

Tentative Minutes of the IEEE P802.11 Working Group

**Plenary meeting
La Jolla, CA
November 9-12, 1992**

Monday, November 9, 1992, PM

The meeting was called to order at 3:50 PM, Vic Hayes, chairman IEEE P802.11¹⁾, being in the chair. Carolyn Heide secretary. Colin Lanzl managing document originals and copying, John Corey and Nathan Tobol distribution and pigeon hole organization, and B. Ichikawa handling the attendance list. The agenda document for this meeting is 802.11-92\120.

Objectives:

- continue on time-bounded services;
- additional discussion on distribution services
- work on MAC/PHY interface;
- accept input from DS, FH and IR ad hocs;
- filling-in outline draft standard;
- 90-314 issues (comments to FCC)

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1. Opening

- 1.1 **Roll Call:** All people in the room were invited to mention their names and affiliation.
- 1.2 **Voting rights:** Voting tokens were 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.
- 1.3 **Attendance list, Registration:** The attendance list was distributed - 75% attendance according to the attendance list is required to qualify for attending a meeting, 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. Breaks are normally at 10 AM and 3 PM, lunch from 12 noon to 1:30.
- 1.5 **Other announcements:** Rich Lee the 802.11 vice-chairman is representing us at the joint experts meeting in Washington DC, where wireless standards groups are discussing their goals and plans. He will keep Vic informed of progress throughout the week's meeting.

2. Approval of the minutes of the previous meeting

- 2.1 **Minneapolis meeting, Document IEEE P802.11-92/86:** approved by consensus.
- 2.2 **Dayton meeting, Document IEEE P802.11-92/116:** approved by consensus.
- 2.3 **Matters arising from the minutes:** none

3. Reports

3.1 Report from the Executive Committee, by Vic Hayes

JTC-1 participation fee: from this meeting on \$50 per participant per meeting is to go to ANSI to support the secretariat; per year this is \$200 per participant although they asked for \$300; there is no retro-active billing (only for the remainder of 1992).

Discussion

Jim Schuessler: where is this money going please explain more - why is this being assessed now?

Vic: they needed it long ago. JTC is part of ISO and each of the member bodies pay for the secretariat. ANSI furnishes JTC-1 here in the USA, which is good for us. It is expensive and ANSI was having problems paying,

Larry van der Jagt: there was some discussion that to get to \$300 they might need to assess voting members regardless of attendance. This is also an issue that is still being discussed, and we should formulate an opinion. Larry thinks that only on attendance rather than billing annually to vote is proper. Group opinion is needed. Secondly, IEEE is extracting revenue from standards sale and that should be used - they are making a profit on manual made by our free contribution

Dave Bagby: is this \$50 to be billed later or is it in the \$200 registration fee now (Vic: it's in the \$200). ANSI membership is by company, IEEE is individual engineers. An organization made up of companies is charging the organization made up of individuals. This charges the companies twice indirectly through our individual fees.

Vic: we have told them we don't want this, but to get a service you must pay, and the excom wants world standards from our work. To do this is important.

Larry: all the working group's chairs disagreed with this and the excom went ahead without member agreement. They are making their own rules against our wishes.

Vic: like a government, it has to get revenue, and the elected representatives decided to levy taxes.

Wednesday these go to the groups concerned; Thursday 8-12 all working group voting members can get them and then Thursday 1-3 anyone other attendees.

There has been a request for liaison for vehicular ID RFP in Europe. This involves each car having a chip which can be asked for information so tolls can be automatically accessed (John Corey says Singapore is doing that too). This may also concern 802.6 .

Decisions at intermediate meetings: at 802.11 request Vic proposed to the excom to lower the quorum requirements at interim meetings from 50% to %20. This was not accepted by the excom. For items such as the NPRM positions statement they recommend mandating a standing committee (form a plenary). 50 % of 802.11 is 50% of 93 - but at a plenary there is a quorum by definition no matter how many voting members there.

3.2 Report from the NPRM Preparatory group.

Ballot results for document P802.11-92/115:

64 ballots out of 93 voting members received
 return rate = 68.8% (75% required)
 yes 50, no 8, abstain 6, not returned 29
 86% of those voting
 54% of those voting and not returned

The ad-hoc group did not complete its work. Today is the official deadline, but Jim Lovette says the FCC is still interested in the opinion of 802.11 - Jim is on his way here and is willing to help continue drafting tonight, Starting at 7:30 tonight here in this room. Continuing Tuesday afternoon for availability to review Wednesday morning.

Discussion

Wim Diepstraten: why was the ad-hoc group not finished - because of the vote?

Larry: the group couldn't finish without the ballot results i.e. the opinion of the working group. It was needed to be used as arbitration over group member disagreeing opinions, and the response should not be the ad-hoc group's personal opinions.

Jim: why didn't people vote? intentionally? is the process is wrong? Jim faxed a comment back but then got information that it never was received. Without confirmation, maybe there are electronic reasons why votes didn't get registered.

Vic: in the pigeon holes is the status of your vote now. It is a lot of work to feed back information to every voter. The rules say that fax (or e-mailed) responses should be backed up by postal. There can be electronic problems and you should be careful sending responses that way only.

Jonathon: e-mail is handy - you could publish a periodically updated list of who voted.

Vic: not everyone has e-mail. I can try to confirm by e-mail what is received by e-mail. If your pigeon hole does not contain confirmation of your vote see me.

Voting rights can be lost by not returning ballots twice in a row, so make sure your vote gets sent in. E-mail return of ballots is acceptable and those have been counted.

3.3 Financial Statement from Dayton Meeting

Total expenses:	3887.93
Total income:	3840.00
Shortage:	(47.93)

Jim Geier proposes to cover this personally.

Motion #2: **To accept this financial report.**

Moved by: Larry van der Jagt
 Seconded by: Carolyn Heide

Motion Discussion: none

Approved: 23

Opposed: 0

Abstain: 0

*Motion #2 passes***4. Registration of contributions to be presented**

Assigned to the MAC/PHY joint meeting: 92/99, 92/123, 92/125

Assigned to the PHY subgroup: 92/127, 92/129, 92/130

Assigned to the MAC subgroup: 92/124, 92/128, 92/131

Assigned to full working group: 92/120, 92/122, 92/00.2, 92/126

5. Adoption of Agenda

Wednesday AM needs time for NPRM response review in a full working group meeting. Also issue closure time is needed - this can be done in the closing plenary.

Dave B: subgroup chairmen would like a joint MAC/PHY meeting tomorrow.

Vic: NPRM response group would like to meet Tuesday afternoon parallel to the subgroups too.

Modified agenda: joint MAC/PHY Tuesday AM; Tuesday PM MAC, PHY and NPRM response groups in parallel. Wednesday AM full working group for NPRM response review until the morning break.; the rest of Wednesday for MAC and PHY subgroups; Thursday MAC and PHY subgroups in AM and full working group in PM. This new agenda is adopted by consensus.

