionality change). Passed DS group (6,0,0), passed PHY group (13,0,4).

Motion 2: the DS PHY group accepts doc 241 as service primitives between the MAC/PHY and modify doc 20b3 section 11.2 to include the change as specified in doc 241. Passed DS group (6,0,0), passed PHY group (14,0,1)

Motion 3: to change Japanese center frequency (section 11.4.6.2) from 2.483 GHz to 2.484 GHz. Passed DS group (6,0,0), passed PHY group (11,0,2).

Motion 4: Change 11.4.6.7 Rx to Tx turnaround time to 5 us.

Add 11.4.6.7: The slot time for the DS PHY is the sum of the Rx-Tx turnaround time and the energy detect time (ref 11.4.8.4)

Change 11.4.8.4 d. Energy detect time to 15 us

a. threshold shall be set to a min ... into: shall be less than or equal to.

Change 4.6.6 In conformance test spec 35 us into 25 us.

Passed DS group (5,1,0), passed PHY (14,1,2)

**Motion #38:** to incorporate the text changes as reflected in doc 50r5 into the new version of doc 20b3.

Moved by: the DS PHY group  
 Seconded by: Paul Strusaker

**Motion 38 Discussion:** none

Approved: 29      Opposed: 1      Abstain: 8

*Motion #38 passes*

Motion 5:

1. That the DS PHY is fully compliant with all provisions of the passive DTBS as presented in doc. 94/258.
2. the DS PHY supports the coexistence mechanism for active DTBS without modification as presented in doc 94/258.

Passed DS group (5,0,0)

Motion 6: The DS PHY fully support multi-rate provisions as proposed in doc 94/247 and supports Tx power control as proposed in doc 94/259 limited to a maximum of 4 levels of Tx power (2-bits of resolution). Passed DS group (5,0,0)

#### 4. HSFH PHY Group Report, by Ed Geiger

In distributed document 68r6 the last three page are missing because of a copying screw up. They are an information annex, because in the document are the formula for the tables that are missing.

#### 15.5 Operating rules comment, by Vic Hayes

- document 94/292
- informally sent comment of ad-hoc group to ORRG
- ORRG met Wednesday 3PM and considered comment
- need for Chair to send rational of rules on mailing
- new revision on mailing

Response to 94/292 Comment, by Paul Eastman

Issue: The chair has authority but not responsibility to speak for working group - while the chair carries the intent and wishes of the group, he must maintain some freedom. He has responsibilities to this group, but also to LMSC and to the community. Asking the group for a direct position (directed vote) helps the chair avoid personal conflict, but is expected to be used very infrequently. This group's chair has always bent over backward to carry their position.

Issue: Removal of WG chair - the chair though elected by this group is confirmed by the excom and therefore removal can only be by the excom. Inappropriate conduct or action can be brought up to the chair of LMSC and he will take action if appropriate. It was decided last night at any time during your meeting you can make a motion for election of a new chair, which will be confirmed at the next plenary.

Issue: Members should act as individuals. IEEE is very stringent about this. Block voting and committee loading can occur. If the chair observes block influence going on he can identify said block and rule that it is single vote for that block. Blocks should be identified before votes are taken.

Dave Bagby wants to know if a bunch of people getting together to discuss their draft standard comments would be considered as some type of block voting. Paul doesn't think so, thinks that's a good way to get comments.

Issue: Rule change process not truly open to 802 membership. Current rules state that the excom is the only one that can change the rules. The intent is to try to maintain the ability to change rules from that committee and open the review process to members. The purpose of the people meeting here is to make standards not operating rules.

#### 15.6 Financial Report from San Antonio

Expenses:

Meeting Rooms	\$ 1000.00
A/V Equipment & setup	\$ 1493.96
Food & Beverage	\$ 1436.19
Copying	\$ 683.50
Telephone & fax	\$ 17.56
Taxes & gratuities	<u>\$ 815.96</u>
TOTAL EXPENSES	\$ 5447.17
Income:	
Meeting fees (68 @ \$77)	\$ 5236.00
From Oshawa Meeting	
From Vic (CDN\$112.35, via NLG)	\$ 86.59
From Orest (CDN\$ 138.10)	<u>\$ 100.78</u>
MEETING INCOME	\$ 5423.37
Contributed by Michael Fischer	<u>\$ 23.80</u>
TOTAL INCOME	\$ 5447.17

**Motion #39:** to approve financial report.

Moved by: Barry Dobyns  
Seconded by: Glen Sherwood

**Motion 39 Discussion:** none

Approved by consensus

*Motion #39 passes*

#### 15.7 ITU(R) SG9, 94/296, by Peter Chadwick

Read the document - but note that this is not just PHY related, there is a reference made to MAC by ITU(R).

