
**IEEE P802.11
Wireless LANs**

Tentative Minutes of the IEEE P802.11 Full Working Group

January 15 – 19, 2001

Hyatt Regency Monterey, Monterey, CA

Opening Session: Monday, January 15, 2001

1.1. Introduction

- 1.1.1. Meeting called to order by Stuart Kerry at 0800 hrs. Agenda of 65th session of 802.11 is in doc.: IEEE P802.11-00/465r1.
- 1.1.2. Secretary – Tim Godfrey

1.2. Review of 802.11 Organization

1.3. Objectives for this meeting:

- 1.3.1. TGb –
- 1.3.2. TGd –
- 1.3.3. TGe –
- 1.3.4. TGf –
- 1.3.5. TGg –
- 1.3.6. TGh –
- 1.3.7. 5GHz Globalization
- 1.3.8. Radio Regulatory
- 1.3.9. Publicity Ad Hoc
- 1.3.10. WG Ad-Hocs / Co-Existence

1.4. Roll Call

- 1.4.1. 170 people introduced themselves
- 1.4.2. 48 new members at this meeting
- 1.4.3. 83 Voting members present,
 - 1.4.3.1. Out of 138 voters, we have Quorum

1.5. Review of Schedule

- 1.5.1. Changes to agenda noted on board outside office.

1.6. Review of voting rights, etc

- 1.6.1. Dennis Kuahara – attendance book manager
- 1.6.2. Access to web site private area granted after attending one meeting.
- 1.6.3. Documents available on server and flash cards one meeting in advance

1.7. Review of Patents and IP Policy

- 1.7.1. Document 01/024

1.8. Review of Agenda

- 1.8.1. No New Business

1.9. Approval of Agenda

- 1.9.1. Agenda Approved without objection

1.10. Review of minutes from Tampa Meeting

- 1.10.1. No matters arising from minutes
- 1.10.2. Minutes approved without objection

1.11. Subgroup Updates

- 1.11.1. TGb cor1 – we have a sponsor ballot due to close tomorrow. There are two comments that will need resolution this week.
- 1.11.2. TGd – The sponsor ballot pool has been approved by the 802 chair and 802.11. We are waiting for the notification to be sent out. This should be starting in the next week to 10 days. There will be comments to be resolved in the March plenary.
- 1.11.3. TGe – The baseline was approved in November, for both Security and QoS. The objective for this meeting was to have the editors come up with an initial draft for balloting.
 - 1.11.3.1. QoS – There was considerable activity in teleconferences, and several contributions to cover the outstanding issues from November. The Ad Hoc Group will present their findings to the rest of the group. The proposed agenda calls for possible down selection voting. The 802.11 chair will be a scrutineer of any votes.
 - 1.11.3.2. Security – Continuing work on baseline proposal this week.
- 1.11.4. TGf – The Ad-Hoc was productive. The plan is for a draft document by the end of this week.
- 1.11.5. TGg – Continuing selection process
- 1.11.6. TGh – Carl Temme is resigning as chair, and Mika Kasslin is taking over the chair of the task group. Evan Green was voted in as Editor of TGh.
- 1.11.7. 5GSG – Bruce Kraemer in place of Rich Kennedy. A single converged standard for 5GHz, encompassing 802.11a, MMAC, and ETSI. Investigating the possibility of converting this from a Study Group to a Task Group. There is a session on Wednesday afternoon where TGh and 5GSG will meet jointly with 802.15.2 on the subject of coexistence.
- 1.11.8. 802 Regulatory –
- 1.11.9. Publicity – objectives in document 01/027. General presentation is document 288. WLAN survey (anonymous). Update on WECA and OFDM forum.

1.12. Affirm Liaison Representatives

- 1.12.1. Document 00/406r1
- 1.12.2. no changes to published liaisons

1.13. Agenda for 802.11/15 joint meeting.

- 1.13.1. Agenda Approved without objections.

1.14. Review of Documents and Submissions

1.14.1. Harry Worstell

1.14.2. Requests for document numbers require the title and author on a slip of paper given to Harry.

1.15. Old Business

1.15.1. None

1.16. New Business

1.16.1. None

1.17. Announcements

1.17.1. Missing radio cards (Return to Enterasys)

1.17.2. Voter Database discrepancies.

1.17.2.1. Described in document 01/028

1.17.3. New member orientation immediately following this session.

1.18. Recess

2. Joint 802.11 802.15 Session, January 17, 2001

2.1. Opening

- 2.1.1. Call to Order at 1:10PM
- 2.1.2. Agenda from 802.11 document 465r1.
- 2.1.3. No Roll Call

2.2. Announcements

- 2.2.1. Session Photos are being taken by Evan Green
- 2.2.2. Straw Poll – people who will be here for Friday meetings – 96 people
- 2.2.3. Record attendance 328 people at this meeting
- 2.2.4. Expected social attendance – nearly everyone.
- 2.2.5. There are 242 people at this session.

2.3. Agenda

2.3.1. Motion to approve the agenda

- | |
|-----------------|
| 2.3.1.1. Ivan |
| 2.3.1.2. Carl S |

2.3.2. Discussion of Agenda

- | |
|---|
| 2.3.2.1. John Barr would like to go first |
|---|

2.3.3. Agenda accepted by unanimous consent.
--

2.4. Future Interims

2.4.1. May 2001

- 2.4.1.1. Orlando Florida,
- 2.4.1.2. Radisson across from Universal Studios. \$129/ per night.
- 2.4.1.3. Week of May 15th.
- 2.4.1.4. First non-hosted meeting, organized by IEEE802.
- 2.4.1.5. More details later

2.4.2. September 2001

- 2.4.2.1. Making plans for Sydney, Australia
- 2.4.2.2. Considering week of Sept 10 (1st choice), or Sept 17th (alternate).
- 2.4.2.3. Downtown Sydney location.
- 2.4.2.4. Hotel \$100 US per night.
- 2.4.2.5. Straw Poll of Interest – 114 people.
- 2.4.2.6. Straw poll for venue other than Sydney – about 15.
- 2.4.2.7. Coordination with 802.16? Waiting until next week.

2.4.3. January 2002 – looking for hosts/volunteers

2.5. Review of Financials

2.5.1. Scottsdale (Sept 200) meeting

- 2.5.1.1. 9237.05 surplus from May
- 2.5.1.2. Income 90427.05
- 2.5.1.3. Meeting cost 70000
- 2.5.1.4. Surplus at end of Scottsdale 19714.32
- 2.5.1.5. Networking expenditures - \$4000

2.5.1.6. Final balance \$15000 – used to offset the higher cost of this venue

2.5.1.7. Record pre-registration of 270 people.

2.5.2. Wireless Network

2.5.2.1. Thanks to 3Com, Symbol, and Cisco

2.5.2.2. Windows 2000 connection issues

2.5.2.3. Requests for higher ISP backbone connectivity than ISDN

2.5.2.4. IETF typically uses T1 to T3 connectivity. The sponsor generally provides the access.

2.6. Task Group Reports

2.6.1. 802.15 TG3

2.6.1.1. Status Report (Closing Report for TG3)

2.6.1.2. Goal to finish up by end of 2001.

2.6.2. 802.11 TGb-COR1

2.6.2.1. The TGb-COR1 should be finished. We have not received any correspondence. The comments have been addressed by the chair.

2.6.2.2. Looking for final review and editing.

2.6.3. 802.11 TGd

2.6.3.1. The sponsor ballot for TGd is pending.

2.6.3.2. The sponsor pool has been formed and is waiting for certification by the 802 chair for proper balance. The balloting should commence within a few days.

2.6.4. 802.11 TGe

2.6.4.1. The objective for this week is to come up with an initial draft of QoS and Security and consider a letter ballot at the end of this week.

2.6.4.2. Tomorrow afternoon is the next full TGe session.

2.6.4.3. QoS

2.6.4.3.1. Announcing a selection process at 4:30 today between two proposals. The draft is coming together, but there is one area where there are two competing approaches for EDCF.

2.6.4.4. Security

2.6.4.4.1. They have been drafting text in 01/018r1. There will be additional meetings, but recess for the QoS group at 4:30.

2.6.5. 802.11 TGf

2.6.5.1. Writing text to fill in “black box” areas Snapshots of the text are available as they progress

2.6.6. 802.11 TGg

2.6.6.1. Report from Task Group G. Heard submissions from the three proposals. Key motions that have been passed to change the procedure:

2.6.6.1.1. Have all regulatory issues coordinated through the 802.11 ad-hoc regulatory committee.

2.6.6.1.2. Move to have ad-hoc regulatory committee initiate a conversation with the FCC regarding their position on the high rate proposals.

2.6.6.2. Held teleconference with the FCC today. Details in the minutes of TGg

2.6.6.3. 6 hours working on the selection procedure.

2.6.6.4. Discussion:

2.6.6.4.1. Will there be voting in TGg? Depending on the rate we proceed there is a potential for vote.

2.6.7. 802.11 TGh

- 2.6.7.1. TGh has had 3 meetings. There are 3 documents provided by the study group. Documents are on the server.
- 2.6.7.2. Had a joint meeting with the regulatory group.
- 2.6.7.3. Will have a motion in the closing plenary on Friday morning to issue a call for proposals.
- 2.6.8. 802.11 5GSG
 - 2.6.8.1. 5Ghz convergence study group. Having meetings on what we want to do.
 - 2.6.8.2. Looking at possible levels: Interference, Coexistence, Interworking, and Single Global Standard. A continuum of states.
 - 2.6.8.3. Parallel activities to improve the documentation process to facilitate document exchange
 - 2.6.8.4. Next meetings – Jan 29, Sophia-Antipolous; Feb 21, Frankfurt, DE, March 12-15 Hilton Head; April 2, with BRAN.
 - 2.6.8.5. Discussion
 - 2.6.8.5.1. The BRAN 23 meeting is scheduled the week of April 2nd. Invitations from Microsoft, and Sony. Will inform later on the specific dates.
- 2.6.9. 802.11 / 802.15 Publicity
 - 2.6.9.1. Generating forecasts for Wireless LAN sales.
 - 2.6.9.2. Discussion
 - 2.6.9.2.1. When will the forecast be available? Hopefully March.
 - 2.6.9.2.2. Will there be any information on competitive wireless technologies? No.
- 2.6.10. 802.15.1 Bluetooth
 - 2.6.10.1. Working on a SDL model in the draft.
 - 2.6.10.2. Working on editing the draft text in Framemaker.
 - 2.6.10.3. Ballot in January
 - 2.6.10.4. Tutorial on the website and flash document 046.
 - 2.6.10.5. Hope to be out of sponsor ballot in the middle of Summer, and receive approval in September, or October at the latest.
 - 2.6.10.6. Double meeting schedule in TG1 to accomplish goal.
- 2.6.11. 802.15.2 Coexistence
 - 2.6.11.1. Received two submissions in Tampa.
 - 2.6.11.2. Approved selection procedure.
 - 2.6.11.3. Liaison with BT SIG coexistence group.
 - 2.6.11.4. 802 wireless coexistence group.
 - 2.6.11.4.1. Coexistence has become a hot topic.
 - 2.6.11.4.2. At 4PM today, all interested parties will discuss formation of an 802 wireless coexistence group. In Cypress 1-3.
- 2.6.12. 802.15.4 Low Rate
 - 2.6.12.1. First official session of TG4.
 - 2.6.12.2. Aggressive schedule – call for applications, brought 8 responses.
 - 2.6.12.3. Spent two days listening to presentations, and then generated criteria.
 - 2.6.12.4. The goal is to finalize the criteria, and issue call for intent to propose for Hilton Head.
 - 2.6.12.5. Goal in Hilton Head is to hear proposals, and consolidate down to a single PHY.
 - 2.6.12.6. Overall 15 month schedule to sponsor ballot.
- 2.6.13. 802.11 Radio Regulatory Ad Hoc

- 2.6.13.1. Objectives were to prepare position statements to regulator bodies
- 2.6.13.2. Update of ITU-R Rec M1450 radio LAN characteristics.
- 2.6.13.3. Teleconference with FCC on request of TGg.
- 2.6.13.4. Sharing with incumbent users of the 5GHz band (radar)
- 2.6.13.5. Discussion
 - 2.6.13.5.1. Will there be a separate report on regulatory ad-hoc. Planning to form a standing committee on radio regulations.

2.7. March 802 Plenary Update

2.7.1. Property change from Hyatt to Marriott.

- 2.7.1.1. Marriott Hilton Head Golf Resort
- 2.7.1.2. Toll Free Number 800-228-9290
- 2.7.1.3. Direct 843-686-8400
- 2.7.1.4. Re-confirm any existing reservations

2.8. Any 802.15 or 802.11 business for a full session after this meeting?

- 2.8.1. None.

2.9. Other Announcements

- 2.9.1. Windows 2000 Network - don't log into normal domain but your computer. You have to set up a new Persona that has access only to your computer. Then you can find the servers.

2.10. Adjourn

3. 802.11 Closing Plenary, Friday Morning

3.1. *Opening*

3.1.1. Call to order at 8:00

3.2. *Agenda Review*

3.2.1. Agenda changes due to new business

3.2.1.1. New information from Wireless 1394

3.2.2. Expect to adjourn by 10:00

3.2.3. No additional old business

3.2.4. No additional new business

3.2.5. Discussion of Agenda

3.2.5.1. Regulatory Liaison would like flexibility in agenda so he can move between meetings and make a report earlier.

3.2.5.2. Chair agrees to call Vic as needed, but must stick to agenda as planned.

3.2.5.3. No objections to stick to agenda as planned

3.2.6. Agenda Approved without objections

3.3. *Announcements*

3.3.1. Chairs pre-meeting teleconference Feb 19th and March 5th at 9:00AM Pacific Time.

3.3.2. WG chairs reports to Tim Godfrey and Harry Worstell for the web site, other than those that update their own. By Monday, the website to be updated.

3.3.3. Recognition of Stuart Kerry and Beverly's work in organizing this meeting.

3.3.4. Thanks to Dave Bagby of 3com and Don Sloan of Cisco, and Dean K and Graham from Symbol for their help with wireless network equipment.

