Tentative Minutes of the IEEE P802.11 Working Group

Interim Meeting
San Jose, CA
January 10-13, 1994

Monday, January 10, 1994 8:30 AM

The meeting was called to order at 8:30 AM, Vic Hayes, chairman IEEE P802.11[1] in the chair. John McKown vice-chairman, Dewayne Hendricks secretary (replacing Carolyn Heide for this meeting), Leon Scaldeferri watching the attendance list, Tim Blaney managing originals of submissions and Jon Rosdahl managing the pigeonholes. The agenda document for this meeting is 802.11-93/233.

Objectives:
- Answer MAC Questions mailed out November
- Resolve issues in light of foundation adoption
- Drafting of text for insertion into draft standard to reflect decisions
- Multi Phy reate impact exploration
- Submissions overflowed from November meeting
- Review action for PHYs in other bands:
  PCS 1900-1920 MHz, 5.8 GHz ISM, 5.2 "HIPERLAN"
- Examine Clear Channel Assessment
- Review Higher data rate impact

1. Opening

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Brief intro by Wayne Moyers of WiSE on conference arrangements
DLH agreed to take the minutes for the meeting as the secretary was absent
Vic announced that Don Johnson and Larry Van der Jagt were out due to the flu. Vic asked Bob Buaas to take over the PHY committee

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

1.2 Voting Rights: Voting tokens are distributed in the attendance book to be picked up by voting members during attendance list circulation. There is a paper describing voting rights and information for new members, IEEE 802.11-92/00,00.1 and 00.2. In subgroups everyone can vote. There are currently 95 voting members and 98 aspirant members.

1.3 Attendance list, Registration: The attendance list was distributed - 75% attendance according to the attendance list is required to qualify for "participated" 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.

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. Breaks will be at 10:00 AM and 3:00 PM, and lunch is approximately 12:00 PM to 1:30 PM.

1.5 Other announcements

As Larry Van Der Jagt could not make the meeting, Vic Hayes appointed Bob Buaas as acting chairman of the PHY Group for this meeting. As Carolyn Heide could not make the meeting, Vic Hayes appointed Dewayne Hendricks as secretary for this meeting.

2. Approval of the minutes of the previous meeting

2.1 West Palm Beach meeting, Document IEEE P802.11-93/225

Motion #1:	**Approve minutes of West Palm Beach meeting.**

Moved by:	Dave Bagby
Seconded by:	Kerry Lynn

Motion Discussion:

A count was made to determine the number of voting members present. Vic Hayes stated that a total of 48 was needed to make a quorum. Dave Bagby raised the issue as to what business could be conducted since there was no quorum. Hayes said that only issues could be closed. No decisions could be made. After some discussion as to just what was a voting member, a recount was asked for. The total was then 43. Discussion was engaged about not being able to adopt the minutes since there is no quorum. Bagby raised the issue that we didn't have a quorum to conduct business. A recount was made and the total was then 49. Bagby made a motion to adopt the minutes, which was seconded by Kerry.

Approved: 45	Opposed: 0	Abstain: 3	**Motion #1 passes**

3. Reports

3.1 Report from the Executive Committee, by Vic Hayes

Hayes made a report to the Exec Comm on the MAC foundation protocol. The Exec Committee asked that Hayes come back to the committee with a schedule and set milestones as soon as possible.

4.0 Registration of contributions to be presented

Document was handed out at the start of the meeting. Vic reviewed the list and update the status of all of the documents.

5.0 Adoption of Agenda: Document P802.11-93/233

Motion #2:	**To adopt this agenda.**

Moved by: Wayne Moyers
Seconded by: Peter Chadwick

Motion Discussion: none

Approved: 48   Opposed: 0   Abstain 0   **Motion #2 passes**

6. Unfinished Business:

6.1 Comments on draft standard
There was no comment on the draft standard

6.2 Estimate for first submission of draft MAC standard for vote
Discussion:

Hayes: Proposed 7/94 for first draft in doc: 93/135.
Peter Chadwick: Doubts that the 7/94 date is valid. Question on submission to ISO due to the problem with the RF parameters in the various countries of IEC?ISO. Says end of 94 is better estimate.
Dave Bagby: Need for a schedule due to request from Exec Comm. Had posted a message to the reflector with a strawman proposal for the timing of a 1st draft. He feels that 1 year is a good number. That makes it 11/94 to send it out for ballot.
Peter Blomeyer: Agrees with the 11/94 date.
Chandos: Hard to do a complete standard with all of the necessary details. No date estimate given.
Moyers: Agrees with Chan on the difficulty of developing the written standard. Goes with the 11/94 date.
Ed Geiger: Supports Bagby position. Raised question on when it had to go to the membership. Went with 11/94 date.
Glen Sherwood: Went with the 11/94 date, but suggests that the issues be looked at bottom up and see if that can really be done.
Bagby: Wants a better idea from the Exec Comm as to what their expectations are.
Hayes: Pointed out that a PAR (3/91?) only lasts 4 years. That makes 3/95 the drop dead date for the group.
John McKown: Wants to have an estimate from the submitters of the standard (i.e. Xircom, et al) as to what a good schedule might be.