6. Unfinished Business

Dave B: feels that there is a serious problem in interim meetings in that because there's no quorum no work can get done. There is only ever a quorum in plenary because of special rule that says because it's a plenary it's got a quorum by definition. It's too easy to get voting rights and too hard to loose them. We do the same work twice, interim work gets repeated for a different group of people at the plenary., which is inefficient and irritating. We asked Vic to ask excom to do something about it, but they said it's your problem, we don't care.

Motion #3: **That 802.11 resolves: That intermediate meetings will only be held as extensions of a plenary meeting. I.e. 802.11 will NOT adjourn a plenary meeting, but instead, will RECESS to the announced time and place of an intermediate meeting. Said intermediate meetings to be constrained to be held before the next regularly scheduled plenary meeting. Additionally, if the plenary session is adjourned instead of recessed, then no intermediate meeting will be held between announced 802 plenary sessions.**

Moved by: Dave Bagby

Seconded by: John Corey

Motion Discussion:

Steve: how will this affect voting rights?

Dave B: doesn't know - personally feels that it's still one meeting so the existing rules apply, you have to be at 75% of both meetings to maintain your voting right.

Vic: if you only came to a plenary you would have less than 50% attendance.

Larry: there's only one thing that ever happened at an interim that didn't end up as a done deal at the plenary and it wasn't a technical issue - no technical issues have been resolved yet so this must be the case. The only thing undone was an attempt to set the rules of operation for this group, and the majority didn't agree that it was a workable set of rules, so the over-turning was the correct action. The excom has a reasoned approach to this, they recognize it and have dealt with it before. A small group of people shouldn't have the power to force the standard's

direction. This motion proposes circumventing the rules instead of working with them . The correct operation is that suggested by the excom - chartering a group to go away, make resolutions, then return with them to the plenary for rubber stamp. If the group does a good job and makes decisions that are easy for consensus then that's good, if they get rejected that's good too. Circumventing rules because we are inept at working with the existing rules is wrong.

Vic: thanks to Larry for that explanation. In the previous report form the excom Vic had tried to explain that the streamlining of existing procedures can do a good job. We work according to issues. Pros and cons can be listed in interim's to clarify issues. The editor can make issue updates quickly and the minutes are being produced quickly, so within a week or 2 after the interim meeting issues can be presented to the membership with a request for the plenary to be prepared to close. The membership can come prepared to close issues. This is a better organization than trying to twist the rules. There are effects on voting rights and other things involved with the proposed motion - this is too hasty to try on the fly to solve this complicated situation, so Vic is speaking against the motion.

Jim: is in reluctant agreement with the motion. It's a kludge, but it tries to solve a real problem - we perceive progress not being made at interim's. But Jim sees at least 3 others ways to solve the problem (although for some, excom action is required): (1) reduce the percentage required to have a quorum; (2) define all meetings as having a quorum, as with the current plenary rule; (3) change the rules for losing membership so a quorum is easier to get (currently you must not attend 3 consecutive plenaries to loss voting rights); or (4) redefine all meetings to be plenary so the plenary quorum rules apply. ANSI doesn't have this plenary/interim delineation . We are on a 4 month meeting cycle basically. There are alternatives solutions - this motion's solution is a distant 4th as to how to solve the problem, but it is a potential solution.

Larry: how could anyone make a good decision at an interim meeting that would be overrun - if it is good it would be ratified. This issue procedure is screwing us up. IEEE has never had to resort to something like this before. Let's get down to work and we will make progress - we are putting up our own barriers

Jim: if interim meetings make good decision they get simply ratified is a nice theory but it's not working like that. People at plenaries want to hear it all, so we go over everything again.

Bob Crowder: we may think that this is a new problem but it's not. 802.3 dealt with it - interim decisions went back to the plenary for ratification. There is fact behind what Larry is saying - charter the interim meeting to solve specific issues and bring back resolutions. In less than 2 days resolutions can be returned to voting members. We are not getting a lot done, but we don't need to go around the rules to solve it - in fact 802 wouldn't let us.

Andy Luque: as Bob says this is not the first time this has been dealt with before. Discussing issues at interim meetings and bringing recommendations back to the plenary is right. You can vote on this, but the excom will stop it.

Dave B: is not trying to enable a small group to make decisions that the large might disagree with That is not the purpose of this motion. The only reason we ever have a quorum is that plenary rule. Frustration is caused by spending a lot of time preparing submissions for an interim and then having to do so it twice. This motion might be one way to approach this problem
Dave Bagby calls the question. Jim Schuessler seconds (16, 3, 0)

Approved: 4

Opposed: 17

Abstain: 3

Motion #3 fails

Steve: As a point of information, when the group splits into MAC and PHY - can these subgroups make any decisions?

Vic: they must go back to the full working group for decisions. In subgroups everyone there can vote, but in the full working group only the voting member.

7. New Business

Procedures of IEEE 802.11, P802.11-92/00.2, by Vic Hayes

Vic read the document aloud, except for page 4, format of submissions.

Discussion

Larry: IEEE P802.0-91/170 is an unproved working draft of 802 operating rules and while one sentence says the chair is responsible for establishing procedures beyond 802.0, another says that working group operation must be balanced democratically. It has been repeatedly shown that this procedure slows us down - waiting 2 meetings between decisions slows us down. One person raises their hand and an issue is made, then 75% of voting members must act to close it. This is unworkable and unprecedented at 802. People come with submissions that address hundreds of issues because they're interrelated. The attempts by inexperienced people to impose procedures is the thing that is stopping us from making progress. We could be dealing with technical matters right now. If Vic cannot get approval in the closing plenary of 75% to adopt this, but continues to enforce it, then I will take it to the excom that the chairman is deliberately not acting in the best interest of the group by imposing rules against our will. If approved by the 802.11 working group, then the objection is dropped. Forcing this would be a serious mistake

Dave B: thinks it's a good procedure. The chair is responsible to define the rules. Technically - draft document or not (91/170) - there also aren't any documents that restrict the chairman's procedure setting ability either. If the chair can make any rules, then I can vote out the chairman, or go to the excom. It has been said that there are no precedents for this procedure - maybe not in IEEE, but it is the ANSI standard procedure. As for adopting this by vote - procedural issues are standing in the way of progress. The MAC subgroup adopted this procedure, the Functional requirements group did too. There is some support for this. Dave is in support of the procedure and of the chairman's right to do this.

Vic: precedence is in 802.4L, in the IBIS list format. Also this procedure for the issues list has been adopted at previous meetings. This decision has been based on democracy because this has been discussed and decided upon before. As to appealing to the excom - this is OK as Vic has confidence in his actions.