3.4. *Document List Update*

3.4.1. Over 100 documents at this meeting..

3.4.2. Will be on the web site by Monday.

3.4.3. The 5GSG has expanded to a joint meeting with ETSI and MMAC, so a separate numbering system will be devised.

3.5. *Task Group Reports*

3.5.1. TGb-cor1

3.5.1.1. Has been approved by sponsor ballot. There technical changes due to errors that were addressed in comments

3.5.1.2. Motion to send draft 1.5 of 802.11b-cor1 out for sponsor recirculation ballot.

3.5.1.3. Move Carl Andren

3.5.1.4. Second Kitchin

3.5.1.5. Vote: passes 52:0:1

3.5.2. TGd

- 3.5.2.1. Jim Carlo has approved the balance of voters in the sponsor ballot pool. There should be notification that the sponsor ballot has commenced in the next few days.
- 3.5.2.2. Expecting to resolve comments at the March plenary.
- 3.5.3. TGe
 - 3.5.3.1. Review of motions from TGe closing plenary:
 - 3.5.3.1.1. TGe Motion 1 – to adopt document 00/360r2 with the inclusion of the EDCF text placeholder adopted during the November Plenary in Minutes of TGe 9.4.2.2 and the insertion of the subclause headings for clauses 9 and 11 as TGe draft revision D0.1
 - 3.5.3.1.2. TGe Motion 2 – that TGe adopts as a requirement for consideration of motions to modify the normative content of the TGe draft that the relevant proposed content have been available to the group at least half a day (4 in-session 802.11 hours preceding the motion.) The chair may overrule an motion for text if it is felt that there hasn't been available for a sufficient time for consideration.
 - 3.5.3.1.3. TGe motion 3 – That the TGe chair be empowered to request of the WG chair inclusion of the rule specified in the preceding motion 2 in the operating rules announced to the body in the openings of meetings.
 - 3.5.3.2. The editor will put an informal submission on the reflector to solicit comments.
 - 3.5.3.3. TGe QoS report
 - 3.5.3.3.1. TGe QoS summarized the main TGe report
 - 3.5.3.3.2. The QoS subgroup has considered interim teleconferences, to discuss and improve the submissions and papers. These will be ad-hoc teleconferences, so no binding decisions will be made. Single Subject Teleconferences:
 - 3.5.3.3.2.1. Jan 31st -EDCF in ECDF
 - 3.5.3.3.2.2. Feb 7th on HCF
 - 3.5.3.3.2.3. Feb 14th on Clause 10 and 11
 - 3.5.3.4. TGe Security report
 - 3.5.3.4.1. Working from document 18r1
 - 3.5.3.4.2. Minutes in Document 01/82 – contains directions to editor.
 - 3.5.3.4.3. No conference calls are planned.
 - 3.5.3.4.4. Document 18r1 is a slow process, so an Ad Hoc meeting is being planned. No firm date has been set.
- 3.5.4. TGf
 - 3.5.4.1. Reviewed the progress and input from the Ad Hoc meeting in December
 - 3.5.4.2. Spent most of the time in text drafting
 - 3.5.4.3. Significant text was generated, but not at draft status yet.
 - 3.5.4.4. Expect to have first draft in March
 - 3.5.4.5. Soliciting comments and input for consideration in March.
- 3.5.5. TGg
 - 3.5.5.1. Report in document 106
 - 3.5.5.2. Following official selection procedure document 209r3.
 - 3.5.5.3. Several days were spent going through step 16,
 - 3.5.5.4. Step 17 updating of comparison criteria matrix has been completed.
 - 3.5.5.5. The regulatory report from Vic Hayes was heard, but there was no time for question.
 - 3.5.5.6. The Objective for March will be

- 3.5.5.6.1. Step 18 Questions and final statements
- 3.5.5.6.2. Step 19 Rounds of Voting
- 3.5.5.6.3. Step 20 Submission to 802.11WG
- 3.5.6. TGH
 - 3.5.6.1. Report in document 78
 - 3.5.6.2. Accepted Functional Requirements, Comparison Criteria, and Selection Process
 - 3.5.6.3. Established cut-off date for proposals no sooner than March 31st, 2001.
 - 3.5.6.4. Before next meeting, to have Teleconferences
 - 3.5.6.5. Feb 15th 8:00AM Pacific
 - 3.5.6.6. March 1 8:00AM
 - 3.5.6.7. Issue call for proposals, to be on server ASAP.
 - 3.5.6.8. In March meeting there will be a number of proposals to be reviewed.
 - 3.5.6.9. Clarify regulatory requirements especially on DFS.
- 3.5.7. 5GSG
 - 3.5.7.1. First official meeting of joint 802.11a , ETSI BRAN, and MMAC. No official members of MMAC present.
 - 3.5.7.2. Re-issue request for MMAC participation
 - 3.5.7.3. Reviewed Requirements and Selection Criteria.
 - 3.5.7.4. Adequate meeting time notification needs to be addressed.
 - 3.5.7.5. Created converge structure, scenarios, and system architecture documents. These structure the nature of the challenge and process towards convergence.
 - 3.5.7.6. Generated basic work plan.
 - 3.5.7.7. Agreed to form a study group to decide what form or structure in 802 should exist to address this work.
 - 3.5.7.8. Drafted PAR and 5 criteria to move towards task group status.
 - 3.5.7.9. Objectives
 - 3.5.7.9.1. Continue towards single converged standard
 - 3.5.7.9.2. Establish unified document numbering system
 - 3.5.7.9.3. Establish conference calls and correspondence procedures.
 - 3.5.7.9.4. Complete PAR and 5 criteria.
- 3.5.8. Publicity
 - 3.5.8.1. Progress this session
 - 3.5.8.1.1. Review of articles
 - 3.5.8.1.2. Review of web site
 - 3.5.8.1.3. Other standards conferences, and trade shows
 - 3.5.8.1.4. Work on Press Kit – 802.11 kit scheduled for march
 - 3.5.8.1.5. WECA and OFDM forum updates
 - 3.5.8.2. Wireless LAN forecast
 - 3.5.8.2.1. Survey document 00/407, anonymous survey.
 - 3.5.8.2.2. Will extend into 802.16 domain as well
 - 3.5.8.2.3. Received 3 submissions so far.
 - 3.5.8.2.4. The process will continue through the March session.
 - 3.5.8.2.5. Output in document 089r0.
 - 3.5.8.3. Objectives
 - 3.5.8.3.1. Continue refining forecast
 - 3.5.8.3.2. Continue updating other output documents.
 - 3.5.8.4. Conferences
 - 3.5.8.4.1. Communications Design Conference
 - 3.5.8.4.2. Oct 1-4, 2001

- 3.5.8.4.3. First of its kind, like Wireless Symposium.
- 3.5.8.4.4. Broad scope.
- 3.5.9. Radio Regulatory Ad Hoc
 - 3.5.9.1. Prepared 3 position papers
 - 3.5.9.1.1. Broadband Radio Characteristics to ITU-R
 - 3.5.9.1.2. Requests to administrations to clarify DFS/TPC
 - 3.5.9.2. Motion in 802.15 failed, but a 72 hour letter ballot was instituted to gain approval. The result needs to be in Washington on January 25th.
 - 3.5.9.3. Proposed rules change for 6th criteria for wireless. (to address conformity and show spectrum sharing)
 - 3.5.9.4. Requests to submit proposal to SEC at the March Plenary.
- 3.5.10. Liaison Report from 802.15
 - 3.5.10.1. No report currently available.

3.6. Old Business

- 3.6.1. TGe
 - 3.6.1.1. The 802.11 WG Chair and Vice Chair will look at the request for a change to operating rules.
- 3.6.2. Radio Regulatory

3.6.2.1. To approve the revisions of documents 11-01/57r1//35, 80r1//71, and 81r1//72 for submission to the addressees.

- 3.6.2.1.1. Moved Vic Hayes
- 3.6.2.1.2. Discussion

3.6.2.1.2.1. Looking at document 57r1, asking for guidance on specific guidance on modulation, specifically OFDM. Is that for any specific band? Page 3, Item 4. This is based on an ITU-R document.

3.6.2.1.3. Vote – motion passes 21:10:22

3.6.2.2. Motion – to submit the proposal for the sixth criterion (document 095) to the SEC Monday morning meeting of the March 2001 meeting

- 3.6.2.2.1. Moved Vic Hayes
- 3.6.2.2.2. Seconded Dennis Kuahara
- 3.6.2.2.3. Discussion

- 3.6.2.2.3.1. Which proposal? The sixth criteria
- 3.6.2.2.3.2. There was an amendment to the document. Is that included?
- 3.6.2.2.3.3. We are proposing a project, with an accompanying PAR. Does the intent of showing conformity mean the PAR have to resolve the issues (IE modulation) in advance?

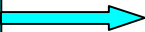
3.6.2.2.4. Motion to amend the proposal which is the subject of the motion: "We recommend adding a sixth criterion which would apply only to proposed projects that include wireless functions"

- 3.6.2.2.4.1. Moved Bob Huang
- 3.6.2.2.4.2. Seconded Dennis K
- 3.6.2.2.4.3. Motion to amend accepted by unanimous consent

3.6.2.2.4.4. Reference in main motion changed to document 95r1

Note – although this motion was announced to the plenary and minuted as passing, recent directions from the 802 chair indicate that this type of motion requires a 75% majority to pass. Therefore, the chair of 802.11 declares that this motion fails.

Friday, January 26, 2001



3.6.2.3. Motion on the floor– to submit the proposal for the sixth criterion (document 01/095r1) to the SEC Monday morning meeting of the March 2001 meeting

3.6.2.3.1. Discussion

- 3.6.2.3.1.1. The intent is that the PAR would specify how regulatory conformity and spectrum sharing feasibility would be addressed by the proposed standard.
- 3.6.2.3.1.2. Concern of the though process behind this. Is there an assumption that we are dealing with a band that must share. That may not always be the case with other bands (IE licensed).
- 3.6.2.3.1.3. One could say that it is not applicable for licensed bands or non-wireless PARs.
- 3.6.2.3.1.4. Concern that there is going to be a lot of interpretation on this later that could cause future problems.
- 3.6.2.3.1.5. In experience with the SEC, there may be changes made by them. We should be saying that there is more that needs to be done with wireless PARs, and these are the topic areas to be addressed. Speaks in favor of the motion.
- 3.6.2.3.1.6. In favor. There needs to be some ambiguity as technologies change. EG 802.15.1 interferes with 802.11. This is a legitimate issue. There should be flexibility for the groups to address as we go forward.
- 3.6.2.3.1.7. The 5GSG and coexistence ad-hoc is also looking at this. Two issues – regulatory compatibility, and co-existence. Should these groups address this instead?
- 3.6.2.3.1.8. The intention here is to bring it to the forefront of proposers minds. These words do not mandate a solution, but only that it should be paid attention to.
- 3.6.2.3.1.9. Could we see the viewpoint of 802.15? They passed a motion to postpone discussion until March.
- 3.6.2.3.1.10. Against the motion – more consideration is needed, postponement is recommended.

3.6.2.3.2. Motion to amend motion to – to postpone this discussion until March

3.6.2.3.3. Ruled as improper motion as it significantly change the intent.

3.6.2.3.4. Subsidiary Motion - to postpone the existing motion until the opening plenary of the March 2001 Meeting

3.6.2.3.4.1. Moved Stuart Kerry

3.6.2.3.4.2. Second Jim Zyren

3.6.2.3.4.3. Vote – Passes 37:1:3

3.6.2.4. Motion – that the chairman of the Ad Hoc regulatory Group, Vic Hayes, be instructed to invite the FCC (1 or 2 individuals) to the March 2001 meeting of 802.11 for the purpose of increasing direct dialog on important regulatory matters. Furthermore, I move that the travel and lodging expenses of the FCC representative be drawn from the conference fee that is normally assessed.

3.6.2.4.1. Point of Order

3.6.2.4.1.1. Should this come under new business? Chair rules that this is appropriate for the regulatory group.

- | | |
|------------|------------------------|
| 3.6.2.4.2. | Moved Bob Huang |
| 3.6.2.4.3. | Seconded Bruce Kraemer |

3.6.2.5. Discussion

- | | |
|------------|--|
| 3.6.2.5.1. | Would there still be a teleconference for members of the FCC that were unable to travel? |
| 3.6.2.5.2. | This is a fundamental way forward. In favor of the motion. |
| 3.6.2.5.3. | Against the motion – the intent is to expand to other groups beyond 802.11. That is impossible in this meeting. The desire of more communication with FCC is good. The intent of having them speak for the FCC is unlikely. Offering to pay will cause problems. We should not head down that path of paying for others to attend. |
| 3.6.2.5.4. | Move to amend: to strike the portion starting with “furthermore” to the end. For the same reason as the previous comment. |

- | | |
|--------------|---------------------|
| 3.6.2.5.4.1. | Moved Anil S |
| 3.6.2.5.4.2. | Seconded Dave Bagby |

3.6.2.5.5. Discussion

- | | |
|---------------|--|
| 3.6.2.5.5.1. | The FCC has made it clear that have a difficult time to travel due to budget. They would accept payment from a group rather than a company. The FCC did request more open communications with our group. Against the motion. |
| 3.6.2.5.5.2. | Against the amendment. This is in line with what the FCC indeed suggested. |
| 3.6.2.5.5.3. | This is an issue with a Plenary meeting. We don't have authority to spend the 802 Plenary meeting fees. This is out of order. In favor of the amendment. |
| 3.6.2.5.5.4. | In favor of the amendment, since it would set precedents. Individuals should pay. |
| 3.6.2.5.5.5. | Against the amendment. There are sufficient funds. The ExCom is aware of this. |
| 3.6.2.5.5.6. | Against the amendment. It is a good sign that they are willing to talk with us. |
| 3.6.2.5.5.7. | Against the amendment – It is good to have everyone hear exactly what the FCC has to say. |
| 3.6.2.5.5.8. | In favor of the amendment – the US government does have money. Why do we need to pay? They also said we don't answer questions, so why do we think this would be valuable? |
| 3.6.2.5.5.9. | This has a large impact on TGg. Against the motion to amend. Favor any vehicle to accelerate progress in TGg. |
| 3.6.2.5.5.10. | Against the amendment – this is a one time event. |

3.6.2.5.6. Call the question

- | | |
|--------------|--|
| 3.6.2.5.6.1. | Ivan |
| 3.6.2.5.6.2. | John F |
| 3.6.2.5.6.3. | Question is called without objections. |

3.6.2.5.7. Vote on the Amendment – Amendment fails 8:30:4

3.6.2.6. Motion on the floor – that the chairman of the Ad Hoc regulatory Group, Vic Hayes, be instructed to invite the FCC (1 or 2 individuals) to the

March 2001 meeting of 802.11 for the purpose of increasing direct dialog on important regulatory matters. Furthermore, I move that the travel and lodging expenses of the FCC representative be drawn from the conference fee that is normally assessed.

3.6.2.7. Discussion

- 3.6.2.7.1. Request to rule out of order because we can't spend the money that doesn't belong to us.
 3.6.2.7.2. Motion ruled out of order by the chair

3.6.2.8. Motion – that the chairman of the Ad Hoc regulatory Group, Vic Hayes, be instructed to invite the FCC (1 or 2 individuals) to the March 2001 meeting of 802.11 for the purpose of increasing direct dialog on important regulatory matters. Furthermore, I move that the travel and lodging expenses of the FCC representative be requested to be drawn from the conference fee that is normally assessed.

3.6.2.8.1. Moved John F

3.6.2.9. Discussion

- 3.6.2.9.1. Friendly amendment – to change “conference fees” with “surplus 802.11 funds, if any”
 3.6.2.9.2. The status of the surplus funds cannot be assessed until the March meeting.
 3.6.2.9.3. In that case, we cannot make this motion.
 3.6.2.9.4. Point of Clarification – is there any entity that could secure these funds before the March Meeting?
 3.6.2.9.5. The chair has confirmed with the 802 chair and treasurers that the funds are available for this purpose.

3.6.2.10. Orders of the day

3.6.2.11. It is not in order to allow motions from the floor. Defer this motion to new business.

3.7. **New Business**

3.7.1. Radio Regulatory

3.7.1.1. Discussion

- 3.7.1.1.1. Is it not true that if we wanted to invite and pay for and FCC, couldn't we have the ExCom to have an email ballot to approve the expenditure

3.7.1.2. Motion – to request the SEC members to consider by email ballot, paying for travel and lodging for a representative of the FCC to attend the March meeting, and if approved, have 802.11 request that an FCC member attend the March meeting.