Motion #3:	**That 802.11 commit to shipping a draft standard for first ballot on or before the 11/94 mtg. The subfroups are directed to draft a plan to make this date, adjusting their work set as necessary.**
Moved by:	Dave Bagby
Seconded by:	Dave Roberts

Motion Discussion:

Ed Geiger: Difficult to ship just a MAC without at least one PHY.

Bagby: Went in support with Geiger's comments. Yielded the floor to Buaas

Buaas: *Moved to postpone the motion* until the end of the meeting (Thur). Second by Moyers.

Bagby: Against the motion. said that it was a delaying tatic.

    Vote taken for postpoe the motion: For:11 Opposed:29 Abstain: 6   **Motion failed**

Bagby: *Moved to call the question*. 2nd by Bob O'Hara.

    Vote taken for previous question: For:39 Opposed:1 Abstain: 6   **Motion failed**

Kerry Lynn: Raised the issue of how the group can discuss business without a quroum. Hayes said that at a plenary, you have a quroum by definition.

McKown: Raised the issue of only checking for a quroum at the start of a week's meeting. After discussion it was decided that Vic should check if this can be done and report back to the group.

Approved: 48	Opposed: 0	Abstain 0	**Motion #3 passed**

6.3 JTC TIA TR46.3.3/T1P1.4 on wireless access

Kamilo Feher made a short presentation on the what has been happening at that group.

Proposed:

802.11 to appoint up to 5 representatives to the JTC to attempt to coordinate 802.11 and JTC for "Air Interface Standard". 2 people from MAC and 2 from PHY. Next mtg. 1/17-20.

    Discussion:

Hayes: Had some concerns about the proposal. Said that TIA group is only looking at the licensed band. Also not looking at data rates greater then 2 Mbps. Doesn't see 802.11 going to the meeting without a written proposal.

McKown: Doesn't want anyone without proper authorization going to that meeting and representing 802.11.

Matter was closed with no further action. Hayes said that anyone going to the meeting is free to bring back a report to the group.

6.4   93-200 Reorg of 802.11 issues into sets

raised by Chandos; against by Bagby ; Moyers in favor of discussion

Bagby: Raised a point of order against the presentation based upon the issues that were accepted at the 11/93 mtg.

Kerry: ....

Chadwick: should not use a point of order to rule the submission out of order.

The chair ruled to allow the submission to be presented.

Chandos made his presentation.

Chadwick: Wanted to know if anyone in the US has asked the FCC to allocate the 5150-5350 MHz band. Stated that any consideration of this band by 802.11 was premature.

Nobody in the room seemed to know of one.

Chan decided not to move for the motions in his paper.

7. New Business

None

8. Adjourn for subgroups
Meeting adjourned at 1209.

Monday PM, 10 January, 1994
    MAC (94/27) and PHY (94/28) subgroups and PHY-DS (94/30) and PHY-FH (94/29)
    ad-hoc groups
Monday Evening, 10 January, 1994
    PHY- HS FH (94/31) ad-hoc groups
Tuesday AM, 11 January, 1994
    MAC (94/27) subgroup and DS-PHY (94/30) and FH-PHY (94/29) ad-hoc groups
Tuesday PM, 11 January, 1994
    MAC (94/27) and PHY (94/28) subgroups DS-PHY (94/30) and FH-PHY (94/29) ad-hoc
    groups
Tuesday Evening, 11 January, 1994
    IR-PHY (94/32) ad-hoc group
Wednesday AM, 12 January, 1994
    MAC subgroup and DS-PHY and FH-PHY ad-hoc groups

Wednesday PM, 12 January, 1994
Full Working Group

The meeting was reconvened at 3:33 PM, by chairman Vic Hayes, with Dewayne Hendricks secretary

9. Opening

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

9.2 Document List Update

9.3 Agenda Adjustments

None. Current agenda adopted.

9.4 Announcements

9.4.1 Special announcement
Award made to Dave Bagby by Hayes for his work as chairman of the MAC group. He gave him a book on naval architecture.

9.4.2 Attendance
117 people total attendance at the conference.
About 65 at this meeting.

9.4.3 Registration

One missing payment from Steve Ludvik.

9.4.4 Resignation of voting members
Asked that all voting members who wish to resign, to please write to Hayes and ask that they be dropped from the membership.

9.4.5 Procedures

In view of proper running of subgroups, the chair announced that he is considering to introduce the following procedures for all subgroups:

Meetings must run in announced time

Subgroups must establish agendas
        a.   tentative in first mailing
        b.   main outline tentative at first meeting in session
        c.   at beginning of meeting fix the agenda, publish important motions in agenda
        d.   motions only on agenda items
        e.   agenda prominently displayed at the entrance of the meeting room
Voting in subgroups only if attendee was in meeting before
    so if you want to vote on the first meeting of a subgroup, you had to be in the plenary.
Hayes requested comments off-line.