Bob C: writing a standard is not a process done by taking an issues list and putting words from it into that standard. The issues list has pros and cons and this is a good record. But the standard must be written and the MAC standard cannot be written if the only text that goes into it is that from the issues list. Vic, name any MAC standard that has been developed using these rules (Vic does not know of any).

Larry: 91/170 has no procedures for removing a chairman other than not being reaffirmed every other year. The IBIS format was adopted by 802.4L and it never worked, and we never used it and that committee never completed its work. Vic tried to make us use it but we couldn't deal with it. Trying to build a standard this way will result in failure. Get a vote on this subject, the same as you want it to close an issue, to close this. If you can't get this, think about how this is going work if the members don't want to work with it.

François Simon: this procedure works well in big groups usually (and this is big compared to most 802 groups). A piece by piece approach is better than a lump sum. François is supportive of this procedure.

Vic: 802.4L procedures worked sometimes on technical issues (doesn't remember any specific ones). This issue process allows all new people to see history of decision making.

Larry: recording issue and pros and cons is a wonderful thing. But trying to have rules about the maintenance of that list imposes a framework that stops progress. This puts us at the mercy of the lunatic fringe because anyone can open an issue and it's so hard to close. This will not force a standard to get done.

Steve: has seen maybe 4 or 5 802.11 meetings in the last year and a half or so. Most of the time is being spent on administration work, agenda and procedures. This is a style thing - even without this issues list this may be your style as a group. In 802.5 we held votes as straw polls, all attendees not for voting member only, with the 75% rule. There was an issues list but it was a lot less formal. Hopefully here in 802.11 we will soon get to technical issues.

Dave B: motivations for this procedure - a high turnover from meeting to meeting is one. Some way to record decisions is required or you can revisit them forever. this history is what's important - but implemented fairly.

Bob C: since no MAC standard has ever been written under these rules, then Bob says it is an unworkable procedure and should be removed.

Dave B: not any MAC standard, but all the ANSI graphics standards have used this procedure. This is the formal procedure used for all ANSI standards. It addresses group dynamics rather than specific technical content. It tries to give a measure of approval and a history.

Bob C: MAC standards are different.

Motion #4: To take a vote in the early part of the closing plenary as to whether the committee wants to adopt the procedure.

Moved by: Larry van der Jagt
Seconded by: Bob Crowder

The chairman rules this motion out of order (with a note to Larry that he is at liberty to appeal this ruling).

Motion #5: To vote in closing plenary to take this procedure and the objection to writing a MAC and PHY standard in this way to the 802.0 excom for approval.

Moved by: Bob Crowder
Seconded by: Larry van der Jagt

Motion Discussion:

Vic: the rules described in 802.0-91/170 say the chairman decides on procedure.

Larry: that is an unproved working draft, it says on it.

Vic: I will find the official operating rules.

Larry: friendly amendment to add "and PHY" to the original motion.

Bob C: OK.

Approved: 2 Opposed: 6 Abstain: 8 **Motion #5 fails**

Discussion

Larry: appeals the previous motion.

Vic: reads from Robert's rules which say if appealed immediately and seconded, a vote is taken as to whether the chairman's ruling stands.

Roger: seconds Larry's appeal.

Dave B: ...

Motion #6: To close the meeting for being an hour and 5 minutes overtime.

Moved by: Bob Crowder
Seconded by:

The chairman rules this motion out of order because Dave Bagby had the floor.

Dave B: yields the floor to the chairman.

Bob C: says that the motion was a point of personal order and stands, he wishes to appeal it.

Vic: calls the vote on Larry's appeal to the out of order ruling for motion #5.

Bob C: repeats his request for appeal for motion #6.

Vote to reverse the out of order ruling on motion #5 (5, 9, 3), the decision stands - the motion is out of order.

Motion #7: To adjourn for today.

Moved by: Larry van der Jagt
Seconded by: Roger

Motion Discussion: none

Approved: 13

Opposed: 0

Abstain: 1

*Motion #7 passes***8. Adjourn for Monday - 7:15 PM**

**Tuesday AM, 10 November, 1992
Joint MAC/PHY**

**Tuesday PM, 10 November, 1992
MAC, PHY and NPRM response subgroups**

**Wednesday AM (before break), 11 November, 1992
MAC and PHY subgroups**

The meeting was reconvened at 8:40 AM, by chairman Vic Hayes, with Carolyn Heide secretary.

A. Opening**A.1 Roll Call, Document Distribution**

A.2 Announcements: repeat of Monday's announcements about Standards distribution, and PC auction. Also a request for people to carefully check their information in the attendance book, especially the e-mail address.

A.3 Document update: the list was updated

B. Comments on NPRM 90-314**IEEE P802.11-92/139 Response to the FCC NPRM, by Jim Lovette**

Comments on a proposal by the FCC to allocate services for PCS, licensed and unlicensed. There was a summary of this proposal circulated last meeting. A motion was made to empower a small committee last meeting to write comments and submit them to the FCC after review by attorneys. The deadline for filing was day before yesterday.

The group of people who have met this week to work on this response included: Don Johnson, Ron Mahany, Virgil Cooper, Wayne Moyers, Chandos Rypinski, John McGown, Vic Hayes, and Jim Lovette. This document produces is a draft, it has yet to be reviewed by lawyers and the excom.

Last night Jim received a fax with the list of people who did file on Monday - he displayed this list on multiple slides showing many companies. The amount of interest in this issue has led the FCC to put a value of something like a billion \$ per MHz on this bandwidth.

Areas on page 9 and 10 attempt to deal with technical issues specifically, but no is attempt made to define the rules for the FCC, we are providing information and guidance for them to write the rules.

Wayne: In this document there is a lack of any request for or discussion of universal unit id. Cellular telephony make use good us of that - having it would provide the FCC with some police power. WINForum has addressed this, the 802.11 response doesn't.

Jim L.: there are at least 2 proposals for this submitted to the FCC. There are network ramifications, legal enforcement ramifications, and ramifications on the re-accommodation of the microwave users currently in the band - issuance of an id could collect revenue to repay these displaced users. There are such petitions in to the FCC at this time.

Jim Schuessler: is there a precedence for addressing being administrated by the FCC?

Jim L.: the FCC doesn't want to administer this. In Japan this is done by a hardware approach, a ROM with id burned it is in every product.

The meat of the work is on pages 9 and 10 and the points 1 through 7 on these pages effect the positions that were taken at the last meeting. The technical presentation is addressed to bureaucrats as well as technical peers, which will make it flawed for addressing either.

Point (1) on page 9:

In effect this point is recommendation for an approach for awarding spectrum. Drafted a middle approach with shading towards not having a written spectrum efficiency in the FCC specification. What spectrum efficiency is difficult to say, it is more complicated than bits/Hz. This is a position against a regulated number for spectrum efficiency.

Straw poll item 1 on page 9: is it acceptable - yes.