- 3.7.1.2.1. Moved Matthew S
 3.7.1.2.2. Second Carl Andren

3.7.1.3. Discussion

- 3.7.1.3.1. We don't want this to seem as a lobbying effort.
 3.7.1.3.2. In discussions, this is understood to be normal procedure by the FCC.
 3.7.1.3.3. Are we inviting them only to 802.11, or to all wireless subgroups? The invitation is to “the March meeting”
 3.7.1.3.4. We are asking the SEC to approve, but 802.11 does the inviting.
 3.7.1.3.5. Motion to amend to: to request the SEC members to consider by email ballot, paying for travel and lodging for a representative of the FCC to attend the March meeting, and if approved, have the chairman of the 802.11 ad hoc regulatory

group request that an FCC representative attend the March meeting.	
3.7.1.3.5.1.	Moved Jim Zyren
3.7.1.3.5.2.	Seconded Vic Hayes
3.7.1.3.5.3.	Vote on the amendment passes 30:0:3
3.7.1.3.6.	Discussion on the main motion
3.7.1.3.6.1.	None
3.7.1.4. Motion on the floor: To request the SEC members to consider by email ballot, paying for travel and lodging for a representative of the FCC to attend the March meeting, and if approved, have the chairman of the 802.11 ad hoc regulatory group request that an FCC representative attend the March meeting.	
3.7.1.4.1.	Vote on the main motion – passes 29:5:2
3.7.1.5. Motion : If for any reason, the FCC is unable to send a representative, the chairman of the 802.11 ad-hoc regulatory group shall request a teleconference to occur with the FCC during the March meeting. The exact time to be worked out by the chairman of the 802.11 regulator group and the FCC	
3.7.1.5.1.	Moved Jim Zyren
3.7.1.5.2.	Second Vic Hayes
3.7.1.6. Discussion	
3.7.1.6.1.	Do we have to empower the ad-hoc group? Isn't that their charter?
3.7.1.6.2.	We are explicitly instructing the logistics to happen before the next meeting.
3.7.1.6.3.	Against the motion – we can obtain the same objective at a later point in time. Vic made this happen this week on short notice.
3.7.1.6.4.	Point of information – would this create a precedent to disallow Vic from contacting any regulatory bodies without our approval. It is the chairs position that he has the power presently, and this might set a precedent.
3.7.1.7. Call the question	
3.7.1.7.1.	Ivan
3.7.1.7.2.	Anil
3.7.1.7.3.	Vote on calling the question – fails 21:11:0
3.7.1.8. Discussion	
3.7.1.8.1.	The question is this in the scope of Vic's authority. Does the chairman think this is in his authority.
3.7.1.8.2.	If we vote this down, he feels he is forbidden.
3.7.1.8.3.	No – not passing does not mean you cannot do what was in the motion.
3.7.1.8.4.	The chair of the ad-hoc group feels he is not empowered to do this on his own. There is no official authority as an ad-hoc chair. Perhaps as the 802 ombudsman?
3.7.1.8.5.	Request to rule out of order.
3.7.1.8.6.	This is not about empowerment, it would require the chair to take a particular action.
3.7.1.8.7.	Against the motion – the regulatory ombudsman does have the authority.
3.7.1.9. Call the Question	

3.7.1.9.1.	Stuart Kerry
3.7.1.9.2.	Seconded Duncan K
3.7.1.9.3.	Question called without objection

3.7.1.10.	Vote on the motion – passes 21:8:7
-----------	------------------------------------

3.7.2. Wireless 1394

3.7.2.1. Presentation from Benno Ritter, Document 01/100

3.7.2.2. Update from IEEE1394 meeting – a new wireless 1394 working group was formed.

3.7.2.3. To facilitate the interconnection of 1394 and wireless domains.

3.7.2.4. Liaison doesn't mean 802.11 is a preference, but 802.11 is working on QoS enhancements.

3.7.2.5. Liaisons are Steven Williams and Benno Ritter.

3.7.2.6. Discussion

3.7.2.6.1. What is the liaison between 1394 and HiperLAN? None currently

3.7.2.6.2. Where is the paper? In submissions

3.7.2.7. Discussion

3.7.2.7.1. 1394 is not directly interoperable with wireless media. Why are they doing this, and what is the standards interface.

3.7.2.7.2. The purpose of IEEE1394 is to create a convergence layer on the top of 802.11a.

3.7.2.7.3. The request came from 1394 customers into the 1394 Trade association.

3.7.2.7.4. It is not the intention to develop a wireless 1394 specification. The intent is to provide input to 802.11 and ETSI BRAN working groups to communicate the needs of the 1394 users.

3.7.2.8. 802.11 chair's position is that it is premature to form liaisons at this time.

3.7.2.9. Discussion

3.7.2.9.1. Why is this work being done in the 1394 TA rather than the P1394 standards committee? It came to P1394 via the 1394 TA.

3.7.2.9.2. Couldn't a study group be formed to create a PAR?

3.8. Closing Discussion

3.8.1. Objectives for the March 2001 Plenary

3.8.1.1. Chairs to mail objectives and agenda request by Friday of next week.

3.8.2. Straw Poll of having a 5th day (Friday) in March Fails 6:13:10

3.9. Adjourn

Attendance list for the meeting held at **Hyatt Regency, Monterey, CA**

<i>Full name</i>	<i>status</i>	<i>att. %</i>	<i>phone</i>	<i>company</i>	<i>e_mail</i>
Dr. L Enrique Aguado (Enrique)	voter	100	+44 113 233 2004	Supergold Communication, Ltd	enrique@supergold.com
Mr. James Aldis ()	aspirant	95	+41 62 889 52 19	Security Solutions	james.aldis@ascom.ch
Mr. Richard Allen (Dick)	aspirant	100	+1 408 974 5265	Apple Computer Inc.	rallen@apple.com
Mr. Baruch Altman ()	aspirant	100	+972 9 7667377	Commprize	baruch@commprize.com
Mr. Keith Amann (Keith)	voter	100	+1 303 440 5330	Spectralink	kamann@spectralink.com
Mr. Merwyn Andrade ()	voter	100	+1 408 526 4628	Cisco Systems Inc.	mandrade@cisco.com
Mr. Carl F. Andren (Carl)	voter	100	+1 321 724 7535	Intersil Corporation	candren@intersil.com
Dr. Butch Anton	nearly voter	100	+1 408 551 0800	hereUare Communciations, Inc.	butch@hereuare.com
Mr. Takashi Aramaki ()	aspirant	100	+81 468 40 5165	Panasonic	Takashi.Aramaki@yrp.mci.mei.co.jp
Mr. Geert Awater ()	aspirant	100	+31 30 276 3575	Woodside Networks	awater@woodsidenet.com
Mr. David Baddeley ()	aspirant	100	+41 22799 12 16	Motorola	David.Baddeley@motorola.com
Mr. David Bagby	voter	100	+1 408 326 3762	3Com Corporation	david_bagby@3com.com
Mr. Jay Bain (Jay)	voter	100	+1 256 922 9229	Time Domain	jay.bain@tdsi.com
Mr. Thomas Barber ()	aspirant	75	+1 408 474 7161	Philips Semiconductors	Thomas.barber@philips.com
Mr. Gil Bar-Noy ()	aspirant	100	+972 9 743 9701 ext 200	hLAN	gilb@hlan.com
Dr. Anuj Batra (Anuj)	voter	100	+1214 480 4220	Texas Instruments Incorporated	batra@ti.com
Mr. Bob Beach (Bob)	voter	100	+1 408 528 2602	Symbol Technologies Inc.	bobb@sj.symbol.com
Mr. Mathilde Benveniste ()	aspirant	100	+1 973 761 0988	AT&T Labs	benveniste@att.com
Mr. Stuart Biddulph ()	nearly voter	100	+1 801 320 7602	3COM	Stuart_Biddulph@3com.com
Mr. Simon Black (Simon)	aspirant	100	+44 1223 432406	Nokia	simon.black@nokia.com
Mr. Jan Boer (Jan)	voter	100	+31 30 609 7483	Lucent Technologies Nederland	janboer@agere.com
Ms. Liza Boland ()	aspirant	100	+1 914 945 6189	Philips Research	liza.boland@philips.com
Mr. Richard Bulman, Jr. ()	aspirant	100	+1 305 858 9615	Umbrella Capital	rcbmob@worldnet.att.net
Mr. Kevin Burak ()	aspirant	100	508 261 4726	Motorola	Kevin.Burak@Motorola.com
Dr. Alistair G. Buttar ()	voter	100	+41 22 7991 243	Motorola	alistair.buttar@motorola.com
Mr. Dominick Cafarelli ()	aspirant	100	973 709 2004	Sniffer Technologies	dominick_cafarelli@nai.com
Mr. Colum Caldwell (Colum)	voter	100	+353 1 677 9555	Supergold Communication, Ltd	colum.caldwell@supergold.com
Mr. Phil Carmack ()	nonvoter	30	+1 408 557 1505	nvidia	pcarmack@nvidia.com
Mr. Bill Carney ()	voter	100	+1 707 521 3069	Texas Instruments	bcarney@ti.com
Mr. Michael Carrafiello	aspirant	100	978 684 1552	Enterasys Networks, Inc	carrafie@enterasys.com
Mr. Pat Carson (Pat)	voter	100	+1 408 467 5218	TDK Corporation of America	pcarson@tdktca.com
Dr. Chi-Chao Chao ()	aspirant	85	+866 3 553 9128	Integrated Programmable Communications	ccc@inprocomm.com
Mr. Hung-Kun Chen ()	aspirant	75	+886 3 553 9128	IPC Taiwan Laboratories	hkchen@inprocomm.com

<i>Full name</i>	<i>status</i>	<i>att. %</i>	<i>phone</i>	<i>company</i>	<i>e_mail</i>
Dr. Kwang-Cheng Chen ()	aspirant	100	+886 2 2363 5251 Ext 246	National Taiwan University	chenkc@cc.ee.ntu.edu.tw
Mr. Brian Cheng ()	voter	100	+ 1 613 592 2122	Mitel Corporation	brian_cheng@mitel.com
Dr. Greg Chesson ()	voter	100	+1 408 773 5258	Atheros Communications, Inc.	greg@atheros.com
Mr. Bong-Rak Choi ()	aspirant	100	82 31 210 6100	Samsung	brchoi@samsung.co.kr
Dr. Sunghyun Choi (Sunghyun)	voter	100	+1 914 945 6506	Philips Research	sunghyun.choi@philips.com
Mr. Ken Clements (Ken)	voter	100	+1 408 353 5027	Innovation on Demand, Inc.	Ken@InnovationOnDmnd.com
Dr. John T. Coffey ()	voter	100	+1 707 284 2224	Texas Instruments	coffey@ti.com
Mr. Craig Conkling (Craig)	voter	100	+1 408 991 2749	Philips Semiconductors, Inc.	craig.conkling@philips.com
Mr. Dennis Connors (Dennis)	voter	100	+1 858 259 9240	Magis Networks	dconnors@magisnetworks.com
Dr. Todor Cooklev ()	aspirant	100	+1 781 687 0682	Aware, Inc.	tcooklev@aware.com
Mr. Patrick Crinion ()	aspirant	100	+1 408 721 5747	National Semiconductor Corporation	ptc@lan.nsc.com
Mr. Wm. Caldwell Crosswy (Caldwell)	voter	100	+1 281 514 2774	Compaq Computer Corporation	caldwell.crosswy@compaq.com
Mr. Peter Dahl ()	aspirant	100	+1 408 495 3635	Nortel Networks, Inc.	pdaht@nortelnetworks.com
Mr. Barry Davis ()	voter	100	+1 503 264 7287	Intel	barry.r.davis@intel.com
Mr. Wim Diepstraten (Wim)	voter	100	+31 30 609 7482	Lucent Technologies Nederland	wdiepstraten@agere.com
Mr. Neal Domen ()	aspirant	100	+1 408 721 2485	National Semiconductor Corporation	neal.domen@nsc.com
Mr. Alain DuBreuil ()	aspirant	75	+1 408 436 3939	NeoSilicon	alain.dubreuil@neosilicon.com
Mr. Dennis Eaton ()	voter	100	+1 321 729 4178	Intersil Corporation	deaton@intersil.com
Mr. Peter Ecclesine (Peter)	voter	100	+1 408 527 0815	Cisco Systems Inc.	petere@ieee.org
Mr. Jon Edney ()	aspirant	100	+44 1223 423 123	Nokia	jon.edney@nokia.com
Mr. Darwin Engwer (Darwin)	aspirant	100	+1 408 495 7099	Nortel Networks Inc.	dengwer@nortelnetworks.com
Mr. Javier Espinoza (Harvey)	voter	100	+1 408 467 5230	TDK Corporation of America	hespinoza@tdktca.com
Mr. Steven Ettles ()	nonvoter	65	+1 650 230 6000	Fantasma Networks	settles@fantasma.net
Mr. John Fakatselis (John)	voter	100	+1 407 729 4733	Intersil Corporation	jfakat01@intersil.com
Dr. Lars Falk ()	aspirant	100	+46 40 10 51 33	Telia Research AB	lars.p.falk@telia.se
Mr. Robert Fan ()	aspirant	85	+1 408 392 7047	Neo Silicon	robert.fan@neo-silicon.com
Dr. Weishi Feng ()	aspirant	75	+1 408 222 1922	Marvell Semiconductor	wfeng@marvell.com
Mr. Matthew Fischer (Matthew)	nonvoter	10	+1 408 749 5403	Advanced Micro Devices	ablmatt@brahms.amd.com
Mr. Matthew James Fischer (Matt)	voter	100	+1 408 543 3370	BroadCom Corporation	mfischer@broadcom.com
Mr. Michael Fischer (Michael)	voter	100	+1 210 614 4096	Choice Microsystems	mfischer@choicemicro.com
Mr. Reed Fisher ()	nonvoter	100	+1 678 482 2471	Oki America, Inc.	rfisher@okitele.com
Mr. Jason Flaks	voter	100	+1 415 558 0373	Dolby Laboratories Inc	jsf@dolby.com
Mr. Kenji Fujisawa ()	voter	100	+81 3 5795 8507	Sony Corporation	fujisawa@sm.sony.co.jp
Mr. Marcus Gahler (Marcus)	voter	100	+1 425 825 1770	NextComm, Inc.	mgahler@nextcomminc.com
Mr. Atul Garg (Atul)	voter	100	+1 408 991 5755	Philips Semiconductors	atul.garg@philips.com

<i>Full name</i>	<i>status</i>	<i>att. %</i>	<i>phone</i>	<i>company</i>	<i>e_mail</i>
Mr. Amar Ghori (Amar)	voter	100	+1 916 939 9400	Sharewave Inc.	amar.ghori@sharewave.co
Mr. Tim Godfrey (Tim)	voter	100	+1 913 706 3777	Intersil	tgodfrey@choicemicro.com
Mr. Craig Gostin ()	aspirant	100	+1 315 445 5820	Sensis Corporation	craig@sensis.com
Mr. Andrew J. Gowans ()	voter	100	+44 20 7211 0309	Wyndham House	andy.gowans@ra.gsi.gov.u
Mr. Donald Gray ()	aspirant	100	+1 650 693 8454	WebTV Networks	dogray@microsoft.com
Mr. Evan Green (Evan)	voter	100	+1 503 264 8456	Intel Corporation	evan.r.green@intel.com
Mr. Patrick Green ()	voter	100	+1 408 749 4948	Advanced Micro Devices	patrick.green@amd.com
Mr. Kerry Greer ()	aspirant	100	+1 321 308 6618	SkyCross	greerk@skycross.com
Dr. Rajugopal Gubbi ()	voter	100	+1 408 543 3470	BroadCom Corporation	rgubbi@broadcom.com
Mr. Srikanth Gummadi	aspirant	100	+1 707 284 2209	Texas Instruments	sgummadi@ti.com
Dr. Bert Gyselinckx ()	aspirant	90	32 16 281211	IMEC	Bert.Gyselinckx@imec.be
Mr. David Halasz (David)	voter	100	+1 330 664 7389	Cisco Systems, Inc	dhala@cisco.com
Dr. Steve D. Halford ()	voter	100	+1 321 729 5130	Intersil Corporation	shalford@intersil.com
Mr. Steven Hall ()	aspirant	75	+1 858 453 9100	Silicon Wave	shall@siliconwave.com
Dr. Christopher J. Hansen (Chris)	voter	100	+1 408 543 3378	BroadCom Corporation	chansen@broadcom.com
Dr. Amer A. Hassan ()	aspirant	100	+1 425 705 9590	Microsoft	amerh@microsoft.com
Mr. Victor Hayes (Vic)	voter	100	+31 30 609 7528	Lucent Technologies Nederland	vichayes@agere.com
Dr. Chris Heegard (Chris)	voter	100	+1 707 521 3062	Texas Instruments	heegard@ti.com
Mr. Juha Heiskala (Juha)	voter	100	+1 972 894 5516	Nokia Research Center	juha.heiskala@nokia.com
Mr. Jerry Heller ()	aspirant	100	+1 954 752 7520	Umbrella Technology	hellerhai@aol.com
Dr. Garth Hillman ()	aspirant	100	+1 512 602 7869	AMD	garth.hillman@amd.com
Mr. Mark Hinman ()	nonvoter	90	+1 716 726 1426	Eastman Kodak	mark.hinman@kodak.eom
Mr. Christopher Hinsz	voter	100	+1 408 528 2452	Symbol Technologies Inc.	chinsz@sj.symbol.com
Mr. Jin-Meng Ho (Jin-Meng)	voter	100	+1 214 480 1994	Texas Instruments	jimmengho@ti.com
Mr. Maarten Hoeben (Maarten)	voter	100	+31 30 229 6083	Intersil N.L. B.V.	maarten.hoeben@nwn.nl
Mr. Frank P Howley, Jr (Frank)	voter	100	+1 408 773 5205	Atheros Communications, Inc.	fhowley@atheros.com
Mr. Robert Y. Huang (Bob)	voter	100	+1 201 358 4409	Sony	robert.huang@am.sony.com
Mr. John Hughes ()	voter	100	+1 408 528 2636	Symbol Technologies Inc.	jhughes@sj.symbol.com
Mr. David Hytha ()	aspirant	75	+1 858 453 9100	Silicon Wave	dhytha@siliconwave.com
Mr. Takeo Ichikawa ()	aspirant	100	+81 468 59 5088	NTT Access Network Service Systems Labs.	takeo@ansl.ntt.co.jp
Mr. Ishii Ishii (Kirk)	aspirant	100	+1 408 988 4515	JVC	kirk@jvclab.com
Mr. Jeff Jan ()	voter	85	+1 408 867 6225	Cina	jeff_jan@hotmail.com
Mr. VK Jones ()	aspirant	100	+1 650 780 5848	Samsung	vkjones@woodsidenet.com
Dr. Srinivas Kandala (Sri)	voter	100	+1 360 817 7512	Sharp Laboratories of America,	sri@sharplabs.com
Mr. Robert Kang ()	aspirant	100	+82 31 200 3625	Samsung	wskang@samsung.com
Mr. Kevin Karcz	voter	100	+1 603 862 1008	University of New Hampshire	kjk@unh.edu
Mr. Mika Kasslin (Mika)	voter	100	+358 40 525 8932	Nokia Research Center	mika.kasslin@nokia.com
Mr. Dean M. Kawaguchi (Dean)	voter	90	+1 408 528 2629	Symbol Technologies Inc.	deank@sj.symbol.com