9.4.6 Files of Submissions

The chair wants electronic files of all submissions to make them available for the FTP sites as well as for the CD-ROM..

9.4.7 FTP Sites
We have two FTP sites now. Addresses are always provided at the end of the
9.4.8 Pigeonholes

9.4.9 Mailing dates
21 January and 4 february will be the last day for making papers available to make the mailing.

10. Architecture

Presentation made of paper "94/10 Report of the November, 93, Joint Experts Meeting on Privacy and Authentication for Personal Communications Services sponsered by Telocator, TR46, and T1P1" by L. Scaldeferri, NSA.

Bagby made an announcment on a local (SFO Bay Area) cryptography meeting of IEEE Project 1363.

11. MAC/PHY Interface

Bagby made some remarks on some discussions in the MAC group. Issue was that reciever sensitivity had an upexected effect upon system performance in some simulations that Apple did. Dave suggested that the PHY group look at the paper that Apple presented on their simulation studies.

Ed Geiger was going to make a presentation but Buaas asked that he not proceed since the issue had not been fully agreed to by the PHY group. The issue in question had to do with an approach for clear channel assesment. A

lively discussion ensued. Hayes suggested the appropriate parties get together offline and possibly put it on the agenda for the next meeting.

12. PHY issues
There were none.

13. MAC issues
There were none.

14. Adjourn for subgroups

Meeting was adjourned at 5:30 PM.

Wednesday Evening, 12 January, 1994
PHY - HS FH ad-hoc group

Thursday AM, 13 January, 1994
MACand PHY subgroups
DS-PHY and FH-PHY ad-hoc groups

Thursday PM, 13 January, 1994
Full Group Meeting

The meeting was reconvened at 1:40 PM by chairman Vic Hayes, with Dewayne Hendricks secretary.

15. Opening

15.1 Announcements

15.1.1 Files of submissions provided?
All files for submission should go to Tim Blaney

15.1.2 Mailings
January 21
Febuary 4

15.1.3 Agenda and venue are on the FTP sites in time
addresses are in coverletters
directions in 93/86

15.1.4 Reconfirmation of WG chairs at March meeting

15.1.5 Working closely with Orest to prepare meeting in Oshawa, May 94

15.1.6 LCD Screen for next meeting(s)
Hayes made a request for an LCD projection device for future meetings

15.1.7 UUDECODE?
Program made available by Hayes.

15.2 Document List Update

15.3 Agenda adjustments

16. Reports

16.1 MAC Group

Bagby gave the report for the MAC group. Votes were taken on the following items:

Motion #4: To approve the motion passed in the MAC group on doc.: 94/01 MAC State Machines:
that the state machine diagrams and descriptions, as amended, be adopted as the initial description of the P802.11 MAC (in part) and incorporated as such in the draft of the standard.

Moved by Bagby
Second by Fisher

Vote: 34-2-10 **Motion #4 Passed**

Motion #5: To approve the motion passed in the MAC group on doc.: 94/15 A more reliable contention free access scheme:
To adopt the access mechanism change as defined in doc 94/15 (with the correction re worst case nav length calculation discussed in mtg) by including the technique in the draft std text.

Moved by Bagby
Second by Fisher

Vote: 37-0-8   **Motion # 5 Passed**

Motion #6: To approve the motions passed in the MAC group on doc.: 94/16 Issue results with over 75% support of MAC group:

Issue #	MAC vote	Issue #	MAC vote
10.1:	37-0-3	10.3:	37-1-1
10.6:	38-0-0	11.3:	28-2-11
11.4:	32- 2-3	13.3A:	32-0-5
14.2:	26-3-7	10.2b:	36-0-5
14.4:	35-1-2	16.1:	39-0-0
17.3:	36-0-0	17:5:	34-0-3
18.1:	37-0-0	18.2:	35-0-1
19.1:	36-1-0	19.2A:	28-0-7
19.2B:	29- 0-5	19.11:	28-0-3
20.2:	28-0-3	20.4:	32-0-0
24.1:	31-0-1	25.1:	21-1-11
25.2A&B:	27-1-5	26.1A:	33-0-0
27.1:	37-0-0		

Moved by Bagby
Second by Fisher

Vote: 41-0-4 **Motion #6 Passed**

Motion #7:   To approve the motion passed in the MAC group on doc.: 94/16 Issue results with over simple majority support of MAC group: Vote on issue 24.6
Moved by Bagby
Second by Fisher
Vote: 19-20-7 **Motion # 7 Failed.** Issue will remain open.