Point (2):

Don: is the same as 6 on previous submission 92\115

Wayne: the low power device reference was added.

Larry van der Jagt: this was only thing that had a no vote on the previous ballot.

Nathan Silberman: my reservation with respect to power control is that this 10 dB is not well based it seems to have been pulled out of a hat. It is an implementation issue and the FCC should stay out of it . It is a standards committee issue.

Colin: why does the FCC want power control?

Jim L.: the communications act of 1984 says you have to use as little power as possible. Most of the FCC proposals in the NPRM are motivated by reducing interference to microwave users. We are asserting that is an incorrect basis for setting standards. We propose below a certain level you shouldn't have to do that.

Colin: wouldn't it be better to say that since everyone under the communications act has to use least power this is already in place. What they want is covered already.

unidentified: how is the FCC going to enforce this? How will they reject equipment for not being adaptive?

Jim: translation of sentiments into rules will be difficult. Suggests we don't put adaptive control into our comments at all.

Jim L.: the choices are say nothing, which is going along with them, or object, or suggest a better alternative.

John M.: thinks adaptive power control is fine and the language of the last submission is fine. It is not very sophisticated to say everyone is already limited legally. There is not a good reason not to have explicit power control of some sort. It is off the point to say it will be hard to decide on the conformance tests. This is not a basis for making decisions. Do we think the public will be served by power control or not - will my manufacturer be killed by this or not - that is what's important.

Wayne: is in support of the committee's recommendation. Any obverse position too negative on the FCC filing postures us as bad neighbor, we have a near/far radiation problem ourselves, we must have some reduction in power in the spirit of the 1984 law requiring power control. It puts us in a bad light to try to kill the concept - it's not a bad idea, it's easy to implement, so why not - 10 dB is a minimum, we can do more.

Nathan S.: the intent is to utilize minimum power, not adaptive power control. He supports minimum power utilization, not adaptive power control. The customers don't want to pay for it, they don't need it. It will be damaging to wireless technology as a whole. It hurts battery life. He speaks against it.

Tom: opposite view to Nathan - the history of expedient solutions being cheap is very obvious. If adaptive power control increases price how much needs to be evaluated, but the issue is

environment damage. Battery life is affected by power control - adaptive power control may help battery use. We do ourselves a disservice by not being careful - to save cents we are willing to waste spectrum more. To plead for spectrum we must be good citizens. It makes sense to analyze the cost/benefit ratio to not do this now, right from the start.

Larry: to Nathan - customers saying they don't need this is the best argument to making it mandatory. They do need it, and we want them to have it, so we must force them.

Jim L: the FCC has denied that there was any sentient process going on when they developed this proposed ruling. This is a proposed ruling, so we need to say something, you are correct in this.

Wayne: to leave it as it is requires reduction of 10 dB from a microwatt. If we don't comment - WINForum has not commented - it may well slide through and become a rule which is untenable.

Jim L: individuals can put in your own comments. The FCC ignores who said specific things, it sometime takes a bias and looks for support.

John C: is adaptive power control possible without an infrastructure - on page 3 we say we don't require an infrastructure. Cell to cell interference implies an infrastructure - are we contradicting ourselves.

Larry: adaptive power control can be done between any two stations, you don't need infrastructure, that was covered in yesterday's presentations.

Jim L: there are two ways to look at adaptive power -the ability to raise from a level, or to drop from a level. If the FCC puts too low a level for not having adaptive power control we will all loose.

Bob C: supports Tom. we are a co-primary user, so we want whoever else is in that spectrum constrained, so must accept the constraint ourselves. Adaptive power control may be cheaper than demonstrating low power use alone. It also gives flexibility to running co-resident, co-located situations.

John C: this has effects on user density - it can be increased by adaptive power control.

Wim: supports the text as written. It is useful to have power control. Add to the list of its benefits increased reuse efficiency. Wim had a contribution at the July meeting to support this (92/76). This is the minimum regulation that should be in the rules. We must implement adaptive power control.

Jim L: the FCC explicitly says if you don't like the rules propose another implementation. This reflects their operating procedure. This is not a response or a counter, this is an alternative.

straw poll in favor of text approximately as written: yes.

Point (3)

No position was taken on this before. Chose the term "channels" over the more general term "partitioning". The FCC says the reason they chose the thrust of channels was that it gave one hook to deal with a radiator with respect to the incumbent microwave users. If the sharing with them is removed this restriction changes.

Straw poll on the text as is - a lot of yes and undecided, few no.

Don: this paragraph says we need speeds from 1 to 20 Mbit/s. It discourages lower speeds. This is a compromise set of wording.

Jim L: this document tries to say that the specific suggestions made by the FCC don't satisfy anyone. That's the only thing the group agreed on.

John C: the word 'optimum' implies a desire for utopia. Use 'satisfactory' or 'adequate', to strengthen the position.

Dave B: it is good as it stands, 1 to 20 is not the issue. All we want to say is if you do channelization in this frequency this is not very good for us. This paragraph says that.

Chuck: agrees with Dave. The problem is there's not enough spectrum being allocated for the number of users.

Wayne: has a mild dissenting view which he knows Chan would agree with of he was here. He supports the view Chan presented in his submission for proposing a channelization scheme

Jim L.: this is consistent with the last sentence of this point as written. We have not tried to propose a channelization scheme, just objected.

unidentified: sees 2 issues here: channelization and amount of spectrum. 20 MHz isn't enough spectrum, something should be said about allowing enough reserve so that as the market grows there is room to expand. The unlicensed users will grow faster.

Tom: the comment in the statement that "we have not yet reached a conclusion" doesn't sound good. Proposes striking that.

Jim L.: asks if anyone is opposed to that [sec note: no one is.]

Vic says anyone with problems with the new text of point (3) should discuss it in coffee break and come back with suggestion.

Straw polls conducted per point on pages 9 and 10, for support of points as written:

point (4) majority yes, 1 no

point (5) majority yes, 0 no

point (6) majority yes, 0 no

point (7) majority yes, 0 no

Review the pages one at a time:

Problems on page 3 -

John C.: why have the sentence about critical backbone or infrastructure. This implies that we don't need an infrastructure, period.

Jim L.: this is not meant to exclude infrastructure, it should include both infrastructure and ad-hoc. Implications have been made that the people with infrastructure can coexist with microwave users and ad-hoc users cannot. This attempts to not constrain us to infrastructure.

Vic: the requirements document says ad-hoc must be supported or at least must not be precluded.

Problems on page 4 - none.

Problems on page 5 problems -

John C.: the paragraph that is on pages 4 and 5 - do we want data PBX in our bandwidth?

Jim L.: the FCC has designated cordless telephone, cordless PBX and WLANs share frequency. There is a lot of argument as to how these services may be the same. There is a high probability that licensed PCS suppliers will want to use this unlicensed band too. This will be a problematic issue for the FCC.