### 16. Unfinished Business

#### 16.1 Recap of Output Documents:

##### 1. Draft Standard

**Motion #40:** that 802.11 conduct a letter ballot to approve the IEEE 802.11 proposed draft standard, P802.11d1, to be forwarded for sponsor ballot.

Moved by: Bob O'Hara  
Seconded by: Barry Dobyns

##### **Motion 40 Discussion:**

Tom Baumgartner rises in futile opposition to this motion. We're not ready - this week there are many things left to fix. We have pages of known problems. The purpose of a letter ballot is to get approval for a completed work containing a large degree of consensus. Being a couple of months later is no worse than sending it out in the state it is. There has been no simulation done on the MAC to allow people to make an intelligent decision about what works and what doesn't. Sending it out without that is wrong.

Barry Dobyns wants to know what are the requirements on no voters in the ballot procedure? According to Paul Eastman comments have to have the intent of what needs to be changed to change a no vote to a yes vote. Not knowing how to fix the problem is ok. Just say "if you fix this I will vote yes".

Bob O'Hara is in favor of the motion - our purpose has been to do this. There is a simulation group that has generated nearly zero work - those who feel they need it should do it. It must get 75% vote for anything that happens for resolution.

Dave Bagby says we are not trying to create perfection. Letter ballot is a good way of organizing the concerns and problems.

**Call the question:** Dave Bagby, second Barry Dobyns (many ayes, one nay)

Approved: 41

Opposed: 4

Abstain: 1

*Motion #40 passes***2. Letter Ballot Template**

Bob O'Hara describes how to use the letter ballot template macro (it will come with a readme text file). If you don't have the appropriate software to use it you can just use it as a text form to fill in.

Comments are marked 'T' for technical or 'E' for editorial, only technical comments *must* be resolved editorial comments *may* be resolved.

Try to use the template, as it will make results processing easier for Vic. If you don't use the template, if you could keep the keywords and use tabs to separate fields it would help.

If you send your ballot then think of something new, can you send a revision. Send a complete ballot each time, the latest will be taken as the real one.

**Point of information** requested by Rick White. He believes that in the sponsor group letter ballot process if more than 30% abstain the process is nullified - is that the case here? Vic doesn't know.

**Request for a ruling** from the 802.11 chair before the letter ballot is mailed, by Dave Bagby - Will joint review of the draft, which improves draft analysis quality, but which will also tend to create common responses among the joint reviewers, be interpreted as block voting?

**3. Press Release, Doc P802.11-94/295r1**

(94/295 with slight grammatical changes)

**Motion #41:**                    **to request the excom to release doc 94/295r1 to the press.**

Moved by:                    Bob Egan

Seconded by:                Bob O'Hara

**Motion 41 Discussion:**

Will this be a domestic or international press release? Vic thinks international trade press release from the IEEE standards office.

Positive press coverage is the desired result of this motion But this alerts the press, and the follow-up headline to this one will be the resounding rejection of the ballot results, which will be a big black eye.

IEEE is already being bombarded with requests about the status of this standard. There's a lot of misinformation about the status that this will help to resolve. This is a significant milestone, other groups have made press releases at this stage.

This gives this group a chance to state its position. Without it other people will state their own interpretations of the group's position.

**Call the question:** Mack Sullivan, second Barry Dobyns (many ayes, one nay)

Approved: 34

Opposed: 5

Abstain: 5

*Motion #41 passes*

**16.2 Recap of Document Distribution:** please make sure files and originals, with headers and footers, are given to Vic for this meeting's submissions. Also ask all authors to give Vic copies on diskettes. The electronic copies will go onto the FTP server.

At this meeting more than 60,000 pages have been copied, at a cost of greater than \$2000. *Please* try to bring copies of papers to meetings. Note is being taken of who is generating papers at meeting (with therefore no alternative but to copy them there) and who is bringing papers and having them copied to save their own money and effort.