Motion #8:   To approve the motions passed in the MAC group on issues with Vote on above 75% issues closed:

Issue #	MAC vote	Issue #	MAC vote
1.1:	38-0-0		
1.2: obsolete:	unan	1.3: obsolete:	unan
3.1: obsolete:	unan	7.1: obsolete:	unan
7.2: obsolete:	unan	8.1B: (time driven):	unan
9.2: obsolete:	unan	9.3: yes:	unan
9.6: obsolete:	unan	10.4: obsolete:	unan
13.6: see foundation info:	29-1-7	15.4: obsolete:	24-2-11
15.5: yes:	unan	15.8: no	31-3-5
17.1: see votes for			
19.2A&B, 17.3, 17.5:	unan	17.2 See note for 17.1:	unan
19.5: obsolete:	26-0-4	19.8: close alt 1:	28-1-5
19.10: obsolete:	unan	21.2: see 19.8 vote:	unan
21.3: obsolete:	unan	24.2: not an issue	unan
28.1: alt 1:	33-0-4		

Moved by bagby
Second by Ennis
Vote: 40-0-4   **Motion # 8 Passed**

Report of Dave Bagby

Papers Presented and Discussed:
Papers (from Nov):
93/208: A Complete Description of Frame Prioritization in a CSMA/CA MAC Protocol (Rick White, Motorola)
93/195 Performance of Nonpersistent CSMA with Cell Interference and Imperfect Sensing (K.C. Chen, NTHU)
Papers (Foundation performance)
94/01: MAC State machines (Bob O'Hara, AMD)
94/20: Rf MAC simulation highlights (Carlos Puig Apple)
Papers (Contention free period)
94/15 A more reliable contention free access scheme (Jim Schuessler)
Papers Presented and Discussed:
Papers (issues log)
94/16 Issue list review (Greg Ennis)
Papers (Proposed changes to foundation)
94/14:   An Enhancement of Multiple Access for DFWMAC (KC Chen)
94/12: Evaluation of the DFWMAC (C. Rypinski, LACE)
94/13: "Morphing" the DFWMAC into an integrated Services "SAM" (Sequential Asynchronous MAC) (C. Rypinski, LACE)

94/21: Distributed time bounded service. (Kerry Lynn, Apple)

Papers (Security related)

94/11: Intro to CAPSTONE and Tessera, an overview. (L. Scaldeferri, NSA)

94/22: The RT encryption alg (Kerry Lynn, Apple)

» Postponed by Author to Mar 94

Papers (other subjects)

94/17 Provisions required for handoff (wim D)

Papers schedule pushed out:

None

Other papers distributed:

None

Administrative topics

Organization, Schedule, Agenda.

Adopted.

Approval of minutes

Small corrections made and minutes approved.

Voting issues

Group reaffirmed that all attending will vote

Progress on Agenda Subjects.

Follow direction given by November 802.11 Plenary.

Study & enhance foundation by vote.

Answer & resolve questions relative to DFW performance.

Clean Issues log to reflect foundation adoption.

Drafting of text for insertion into draft standard to reflect decisions and current foundation state.

Multi PHY rate impact exploration.

Papers which schedule prevented in Nov.

Commit to a schedule for MAC completion.

Next onion layer of report...

Follow direction given by Nov 802.11 Plenary -

Study & enhance foundation by vote.

Progress made.

Answer & resolve questions relative to DFW performance.

Prelim state machines

Simulation code from apple

Ad-Hoc working on simulation of foundation.

Text drafting to reflect foundation.

Ad-hoc group formed to create text for draft standard.

Ad-Hoc members:

Greg Ennis

Jim Schuessler

Bob OHara

Additional help on specific topics solicited - please contact MAC chair to volunteer.

Multi PHY rate impact exploration.

No contributions received.

Papers which schedule prevented in Nov.

Completed.

Commit to a schedule for MAC completion.
Took direction from Monday plenary and developed schedule with milestones.

MAC Schedule

Jan 94:
Draft std text brought up to date w/ current decisions.
  » Will be completed by Mar 94 mtg.

Mar 94:
No new functionality milestone
Motion:
Resolved that the MAC group is no longer adding new major functionality to our foundation after March 94, we will spend the time between now and the first LB removing bugs from our foundation.
  » 27-3-8

May 94:

MAC Schedule

July 94:
Revisit progress for possible function postponement.
Motion:
That a formal relook be made at all functionality in the July 94 meeting, for the purpose of postponing until a later revision functionality that cannot be completed by the Nov 94 goal date.
  » 38-0-6

Sept 94:

Nov 94:
First letter ballot out.

Clean Issues log to reflect foundation adoption.
Many issues closed.
More detail later in report...