<i>Full name</i>	<i>status</i>	<i>att. %</i>	<i>phone</i>	<i>company</i>	<i>e_mail</i>
Mr. Stuart J. Kerry (Stuart)	voter	100	+1 408 474 7356	Philips Semiconductors, Inc.	stuart.kerry@philips.com
Dr. Jamshid Khun-Jush (Jamshid)	voter	100	+49 911 5217 260	Ericsson Eurolab Deutschland GmbH	jamshid.khun-jush@eed.ericsson.se
Mr. Do Kim (Young)	aspirant	100	+82 31 779 6885	Samsung	doyoung@samsung.com
Mr. Joonsuk Kim ()	aspirant	100	+1 408 543 3455	BroadCom Corporation	joonsuk@broadcom.com
Mr. Ken Kimura (Ken)	voter	100	+1 201 271 3039	Panasonic	kenkimur@bellatlantic.net
Mr. Duncan Kitchin (Duncan)	voter	100	+1 503 264 2727	Intel Corporation	duncan.kitchin@intel.com
Mr. George Kondylis ()	aspirant	100	+1 408 543 3473	BroadCom Corporation	kondylis@broadcom.com
Dr. John M. Kowalski (John)	voter	100	+1 360 817 7520	Sharp Laboratories of America	kowalskj@sharpplabs.com
Mr. Bruce P. Kraemer (Bruce)	voter	100	+1 407 729 5683	Intersil Corporation	bkraemer@intersil.com
Mr. Thomas E. Krueger (Tom)	voter	100	+1 425 825 1770 ext 107	NextComm, Inc.	tkrueger@nextcomminc.com
Mr. Stewart Kuan ()	aspirant	75	+1 408 525 7267	Cisco Systems Inc.	skuan@cisco.com
Dr. Thomas Kuehnel ()	aspirant	100	+1 609 951 2981	NEC USA, Inc.	kuehnel@cctl.nj.nec.com
Mr. Denis Kuwahara (Denis)	voter	100	+1 425 957 5366	Boeing	denis.kuwahara@pss.boeing.com
Mr. David S. Landeta (David)	voter	100	+1 407 729 5540	Intersil Corporation	dlandeta@intersil.com
Dr. Jim Lansford (Jim)	aspirant	30	+1 405 377 6170	Mobilian Corporation	Jim.Lansford@mobilian.com
Mr. Peter Larsson ()	aspirant	100	+46 8 764 14 30	Ericsson Radio Systems AB	peter.larsson@era.ericsson.se
Mr. Lionel LE Scolan ()	aspirant	100	+ 33 2 99 87 68 46	Cannon	lescolan@crf.canon.fr
Mr. Kap-Soo Lee ()	aspirant	100	+82 031 210 3740	Samsung Electronics	lkaps@samsung.co.kr
Mr. Onno Letanche ()	aspirant	100	+31 30 6097 454	Lucent Technologies	oletanche@lucent.com
Dr. Jun Li ()	aspirant	75	+1 609 951 2478	NEC USA, Inc.	lijun@cctl.nj.nec.com
Mr. Sheung Li ()	aspirant	100	+1 408 773 5295	Atheros Communications	sheung@atheros.com
Mr. William Li ()	voter	100	+1 510 647 1250 ext 28	ComSilica, Inc	wli@comsilica.com
Dr. Jie Liang ()	aspirant	100	(214) 480-4105	Texas Instruments Incorporated	liang@ti.com
Mr. Ralph Lombardo, Jr. ()	aspirant	100	+1 978 684 1339	Digital Networks	lombardo@dnp.com
Mr. Robert Lyle ()	aspirant	75	+1 760 710 3074	Ellipsis Digital Systems	rlyle@ellipsisdigital.com
Mr. Akira Maeki ()	aspirant	100	+1 408 922 4129	Hitachi America, Ltd.	akira.maeki@hal.hitachi.com
Mr. Mac Mahesh ()	aspirant	100	+1 201 348 7210	Panasonic	maheshm@panasonic.com
Mr. Stefan Mangold ()	aspirant	100	+49 241 88 90 340	ComNets	stefan.mangold@comnets.rwth-aachen.de
Mr. Leslie A. Martin ()	voter	100	+1 319 295 3692	Rockwell Collins	lamartin@collins.rockwell.com
Mr. Bill McFarland (Bill)	voter	100	+1 408 773 5253	Atheros Communications	billm@atheros.com
Mr. Gary McGarr ()	voter	100	+ 1 281 829 3706	Atheros Communications, Inc.	gmcgarr@atheros.com
Mr. Michael D. McInnis (Mike)	voter	30	+1 425 865 2840	The Boeing Company	michael.d.mcinnis@boeing.com
Mr. Pratik Mehta ()	voter	100	+1 512 723 6214	Dell Computer Corporation	Pratik_Mehta@Dell.com
Mr. Rober Meier ()	aspirant	100	+1 330 664 7850	Cisco Systems, Inc	rmeier@cisco.com
Mr. Graham Melville ()	aspirant	100	+1 408 528 2530	Symbol Technologies Inc.	gmelville@sj.symbol.com
Mr. Nir Metzger ()	aspirant	100	+972-9-7439701	hLAN	nirm@hlan.com
Dr. Klaus Meyer ()	aspirant	100	+49 351 277 9 6063	AMD	klaus.meyer@amd.com

<i>Full name</i>	<i>status</i>	<i>att. %</i>	<i>phone</i>	<i>company</i>	<i>e_mail</i>
Mr. Robert Miller (Bob)	voter	100	+1 973 236 6920	AT&T Labs	rrm@att.com
Mr. Reiner Mim (Reiner)	voter	100	+1 408 731 2768	Proxim Inc.	rmim@proxim.com
Mr. Partho Mishra ()	aspirant	75		Temporary Dummy	parthomishra@yahoo.com
Mr. Wataru Mizutani ()	aspirant	75	+1 408 260 2630	Hitachi Cable America, Inc.	mizu@si.hitachi-cable.com \$
Dr. James Mollenauer (Jim)	aspirant	100	+1 978 250 0770 ext 18	Enrichnet Inc.	jmollenauer@enrichnet.com
Mr. Leo Monteban ()	aspirant	100	+31 30 609 7526	Lucent Technologies Nederland	monteban@lucent.com
Mr. Tim Moore (Tim)	aspirant	100	+1 425 703 9861	Microsoft	timmoo@microsoft.com
Mr. Willem Mulder ()	aspirant	100	+31 30 609 7504	Lucent Technologies Nederland	wmulder@lucent.com
Mr. Peter Murray	voter	100	+1 908 232 9054	Intersil	pmurray99@home.com
Mr. Andrew Myles ()	aspirant	100	+61 2 8874 5410	Radiata	andrew.myles@radiata.com
Mr. Marco Naeve ()	voter	100	+1 414 449 7270	Eaton Corporation	marconaev@eaton.com
Dr. Ravi Narasimhan ()	voter	100	+1 408 522 2315	Marvell Semiconductor, Inc.	ravin@marvell.com
Mr. Dan Nemits ()	aspirant	100	+1 707 284 2275	Texas Instruments	dnemits@ti.com
Mr. Ron Nevo ()	aspirant	100	+1 503 681 8600	Mobilian Corporation	ron.nevo@mobilian.com
Dr. Chiu-y Ngo ()	aspirant	100	+1 914 945-6475	Philips Research	chiu.ngo@philips.com
Mr. Gunnar Nitsche ()	aspirant	100	+49 351 808 0054	Systemonic AG	Gunnar.Nitsche@systemonic.de
Mr. Erwin R. Noble (Erwin)	voter	100	+1 281 719 1955	Telxon Corporation	enobl@telxon.com
Mr. Ivan Oakes ()	aspirant	100	+44 1223 421025	Tality	ifo@tality.com
Dr. Timothy O'Farrell ()	aspirant	100	+1 353 1 677 9555	Supergold Communication, Ltd	tim.ofarrell@supergold.com
Mr. Bob O'Hara (Bob)	voter	100	+1 (408) 986-9596	Informed Technology Inc.	bob@informed-technology.com
Dr. Tomoki Ohsawa (Tomoki)	voter	100	+81 45 939 2179	NEC Corporation	tohsawa@pop21.odn.ne.jp
Mr. Vladislav Oleynik ()	aspirant	100	+1 919 932 3310	Umbrella Technologies, Inc.	uti@umbtech.com
Mr. Takeshi Onizawa ()	aspirant	100	+81 468 55 1172	NTT Access Network Service Systems Laboratories	onizawa@ansi.ntt.co.jp
Mr. Dirk Ostermiller (Dirk)	voter	100	+1 801 984 5878	Micro Linear	dirko@xmission.com
Mr. Richard H. Paine (Richard)	voter	100	+1 425 865 4921	The Boeing Company	richard.h.paine@boeing.com
Mr. Mike Paljug (Mike)	voter	100	+1 321 729 5528	Intersil Corporation	mpaljug@intersil.com
Mr. Gregory Parks (Greg)	voter	100	+1 916 939 9400 X3211	Sharewave Inc.	greg.parks@sharewave.co
Mr. Tan Pek-Yew ()	aspirant	100	+65 381 5470	Panasonic Singapore	pytan@psl.com.sg
Mr. Al Petrick (Al)	voter	100	+1 407 829 4440 x	ParkerVision	apetrick@parkervision.com
Mr. Douglas Prendergast ()	aspirant	100	+1 619 535 8823	Mitsubishi	dprender@pcicanda.com
Mr. Ron Provencio (Ron)	voter	100	+1 707 284 2232	Texas Instruments	ronp@ti.com
Mr. Amritansh Raghav	aspirant	75	+1 503 681 8600	Mobilian Corporation	amritansh.raghav@mobilian.com
Mr. Ali Raissinia ()	aspirant	100	+1 650 780 5847	Woodside Networks	ali@woodsidenet.com
Mr. Greg Rawlins ()	aspirant	100	+1 407 829 4440	ParkerVision	greg@d2d.com
Dr. Javad Razavilar ()	voter	100	+1 858 523 2372	Magis Networks, Inc.	jrazavilar@magisnetworks.com
Dr. Jens-Peter Redlich ()	aspirant	100	+1 609 951 2913	NEC USA, Inc.	redlich@ccl.nj.nec.com
Dr. David Reed (E.)	voter	100	+1 303 464 6637	Cirrus Logic, Inc	daver@colorado.cirrus.com

<i>Full name</i>	<i>status</i>	<i>att. %</i>	<i>phone</i>	<i>company</i>	<i>e_mail</i>
Mr. Ivan Reede (Ivan)	voter	100	+1 514 620 8522	AmeriSys Inc.	i_reede@amerisys.com
Mr. Danny Rettig ()	voter	90	+972 4 865 5579	Intel	dany.rettig@intel.com
Mr. David Richkas ()	voter	100		Intel	dave.richkas@intel.com
Mr. Carlos A. Rios (Carlos)	voter	100	+1 408 326 2844	LinCom	riosc@lincom.com
Mr. Benno Ritter ()	voter	75	+1 408 474 5115	Philips Semiconductors	Benno.Ritter@philips.com
Mr. Benjamin Rolfe ()	aspirant	80	+1 650 230 6620	Fantasma Networks	brölf@fantasma.net
Mr. Jon Rosdahl ()	aspirant	100	+1 801 984 5866	Micro Linear Corporation	jrosdahl@ieee.org
Mr. Rob Roy ()	voter	100	+1 503 681 8600 Ext 225	Mobilian Corporation	rob.roy@mobilian.com
Mr. Carl Ruzycki ()	aspirant	100	+1 978 250 0770	Enrichnet Inc.	cruzycki@enrichnet.com
Mr. Gunnar Rydnell (Gunnar)	voter	100	+46 31 344 63 20	Ericsson Mobile Data Design AB	gunnar.rydnell@erv.ericsson.se
Mr. Henry Saam	voter	100	+1 858 523 2314	Magis Networks, Inc.	hsaam@magisnetworks.com
Mr. Janne Salmi ()	aspirant	100	+358 303 9870	SSH Communications Security Corp	janne.salmi@ssh.com
Mr. Anil K. Sanwalka (Anil)	voter	100	+1 416 754 8007	Neesus Datacom, Inc	anil@neesus.com
Mr. Tom Schneider ()	nearly voter	75	+1 972 934 3271	Texas Instruments	tschneider@4GNT.com
Dr. Wolfgang Schott ()	aspirant	100	+41 1 724 8476	IBM	sct@zurich.ibm.com
Mr. Sid Schrum (Sid)	voter	100	+1 919 463 1043	Texas Instruments	sschrum@ti.com
Mr. Dan Schwob ()	aspirant	80	+1 303 638 6599	Channel Technology	danschwob@aol.com
Dr. Erik Schylander ()	aspirant	100	+31 40 27 35585	Philips	erik.schylander@philips.com
Mr. William Seed ()	nonvoter	30	+1 240 683 9008	Aryya Communications	bseed@aryya.com
Dr. Donald Shaver ()	aspirant	75	+1 214 480 4349	Texas Instruments Incorporated	shaver@ti.com
Mr. Rick Shaw ()	aspirant	100	+1 801 984 5862	Micro Linear	rick_shaw@networld.com
Mr. Matthew Sherman (Matthew)	voter	100	+1 973 236 6925	AT&T Labs	mjs Sherman@att.com
Dr. Matthew B. Shoemake (Matthew)	voter	100	+1 214 761 6987	Texas Instruments Incorporated	shoemake@ti.com
Dr. William Shvodian (Bill)	voter	75	+1 703 749 0230 x7129	XtremeSpectrum	bshvodian@xtremespectrum.com
Mr. Thomas Siep (Tom)	voter	75	+1 972 480 6786	Texas Instruments	siep@ti.com
Dr. Aman Singla ()	aspirant	75	+1 408 773 5272	Atheros Communications	aman@atheros.com
Mr. David Skellern (David)	voter	100	+61 2 8874 5404	Radiata Communications, Inc.	daves@radiata.com
Mr. Donald I. Sloan (Don)	voter	100	+1 330 664 7917	Aironet Wireless Communications Inc.	dons@cisco.com
Mr. Kevin Smart ()	voter	100	+1 801 984 5865	Micro Linear Corporation	keltypack@networld.com
Dr. V. Srinivasa Somayazulu	voter	100	+1 503 264 4423	Intel Corporation	v.srinivasa.somayazulu@intel.com
Dr. Amjad Soomro ()	aspirant	100	+1 914 945 6319	Philips Research	amjad.soomro@philips.com
Mr. Gary Spiess (Gary)	voter	100	+1 319 369 3580	Intermec Technologies Corp.	gary.spiess@intermec.com
Dr. Adrian Stephens ()	aspirant	100	+44 771 276 3448	Mobilian Corporation	adrian.stephens@mobilian.com
Ms. Susan Storma ()	aspirant	100	+1 407 659 5365	Mesh Networks	sstorma@meshnetworks.com
Mr. Yukinori Suda ()	aspirant	100	+81 44 856 8494	NEC Laboratories	ysuda@bl.jp.nec.com
Mr. Gary Sugar ()	aspirant	75	+1 240 683 9007	Aryya Communications	gsugar@aryya.com
Mr. Hitoshi Takanashi (Hitoshi)	voter	100	+1 650 833 3634	NTT Multimedia Communications Laboratories	takanashi@nttmcl.com