John C.: what does this paragraph say? We are in favor of WLAN and WPBS in the same band?

Jim L.: no, under the same regulatory structure.

John C.: you mean here 'to be addressed in the same organization'. OK.

Jim L.: this document is written on behalf of this organization requesting that we get enough bandwidth.

Nathan S.: the second paragraph is too vague - spell out the speeds of LANs as the WLAN needs to keep pace.

Jim L.: was trying to duck an issue, e.g. what is the speed is Ethernet? or LocalTalk for that matter?

Tom: typically we talk about payload data rate rather than raw channel signalling. So what do you refer to when talking to regulatory agencies.

Jim L.: weasel words have been used to try to avoid getting involved in these things.

John C.: this paragraph defeats our request for more bandwidth by saying we can get by with Ethernet speeds.

Larry: how about saying 10's of MHz rather 10.

Vic: asks Nathan to come up with changes in the coffee break.

Adjourn for Monday - 1:40 AM

**Wednesday AM (remainder) & PM, 11 November, 1992
MAC and PHY subgroups**

**Thursday AM, 12 November, 1992
MAC and PHY subgroups**

**Thursday PM, November 12, 1992
Full Working Group**

The meeting was reconvened at 1:30 PM, by chairman Vic Hayes, with Carolyn Heide secretary.

9. Opening

9.1 Announcements:

(1) Free standards distribution: anyone can get them now at the registration office.

(2) Operating procedures:

The operating procedures that Vic introduced on Monday, referring the document 92/00.2. Since then Vic discussed these with the excom chair and he gave some useful advice. Vic is going to go from this meeting and revise it. The following items briefly describe the revisions:

- An issue can be closed if it was available at least one month before a meeting;
- Issues can be closed both at interim and plenary meetings;
- It takes a 50 % vote of the voting membership to open an issue;
- Change the terms "issue" to "discussion item" and "arguments" to "reasoning".

Vic will send the modified procedures in the first mailing and asks for comments by fax or email.

(3) Leon Scaldeferri: There is a press release in the pigeon holes. It announces a steering committee open to federal agencies. At sometime in the not too distant future the membership will become open to industry. Vic asks if Leon will please keep us informed.

9.2 Document update: the document list is complete, doesn't need update.

9.3 Agenda Adjustments

Discussion

Don: NPRM review.

Dave B: why?

Wayne: committee needed some information about people and companies.

Vic: I will fill that in.

Don: there is one item that Don feels needs discussing.

Vic: OK, will add time to unfinished business.

10. Reports from sub and ad-hoc groups

10.1 MAC, Dave Bagby

(1) Papers presented and discussed:

92/129 Time based quality of service
 92/131 GRAP MAC protocol proposal
 92/128 Distribution systems services functionality
 92/126 Terms and concepts related to "roaming", "hand off", "registration" and "Identification".
 92/124 Arguments pertaining to issue 13.1

(2) Issues affected by presentations

Network types: 4.1, 4.2
 Distribution system: 5.1, 5.3, 5.5
 Security: 6.5
 Co-ordination: 10.2
 Access Point: 11.2
 Management: 13.2
 Interfaces: 12.2, 12.1, 12.3
 Services: 15.1, 15.4
 Mobility: 16.2, 16.3, 16.8
 Data Unit structure: 20.3
 Delay: 22.1

(3) Issue recommendation from 9/92 Dayton meeting

Issue 1.4 - Do we want to have Options in the standard?

Yes: 0

No: 0

Yes, but only the minimum: 10

Motion #9: 802.11 accept this recommendation to close issue 1.4.

Moved by: Dave Bagby

Seconded by: Jim Schuessler

Motion Discussion:

Vic: is this the whole issue, or do we have the discussion/argument behind it?

Dave B: that is in the issues log, yes.

Approved: 22 Opposed: 0 Abstain: 1 **Motion #9 passes**

(4) Issue Recommendation from 9/92 Dayton meeting

Issue 15.2 - What does *coexist* with a BSS mean for both async and time bounded?

Issue is meaningless, BSS independent of type of service.

recommendation to close as moot: 8, 1, 0

Motion #10: 802.11 accept this recommendation to close issue 15.2.

Moved by: Dave Bagby

Seconded by: Chandos Rypinski

Motion Discussion: none

Approved: 22 Opposed: 0 Abstain: 2 **Motion #10 passes**

(5) Issue Recommendation from 9/92 Dayton meeting

Issue 15.10 - Between what service points is the Time bounded service provided?

MAC/LLC boundary to MAC/LLC boundary: 8

MAC/PHY boundary to MAC/PHY boundary: 0

abstain: 1

Motion #11: **802.11 accept this recommendation to close issue 15.10**

Moved by: Dave Bagby
 Seconded by: Tom Phinney

Motion Discussion: none

Approved: 21 Opposed: 0 Abstain: 2 **Motion #11 passes**

Discussion

Chan: important decision, congratulation to the group.

(6) Issue Recommendation from this Meeting:

Issue 5.1 - Will the standard specify the "internals" of the distribution system:
 only the services it provides:
 first vote internals 1, interfaces 13, abstain 0
 2nd vote 2,12,0

Motion #12: **802.11 accept this recommendation to close issue 5.1**

Moved by: Dave Bagby
 Seconded by: Jim Schuessler

Motion Discussion:

Tom P: looks at this as a pragmatic choice. We have a lot to do without doing this. There may need to be a follow on activity to do this, but to take that as a task pre-standard we will delay the standard longer than the market will wait.

Approved: 21 Opposed: 1 Abstain: 1 **Motion #12 passes**

(7) Issue Recommendation from this Meeting:

Recommend that DTE/DCE interface be defined and exposable and that this interface be between the medium independent PHY and the PMDs.
 for: 15, against: 0, abstain: 4

Motion #13: **802.11 accept this recommendation (that DTE/DCE interface be defined and exposable and that this interface be between the medium independent PHY and the PMDs).**

Moved by: Dave Bagby
 Seconded by: Bob Crowder

Motion Discussion: none

Approved: 23 Opposed: 0 Abstain: 2 **Motion #13 passes**

(8) New Issue from this meeting:

What functions are required in the medium independent PHY layer?

(9) MAC Subgroup Subjects for 1/93 Meeting:

Additional DS services?

Any other categories of services we need from a DS?
 Time bounded needs? Address space(s) considerations.

Time based services

Whom invokes? From where? What services to provide?

DS boundaries exploration

The boundary between APs and the DS

Network management functionality.

What is needed? Why?

Authentication and Privacy

How do Authentication and Privacy needs impact 802.11 services?

Exploration of what Ad-Hoc means.

How does Ad-Hoc coexist (in space) with Infrastructure?

How are Ad-Hoc services the same as / different from infrastructure services?

Discussion of parametric MAC/PHY interface approach.

What does the MAC group think of the proposed approach?