Info re submissions for the MAC group:
Presentation categorization approach:
Three preferred categories of submissions:
1: Identifying something in the foundation that is broken?
we must fix things these.
2: Proposing an improvement in some aspect of foundation operation?
then we need to understand the proposed improvement in order to evaluate cost of change vs potential improvement.
3: Proposing new functionality for foundation?
Overview of new functionality and foundation impact to group so we can decide to add or not.
Presentation categorization approach:
Future MAC papers are required to include in the abstract an identification of the paper category.
The action which presentor desires as a result of the presentation shall be identified in the abstract.
By default, presentations will be assumed to fit in 1 hr including discussion. However, please arrainge presentations to give the abstract and action request first, then the details (so that if there is agreement up front by the group, we can save the bulk of the presentation time).
If you anticipate that more than 1 hr will be needed, contact the MAC chair BEFORE the meeting.
If the number of papers at a mtg is high, the default time per paper at a mtg may have to shrink.
For future meetings, we will prioritize presentations as as follows (in addition to usual rules):
  1: Papers identifying foundation problems along with a proposed solution.
  2: Papers Identifying potential foundation improvements.
  3: Papers proposing new foundation functionality.

4: Other papers.

Because of the March 94 milestone re new feature cutoff, the paper priority order for March will be:

1: Papers identifying foundation problems along with a proposed solution.

2: Papers proposing new foundation functionality.

3: Papers Identifying potential foundation improvements.

4: Other papers.

Decisions resulting from paper presentations.

93/208: A Complete Description of Frame Prioritization in a CSMA/CA MAC Protocol

Moved:

1: That the mac group define a mechanism to determine if channel is clear or busy.

Vote: 12-24-12

2: If motion 1 passes, that the mechanism used be the one described in 93/208 - length in header protected by CRC.

New Issues arising from discussion:

Shall the MAC do fragmentation or rely on upper layers?

Shall the mac support windowing (allowing multi packets with single ack)?

Shall APs provide priority relay of packets to other devices within a BSS?

94/01: MAC State machines

Motion: that the state machine diagrams and descriptions, as amended, be adopted as the initial description of the P802.11 MAC (in part) and incorporated as such in the draft of the standard.

30-5-9

94/20: RF MAC simulation highlights

Motion:

That an ad-hoc group be formed to extend the RFMAC sim pkg to model the salient features of the foundation and produce a common MAC simulator.

Vote: 34-0-5

Ad-hoc group commitments:

A common simulator and some simulation results by Mar 94 mtg.

A recommendation re what to do with issue 29.1

Members of ad-hoc group

Kerry Lynn - chair of ad-hoc group

Barry Dobyns	Rui Valdas
Wim D	Marvin Sojka
KC Chen	Pauline Y
Frederic Bauchot	Michel fischer
Greg Ennis	Chris Zegelin

94/15: A more reliable contention free access scheme.

Motion:

To adopt the access mechanism change as defined in doc 94/15 (with the correction re worst case nav length calculation discussed in mtg) by including the technique in the draft std text.

34-0-5

94/16 Issue list review.

Action:

Closed many issues with 94/16 recommendations.

Issues group by passage level

75% or more
Simple majority
Recommendations not accepted.

94/16 Issue results:
Above 75%:

10.1:	37-0-3	10.3:	37-1-1	10.6:	38-0-0	11.3:	28-2-11
11.4:	32- 2-3	13.3A:	32-0-5	14.2:	26-3-7	10.2b:	36-0-5
14.4:	35-1-2	16.1:	39-0-0	17.3:	36-0-0	17:5:	34-0-3
18.1:	37-0-0	18.2:	35-0-1	19.1:	36-1-0	19.2A:	28-0-7
19.2B:	29- 0-5	19.11:	28-0-3	20.2:	28-0-3	20.4:	32-0-0
24.1:	31-0-1	25.1:	21-1-11	25.2A&B: 27-1-5		26.1A:	33-0-0
27.1:	37-0-0						

94/16 Issue results
Simple majority:
24.6:   18-11-0

94/16 Issue results
Recommendations not accepted:

14.3:	4-29-03	16.5:	6-15-10	24.7:	3-24-4

Other Issues we closed

Due to foundation adoption or
because the issue is just plain silly...

Above 75%:
1.1:   38-0-0

» **MUST, SHALL or MANDATORY**
The item is an absolute requirement for compliance to this standard.

» **SHOULD**
The item is highly desirable.

» **MAY or OPTIONAL**
The itedm is not compulsory and it is followed or ignored according to the needs of the implementor. If optional
features are implemented they must be compliant with the standard.

» **NOT APPLICABLE**
The item is outside the scope of this standarrd.

1.2: obsolete:	unan	1.3: obsolete:	unan
3.1: obsolete:	unan	7.1: obsolete:	unan
7.2: obsolete:	unan	8.1B: (time driven):	unan
9.2: obsolete:	unan	9.3: yes:	unan
9.6: obsolete:	unan	10.4: obsolete:	unan
13.6: see foundation info:	29-1-7	15.4: obsolete:	24-2-11
15.5: yes:	unan	15.8: no	31-3-5
17.1: see votes for			
19.2A&B, 17.3, 17.5:	unan	17.2 See note for 17.1:	unan
19.5: obsolete:	26-0-4	19.8: close alt 1:	28-1-5
19.10: obsolete:	unan	21.2: see 19.8 vote:	unan
21.3: obsolete:	unan	24.2: not an issue	unan
28.1: alt 1:	33-0-4		

Simple majority:
none.