<i>Full name</i>	<i>status</i>	<i>att. %</i>	<i>phone</i>	<i>company</i>	<i>e_mail</i>
Mr. Katsumi Takaoka ()	aspirant	100	+81468 36 1636	Victor Company of Japan, Ltd	ktakaoka@krhm.jvc-victor.c o.ip
Mr. Fabrizio Talucci ()	aspirant	75	+1 408 326 2324	3COM Corporation	fabrizio_talucci@3com.com
Mr. Teik-Kheong Tan (TK)	voter	100	+1 408 326 6524	3Com Corporation	teik_kheong_tan@3com.com
Mr. Larry Taylor ()	aspirant	85	+1 650 230 6622	Fantasma Networks	larrytaylor@fantasma.net
Mr. Carl Temme (Carl)	voter	100	+1 408 773 5208	Atheros	ctemme@atheros.com
Dr. John Terry (John)	aspirant	100	+1 972 894 5742	Nokia Research Center	john.terry@nokia.com
Mr. Harold Teunissen ()	voter	100	+31 35 687 5711	Lucent Technologies	hteunissen@lucent.com
Mr. Yossi Texerman ()	voter	100	+972 9 743 0161 ext 309	hLAN	yossit@hlan.com
Mr. Jerry A. Thrasher (Jerry)	aspirant	100	+1 606 232 2056	Lexmark International, Inc.	thrasher@lexmark.com
Mr. Jason Trachewsky	nonvoter	30	+1 408 543 3319	BroadCom Corporation	jat@broadcom.com
Dr. Chih C. Tsien (Chih)	voter	100	+1 858 385 4317	Intel	chih.c.tsien@intel.com
Mr. Tom Tsoulogiannis (Tom)	voter	100	+1 416 754 8007	Neesus Datacom Inc.	tomt@neesus.com
Mr. Khaled Turki ()	voter	100	+1 214 480 6908	Texas Instruments	khaled@ti.com
Mr. Naoki Urano ()	aspirant	100	+81 743 65 0987	Sharp Corporation	urano@slab.tnr.sharp.co.jp
Dr. Richard van Nee ()	aspirant	100	+31 30 276 3575	Woodside Networks	vannee@woodsidenet.com
Dr. Dmitri Varsanofiev	voter	100	+1 408 392 7063	NeoSilicon	dmitri@varsanofiev.com
Dr. Mahesh Venkatraman ()	voter	100	+1 510 647 1250 ext 27	ComSilica, Inc	mahesh@comsilica.com
Mr. Sarosh Vesuna (Sarosh)	aspirant	75	+1 800 354 3556 ext 2657	Symbol Technologies Inc.	saroshv@sj.symbol.com
Mr. Marv Vis ()	aspirant	100	+1 303 464 6657	Cirrus Logic, Inc.	mvis@colorado.cirrus.com
Mr. Ritesh Vishwakarma ()	aspirant	80	+1 408 962 8063	Temporary Dummy	ritesh-vishwakarma@zcevo .com
Dr. Dennis Volpano ()	aspirant	100	+1 831 751 9425	Granite Systems	volpano@cranitesystems.ne
Mr. Tim Wakeley (Tim)	voter	100	+1 916 785 1619	Hewlett Packard	tim_wakeley@hp.com
Dr. Jesse R. Walker (Jesse)	voter	100	+1 503 712 1849	Intel Corporation	jesse.walker@intel.com
Mr. Thierry Walrant ()	voter	100	+1 408 617 4676	Philips Consumer Electronics	thierry.walrant@philips.com
Dr. Fujio Watanabe ()	voter	100	+358 7180 37348	Nokia Research Center	fwatanabe@ieee.org
Mrs. Renee Watson ()	aspirant	100	+1 760 710 3057	Ellipsis Digital Systems	rwatson@ellipsisdigital.com
Mr. Mark Webster (Mark)	voter	100	+1 321 724 7537	Intersil Corporation	mark.webster@intersil.com
Dr. Mathew Welborn ()	voter	100	+1 703 749 0230 ext 7134	XtremeSpectrum	mwelborn@xtremespectrum .com
Mr. Menzo Wentink (Menzo)	voter	100	+31 30 225 97 52	Intersil N.L. B.V.	menzo@nwn.com
Mr. Michael Wilhoyte ()	aspirant	100	+1 707 289 2242	Texas Instruments	wilhoyte@ti.com
Mr. Dave Willard ()	aspirant	100	+1 561 739 2705	Motorola	engr85@email.mot.com
Mr. Dan Willey ()	aspirant	100	+1 510 780 5329	Certicom Corp.	dwilley@certicom.com
Mr. Steve Williams ()	aspirant	30	+44 1489 560525	3COM	steve_a_williams@3com.co
Mr. Harry Worstell (Harry)	voter	100	+1 973 236 6915	AT&T Labs	hworstell@att.com
Mr. Chien-Ting Wu ()	nonvoter	45		NineCo	
Mr. Liwen Wu ()	aspirant	100	+1 408 853 4075	Cisco Systems, Inc.	liwwu@cisco.com
Mr. Hidehiro Yamashita (Hiro)	voter	100	+1 408 861 3921	Panasonic Technologies, Inc.	hyama@research.panasoni c.com

<i>Full name</i>	<i>status</i>	<i>att. %</i>	<i>phone</i>	<i>company</i>	<i>e_mail</i>
Mr. Paul Yang ()	voter	100	+1 510 490 8288	OTC Wireless	pyang@otcwireless.com
Mr. Jino Yoo ()	aspirant	100	+82 31 210 6779	Samsung	zinc@samsung.com
Mr. Albert Young (Albert)	voter	100	+1 408 326 6435	3Com Corporation	albert_young@3com.com
Mr. Nakache Yves-paul ()	aspirant	100		Merl	nakachey@merl.com
Dr. Ephi Zehavi (Ephi)	aspirant	100	+972 4 959 4010 ext 110	Mobilian Corporation	ephi.zehavi@mobilian.com
Mr. Glen Zorn ()	voter	100	+1 425 471 4861	Cisco Systems	gwz@cisco.com
Mr. Arnoud Zwemmer	aspirant	100	+31 30 229 60 84	Intersil Corporation	arnoud.zwemmer@intersil.com
Mr. Jim Zyren (Jim)	voter	100	+1 407 729 4177	Intersil Corporation	jzyren@intersil.com

**IEEE P802.11
Wireless LANs**

**Minutes of 802.11 Task Group E
MAC Enhancements**

Date: November 6, 2000

Author: Tim Godfrey
Intersil
Phone: 913-706-3777
Fax: 913-664-2545
e-Mail: tgodfrey@intersil.com

**Minutes of the IEEE P802.11 Task Group E
MAC Enhancements**

January 15 - 19, 2001

Hyatt Regency Monterey, Monterey, CA

1. Monday Morning – Full TGe Session

1.1. Secretary

1.1.1. Tim Godfrey

1.2. Call to order

1.3. Opening

1.3.1. 10:36 John Fakatselis Chair

1.3.2. Proposed Agenda

1.3.2.1. *Approved – no objections*

1.3.3. Policies Overview –

1.3.3.1. *Voting Rights – Debate – Key Motions
(Parliamentarian Inquiry – Point of Order – Point of
Information – Ad-Hoc group rules(votes not binding – all
participants can participate))*

1.3.4. Schedule/Status Overview –

*Baseline approved – still open issues – want to see if can get to
initial draft to vote on – WG Ballot – Sponsor Ballot – Exec
group wants very high consensus*

1.3.5. Security Status – nothing to offer**1.3.6. Chairs meeting Comments –**

- 1.3.6.1. *How to capitalize on the simulations group? Teleconferences had no chair assigned and will be more disciplined in the future. – Information from the ad-hoc teleconference calls must be presented to the whole group to update the group – How to converge security*

1.3.7. IP Statement –

- 1.3.7.1. *need to have statements submitted – none submitted so far – Companies that submitted statements need to submit new statements for QoS – Need to add check box to submissions if IP statement has been submitted – Box on proposal for each company on proposal – Informed the group of the IP policies of the IEEE*

1.3.8. Ad Hoc Teleconference Overview (QoS) –

- 1.3.8.1. *decisions of ad hoc group are not binding – must be voted in the full group – QoS held almost weekly teleconferences – Discussions on enhanced DCF “Black Box” areas that were not completed – appears that not any closer for an access mechanism – new concept of a Hybrid function – attempt to generate a comparison matrix but not completed - Security – Has baseline (419) – drafted text for this meeting – one face-to-face ad hoc meeting and 2 teleconferences – submitted text to editor – Discussions of how to change the baseline and add new proposals – editor has draft text to be covered in this session – unknown if minutes were taken for ad hoc meeting – 018 is the security baseline text for this meeting*

1.3.9. Call for Papers

- 1.3.9.1. *Open Issues in MAC for convergence layer and comparison criteria John (QoS)*
- 1.3.9.2. *11r2 – Wim (QoS)*
- 1.3.9.3. *08r1 – Greg C (QoS)*
- 1.3.9.4. *xxx – open issues on FEC (John) [20 min]*
- 1.3.9.5. *452r1 HCF for QoS Michael Fischer [1 hour]*
- 1.3.9.6. *Sid Schrum 5 papers*
- 1.3.9.7. *036 ECP Proposal for QoS (Shaver) [2 hours]*
- 1.3.9.8. *467r1 – Contention – Jin Meng*
- 1.3.9.9. *037 Simulation comparisons (Turki)*
- 1.3.9.10. *038 ECP Enhancements – Sid [2 hours]*
- 1.3.9.11. *015 response and rebuttal (Reserve)*
- 1.3.9.11.1. *would like first papers be presented in a block and last paper later*
- 1.3.9.12. *Harold Teunisson 461r1 Overlap QoS [30 min]*
- 1.3.9.13. *Xxx On the need for efficiency for QoS solution - Matthew Sherman [1 hour]*

- 1.3.9.14. 019 Overview DCF (Mathilde) [1 hour]
- 1.3.9.15. 040 FEC (Nir) [30 min]
- 1.3.9.16. xxx – PCF vs DCF simulations - Sunghyun [30 min]
- 1.3.9.17. xxx – Unfairness in 802.11 networks – Greg Parks [20 min]
- 1.3.9.18. 039 – Symbol Authentication – (security) – Jon Adney [20 min]
- 1.3.9.19. xxx – QoS related issues – Raju (QoS) [1 hour]
- 1.3.9.20. xxx – Network Capture – (QoS) – Matt Fischer [15 min]
- 1.3.9.21. 010 – Sharewave IP statement – Greg Parks [none]
- 1.3.9.22. Editors Discussion (next all-TGe session)

1.4. Process and Procedure

1.4.1. Objective is to have a solid draft by the end of the week.

1.4.2. Discussion

- 1.4.2.1. *How do we agree on what goes into the draft? There has been a process to qualify the draft – have we looked at the evaluation criteria.*
- 1.4.2.2. *The security group used the requirements as a guide in the voting process.*
- 1.4.2.3. *There was an evaluation process in place in the Security subgroup. It was relatively straightforward.*
- 1.4.2.4. *There are few if any contentious issues in the Security group, unlike the QoS group.*
- 1.4.2.5. *Would like to see all proposals simulation results reviewed. We have been putting everything in that comes forward.*
- 1.4.2.6. *The QoS group did have guidance from the simulations group.*
- 1.4.2.7. *Support for evaluation criteria, moving ahead as quickly as possible. Caution against rushing the process.*
- 1.4.2.8. *Report from evaluation criteria group. Is there a way to take the decision of what we are doing and reporting back that it meets the requirements? The evaluation criteria group started with good intentions, and was to work in OpNet. Since then, other companies have been started in other environments. There has been a tendency to not bring results back to the group. Instead, there are many independent simulations that are not coordinated. There are only one or two official OpNet scenarios. The NS users are using other scenarios. Some OpNet users have other scenarios also.*

1.4.3. How many people want to add something to the QoS baseline (including the black box)? Who has brought something to add in?

1.4.3.1. 7 people.

1.4.3.2. All of these people should meet after lunch (at 1:30)
Thomas Room – 12 people.

1.4.3.3. An informal meeting – not even an ad-hoc.

1.4.4. How many want to add to the Security Baseline?

1.4.4.1. 1 person

1.4.5. Recess for TGe Subgroups;

2. Monday Evening QoS Session

2.1. Opening

2.1.1. Review of Agenda

2.1.1.1. Approval of minutes

2.1.1.2. Presentation of Papers

2.1.1.3. Draft finalization process (for QoS)

2.1.1.3.1. Down-selection process – if needed

2.1.1.4. Draft Completion

2.1.1.5. New Business

2.1.1.6. Next Meeting Agenda

2.1.1.7. Presentation to TGe

2.1.2. Discussion of Agenda

2.1.2.1. On behalf of the proposers, they are working on resolving the proposals, and progress is being made. The would like this evening to iron out differences, and attempt to combine them. One proposal would accelerate the process. It would take much longer to define selection criteria and a selection process to decide among multiples.

2.1.2.2. The proposals share common elements. The proposers do not fully understand the other proposals. They have been learn about the others and establishing common ground.

2.1.3. Adoption of Agenda

2.1.3.1. Agenda approved without objection.

2.1.4. Approval of Minutes from November.

2.1.4.1. Minutes approved without objection.

2.1.5. Schedule Status Overview

2.1.5.1. We still have the objective to start a letter ballot. To do so, we have to complete the draft.

2.2. Call for Papers

2.2.1. Any additional papers since the last call this morning?

2.2.1.1. *None*

2.3. Scheduling of papers

2.3.1. XXX - Open Issues on FEC (John K)

2.3.1.1. *Any objection to present without being on the server for ½ day? No Objections.*

2.3.2. No other papers ready for presentation.

2.4. Presentation of Papers

2.4.1. Document xxx “Open Issues in FEC in MAC or Convergence Layer” John Kowalski.

2.4.1.1. *Discussion*

2.4.1.1.1. *If FEC is in the convergence layer, doesn't that require the MAC to deliver frames with errors?*

2.4.1.1.2. *No – information is layered and segmented to reconstruct them from missing frames.*

2.4.1.1.3. *A point on security – the security framework would be good example for how to register and standardize FEC schemes. Is there an analog in 802 for a registrar?*

2.4.1.1.4. *Conclusion – suggestion is to have those that are interested in FEC meet together to address the issues. Unless these issues are met, the best way to achieve FEC is in the MAC, but are open to see if it could be in the convergence layer.*

2.4.1.1.5. *There is a significant difference in that it is useful without requiring changes to header fields, and without requiring all stations to support it.*

2.4.1.1.6. *There is no security hole due to forwarding frames with errors up to higher layers.*

2.4.1.1.7. *It appears that this could be implemented in the baseline without putting any burdens on the implementation, (or non-implementations).*

2.4.2. Document 041 – “QoS related issues in 802.11 MAC and Baseline document 360” – Raju G

2.4.2.1. *not on server – but no objection to present anyway.*

2.4.2.2. *Discussion*

2.4.2.2.1. *There are a few thing in this presentation that either leave out things, or there are misunderstandings of what's going on in the baseline. In the section on CC frame, the CC frame doesn't use the DCF contention mechanism, the CC here does. The fact that the CC mechanism has completely changed was not described. This proposal seems to use the contention window, which is not the way CC currently is defined to work. CC is not DCF, there is no contention window.*

- 2.4.2.2.2. *There seem to be fundamental things that are changed, and not identified as such.*
- 2.4.2.2.3. *How could a BSS overlap mitigation mechanism work with this?*
- 2.4.2.2.4. *This is only useful in non-overlapping time.*
- 2.4.2.2.5. *This specifically precludes communicating with legacy stations, or peer to peer communication with them.*
- 2.4.2.2.6. *The intent is to have a slower DTIM beacon rate, and fill the time with CC frames? Yes.*
- 2.4.2.2.7. *The polling list clause should be removed – it is required, but it can't be because it is needed for backwards compatibility.*
- 2.4.2.2.8. *The HCF proposal helps with overlap mitigation because it makes longer CFP durations unnecessary.*

2.5. Discussion

2.5.1. What is the best description of the baseline?

- 2.5.1.1. *Today, 360r2. There is a 360r3, but it needs some additional work. The current state as of tomorrow, would be 360r3.*
- 2.5.1.2. *Any and all proposed text for Clause 9 needs to be circulated as soon as possible.*

2.5.2. Recess for tonight

3. Tuesday Morning – QoS Session

3.1. Opening

- 3.1.1. **Call to order**
- 3.1.2. **Review of agenda**
- 3.1.3. **Two papers presented last night**
- 3.1.4.