(10) Issue processing and closing.

Discussion

Tom P: please change privacy to confidentiality - this is the correct 802.10 security term.

Dave B: I can't commit to that I'm just presenting a report of what we did. We will discuss what are the correct terms at the next meeting.

Vic: would like stronger objectives to present to the excom.

Dave B: these were subjects not objectives.

Vic: what are your objectives? (sec note: Dave won't give any) OK, Vic will make some up from these subjects.

10.2 PHY, Larry van der Jagt

Model is needed to:

- 1) make trade-offs in radio design;
- 2) evaluate modulation and coding;
- 3) assess MAC protocol effectiveness;
- 4) develop conformance tests.

Passed a motion to adopt the propagation parameters in Jonathon Cheah's proposal as the current model. This will be replaced by another interim model that will:

- 1) not be concerned with directionality (it will probably have hooks to add directionality later);
- 2) provide interference profiles;
- 3) include multipath;
- 4) include complex impulse response (not just power delay profiles);
- 5) include variability in time;
- 6) include variability in space;
- 7) be generated for the 2.4 - 2.483 ISM band;
- 8) be based on a defined reference antenna.

Goal is to develop at least 1 instance of the interim model by next meeting - this may not be possible given manpower resources.

There was a motion made by Mike Rothenberg and seconded by Nathan Silberman to "adopt 92/127 as the PHY group working draft of the 802.11 2.4 GHz ISM band FH PHY" - this motion was passed unanimously (16,0,0). The group intends that both numbers and structure of this draft is open to modification.

Next meeting activities:

- continue ad-hoc acquisition & synchronization, and coding & modulation group discussions;
- accept submission on DS spread spectrum;

In between now and the next meeting there will be a hotbed of activity on channel modelling carried on over the electronic bulletin board.

Liaison is beginning to be needed because both the MAC and PHY groups are starting to move on paths - we need to make sure that these paths stay parallel and don't diverge. For joint MAC-PHY meetings there needs to be discussion of a simulation framework, including MAC and PHY, and presentations on PHY independence.

Discussion

Vic: issues to close?

Larry: we don't have any open issues as far as we're concerned.

Jim: the model development you refereed too, will this be developed in Mathematica?

Larry: I will endeavour to do so. It has to be in some framework so we can use it. Will formulate a statement that says how much work went into it and will make that available to the group saying that if companies want to get together and pay for it it can be made available.

Jim: when you get a settled version of that could you broadcast that over the general group reflector not the PHY.

Larry: we will use the bulletin board - California Microwave - because the reflector doesn't work.

Tom P: tried returning stuff to Larry and it got bounced back.

10.3 Joint MAC/PHY, Tom Phinney

Tom didn't know he had to make a report. so between Tom's memory and Carolyn referencing the minutes they re-capped as best they could:

Heard presentations from Larry van der Jagt of papers 92/123 on a simulation model developed using Mathematica, and 92/125 and an implementation of the parameterized MAC/PHY interface model, and from Jonathon Cheah of paper 92/99 on the parameterized MAC/PHY interface model itself. The first presentation sparked a good deal of discussion about Mathematica as a simulation tool. The results of a straw poll were heavily in favor of the use of Mathematica as a communication tool for the exchange of simulation data within the group.

No decisions or recommendations were made.

Objectives: Vic says that since the MAC/PHY interface was not defined continuing work on this is still the objective.

11. Unfinished Business - none

11a P802.11-92/122, by François Simon

This was first discussed at the last meeting and nothing has changed it the document since then. All the contents are pieces of work this group has accepted or done. The first page is the cover page and comes out of the 802.0 rules of the how to develop a standard.

The table of contents was provided by Larry who worked on this in document P802.11-92/04 and at the last meeting.

The next page is the definitions sectioned extracted from the functional requirements document.

Next is the diagram which reflects the model which has been agreed upon by the group.

In chapter 8, section 8.3.1 the 3 bullet items were agreed upon in Minneapolis.

Appendix has the functional requirement themselves.

This document is a place to fill up with things that we have done. We can find where things belong in the table of contents, or, if necessary, add to the table of contents.

The update process can be by update pages much like the issues document.

Discussion

Vic: if this is an official draft he will receive many questions from people looking for a draft standard. If he sends this out to them will it be acceptable to the group?

Dave B: people who say that are looking for something to read for information. We are using the word "draft" in two ways here - a balloted rules set; and someplace that can be used to write things down. We're trying to do the latter- this could be a title page only. No, this should not be sent out for public review - only after it's been balloted.

Vic: OK that give some better feeling. Could the document cover say that?

Jim: it says that already the cover page verbiage "this is an unapproved draft ...". Jim sees no problem in sending that out because this is an open committee. The disclaimer on the cover is good enough.

Vic: doesn't want to call it a draft standard. People can get even though He didn't sent it, since this is an open committee.

Jim: you're trying to impose some threshold of completeness before going out - that's not proper.

Bob C: is affected by Jim's arguments but thinks "working draft" or something would be better. That disclaimer is on all drafts until they get TCCC approval.

Tom P: if you have a document that is a partially completed draft, then call it a draft, but every page needs to say the status. A light background stencil is good - some indication of the very preliminary status. Make sure of a cover page with IEEE copyright and all that stuff too. It is important that the workings of this public committee be available.

Vic: wants to be sure that people who get it understand the status.

Dave B: there are 2 subjects here: the first is that François said here's what the document is and we would like a formal thing here to happen adopting this; the second is presuming that that document exists who do we want to see it and what do we want them to do with it.

Motion #14: **To adopt document IEEE P802.11-92/122 as the first working draft of our standard.**

Moved by: Dave Bagby
Seconded by: Chandos Rypinski

Motion Discussion: none

Approved: 23 Opposed: 0 Abstain: 3 **Motion #14 passes**

General Discussion

Dave B: assumes this document has been done in MS word - shadowed text across pages and stuff can be done, so the mechanics for making people see that this is very preliminary is easy.

Jim: in the footer on every page it says it is an unapproved draft.

François: there have been suggestions that the name/header be changed, that would do it.

11b. Radio LAN System Standardization Activities in Japan, IEEE P802.11-92/121, presented by Takashi Enomoto

This paper was written by the MPT, who asked Mr. Takashi Enomoto to explain it here

There are 2 major boards in Japan - RCR and TTC. The latter was asked by the MPT to propose technical requirements of development.

A partial report was submitted in July defining type b and c (type a is being discussed).

Mr. Enomoto can't answer questions because he is not an RCR or TTC member, but he could relay questions and bring answers back to us.

Discussion

Roger Pandanda: is type b similar to the Motorola system?

Takashi: doesn't know.

Mike Pettus: is MPT looking into safety issues due to the 300 mW at 18-20 GHz specification? Are they looking into health and safety issues?

Takashi: will ask.