Other Actions:
2.1: Chan took action item to make rec for mar 94 mtg.
15.3: Issue changed to what is the MAC service interface to TB and is it different from LLC? - left open.

Decisions resulting from paper presentations.
94/14:   An Enhancement of Multiple Access for DFWMAC.
Motion:

That the MAC group of the IEEE 802.11 NOT adopt the GRAP protocol as an alternative of the multiple access in the foundation protocol.
> 20-6-16

94/12: Evaluation of the DFWMAC.

No action requested.

94/13: "Morphing" the DFWMAC into an integrated Services "SAM" (Sequential Asynchronous MAC).

Action: Presentor asked that those interested in discussion of the details please contact him off-line. A room is requested for an informal evening session in March for further discusison of this paper.

94/21: A Distributed time bounded service.

Action: Intro and justification of DTB service. More detail to be provided in March. An adoption request is anticipated at that mtg. Kerry requests contact from interested members between meetings.

94/17: Provisions required for handoff.

Action: This was an example of one DS approach, used to check that the foundation has the hookk necess. It also proposes that 802.11 standardize at least one DS . These subjects need to be addressed in a future mtg.

MAC Agenda Subjects and Goals for Mar 94 mtg.

Papers from previous mtg which schedule prevented.
> none.

Guidelines for papers
Abstract required identifying paper category:
> » Broken?
> » Improvement?
> » New functionality?

Ratify next level of schedule detail.
MAC chair to provide more detailed sched for Mar mtg.

Report from Simulation ad-hoc group.

Report from MAC editing group, review of draft text.

Due diligence - check foundation against closed issues to identify areas for correction.

Eve Foundation tutorial for PHY members.

Major technical goal 1:

MAC/PHY interface issues -
Adopt a functionally complete MAC/PHY interface.
Close all issues in issues log related to MAC/PHY interface.

Major tehnical goal 2:

Determine final set of any additional MAC functionality for first letter ballot.
Consideration and decision on new proposals.
Clairification of the you could... portions of 93/190.

Thats all folks... See you in March...

16.2 PHY Group

Bob Buaas made the overall PHY group report.
A review of the PHY accomplishments at this meeting was made by Peter Chadwick.
A review of the PHY issues and the agenda for the next meeting was made by Nathan Silberman.
Paul Struhsaker made a presentation on the status of the DS PHY.
Roger Samdahl made a report on the status of the IR PHY.

IR PHY Subcommittee Report

Our Chairman, Tom Baumgartner, has informed Larry Van der Jag that he cannot continue his participation in the 802.11 at the level required to chair this group. My role this week is strictly as a volunteer, in an effort to insure that progress continues toward an IR PHY. Larry will be asked to arrange for a new chair at the earliest opportunity.

Peter Blomeyer presented submission 94/24 (extension of 93/217). The submission included:

    o   An assessment of the impact of the IRDA's proposals on baseband IR systems.

    o   Suggestion that a parallel, industry based group be named to definebaseband IR LAN architecture.

    o   Recommendation for a multi-cannel PHY option for IR with 6 or more carrier based 1 MPBS channels plus a baseband channel at approximately 1 MHz.

The presence of several new attendees resulted in a review of previously recommended modulation and encoding techniques. All agreed to review relevant submissions prior to March meeting.

The group committed to producing at least one IR PHY specification in time for the November '04 meeting. The was a strong endorsement that as a minimum the first IR PHY would include a 1 MBPS definition.

Motion to accept a 16 state PPM standard for 1 MBPS was postponed indefinitely by a vote of 8-2-1.

A subsequent motion that no new architectures be accepted for consideration after the March meeting was accepted unanimously.

IEEE 802.11 FH Group
Achieved at January, 1994 Meeting

1.   List of deliverables and dates.
2.   Closed issues:
      a) FH sequencing provided by MAC
      b) Some RF template parameters.
3.   First proposals CCA
4.   First Drafts of standard started.
      (Docs 83rd, 161, 172)
5.   Issues defined as open:
      a) Preamble lengths, headers, CRC, etc.
      b) CCA
      c) Scrambling vs Bit Stuffing
      d) Tx/Rx switching times: values, definitions.