3.2. Review of progress of DCF proposer's status

3.2.1. Spokesperson – Srimi Kandala

- 3.2.1.1. *At the end of the day there will be a list of compromises, and a list of remaining conflicts.*

- 3.2.2. After lunch we will go through the remaining conflict areas.
- 3.2.3. We need to start the selection process today, since we have only one session tomorrow.
- 3.2.4. The expectation is that the proposers will come back and have one proposer describe what goes into the baseline. Then each proposer will outline their conflict areas

3.2.5. Discussion

- 3.2.5.1. *Can we get a review of the current points of contention? That might take too long, since the details are complex.*
- 3.2.5.2. *In looking for the agenda, we have to solve this today. We only have two more sessions after today.*
- 3.2.5.3. *Can we start the selection process now? Not without presentations.*
- 3.2.5.4. *The assumption is that the three proposals are not orthogonal.*

3.2.6. Chairs recommendation

- 3.2.6.1. *Come after lunch with a proposal that shows the areas of agreement and areas of disagreement. One presenter to go through the areas of agreement and disagreement. Subsequently, we will have a voting process to come to a final approach*
- 3.2.6.2. *Spend tomorrow and Thursday to draft and solidify the text.*

3.2.7. Discussion

- 3.2.7.1. *There is a concern that people aren't up to speed (if they haven't been on teleconferences). There are documents that already exist, and comparison matrixes. There are currently enough documents so that the proposers could describe their approach. How do we best use this time?*
- 3.2.7.2. *Do we have the option of "none of the above" for the black box, and leave it as is, to get to letter ballot. Is that viable?*
- 3.2.7.3. *If we add new sessions, they would have to be ad-hoc, with no voting.*
- 3.2.7.4. *What can we do between now and tomorrow if the DCF proposals are not ready? It would be worth working out the process for selection.*
- 3.2.7.5. *Motion – to consider the proposals now. Each proposer to give a 30 minute pitch, with 10 minutes for questions. Then there is a vote on each proposal..*
 - 3.2.7.5.1. *Moved John Kowalski*
 - 3.2.7.5.2. *Second Jason Flaks*
 - 3.2.7.5.3. *Discussion*
 - 3.2.7.5.3.1. *If none are eliminated. What happens.*

3.2.7.5.3.2. Motion ruled out of order due to being unclear.

3.2.8. 10 minute recess to formulate a better motion.

3.2.9. Call to order

3.2.9.1. *Motion – to consider alternative EDCF proposals now. Each proposer to give a 30 minute overview presentation, with 10 minutes for questions. Then there will be a technical vote to discontinue consideration of each proposal. If multiple proposals are still in consideration after the vote, the private meeting continue until Wednesday at 3:30 PM.*

3.2.9.1.1. *Moved John Kowalski*

3.2.9.1.2. *Seconded Jason Flaks*

3.2.9.2. Discussion on Motion

3.2.9.2.1. *The TCMA proposer has prepared 6 papers, but still there are a lot of questions. Yesterday there was productive discussion. Concern that proposers could give a concise and constructive presentation on their proposals. If we are to proceed on an elimination vote, we need time to prepare. Speaks against the motion.*

3.2.9.2.2. *Speaks for the motion, but taking a technical vote to discontinue the proposal is a very low hurdle, and may result in no progress*

3.2.9.3. *Motion to amend to “Motion – to consider alternative EDCF proposals now. Each proposer to give a 30 minute overview presentation, with 10 minutes for questions. Then there will be a technical vote to continue consideration of each proposal. If multiple proposals are still in consideration after the vote, the private meeting continue until Wednesday at 3:30 PM.”*

3.2.9.3.1.1. *Moved Greg Parks*

3.2.9.3.1.2. *Seconded Matt Fischer*

3.2.9.3.2. Discussion on amendment

3.2.9.3.2.1. *It is not an intent to reverse the motion.*

3.2.9.3.2.2. *Ruled in order by the Chair*

3.2.9.3.2.3. *The amendment is incomplete as done. There is a possibility that none of the proposals get 75% leaving none. There needs to be a recovery position.*

3.2.9.3.2.4. *The original motion’s intent was to see if there is any strong sentiments against any proposal. Also to get the salient features presented to the group to help making an informed decision. Against the motion.*

3.2.9.3.2.5. *Call the question*

3.2.9.3.2.5.1. *Moved Anil*

3.2.9.3.2.5.2. *Seconded Duncan*

3.2.9.3.2.6. *Question called without objection.*

3.2.9.3.3. *Vote motion to amend: Amendment fails 12:17:8*

3.2.9.4. *Motion on the floor: "To consider alternative EDCF proposals now. Each proposer to give a 30 minute overview presentation, with 10 minutes for questions. Then there will be a technical vote to discontinue consideration of each proposal. If multiple proposals are still in consideration after the vote, the private meeting continue until Wednesday at 3:30 PM."*

3.2.9.4.1. *Discussion on motion*

3.2.9.4.1.1. *Concern that 30 minutes is inadequate.*

3.2.9.4.2. *Motion to amend to: "Motion – to consider alternative EDCF proposals now. Each proposer to give a 1 hour overview presentation, with 10 minutes for questions. Then there will be a technical vote to discontinue consideration of each proposal. If multiple proposals are still in consideration after the vote, the private meeting continue until Wednesday at 3:30 PM."*

3.2.9.4.2.1. *Moved Sid Schrum*

3.2.9.4.2.2. *Second Javad*

3.2.9.4.3. *Discussion*

3.2.9.4.4. *Vote on motion to amend: Passes 20:2:11*

3.2.10. Recess for 5 minutes.

3.2.11. Call to order

3.2.11.1. *Reason for recess – there was a concern that minority positions might be compromised. As a result, the motions on the floor are within order. Chair wants to make clear the consequences. This is an elimination process. It would make it more difficult to re-introduce eliminated concepts later. It would require a 75% vote later to re-introduce, with a motion to re-consider.*

3.2.12. Motion on the floor – "To consider alternative EDCF proposals now. Each proposer to give a 1 hour overview presentation, with 10 minutes for questions. Then there will be a technical vote to discontinue consideration of each proposal. If multiple proposals are still in consideration after the vote, the private meeting continue until Wednesday at 3:30 PM."

3.2.12.1. *Discussion on the motion*

3.2.12.1.1. *Where does the HCF proposal fit into this? How is it tied to the DCF proposals?*

3.2.12.1.2. *They are unrelated issues. The HCF will work over any of the DCF proposals. HCF is not part of the DCF proposals. The HCF proposal does cite certain EDCF proposals, but is not tied to them.*

3.2.12.1.3. *The HCF would stand without any particular EDCF proposal.*

3.2.12.1.4. *The chair has endorsed the collaboration of the three proposers. That process should continue until noon today. Then presentation of the proposal would be more informative to the newcomers, and allow them think time to internalize the related issued. Propose to delay the vote until tomorrow.*

3.2.12.2. *Motion to amend – “Motion – To allow an ad hoc proposers meeting to continue until 12:30. Each proposer to give a 1 hour overview presentation, with 10 minutes for questions. Then there will be a technical vote on Wednesday at 4:30PM to discontinue consideration of each any proposal.”*

3.2.12.2.1. *Discussion on amendment*

3.2.12.2.1.1. Concern over the removal of EDCF. Against the amendment.

3.2.12.2.1.2. What happens if all three proposals are still in the running? This motion does not address that.

3.2.12.2.1.3. We have to come up with a deadline to get the text written.

3.2.12.2.2. *Motion to amend the amendment. Replace discontinue and replace with continue:*

3.2.12.2.3. 3.2.11.4. *Motion to amend the amendment to – “To allow an ad hoc proposers meeting to continue until 12:30. Each proposer to give a 1 hour overview presentation, with 10 minutes for questions. Then there will be a technical vote on Wednesday at 4:30PM to continue consideration of each any proposal.”*

3.2.12.2.3.1. Moved John Kowalski

3.2.12.2.3.2. Seconded Greg Parks

3.2.12.2.4. *Discussion on motion to amend the amendment.*

3.2.12.2.4.1. What is the intent?

3.2.12.2.4.2. This means that 75% is needed to keep the proposal alive after this process.

3.2.12.2.4.3. This amendment to an amendment does not address the text of the amendment on the floor.

3.2.12.2.4.4. Chair rules this to be in order.

3.2.12.2.4.5. Ruling appealed

3.2.12.2.4.5.1. Duncan Kitchin.

3.2.12.2.4.5.2. No second

3.2.12.2.5. *Discussion on motion to amend the amendment.*

3.2.12.2.5.1. non

3.2.12.2.6. *Vote on motion to amend the amendment: Fails 11 : 12 : 21*

3.2.12.3. *Motion to amend – “Motion – To allow an ad hoc proposers meeting to continue until 12:30. Each proposer to give a 1 hour overview presentation, with 10 minutes for questions. Then there will be a technical vote on Wednesday*

at 4:30PM to discontinue consideration of each any proposal.

3.2.12.3.1. *Call the question on the amendment*

3.2.12.3.1.1. *Moved Duncan*

3.2.12.3.1.2. *Second Anil*

3.2.12.3.1.3. *Question called without objection*

3.2.12.4. *Vote on motion to amend: Fails 13:16:10*

3.2.13. Motion on the floor – “To consider alternative EDCF proposals now. Each proposer to give a 1 hour overview presentation, with 10 minutes for questions. Then there will be a technical vote to discontinue consideration of each proposal. If multiple proposals are still in consideration after the vote, the private meeting continue until Wednesday at 3:30 PM.”

3.2.13.1. *Discussion on the motion*

3.2.13.1.1. *There is a concern that the minority position may be at a disadvantage.*

3.2.13.1.2. *The chair and vice chair feel that the motion is in order.*

3.2.13.1.3. *We could debate this motion forever. In favor of it because we need to make progress before the work becomes irrelevant. There is no reason to hold us up due to insufficient time. There have been minority positions before, but we selected one. We gave everyone sufficient time, and a chance to explain. If the details are so complex that there is not enough time remember this: the concept of EDCF was allowed as a simple alternative to the baseline proposal. If the EDCF is so complex it can't be presented in an hour, it doesn't meet the original objectives.*

3.2.13.1.4. *We have already extended the time from ½ to 1 hour. But we haven't had feedback from the proposers that 1 hour is enough.*

3.2.13.1.5. *There is a process going on downstairs where we were combining the proposals. If we vote, it changes those dynamics, and reduces the possibility that there will be a fusion to a better proposal. Speaks against the motion.*

3.2.13.1.6. *No one is prepared to do a 1 hour presentation right now. By the time they are ready, it will be this afternoon. We are not getting anything done.*

3.2.13.1.7. *Call the question*

3.2.13.1.7.1. *Duncan*

3.2.13.1.7.2. *Seconded Ivan*

3.2.13.1.8. *Question called without objection*

3.2.13.2. *Vote on the motion: Motion passes 26:4:7*

3.2.14. Discussion on procedure

3.2.14.1. *We have 2 hours. We will announce the vote for 2:30PM.*

- 3.2.14.2. *If no proposals are eliminated, the proposers will get back together and continue compromising.*
- 3.2.14.3. *There are three proposals to be reviewed. Harold, Sid, Mathilde. Who will go first?*
- 3.2.14.4. *We need 3.5 hours.*
- 3.2.14.5. *If we schedule a meeting tonight, can votes be taken? The chair feels that if we inform the group, we are within the AM/PM rule, so it is order.*
- 3.2.14.6. *Proposal that the vote is taken between 6:00 and 6:30, as to not overlap with TGf.*
- 3.2.14.7. *Random selection of the order of presentation:*
 - 3.2.14.7.1. *Mathilde Beunviste.*
 - 3.2.14.7.2. *Sid Schrum*
 - 3.2.14.7.3. *Harold Teunisson*
- 3.2.15. **Recess until 10:30**

4. Tuesday Morning – QoS Session

4.1. Opening

4.1.1. Call to order at 10:30AM

4.1.2. Discussion

- 4.1.2.1. *The VDCF and PDCF have merged into a single proposal, so only one 1 hour time slot is needed.*
- 4.1.2.2. *Proposal to eliminate the first one hour slot, and then have two proposal slots.*
- 4.1.2.3. *This reduces the field to two proposals. Is it agreeable to Mathilde and AT&T? Yes, we would like to dialog with the other joint proposal, and see if there is an opportunity to further merge.*
- 4.1.2.4. *Request for 15 minutes. Suggest a breakout session with a subset of the people.*
- 4.1.2.5. *Off-line meeting for one hour in Mark Thomas.*

4.1.3. Formal announcement of 6:00PM Vote today – conveyed to other 802.11 sessions.

4.2. Presentation of Papers

4.2.1. Document 461r1 “Lightweight Overlap Mitigation for 802.11” Harold Teuniessen.

4.2.1.1. Discussion

- 4.2.1.1.1. *This is a significant improvement. It addresses the flaws in the previous version. For a wide range of speeds and service rates, small percentages of the DTIM interval are useful for the time granularity.*
- 4.2.1.1.2. *Does this solution address passive overlap? Not really, since you can't see what is causing the overlap. The*

only possibility is looking for repeating patterns in the interference, and avoid those periods. That is not necessarily part of this proposal.