Wayne: is any time frame scheduled, or even a guess, when the standard for each type might be issued.

Takashi: will ask.

Jim: type c - mentioned in item 1.4 power density ≤ 10 mW/MHz. Is this intended to be the same as the US or lower - US is 1 watt. This is very different from the US specification.

Don: maybe that's averaged - it could be the spectral density average over a long period of time or on every hop.

11c. NPRM comment

Don Johnson presents the issue that the legal people brought up. that they couldn't decide keep in or take out on page 6 paragraph 2 of draft 2 the parenthetical phrase in the sentence "by addressing a ... and standard". The parenthetical phrase seems to say we can't proceed with development in the ISM bands, and since we are in the process of doing that, that phrase should come out.

Vic read a communication he has from Jim Lovette which says that Jim has no objection if that phrase is removed. The FCC knows where we stand on the ISM bands and we don't need it. He suggests we take it out if causes many companies any major objection.

Motion #15: **That the particular parenthetical text be stricken.**

Moved by: Don Johnson

Seconded by: Larry van der Jagt

Motion Discussion:

Tom T: why take it out?

Don: it says we can't proceed with development in the ISM band - we are doing that so it's inaccurate.

Approved: 8

Opposed: 0

Abstain: 9

Motion # 15 passes

General Discussion

Bob C: don't remember the last sentence in point 2 on page 6 "as a result ... in the US and abroad" being in the last copy of the document.

Vic: has draft one and its in there.

11.1 Recap of Output Documents

802.11-92/122C - François will change the title to working draft, and it will become document 92/140.

The NPRM response - Vic will distribute draft 2 (with the agreed upon strike out) as the document that comes out of this group, and it will become 92/142 "NPRM comments as filed".

11.2 Recap of Document Distribution

All documents on the document list can be circulated.

submission in electronic format. proper headers and footers. if not received by next Friday with those they will not go in the next mailing.

11.3 Next Meeting

Because there is no representative from Xircom present this afternoon (and they are the proposed hosts of the January interim meeting) we don't have any information pertaining to that. Vic has asked for 11-14 of January. It will be somewhere in the LA area, details will be on the reflector and in the first mailing.

Rooms: Vic will arrange to always have 2 available, one larger and one smaller. [sec note: this is generally agreeable to the group].

(1) Objectives

Vic will dream up something to report to the Plenary.

(2) Last Mailing Date

Because of the holidays Vic must have documents in to reproduction in Dayton by December 4th for us to get them 1 week before the January meeting. Vic must therefore have them by December 1st, or they must in Dayton by December 3rd. Otherwise bring at least 70 copies to the January meeting.

11.4 Other Intermediate Meetings: no

11.5 Confirmation of March 1993, Meeting: yes

11.6 The May meeting: Bob Crowder is concerned how many people are going to show up, since the host is at risk. Current estimate is \$80 per person with an estimate of 70 people attending. A straw poll indicates about 20 people are expecting to be there.

12. New Business

12.1 Standing committee for regulatory responses, Jim Schuessler

Vic asked Jim to make a motion to establish a regulatory committee that is standing to handle things like the NPRM response to avoid the late file problem that was caused with that response

Motion #16: To establish a standing regulatory committee that is empowered to submit comments to regulatory bodies with a 75% vote of the committee.

Moved by: Jim Schuessler
Seconded by: Bob Buaas

Motion Discussion:

Vic: volunteers: Larry, Wayne Moyers, Jim Lovette, Rich Lee.

Bob B: volunteers Wayne Hendricks.

Dave B: wait! This motion is to create a committee - who are the members is a different question. It shouldn't be a fixed set of people because this is an open group.

Don: will there be rules set up for how this committee announces meetings, makes decisions, etc.?

Vic: was thinking of a small informal committee.

Dave B: objects to the motion as stated, not as intended. Can't tell from the wording if this committee needs 75% of its membership vote or of the entire working group.

Vic: intent is of this committee members.

Richard Ely: the motion should say on how people get on the committee. It should be by vote.

Jim: disagrees, the committee should be open for people to enter and leave as they please. Also, Jim feels uncomfortable about the power of such a committee in the motion as stated.

Bob C: in support of the motion. He offers the friendly amendment that it say 75% of the 802.11 group members instead.

Vic: that means the committee has to contact 93 people. He had envisioned this working between meetings for urgent issues. For instance, in 4 weeks there is the possibility of replying to the response to these last NPRM comments. This will never get done in time if the entire working group has to be balloted.

Bob C: changes his amendment suggestion to be with 75% of the committee on an issue delegated to it by the 802.11 working group.

Bob B: seconded the motion believing it meant 75% of 802.11 working group concurring in the result of the committee work. He knows this is difficult, but the intent of this body needs to be reflected. He would like to amend the motion or withdraw his second.

Vic: once a motion has been seconded it is in the possession of the assembly you can't withdraw. Amendments need to be proposed as motions and be voted on successfully before the motion can be amended.

Dave B: speaks against the motion. he understands the difficulty and knows that the NPRM response committee has just suffered from that. But speaking for this entire body without this body ever having seen the document - that unacceptable.

Colin: any 802 response to the FCC has to go through the excom and the lawyers anyway, so you can't do short turn around.

Vic: that is only 19 people.

Wayne:: appreciates Dave's concern and moves to submit an amendment.

Motion #17: that they only comment when forced to do so when time of open comment period so requires before 802.11 plenary sessions can convene and then only and when the excom has approved the position with unanimous concurrence of the excom and a suitable attorney has passed upon the submission. Further that the submission would be concurred at the next plenary session convened.

Moved by: Wayne Moyers

Seconded by: Don Johnson

Motion Discussion:

Dave B: this still leaves the original problem. Once you have submitted a document to the FCC it doesn't matter if we agree or disagree later.

Dave Bagby calls question, seconded by Bob Buaas (12, 2, 1).

Approved: 0 Opposed: 14 Abstain: 2 **Motion #17 fails**

Motion #18: to amend previous motion "the committee is required to send (fax, e-mail) the comments to the entire 802.11 membership for comment. Anyone wishing to amend and/or reply must do so within one week. Any 802.11 member may join the committee at any time. A standing committee shall consist of 4 or more members."

Moved by: Jim Schuessler

Seconded by: Dave Bagby

Motion Discussion:

Dave Bagby calls the question, Bob Buaas seconds (14, 1, 2).

Approved: 13 Opposed: 1 Abstain: 3 **Motion #18 passes**

Don: this motion doesn't say the group gets to vote.

Jim: but you can join the committee instantly and you become part of the 75% voting requirement.

Dave Bagby calls the question, seconded by Bob Buaas (14, 1, 1).

Approved: 13 Opposed: 2 Abstain: 3 **Motion #16 passes**

General Discussion

Don: nothing in here says documents need approval by the excom.

Vic: that is part of the 802 operating rule, it doesn't need to be in there. Vic will be the first member of the standing committee.