**16.3 Next Meeting, January 9-12, 1995**

The LeBaron Hotel  
1350 N. First Street  
San Jose, CA 95112  
Phone +1 408 453 6200  
Fax +1 408 437 9693



Contact: Wayne Moyers; phone +1 408 376 0250

Objectives for next meeting:

**Motion #42:** that the January meeting agenda be restricted from any decision which might alter the d1 document.

Moved by: Dave Bagby  
Seconded by: Carolyn Heide

**Motion 42 Discussion:**

Tom Baumgartner asks the chairman to rule the motion out of order as it has no meaning because the d1 draft is already a frozen document.

*Motion #42 ruled out of order*

MAC group objectives are in the MAC group report.

PHY group objectives - test documents, MIB, informative annex, tbd items.

Last Mailing Date:

For first mailing, November 18, in Vic's hands.

For last mailing, December 2, in Vic's hands.

**16.4 Other Intermediate Meetings:** none

**16.5 Future Meetings:** as published

**17. New Business:** none

**18. Closure** - meeting adjourned at 4:40 PM.

### Tentative Meeting Schedule

Date	Month	Year	Place	Type	Location	Host
9-12	Jan	1995	San Jose	Inter	LeBaron	WiSE & Tetherless
6-10	Mar	1995	West Palm Bch, FL	Plenary	Ramada	
8-11	May	1995	Salt Lake City, UT	Inter	Open	Novell
10-14	July	1995	Maui, HI	Plenary	Hyatt Regency	
TBD	Sept	1995	TBD	Inter	Open	
6-10	Nov	1995	Montreal, PQ	Plenary	Queen Elizabeth Hotel	
11-15	March	1996	La Jolla, CA	Plenary	Hyatt Regency	
8-12	July	1996	Netherlands	Plenary	?	
11-15	Nov	1996	Vancouver BC	Plenary	Hotel Vancouver	

## Appendix 1

## Attendance list

Mr. KAZUHIRO	ADACHI		ALPS Electronic 100206,2523@compuserve.com	+1 408 432 6486
Mr. DAVID	BAGBY	<b>voter</b>	Advanced Micro Devices david.bagby@amd.com	+1 408 749 5425
Dr. FRÉDÉRIC	BAUCHOT	<b>voter</b>	IBM France fbauchot@vnet.ibm.com	+33 92 11 55 92
Mr. C. THOMAS	BAUMGARTNER	<b>voter</b>	Spectrix Corp.	+1 708 491 4534
Mr. PHIL	BELANGER	<b>voter</b>	XIRCOM pbelange@xircom.com	+1 415 691 2500
Mr. MICHAEL	BEN-NUN		Digital Equipment Corp michael@isv.dec.com	+972 2 892616
Mr. MANUEL J.	BETANCOR	<b>voter</b>	E.T.S.I. Telecomunicacion betancor@deimos.ulpgc.es	+34 28 451272
Mr. CHRISTER	BJORK		Telia Research christer.bjork@malmo.trab.se	+46 40 10 5133
Mr. SIMON	BLACK	<b>voter</b>	Symbionics Ltd sab@symbionics.co.uk	+44 223 421025
Mr. JAN	BOER	<b>voter</b>	AT&T WCND Utrecht jan.boer@utrecht.ncr.com	+31 3402 97483
Mr. ALESSANDRO M.	BOLEA	<b>voter</b>	Raytheon Company alessandro_m_bolea@ccmail.ed.ray.com	+1 508 490 1857
Mr. JACK L.	BRADBERRY	<b>voter</b>	AMP Inc jlbradbe@amp.com	+1 717 561 6271
Mr. PABLO	BRENNER	<b>voter</b>	LANNAIR pablo@lannet.com	+972 3 6459127
Mr. ROBERT A.	BUAAS	<b>voter</b>	The Buaas Corporation buaas@nosc.mil	+1 714 968 0070
Mr. PETER E.	CHADWICK	<b>voter</b>	GEC Plessey Semiconductors Inc. gecp.peterc@applelink.apple.com	+44 793 518080
Mr. NAFTALI	CHAYAT	<b>voter</b>	LANNAIR naftali@lannet.com	+972 3 6458391
Dr. KWANG-CHENG	CHEN	<b>voter</b>	National Tsing Hua University chenkc@ee.nthu.edu.tw	+886 35 715131 x4054
Mr. STEVE	CHEN	<b>voter</b>	Standard Microsystems Corporation steve_chen@west.smc.com	+1 714 707 4803
Dr. HAE WOOK	CHOI		Electronics & Telecoms Research Inst hwchoi@cadvax.etri.re.kr	+82 42 860 6841
Mr. S. ERIC	CREVISTON		Teledyne Electronic Technologies 71214.3554@compuserve.com	+1 415 962 6869