- 4.2.1.1.3. *Changing proxy beacons to overlap mitigation messages? Which stations generate proxy beacons? Only when the AP tells the STA to send one.*
- 4.2.1.1.4. *Are you making any assumptions about the overlapping BSS's having similar contention free periods. They need to be synchronized, both their TSF and the CFP repetition interval.*
- 4.2.1.1.5. *Suggestion that detecting overlap needs to be standardized. Perhaps the station could decide to send a proxy beacon to the AP if it detects overlap. The station cannot do that on its own, because it doesn't know the schedule of the APs.*
- 4.2.1.1.6. *Regarding synchronizing, it is not necessary to synchronize the starting of CFPs. They can be offset.*
- 4.2.1.1.7. *What about beacon collisions? How to keep TBTT's from overlapping?*
- 4.2.1.1.8. *Is there any update in the proxy beacon frame format? Is this the same as the joint proposal? There were also elements defined to include additional information.*
- 4.2.1.1.9. *There is not a problem with changing the frame format or name of the proxy beacon. The issue is the rules for using it. Stations hear beacons today, and use the BSSID. So the stations already know how to reject beacons from SSIDs not their own.*
- 4.2.1.1.10. *There could be a problem if STA;s thought the proxy beacon is another AP. Not an issue – just make it a different frame type.*

4.2.2. Document 01/045 “On the need for Efficiency in the 802.11 QoS Solution.”, Matthew Sherman

- 4.2.2.1. *Want to insure all solutions support an enhanced PCF.*
- 4.2.2.2. *We need to compete against HiperLAN II.*
- 4.2.2.3. *Discussion of claims by HiperLAN proponents that 802.11a has 70% overhead, and HiperLAN has 25% overhead.*
- 4.2.2.4. *The issue is that HL is designed for small packets, and 802.11 is designed for larger packets.*
- 4.2.2.5. *Simulation of comparison with 802.11a PCF.*
- 4.2.2.6. *Results are that 802.11a does a bit better, but still a little below parity of cases.*
- 4.2.2.7. *How do we make 802.11a look better? Using delayed ack mechanism.*
- 4.2.2.8. *Discussion*
 - 4.2.2.8.1. *Comparing HL to 802.11 is an invalid comparison.*

4.3. Recess until 1:00PM

5. Tuesday Afternoon – QoS Session

5.1. Opening

- 5.1.1. Complete presentations today, 1 hour each
- 5.1.2. Tomorrow, after Q&A, proceed with voting process.
- 5.1.3. There was a suggestion that it would be inappropriate to set an unscheduled time such as 6:00PM today. After reconsideration, the chair feels that it is not proper to have the vote today at 6:00PM.
- 5.1.4. The voting will take place at the next time on our agenda, which is tomorrow at 4:30PM.
- 5.1.5. Is there any objection to move the Q&A until tomorrow at 4:00?
- 5.1.6. *Is this saying there is no Q&A today?*
- 5.1.7. *There will be full 1 hour presentations today.*
- 5.1.8. *We reserve the 10 minutes per proposal.*
- 5.1.9. *The presenters have 1 hour to do with as they wish. Q&A is not disallowed, at the presenters discretion.*
- 5.1.10. **Q&A is moved until tomorrow at 4:00, without objection.**

5.2. Presentation of Enhanced Channel Access Joint Proposal

5.2.1. Authors

- 5.2.1.1. *Jin Meng Ho, Khaled Turki, Sid Schrum*
- 5.2.1.2. *Wim Diepstraten, Harold Teunissen*
- 5.2.1.3. *Menzo Wentink, Maarten Hoeben*
- 5.2.1.4. *Greg Chesson – Atheros*
- 5.2.1.5. *Document number TBD*

5.2.2. Overview

- 5.2.2.1. *Merger of P-DCF and V-DCF.*
- 5.2.2.2. *This deals with contention access resolution. We assume that there is a contention free bursting mechanism on top of this access mechanism.*
- 5.2.2.3. *Differentiation parameters per TC using TCPP value.*
- 5.2.2.4. *CC updates can be sent in separate frames or in beacon. Thus frequency of updating is under the control of implementer.*
- 5.2.2.5. *Option to use uniform or geometric distribution for TxOp event generation.*

5.2.3. Discussion

- 5.2.3.1. *Does this allow a combination of uniform and geometric distributions simultaneously? Yes, there is no statistical difference. The only difference in the delay variance. That does not cause any interoperability issues.*
- 5.2.3.2. *How is bursting separately managed? The joint proposal is has a contention resolution mechanism.*
- 5.2.3.3. *Assuming you modify the channel mechanism, why is CF bursting essential? It is not essential for the EDCF, but for the baseline proposal.*
- 5.2.3.4. *What does it mean to allow stations to use either uniform or geometric distributions? Yes, it is up to the station implementation, not the AP? What about fairness between STAs of different types? The parameters controlling the stations are identical. There is a fixed relation between the parameters sets to cause identical average delay. Then why use both? That's the compromise.*
- 5.2.3.5. *There is a need for separate scheduler? This ensures that there are no local collisions as in the V-DCF proposal. This mechanism is independent of that.*
- 5.2.3.6. *The TxOp is scheduled the way of the V-DCF, but the selection of a frame in the TxOp is by a probabilistic mechanism.*
- 5.2.3.7. *Why have two distributions? Even though the mean for both is the same, there are potential problems. What is the advantage of one or the other? Why not specify one only?*
- 5.2.3.8. *Regarding the separate scheduler – does the selection of the frame to send has to be related to the TC that selects the differentiation parameters? That should be noted, since a TxOp in a TC is a local decision. The separate scheduler does need to use the same TxOp to both contend and use the result of the contention.*
- 5.2.3.9. *How is this intended to operate in an IBSS? We have default parameters for each traffic category in each proposal. If the stations don't get parameters in a beacon, they have rules to set them on their own. So it is not necessary to have a fixed traffic monitor for an IBSS? No.*
- 5.2.3.10. *Which elements come from P-DCF? P-DCF does specify a separate frame for CC Update, so the can be more frequent than the beacon. Both distribute the applicable parameters per traffic class. The separate scheduler comes from P-DCF. The V-DCF proposal had a separate independent stabilization mechanism.*
- 5.2.3.11. *Even you get the CW updates, does it affect the current backoff size? As long as the timer hasn't expired when an update comes in, it can be updated. It doesn't discriminate against stations that are in the backoff state.*

- 5.2.3.12. *What happens if there are no updates from the AP? If STAs don't hear CC element from AP, they go to default values? Does that mean AP's don't have to implement CC?*
- 5.2.3.13. *The channel load monitoring of V-DCF – is it included? It is a good idea?*
- 5.2.3.14. *In the IBSS case, it seems that distributing TCPP values would not be a good idea. Within one BSS that would not be an issue. In overlap that's a different case.*
- 5.2.3.15. *How can we use this to make a decision on how to vote? There is not a single submission? The vote tomorrow is only to discontinue consideration, not for selection.*
- 5.2.3.16. *At this point this presentation references other papers.*
- 5.2.3.17. *If the other proposal is disqualified, then what is the next step? This proposal will be integrated by the Editor.*
- 5.2.3.18. *There will be consolidation of the two component proposals to give instruction to the editor.*
- 5.2.3.19. *Concern about schedule perspective – would need to see more detail to be comfortable to add to the baseline.*
- 5.2.3.20. *As a way to bring everyone up to speed, can you list the salient document that are already out? P-DCF 467r1 (soon to be r2). Also document 468 describes the original TI proposal. V-DCF is in 01/012. The baseline proposal is in document 00/399. The only change is the retry backoff mechanism in document 11 or 12.*
- 5.2.3.21. *All references will be in the combined document before distributed.*
- 5.2.3.22. *Comment that the presentation was inadequate.*

5.2.4. Recess

5.3. Call to order

5.3.1. Due to late arrival, is there any objection to go to 3:15PM?

- 5.3.1.1. *No Objection*

5.4. Presentation of “Overview of Tiered Contention Multiple Access (TCMA)”

5.4.1. Author

- 5.4.1.1. *Mathilde Benveniste*
- 5.4.1.2. *Document 01/019*

5.4.2. Overview

- 5.4.2.1. *Based on Presentation 00/375 (ppt and doc) containing technical details.*
- 5.4.2.2. *Summary document 003 gives a table to identify commonality between proposals.*
- 5.4.2.3. *Presentation of simulation results.*

5.4.3. Discussion

- 5.4.3.1. *In terms of additional features, what minimum group of features could be “ported” to the other P/V-DCF joint proposal? These features are chosen to be easy to implement. The scaling algorithm is very simple.*
- 5.4.3.2. *Still holding out the possibility of a compromise.*
- 5.4.3.3. *It seems the aging is the head drop queuing. Why not tail drop queuing? If you have an aging packet, you first upgrade it to a higher category. Head drop is better for latency.*

5.5. Recess until Tomorrow

6. Wednesday Afternoon – QoS Session

6.1. Opening

6.1.1. Call to Order at 4:00PM

6.2. Agenda Review

6.2.1. Review of Process, and motion for EDCF down-selection process.

- 6.2.1.1. *As a result of yesterday’s activities, we did not complete the 1 hour and 10 minutes per proposal. The Q&A was deferred to this session.*
- 6.2.1.2. *At this point there are not multiple proposals. The proposals have been consolidated.*
 - 6.2.1.2.1. *Confirmed by Mathilde and Sid.*
- 6.2.1.3. *Our motion as approved still stands. We will give the consolidated proposal 20 minutes.*
- 6.2.1.4. *Then there will be a technical vote to disallow the consolidated proposal. Abstaining does not count in the ratio of 75% needed to disallow.*

6.2.2. Discussion on procedure

- 6.2.2.1. *To adopt something still requires a 75% vote? Yes, there will be a subsequent 75% acceptance vote to adopt the EDCF proposal into the baseline.*
- 6.2.2.2. *We were going to vote on proposals that we have seen presentations on. Now there is a new proposal we have never seen, and we are going to vote on it? There will be a 20 minute presentation. Then the vote will be to continue or not continue. Later we will have a second vote to adopt into the baseline. The second vote will take place tomorrow most likely.*
- 6.2.2.3. *The second vote is a technical vote, but this first vote is also defined as a technical vote? Which are really technical? This was discussed with the officers, the*

consensus was that this is indeed a technical vote. It is not expected to make any difference in the outcome.

6.2.2.4. *Don't understand the consequences of the first vote. The first vote is specifically to discontinue consideration of the proposal in this session. That would mean that the proposers have a lot of work to do.*

6.2.2.5. *The chair notes that attempting to revise the established procedure would be time consuming.*

6.2.2.6. *The procedure is accepted without objection.*

6.3. Overview of consolidated EDCF proposal

6.3.1. Document 086 "Enhanced Contention Access"

6.3.2. Authors

6.3.2.1.	<i>Jin-Meng Ho</i>	<i>TI</i>
6.3.2.2.	<i>Khaled Turki</i>	<i>TI</i>
6.3.2.3.	<i>Sid Schrum</i>	<i>TI</i>
6.3.2.4.	<i>Wim Diepstraten</i>	<i>Agere Systems</i>
6.3.2.5.	<i>Mathilde Benveniste</i>	<i>AT&T</i>
6.3.2.6.	<i>Menzo Wentink</i>	<i>Intersil</i>
6.3.2.7.	<i>Maarten Hoeben</i>	<i>Intersil</i>
6.3.2.8.	<i>Greg Chesson</i>	<i>Atheros</i>
6.3.2.9.	<i>Harold Teunissen</i>	<i>Lucent Technologies</i>

6.3.3. Overview

6.3.3.1. *Review of historical components and contributions to the proposal.*

6.3.3.2. *Authors have created a framework to incorporate all the good features of the component proposals.*

6.3.3.3. *Three slides of representative simulations are presented.*

6.3.4. Discussion

6.3.4.1. *Who gets to chose the backoff mechanism? With regard to TxOp selection, there is pre-stuff, arbitration, and post-backoff. Backoffs are either on or off as dictated by the AP.*

6.3.4.2. *There is a simple mathematical transformation between probabilities and CW's. Everyone knows how to transform to give equal access to the medium. The transformation is part of the standard. It is in 467.*

6.3.4.3. *If the result is the same, why are there two ways of doing it? Let's leave that to the letter ballot. There is a lot to be done at letter ballot – which is widely understood.*

6.3.4.4. *The compromise was to parameterize the proposals to include them all? Yes, the merger has some properties of a union, but it is still a subset. Conflicts were removed.*

6.4. Vote of elimination

6.4.1. Instructions from Chair

- 6.4.1.1. *This vote is a technical motion.*
- 6.4.1.2. *The question is “do we want to eliminate this proposal”.*
- 6.4.1.3. *If the vote has greater than 75%, we have to start again.*
- 6.4.1.4. *If the vote fails, we will have a subsequent vote to adopt this proposal as part of the baseline.*
- 6.4.1.5. *Abstains do not count. The ratio is between Yes and No votes.*

6.4.2. Discussion

- 6.4.2.1. *The benefit of consolidation is a single proposal. However this does not get the 75% because someone might want only one of the individual proposals. The consolidation is the only one we have.*
- 6.4.2.2. *The goal should be to continue investigation. This is the motion to eliminate.*
- 6.4.2.3. *Please clarify – the presentation includes by reference all the proposals. Are we voting on all the proposals? No, only what was in the consolidated presentation.*
- 6.4.2.4. *If the committee rejects this proposal, is there an option to go to ballot with nothing (removing black box and no DCF enhancement)? It is up to the group to decide.*
- 6.4.2.5. *The original concept was that EDCF was to be simple. This consolidated proposal is not simple. It would be useful to have a presentation on how it can be simplified. That is to be done tomorrow. The baseline does not depend on this vote.*
- 6.4.2.6. *The motion to vote on now is to discontinue consideration of the proposal, not to accept it.*
- 6.4.2.7. *The point is that if you have something you like, you should not vote to eliminate the current proposal.*
- 6.4.2.8. *If this proposal gets further consideration, but tomorrow we vote it down what does that mean. There are no longer 3 proposals. We just have more work to do.*

6.4.3. “Then there will be a technical vote to discontinue consideration of each proposal. “

- | |
|--|
| <ul style="list-style-type: none"> 6.4.3.1. <i>Vote fails 7:44:10</i> 6.4.3.2. <i>The proposal is not eliminated</i> |
|--|

6.5. Review of remaining session’s agenda

- 6.5.1. **This the last session of the QoS subgroup on the agenda. We plan to adjourn the next TGe full session back to Q and S**

subgroups, and then reconvene full TGe at the end of the TGe time.

6.6. Presentation of Papers

6.6.1. Review of status of outstanding papers

- 6.6.1.1. 011r2 – *Withdrawn*
- 6.6.1.2. 008r1 – *Withdrawn*
- 6.6.1.3. 452r1 – *Wants to present, and there are motions.*
- 6.6.1.4. 36,467,37,38 – *only part of 467*
- 6.6.1.5. 015 – *Withdrawn*
- 6.6.1.6. 461, *presented, but has motion to forward*
- 6.6.1.7. 019 – *withdrawn*
- 6.6.1.8. 040 – *Wants to present*
- 6.6.1.9. 054 – *wants to present if time*
- 6.6.1.10. 052 “*unfairness*” – *wants to present*
- 6.6.1.11. 058 – *wants to present*
- 6.6.1.12. xxx – *editor discussion.*

6.6.2. Document 058 “Network Capture and DCF QoS”

- 6.6.2.1. *Matt Fischer*
- 6.6.2.2. *Overview*
 - 6.6.2.2.1. *In 802.3 networks, the winning node in a collision has an advantage in contending for the next access due to resetting the backoff timer.*
 - 6.6.2.2.2. *This was explicitly avoided in the original 802.11 MAC by specific mechanisms.*
 - 6.6.2.2.3. *Regarding paper from University of Wollongong in Australia.*
 - 6.6.2.2.4. *This paper points out that because of other things that happen, network capture can happen.*
 - 6.6.2.2.5. *Not operating with RTS with hidden nodes can cause capture.*
 - 6.6.2.2.6. *With 5dB SNR difference at receiver, the stronger signal will capture, regardless of RTS.*
 - 6.6.2.2.7. *Would like to know how the EDCF proposal addresses these situations, and how they would mitigate them.*
 - 6.6.2.2.8.
- 6.6.2.3. *Discussion*
 - 6.6.2.3.1. *In some simulations done so far, the throughput has been per-stream, so these effects would be visible if they were occurring.*
 - 6.6.2.3.2. *Is it the case that the portion relating to near/far can be dealt with in the MAC, or does that require PHY changes? Not sure that there is, but perhaps power control would help? As in TGh? But it would be difficult to do. General response is a centrally controlled QoS mechanism.*

- 6.6.2.3.3. *The HCF mechanism may offer a solution.*
- 6.6.2.3.4. *Are you aware of any scenarios that have this effect that do not involve a hidden station? That is being explored.*
- 6.6.2.3.5. *This has been stumbled upon recently, and is the focus of another paper (052). There is something to this that we need to look at.*
- 6.6.2.3.6. *Exactly what does SNR mean? Relative signal levels at two stations? Yes. Side point – the author of the paper might be available for the March meeting.*
- 6.6.2.3.7. *We shouldn't be surprised that capture can occur. If capture can occur without hidden nodes then that should be a concern.*
- 6.6.2.3.8. *If the AP only receives the strongest signal, the AP will perceive continual success.*
- 6.6.2.3.9. *Did you notice any rate fallback in these tests? Would those SNR differences be accounted for by rate fallback? The author had fixed the rates. So rate selection could be used to address this.*
- 6.6.2.3.10. *The simulation was done with file transfer traffic which is different than QoS traffic. QoS traffic would not dominate the channel like that. Would like to see simulations. Also would like to see results for polling based protocols.*
- 6.6.2.3.11. *All the DCF QoS proposals work with the contention window. If you think of capture of a lower class hurting a higher class, that doesn't seem possible. There may be issues within the same classes. We have mechanisms for the AP to do something about these effects.*
- 6.6.2.3.12. *If you start simulating that, you need a proper channel model and modem model to demonstrate the SNR differences. The model becomes critical.*