March Meeting - FH Group
Agenda Items

1.   Preamble lengths, headers, etc.

2.   Scrambling/Bit Stuffing
3.   Clear Channel Assesment criteria and methods.
4.   Template upgrading and standard draft editing (Docs 161, 83r2) also 172
5.   Tx/Rx Switching Times

Objectives for next HDR-FH

1.   Review and vote on submissions selected for implementation.
2.   Consideration of Draft Standard for the selected modulation among three submissions. It includes also:

        - MAC-PHY interface
        - Impact on CCA
        - Impact on "Gear shifting"
3.   Preamble format for switching data rate
4.   Review and vote on Draft template. Doc 93/210 (close item by item)
5.   Reaffirm action schedules for HDR-FH Draft Standard

                          (FYI) Tentative Schedule
-       Approve Template   3/94
-       Approval of Draft by PHY   5/94
-       Complete HDR-FH draft   7/94
-               for 802.11 editor   11/94
-       First letter ballot   11/94

PHY Objectives for March meeting

Complete the MAC/PHY interface presentations
FH-PHY
    Pre-amble length, headers, scrambling/stuffing, etc
    CCA criteria and methods
    Tx/RC switching times
    Update the template
HS-FH PHY
    Select modulation
    Speed switch preamble specification
    close template
DS PHY
    CCA paper for FH/HS-FH
    tst draft section 8.4.1
    attempt to close template
IR PHY
    to close acceptance of submissions for consideration as the first draft standard

17. Unfinished Business

17.1 Recap of output documents

The only output document is the schedule established for the development of the standard to be sent to the ExCom.

17.2 Recap of document distribution

17.3 Next meeting
- Objectives for next meeting
- Last mailing date:
    first mailing: January 21
    last mailing: February 4

17.4 Other intermediate meeting required
Hayes asked for a host for the Jan. 95 Interim meeting. Moyers and Hendricks agreed to co-host the meeting again at the LaBaron Hotel. Schuessler also agreed to look into another possible local site.

17.5 Confirmation of May Meeting

18. New Business

Kerry Lynn discussed his investigation into the production of a CD-ROM which would contain the groups papers. He said that a master could be produced for about $700 and copies for $1.

19. Closure

The meeting closed at 4:35 PM.

Tentative Meeting Schedule

Date	Month	Year	Place	Type	Location	Host
07-11	March	1994	Vancouver, BC	Plenary	Hotel Vancouver	
09-12	May	1994	Oshawa, Ontario	Inter	GM of Canada	GM
11-15	July	1994	Orlando, FL	Plenary	Walt Disney Swan	
29/8-1	Sept	1994	San Antonio, TX	Inter	TBD	Digital Ocean
07-11	Nov	1994	Incline Village, NV	Plenary	Hyatt Regency, Lake Tahoe	
9-12	Jan	1995	San Jose?	Inter	LeBaron?	WiSE & Tetherless?
01-10	Mar	1995	West Palm Beach, FL	Plenary	Ramada Hotel resort	
TBD	May	1995	TBD	Inter		Open
10-14	July	1995	Maui, HI	Plenary	Hyatt Regency	
TBD	Sept	1995	TBD	Inter		Open
TBD	Nov	1995	TBD	Plenary		

We received invitations to host a meeting from DEC to Boston area, ICIL to Hong Kong and LACE.

Standard Development Schedule

Milestone	Mar 91 Estimate	March 92 Estimate	Nov 93 Schedule
User requirements		Jul 92	completed
Establish Architecture	Mar 91	Nov 92	completed
First draft Standard	Nov 91	Jul 93	Nov 94
Final draft Standard	Jul 92	Mar 94	Jul 95
Submission to ISO/IEC	Dec 92	Jul 94	Nov 95
First draft Test Suites	Mar 92	Nov 93	Mar 95
Final draft Test Suites	Nov 92	Jul 94	Nov 95
Submission to ISO IEC	Dec 92	Nov 94	Mar 96

March Meeting Agenda

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|----|-----------|----------------|----------------|-------------|-------|
|    |  Monday   |   Tuesday      |   Wednesday    |  Thursday   |       |
|----|-----------|----------------|----------------|-------------|-------|
|    |ExCom!MAC  | PHY     !  MAC |PH!PH!PH!PH!MAC |  802.11     |Plenary|
| AM |   !Tuto-  |         !      |DS!FH!IR!HS!    |MAC/PHY      |       |
|    |   !rial   |         !      | ! ! ! !        | Interface   |-------|
|    |   !       |         !      | ! ! ! !        |             |       |
|----|-----------|----------------|----------------|-------------|
|    | Plenary   |PH!PH!PH!PH!MAC |PH!PH!PH!PH!MAC |  802.11     |
|    |   802     |DS!FH!IR!HS!    |DS!FH!IR!HS!    |  Reports    |
| PM |...........| ! ! ! !        |...........!    |  Outputs    |
|    |Full 802.11| ! ! ! !        |   PHY     !    | Next mtng   |
|    |           | ! ! ! !        |           !    |             |
|----|-----------|----------------|----------------|-------------|
|Eve-|PHY!PHY!PHY|  MAC    SAM    |                |  ExCom      |
|ning| DS! HS! IR|                |                |             |
|----|-----------|----------------|----------------|-------------|
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Legend: .... = flexible adjournment/Start