## Appendix 1 (continuation)

## Attendance list

Mr. MARK	DEMANGE	<b>voter</b>	Motorola Inc. mark_demange@wes.mot.com	+1 708 576 7913
Mr. WIM	DIEPSTRATEN	<b>voter</b>	AT&T GIS WCND Utrecht wim.diepstraten@utrecht.ncr.com	+31 3402 97482
Mr. BARRY A.	DOBYNS	<b>voter</b>	Photonics Corporation 76527.266@compuserve.com	+1 408 955 7930 X230
Dr. PAUL	EASTMAN	<b>voter</b>	RF Networks p.eastman@compmail.com	+1 602 861 3652
Mr. RICHARD G.	EGAN		Polaroid Corp. egan@athena.polaroid.com	+1 617 386 6067
Mr. ROBERT J.	EGAN	<b>voter</b>	Digital Equipment Corp b_egan@nac.enet.dec.com	+1 508 486 5746
Mr. GREG	ENNIS	<b>voter</b>		+1 408 356 4775
			gennis@netcom.com	
Mr. JOHN	FAKATSELIS		HARRIS Corporation jfakat01@ccmail.mis.semi.harris.com	+1 407 729 4733
Mr. MATTHEW	FISCHER	<b>voter</b>	Advanced Micro Devices ablmatt@brahms.amd.com	+1 408 749 5403
Mr. MICHAEL	FISCHER	<b>voter</b>	Digital Ocean Inc. mfischer@child.com	+1 210 614 4096
Mr. DAVID A.	FISHER	<b>voter</b>	3COM Corp. David_Fisher@3mail.3com.com	+1 408 764 7200
Mr. ROLAND	FOURNIER		Advanced Micro Devices roland.fournier@amd.com	+1 408 749 5439
Mr. MAURICE	FRANCE	<b>voter</b>	Turner Gold France Engineering	+1 310 373 9515
Mr. KEITH S.	FURUYA	<b>voter</b>	XIRCOM kfuruya@xircom.com	+1 415 691 2500
Mr. ED	GEIGER	<b>voter</b>	Apple Computer Inc. edg@apple.com	+1 408 974 4907
Mr. EUGEN	GERSHON	<b>voter</b>	Advanced Micro Devices eugen.gershon@amd.com	+1 408 749 4944
Mr. IAN	GIFFORD		MACOM marketing@macom.com	+1 508 442 4650
Mr. HOWARD J.	HALL		WINDATA howardh@wireless.windata.com	+1 508 952 0170 X345
Dr. JAMES	HARRER		Valor Electronics, Inc.	+1 619 537 2643
Mr. JOHN	HAYES		GEC Plessey Semiconductors Inc. hayes@sv.gpsemi.com	+1 408 461 6167
Mr. VICTOR	HAYES	<b>voter</b>	AT&T GIS WCND Utrecht Vic.Hayes@Utrecht.ncr.com	+31 3402 97528