Don: comments are likely to be 10 pages, one guy writes them and everyone has to read and respond in a week. Should there be iteration time? What do we do if people say no?

Vic: they become a member of the committee they feel no.

Tom P: the concept is getting a fast response period. If you respond you show yourself as a concerned person. We can't allow iteration time or it will drag out again.

Roger: we are making a comment or sending a response - is the time limit often a few weeks or is this a special case? is the FCC so unreasonable that they always force industry to respond almost instantly.

Vic: no, but the law says they don't have to accept late filings - we have had to submit with this response a motion to accept the late filing.

Don: the shortest period is usually a month and they notify you in advance that it is coming.

Vic: the committee will only work in emergencies.

Tom T: thinks everyone should be notified everytime there is an issue for the committee so that they know up front if they want to join.

Bob C: suggests to the committee that they only forward responses when they did not see a large negative response. Don't force us all to join the committee.

Tom P: we are spending a lot of time on a simple procedural issue, and all we need to do is have some faith the good intentions of the members.

12.2 802.1 Liaison

802.1 have asked for liaison from us to them. Vic agrees that this is necessary from listening to the MAC report. Looking for volunteers:

Voting liaison - Bob Crowder.

Network management area - Paul Eastman and Vic Hayes.

Internetworking area - Tom Phinney

Tom Phinney would like to be the liaison to 802.10 if possible. This is OK, Bob Buas is the 802.10 liaison also.

Vic thinks that we should start to consider issuing liaison statements from subgroups also.

Motion #19: **To adjourn**

Moved by: Tom Phinney

Seconded by: Don Johnson

Approved: unanimously

Motion #19 passes

13. Closure- meeting adjourned at 4:45

Appendix 1 Attendance list

<u>Name</u>	<u>Company</u>	<u>communications</u>	<u>Voting member</u>
ACHATZ Mr. ROBERT	US Department of Commerce	+1 303 497 3498	vm
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Appendix 1 Attendance list

Name	Company	communications	Voting member
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MORIGUCHI Mr. TERUO	Hitachi	+81 463 88 1311 moriguti@kanagawa.hitachi.co.jp	
MOYERS Mr. WAYNE D.	WiSE Communications Inc	+1 408 376 0250	
NATARAJAN Dr. K.S.	IBM T.J. Watson Research Center	+1 914 784 7844 nataraj@watson.ibm.com	vm
NIKOLICH Mr. PAUL	Racal Datacom	+1 508 263 9929 nikolich@interlan.interlan.com	vm
NOLAN Mr. SHARI J.	Unisys Corporation	+1 408 434 4313	
ONODERA Mr. KEITH	U.C. Berkeley	+1 510 643 6147 keitho@diva.berkeley.edu	
PANDANDA Mr. ROGER		+1 619 546 2828 rpandanda@attmail.com	vm
PETTUS Mr. MICHAEL	Metricom	+1 408 399 8204	vm
PHINNEY Mr. TOM	Honeywell M/S G1	+1 602 436 4887 phinney@iasdv1.iasd.honeywell.com	vm
RANDLE Mr. BILL	Tektronix	+1 503 923 4422 billr@saab.cna.tek.com	
ROMIK Mr. PINHAS	RDC Communications Ltd	+972 52 584684	

Appendix 1 Attendance list

<u>Name</u>	<u>Company</u>	<u>communications</u>	<u>Voting member</u>
ROTHENBERG Mr. MICHAEL	LANNET Data Communications LTD	+972 3 6458422 mrot@lannet.com	vm
RYPINSKI Mr. CHANDOS	LACE Inc.	+1 415 389 6659 rypinski@netcom.com	vm
SAMDAHL Mr. ROGER N.	Photonics Corporation	+1 408 955 7930	vm
SCALDEFERRI Mr. LEON S.	DIRNSA R22	+1 301 688 0293	
SCHUESSLER Mr. JAMES E.	National Semiconductor	+1 408 721 6802 jim@berlioz.nsc.com	vm
SCOTT Mr. GREGOR D.	Defense Information Systems Agency	+1 908 532 7726 scottg@cc.ims.disa.mil	
SIEP Mr. THOMAS M.	Texas Instruments	+1 214 917 5919 tsiep@ti.com	
SILBERMAN Mr. NATHAN	California Microwave Inc	+1 408 720 6462 nsilberman@mcimail.com	vm
SILLMAN Mr. RICHARD	Sun Microsystems Labs Inc	+1 415 336 3670 dsillman@sun.com	vm
SIMON Mr. FRANÇOIS Y.	IBM	+1 919 254 4584 fygs@vnet.ibm.com	vm
SOJKA Mr. MARVIN	Accipiter Corp	+1 216 666 6380	vm
TOMASZEWSKI Mr. CARLOS A.	NetVantage	+1 310 828 9898	
TSOULOGIANNES Mr. TOM	Telesystems	+1 416 441 9966	
TSUNO Mr. KOICHI KENT	Sumitomo Electric U.S.A. Inc	+1 408 737 8517 tsuno@sumitomo.com	
TZE Mr. RYAN H.	Toshiba	+1 714 587 6769 ryant@tais.com	vm
VESUNA Mr. SAROSH	Symbol Technology	+1 408 249 9890 X 166	
WEISS Mr. STEVEN	DCA	+1 408 432 9111 Steve_Weiss@pacdata.com	
YI Mr. YONG WAN	Goldstar	+1 408 432 1331 X3307	
YORAM Mr. BARZILAI	MTM Industrial Park	+972 4230563	
YOUSEFI Mr. NARIMAN	SMC	+1 714 707 2375	

Appendix 2

Tentative Meeting Schedule

Date	Month	Year	Place	Type	Location	Host
11-14	January	1993	Agoura Hills	Inter	Ramada Agoura Hills	Xircom
08-12	March	1993	Baltimore, MD	Plenary	Omni, inner harbour	
10-13	May	1993	Wilmington, DE	Inter	Radisson Hotel	Ship Star
12-16	July	1993	Denver, CO	Plenary	Sheraton Denver Technology Center	
TBD	September	1993	TBD	Inter	TBD	Open
08-12	November	1993	W Palm Beach, FL	Plenary	Ramada Resort	
TBD	January	1994	TBD	Inter	TBD	Open
07-11	March	1994	Vancouver, BC	Plenary	Hotel Vancouver	
TBD	May	1994	TBD	Inter	TBD	Open
11-15	July	1994	? Minneapolis. MN	Plenary	? Radisson South	
TBD	September	1994	TBD	Inter	TBD	Open
07-11	November	1994	Incline Village, NV	Plenary	Hyatt Regency Lake Tahoe	

We received invitations to host a meeting from GM to Oshawa (Ontario, Canada), LXE to Atlanta (GA), DEC to Boston area, and ICIL to Hong Kong.