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Appendix 2
Document list

Number	Title
#93/34	VOID
#93/112	Complex Impulse response measurements of a Warehouse (Bob Achatz, NTIA)
#93/126	VOID
#93/127	VOID
#93/130	Letter from ISA (Lois Ferson)?
#93/131	ISA standard?
#93/165	VOID
#93/190	DFWMAC proposal (Greg Ennis, Symbol Technologies, Phil Belanger, Xircom and Wim Diepstraten, NCR)
#93/205	VOID
#93/206	VOID
#93/225	Tentative minutes of the full Working Group meeting held November 8-11, 1993, West Palm Beach, FL
#93/226	Tentative minutes of the MAC subgroup meeting held November 8-11, 1993, West Palm Beach, FL
#93/227	Tentative minutes of the PHY sub-group meeting held November 8-11, 1993, West Palm Beach, FL
#93/231	Tentative minutes of the Higher Rate FH ad-hoc group meeting held November 8-11, 1993, West Palm Beach, FL
#93/232	Template for Direct Sequence PHY (Jan Boer, NCR/AT&T)
#93/233	Tentative agenda for the Full Working Group meeting, January 10-13, 1994
#93/234	Venue for the January 10-13, 1994 meeting, San Jose, CA
#93/235	ExCom report and proposed schedule for standards development (Vic Hayes, NCR)
#93/236	Liaison letter from 802.10 re compression (Ken G. Allonge, Chair, IEEE 802.10)
#93/237	Tentative agenda for the HS FH ad-hoc group, January 10-13, 1994
#94/01	Media Access Control State Machine Diagrams for the P802.11 Wireless MAC (Bob O'Hara, AMD)
#94/02	Modulation Specifications for 2 Mb/s DS-SS System (Z. Wan, et al, University of CA, Davis)
#94/03	Proposed Modulation and Data Rate for Higher Speed Frequency Hopped Spread Spectrum (HS-FH-SS) Standard (Y. Guo, H. Yan, et al, University of CA, Davis)
#94/04	DBPSK compatible power eficient NLA technique (1 watt) for DS-SS (H. Mehdi, et al, University of CA, Davis)
#94/05	VOID
#94/06	DS-SS and Higher Speed FH-SS Modem VLSI Implementations (R. Atienza, W. Chen, Soderstrand, et al, University of CA, Davis)
#94/07	VOID
#94/08	High Speed Frequency Hopping PHY Proposal (Juan Grau, Proxim)
#94/09	Radio Equipment and Systems (RES); HIgh PErformance Radio Local Area Network (HIPERLAN) Security Information (input for STAG)
#94/10	Report of the November 1993 Joint Experts Meeting on Privacy and Authentication for Personal Communications Services sponsered by Telocator, TR 46, and T1P1 (L. Scaldeferri, NSA)
#94/11	CAPSTONE and TESSERA an Overview (L. Scaldeferri, NSA)
#94/12	Evaluation of the DFWMAC (C. Rypinski, LACE)
#94/13	"Morphing" the DFWMAC into an Integrated Services "SAM" (Sequential Asynchronous MAC) (C. Rypinski, LACE)
#94/14	Enhancement of Multiple Access for DFWMAC (K.C. Chen, NTHU)
#94/15	Proposed Change to MAC Draft: A More Reliable Contention Free Access Scheme (Jim Schuessler, NS Inc.)
#94/16	Review of MAC Issues List (Greg Ennis, Symbol Technologies)
#94/17	The provisions required for Handoff (Wim Diepstraten, NCR et al)

#94/18	Proposals for a Burst Protocol to be used in various Wireless Data Transport Protocols (Ed Geiger, Apple Computer)
#94/19	Evaluating Sync and Framing Patterns using a Correlator (Ed Geiger, Apple Computer)
#94/20	RF MAC Simualtion Highlights (Carlos Puig, Apple Computer)
#94/21	Distributed Time bounded service (Larry Taylor, Apple Computer)
#94/22	The RT Encryption Algorithm (Kerry Lynn, Apple Computer)
#94/23	Presentation of JTC TIA (Kamilo Feher)
#94/24	Structural Needs for an IR-Standard (A. Blomeyer, Andromeda)
#94/25	VOID
#94/26	Tentative minutes of the full Working Group meeting held January 10-13, 1994, San Jose, CA
#94/27	Tentative minutes of the MAC subgroup meeting held January 10-13, 1994, San Jose, CA
#94/28	Tentative minutes of the PHY subgroup meeting held January 10-13, 1994, San Jose, CA
#94/29	Tentative minutes of the FH ad-hoc group meeting held January 10-13, 1994, San Jose, CA
#94/30	Tentative minutes of the DS ad-hoc group meeting held January 10-13, 1994, San Jose, CA
#94/31	Tentative minutes of the Higher Speed FH ad-hoc group meeting held January 10-13, 1994, San Jose, CA
#94/32	Tentative minutes of the IR ad-hoc group meeting held January 10-13, 1994, San Jose, CA
#94/33	Tentative agenda for the March 1994 meeting, Vancouver, B.C.