## Appendix 1 (continuation)

## Attendance list

Ms. CAROLYN L.	HEIDE	<b>voter</b>	Spectrix Corp. 71041.3262@compuserve.com	+1 708 491 4534
Mr. BRADLEY	HERRIN		Standard Microsystems Corporation bradley_herrin@west.smc.com	+1 714 707 2376
Mr. CHARLIE	JENKINS	<b>voter</b>	GEC Plessey Semiconductors Inc. charlie@sv.gpsemi.com	+1 408 451 4734
Mr. DONALD C.	JOHNSON	<b>voter</b>	AT&T GIS WHQ 5E donald.c.johnson@daytonoh.ncr.com	+1 513 445 1452
Mr. DEAN M.	KAWAGUCHI	<b>voter</b>	Symbol Technologies Inc. deank@psd.symbol.com	+1 408 369 2629
Mr. STUART	KERRY	<b>voter</b>	Symbol Technologies Inc. stuart@psd.symbol.com	+1 408 369 2634
Mr. WES	KILGORE		HARRIS semiconductor	+1 407 729 4573
Mr. DAVID C.	KING		Proxim Inc.	+1 415 960 1630
Mr. MIKIO	KIYONO	<b>voter</b>	NEC Systems Lab. mikio@lpd.sj.nec.com	+1 408 433 1457
Mr. THOMAS E.	KRUEGER		Seattle Silicon	+1 206 957 4422 X 104
Mr. JOSEPH J.	KUBLER	<b>voter</b>	Norand Corporation kublerj@norand.com	+1 303 442 1850
Mr. RICHARD R	KURTH		Raytheon rrkurth@sud2.ed.ray.com	+1 508 490 1901
Mr. DANIEL E.	LEWIS	<b>voter</b>	Norand Corporation	+1 319 369 3370
Dr. C. JIM	LI		Symbol Technologies Inc. ccli@symbol.com	+1 516 563 2400 X 4009
Mr. JASON	LI		Alps Electric (USA) Inc. 71042.1547@compuserve.com	+1 408 432 6432
Ms. ISABEL	LIN	<b>voter</b>	Toshiba America Info Systems Inc. isabell@tais.com	+1 714 583 3854
Mr. FRANCISCO J.	LOPEZ-HERNANDEZ	<b>voter</b>	E.T.S.I. Telecomunicacion dxtn@tfo.upm.es	+34 1 336 73 41
Mr. JERRY	LORAIN	<b>voter</b>	Symbionics Networks Ltd jl@symbionics.co.uk	+44 223 421025
Mr. LEONARD H.	LUNER		Pulse Spectrum Wireless Products Group lenluner+aSDCORP%Pulse@mcimail.com	+1 619674 8222
Mr. RONALD	MAHANY	<b>voter</b>	Norand Corporation mahanyrl@norand.com	+1 319 369 3552
Mr. BOB	MARSHALL		Philips Semiconductors marshall@sigscv.scs.philips.com	+1 408 991 2722
Mr. NOBUO	MATSUO	<b>voter</b>	Matsushita Electric Works mat@ca.mew.com	+1 408 433 3386

## Appendix 1 (continuation)

## Attendance list

Mr. JIM	McDONALD	<b>voter</b>	Motorola Inc. jim_mcdonald@wes.mot.com	+1 708 576 3169
Mr. JOHN	McKOWN	<b>voter</b>	Motorola Inc. mckown@wes.mot.com	+1 708 538 5235
Mr. BRIAN	MESSENGER	<b>voter</b>	Proxim Inc. brian@proxim.com	+1 415 960 1630
Mr. MIKE	MICELI		Motorola Inc. rfbb70@waccvm.sps.mot.com	+1 708 413 2532
Dr. AKIRA	MIURA	<b>voter</b>	Panasonic Technologies Inc. miura@tadw.research.panasonic.com	+1 415 858 1000
Mr. ROY	MIYANO	<b>voter</b>	ALPS Electronic 71234.3457@compuserve.com	+1 408 432 6458
Mr. ADRIANO J.	MOREIRA		Universidade de Avelro adriano@ua.pt	+351 34 381937
Mr. WAYNE D.	MOYERS	<b>voter</b>	WISE Communications Inc wayne@tetherless.com	+1 408 338 7562
Mr. BOB	O'HARA	<b>voter</b>	Advanced Micro Devices bob.ohara@amd.com	+1 408 749 4952
Mr. MITSUJI	OKADA	<b>voter</b>	NEC Electronics Inc. mokada@asic.mtv.nec.com	+1 415 965 6549
Mr. ROGER	PANDANDA	<b>voter</b>	MCS Corp roger_pandanda@mcsc.com	+1 619 558 9300
Mr. AL	PETRICK	<b>voter</b>	HARRIS Semiconductor apetrick@ccmail.mis.semi.harris.com	+1 407 729 4944
Mr. TIM	PHIPPS	<b>voter</b>	Symbionics Ltd tgcp@symbionics.co.uk	+44 223 421025
Mr. JEFF	RACKOWITZ	<b>voter</b>	INTERMEC Corp. jeffr@intermec.com	+1 206 348 2600 x6307
Mr. G.F. (JERRY)	RIEBEEK		AMI semiconductors riebeek@poci.amis.com	+1 208 234 6749
Dr. EVERETT	RIGSBEE III		Boeing Computer Services buzzer@kbct.profs.boeing.com	+1 206 865 7364
Mr. DAVE	ROBERTS	<b>voter</b>	Advanced Micro Devices david.roberts@amd.com	+1 408 749 5461
Mr. JON WALTER	ROSDAHL	<b>voter</b>	Novell Inc jrosdahl@novell.com	+1 801 429 3183
Mr. MICHAEL	ROTHENBERG	<b>voter</b>	LANNAIR ieee_802.11-distr@lannet.com	+972 3 6458422
Mr. CHANDOS	RYPINSKI	<b>voter</b>	LACE Inc. rypinski@netcom.com	+1 415 389 6659

## Appendix 1 (continuation)

## Attendance list

Mr. LEON S.	SCALDEFERRI	<b>voter</b>	NSA R22 lsscald@alpha.ncsc.mil	+1 301 688 0293
Mr. GLEN	SHERWOOD	<b>voter</b>	INTERMEC Corp. glens@intermec.com	+1 206 356 1791
Mr. TOSHIO	SHIMIZU		Japan Radio Co Ltd	+81 422 45 9231
Mr. THOMAS	SIEP		Texas Instruments siep@hc.fi.com	+1 214 995 3675
Mr. NATHAN	SILBERMAN	<b>voter</b>	Consultant snathan@netcom.com	+1 408 253 5066
Mr. MARVIN	SOJKA	<b>voter</b>	Aironet Wireless Comms. Inc. msojk@telxon.com	+1 216 665 7918
Mr. KYUNG S.	SON	<b>voter</b>	US Army CECOM 72540.2321@compuserve.com	+1 908 532 0451
Mr. JOHN	SONNENBERG	<b>voter</b>	Pulse Engineering Inc. johnsonnenberg+asdcorp%pulse@mcimail.com	+1 619 674 8360
Dr. WALTER C.	SOTELO	<b>voter</b>	Fujitsu Systems Busines of America Inc walters@fsba.com	+1 408 654 2052
Mr. PAUL F.	STRUHSAKER	<b>voter</b>	Aironet Wireless Comms. Inc. pstru@telxon.com	+1 216 665 7919
Mr. KEI	SUDA		NEC Corporation k_suda@lsi.fmg.nec.co.jp	+81 44 435 1618
Mr. MACK	SULLIVAN	<b>voter</b>	Proxim Inc. mack@proxim.com	+1 415 960 1630
Mr. MIKE	TROMPOWER	<b>voter</b>	Aironet Wireless Comms. Inc. mtrom@telxon.com	+1 216 665 7920
Mr. TOM	TSOULOGIANNIS	<b>voter</b>		+1 416 299 1954
			tomt@interlog.com	
Mr. RYAN H.	TZE	<b>voter</b>	Toshiba America Info Systems Inc. ryant@tais.com	+1 714 587 6769
Ms. JEANINE	VALADEZ	<b>voter</b>	Advanced Micro Devices j9@brahms.amd.com	+1 408 749 5206
Mr. SAROSH	VESUNA	<b>voter</b>	Symbol Technologies Inc. saroshv@psd.symbol.com	+1 408 369 2657
Mr. HIROHISA	WAKAI	<b>voter</b>	SHARP wakai@sharp.co.jp	+1 510 644 9267
Mr. RICHARD E.	WHITE	<b>voter</b>	Motorola Inc. rick_white@wes.mot.com	+1 708 576 7878
Mr. STEPHEN	WOOD		Andrew Corporation	+1 214 952 1139
Mr. JERRY	WYATT	<b>voter</b>	American Express 71233.702@compuserve.com	+1 602 492 2545

## Appendix 1 (continuation)

## Attendance list

Mr. IWEN	YAO	<b>voter</b>	RN Communications Inc.	+1 508 256 4950
Mr. CHRIS	ZEGELIN	<b>voter</b>	Symbol Technologies Inc. chrisz@psd.symbol.com	+1 408 369 2667
Mr. LAWRENCE H.	ZUCKERMAN	<b>voter</b>	Advanced Micro Devices larry.zuckerman@amd.com	+1 408 749 4934