6.7. Final announcements

- 6.7.1. **Request for all papers to be submitted to Harry.**

6.8. Adjourn of QoS Subgroup

7. Thursday afternoon, Full TGe Session

7.1.1. Call To Order John Fakatselis

- 7.1.1.1. *John Fakatselis Chair*
- 7.1.1.2. *Duncan Kitchin Vice Chair*
- 7.1.1.3. *Harry Worstell Secretary*

7.1.2. Announcements

- 7.1.2.1. *AT&T announced submission of their IP Statement for the MediaPlex submissions at a no fee to license.*

7.1.3. Michael Fischer - TGe Editors Report

- 7.1.3.1. *There is now no draft*
- 7.1.3.2. *New submissions to a draft will be required to provide normative text with those submissions*
- 7.1.3.3. *The draft is an addendum to the original standard*
- 7.1.3.4. *Clauses 1-5 and 10 are written as instructions*
- 7.1.3.5. *It was recommended to clause 7 & 9 become new clauses with references from 7& 9*
- 7.1.3.6. *New text needs to delete, modify or make new clauses*

7.1.3.7. Motion 1

- 7.1.3.7.1. *To adopt document 00/360r2 with the removal of the EDCF mechanism and the insertion of the sub clause headings for clause 9 and 11 as TGe Draft Revision D0.1*
- 7.1.3.7.2. *Moved by Michael Fischer*
- 7.1.3.7.3. *Seconded Sri Kandala*

7.1.3.8. Amendment

- 7.1.3.8.1. *To adopt document 00/360r2 with the inclusion of the EDCF text place holder adopted during the November Plenary in the minutes of TGe 9.4.22 and the insertion of the sub clause headings for clause 9 and 11 as TGe Draft Revision D0.1*
- 7.1.3.8.2. *Moved Bob O'Hara*
- 7.1.3.8.3. *Seconded John Kowalski*
- 7.1.3.8.4. *Vote on Amendment – Passes 28:0:8*

7.1.3.9. Vote on Motion 1: Passes 31:1:5**7.1.3.10. Motion 2**

- 7.1.3.10.1. *That TGe adopts as a requirement for consideration of motions to modify the normative content of the TGe draft that the relevant proposed content have been available to the group at least during the half day preceding the motion. Content pertaining to annexes is not mandatory unless the motion is materially concerned with the subject of the annex*
- 7.1.3.10.2. *Moved Michael Fischer*
- 7.1.3.10.3. *Seconded Sri Kandala*

7.1.3.11. Amendment

- 7.1.3.11.1. *That TGe adopts as a requirement for consideration of motions to modify the normative content of the TGe draft that the relevant proposed content have been available to the group at least a half day (4 in-session 802.11 hours) preceding the motion. Content pertaining to annexes is not mandatory unless the motion is materially concerned with the subject of the annex. The chair may rule out of order any motion the text for which the chair feels has not had sufficient consideration time.*

- | | |
|-------------|--|
| 7.1.3.11.2. | <i>Moved Bob O'Hara</i> |
| 7.1.3.11.3. | <i>Seconded John Kowalski</i> |
| 7.1.3.11.4. | <i>Call Question Vote: Passes 33:2:2</i> |
| 7.1.3.11.5. | <i>Vote on Amendment – passes 29:5:2</i> |

7.1.3.12.	<i>Vote on Main Motion Passes 30:4:3</i>
-----------	--

7.1.3.14.	<i>Motion 3</i>
-----------	-----------------

- | | |
|-------------|---|
| 7.1.3.14.1. | <i>That the TGe chair be empowered to request of the WG chair inclusion of the rule specified in motion 2 in the operating rules announced to the body at the openings of meetings.</i> |
| 7.1.3.14.3. | <i>Moved Michael Fischer</i> |
| 7.1.3.14.4. | <i>Seconded John Kowalski</i> |
| 7.1.3.14.5. | <i>Vote – Motion passes 26:2:7</i> |

7.1.3.15.	<i>Motion 4</i>
-----------	-----------------

- | | |
|-------------|---|
| 7.1.3.15.1. | <i>That motions 2 and 3 shall not be construed as applying to editorial changes as in the chairs opinion.</i> |
| 7.1.3.15.3. | <i>Moved John Kowalski</i> |
| 7.1.3.15.4. | <i>Second Sri Kandala</i> |
| 7.1.3.15.5. | <i>Vote on motion: Fails 0:16:15</i> |

7.1.4. Report for QoS Duncan Kitchin

- 7.1.4.1. *Considered a number of proposals*
- 7.1.4.2. *Selected a down selection process*
- 7.1.4.3. *Became null due to merger of all proposals*
- 7.1.4.4. *Made procedures to move forward*
- 7.1.4.5. *EDCF proposers must bring to the next meeting text and make a motion to insert into the draft -*

7.1.5. Security Group Report - David Halasz

- 7.1.5.1. *doc 18r1 editor submission*
 - 7.1.5.2. *ambiguities now being resolved*
 - 7.1.5.3. *Wants to clean up the texts before placing in the draft*
- 0.1

7.1.6. Recess for subgroups until 9:15 when TGe will reconvene

7.1.7. TGe QoS will convene at 6:30.

8. TGe QoS Meeting January 18 6:40PM

8.1. Opening

8.1.1. Call to Order - John Fakatselis

- 8.1.1.1. *John Fakatselis Chair*
- 8.1.1.2. *Duncan Kitchin Vice Chair*
- 8.1.1.3. *Harry Worstell Acting Secretary*

8.1.2. Comments of Chair

- 8.1.2.1. *Lack of progress - Options that can be done*
- 8.1.2.2. *Editor send out early text of the draft for comments by membership*
- 8.1.2.3. *Encourage anyone who has proposals to also send out text early for comments*
- 8.1.2.4. *No need to have ad-hoc conferences - should do on their own*

8.2. Presentation of papers

8.2.1. Document # 52 Greg Parks " Unfairness in real World 802.11 DCF Networks

- 8.2.1.1. *DCF susceptible to one stream can capture most of the bandwidth*
- 8.2.1.2. *Ganymede Chariot Software used - eliminate Windows stack*
- 8.2.1.3. *Graphs shown is received throughput*
- 8.2.1.4. *5 STAs shows one STA captures most of the Bandwidth*
- 8.2.1.5. *In PCF the same problem not shown*
- 8.2.1.6. *Operational rate set was 11Mbps - No WEP - TCP/IP*
- 8.2.1.7. *Runs at max speed - all packets start same time - Range spacing 3 to 1*
- 8.2.1.8. *No good theory as to effect*
- 8.2.1.9. *Data collected over 4 weeks*
- 8.2.1.10. *Stations were rotated and geography changed*
- 8.2.1.11.

8.2.2. Paper 01/040r1 Nir Metzger "MAC based FEC - improvement for 802.11"

- 8.2.2.1. *FEC on MAC and PHY not changed*
- 8.2.2.2. *Service field and PLCP header not protected by FEC*
- 8.2.2.3. *PAR will not allow us to make this change - will need a maintenance PAR for 802.11a*
- 8.2.2.4. *May still be able to do some in the MAC*

8.2.3. Paper 01/054 Sunghyun Choi "PCF vs. DCF: Limitations and Trends"

- 8.2.3.1. *document 01/055 shows simulation model conformance*
- 8.2.3.2. *Shown 5 Cases/Scenarios*
- 8.2.3.3. *Slide 9 shows PCF performance does not depend on number of sources*
- 8.2.3.4. *Slide 11 shows 802.11a - Trend is the same*
- 8.2.3.5. *a lot of bandwidth is lost by SIFS time in 11a*
- 8.2.3.6. *Sources has infinite amount of traffic sent so took the average*
- 8.2.3.7. *Did not look at latency but can be done easily - insufficient time to do*
- 8.2.3.8. *need to do admission control*
- 8.2.3.9. *All stations were being polled but not necessary to do so*
- 8.2.3.10. *Was benchmarking DFC against PCF*

8.2.4. Paper 30 and 467r2 Sid Schrum - Jin-Meng Ho "Contention Free Access" and "Contention-Free And Contention-Based Access in the Contention Period"

- 8.2.4.1. *Level 3 support not excluded*
- 8.2.4.2. *Document 468 describes this process*
- 8.2.4.3. *(No time for more questions)*

8.2.5. Paper 00/452r1 Michael Fischer "Hybrid Coordination Function for QoS"

- 8.2.5.1. *Will work with both PDCF and EDCF*
- 8.2.5.2. *Common set of frame exchanges can be used for all*
- 8.2.5.3. *(No time for more questions)*

8.2.6. Paper 01/097 Matthew Sherman "Mechanism for Transmission Suppression in 802.11"

- 8.2.6.1. *May not need to go through the all complexity and use some existing things but useful ideas*

8.3. Next Meeting**8.3.1. How can we be productive between meeting**

- 8.3.1.1. *Ask editor send text and ask for comments on the reflector*
- 8.3.1.2. *Editor would like all to review the 00/452r1 submission and generate text for the draft.*
- 8.3.1.3. *Straw poll for teleconferences (for 12 against 2)*
- 8.3.1.4. *Need better process for teleconferences*
- 8.3.1.5. *There will be Teleconference - Review of HCF - Review of text on all of the clauses 10 and 11 - Improve the*

*consensus of EDCF on January 31, February 7, 14 and
order of EDCF - HCF - Clauses 9, 10.*

8.4. TGe QoS adjourned

9. Thursday Evening – Full TGe Session

9.1. TGe called back to order

9.1.1. Need to inform members of password

9.1.2. Next meeting agenda - Prepare draft for letter ballot - agenda
time to resolve issues between security group and QoS -
Harmonization

9.2. Adjourn

**IEEE P802.11
Wireless LANs**

802.11 Task Group E Security Subgroup Minutes

Date: November 2000

Author: Jesse Walker
Intel Corporation
Phone: 503-712-1849
Fax: 503-264-4843
e-Mail: jesse.walker@intel.com

**Minutes of the IEEE P802.11 Task Group E
Security Subgroup**

January 15-19, 2001

Hyatt-Regency, Monterey, CA

1 Agenda Discussion

Proposed agenda: organize a series of ad hoc breakout meetings to discuss and work on text. Based on discussion, editor incorporates proposed text into document. Goal is to approve draft and to initiate a working group letter ballot.

We also have a submission, and so we will have that first.

Q: Where is the parallelism?

Suggestion: we could divide text, as in the past.

Agenda approved without objection

2 Status

At November meeting in Tampa we agreed to use 419 as the baseline.

Many improvements have been suggested, but they are not part of the baseline, so we need to finish text.

3 Use of GSM SIM Authentication in IEEE 802.11 (Document 01/39)

Proposal: use of GSM for public access systems

Explanation of GSM SIM card: Use A3 to authenticate, A8 to produce a session key, A5 to encrypt data. A3 and A8 are implemented in the smart card., but A5 is implemented in the phone itself. Challenge is used to generate the session key. A3 and A8 are secret algorithms.

GSM Architecture uses an offload authentication gateway, so AP doesn't have to participate in the authentication.. Nokia uses open authentication and then the "real" authentication runs at layer 3.

They would use an GSM EAP mechanism. They will present this as one of the EAP methods

Key generation: Equivalent to EAP/TLS (RFC 2716), use several GSM challenges to generate long keys.

GSM authentication is used primarily for billing, the key is not intended for corporate use.

4 Discussion of doc 01/18

Text on section 8 WEP formats sent late to Jesse. This also has the IV as contiguous. So, it is inconsistent with section 7 text.

Q: Will we be specifying text beyond the scope of baseline? A: We should refer to the baseline to avoid contentious issues.

Discussion on authentication.

Two scenarios. First scenario is that 802.11 has upper layer authentication. Second scenario is that probe request/response informs that doing upper layer authentication and then going directly to association phase.

The .11 authentication is frivolous when we are doing upper layer authentication, but it already exists.

Q: Are we eliminating forward functionality by removing 802.11 authentication?

Q: Do we want extensibility at the MAC layer?

Comment 1 – We should review the baseline, doc 419. Comment 2 – Upper layer in the .11 layer would fit in better with the current .11 layer.

.11 layer authentication failures will still be valid.

Q: Would .11 do away with auth. Packet exchange when doing Upper Layer authentication? A: Yes.

Agreement, already know that upper layer is being done. So, it could e done away with. This should be documented in section 8.

Q: Is upper level a MUST NOT do 802.11 authentication? Why can't the two ignore each other.

Q: If I pass shared key authentication and I fail upper layer, can I send packets?

Problem: Timer to do upper layer authentication before getting expelled? Not evident we need these.

Statement: There are Ethernet/.11 bridge devices. These may require both .11 and .1X authentication.

Conclusion? AP must be able to accept all algorithms it advertises. This means that AP is not required to support Open/Shared if it is not configured to support these.

The ambiguity arises because, if we discard the .11 authentication, we don't have a way to force the client to choose just one authentication algorithm.

5 Motion: Require exchange of authentication frames with authentication algorithm 2.

Seconded

Discussion: Dave, Bob B, Bob O, Jon,

Text does not have enough content.

Authentication redundant with algorithm 2. To use this to define a higher level mechanism a misuse of original.

The agreements that got us to baseline merged 3COM's extensible security and Symbol/Microsoft/Cisco upper layer proposal. Enhancements were to establish way to negotiate authentication mechanism. Algorithm 2 represented negotiating security. Use of algorithm 2 would allow what we've talked about in EAP exchanges. In case of future authentication mechanism, the authentication exchange would continue to represent upper level authentication. Eliminating authentication exchange means we will have to get a PAR to add future MAC level authentication mechanisms.

Vote: 2-1-1 Motion fails.

6 Recess until Tuesday morning

7 Reconvene Tuesday morning

Summation of previous evening's debate.

Using EAP allows extensibility to other authentication mechanisms.

Problems eliminating MAC authentication: difficult to convince rest of 802.11 that just because frames are not in doc 419, they are not part of the exchange; PAR calls for enhanced security and authentication mechanisms, does not call for higher layer or restricting to higher layers. Kerberos over EAP fine for businesses, but it is a stretch for home and small business.

Q: What is the problem in home/small business? This can be reduced to user name and passwords. A: Administration of this information is part of the problem.

Extensibility takes place on top of EAP in this architecture.

That is outside of .11. It eliminates the possibility of MAC layer extensibility.

But we aren't removing the extensibility that already exists in the standard.

The PAR says we have to find a way to extend the standard in such a way that we don't have to return to the standards process to add new authentication mechanisms.

We are saying there is already a registration scheme in the IETF, and we are using that for extensibility. If you want something else, you come back to IEEE with a new PAR.

So far we are defining only one upper layer mechanism.

IEEE has a mechanism for registering algorithm numbers. All we need is a procedure for them to take a vendor's money registering.

We have a mechanism; it is the upper layer. The goal is to get authentication out of the MAC.

If you eliminate the authentication messages at the MAC when using "higher layer authentication", then we lose the ability to use some other higher layer authentication mechanism; EAP is all we can do with such an approach.

So far we have said that .1x is the authentication solution. If we are right that this is extensible, we will never have to return to IEEE to do new work. If we are wrong we have to return to get a PAR for new work

8 Motion: The TGe Security Enhancements shall not support MAC level authentication

Moved and seconded.

8.1 Discussion

Q: Can we make this without authorization from the full TGe? A: This is a technical motion with as much validity as anything we are doing in the QoS sub-group.

We have plenty of flexibility with this.

8.2 Vote

3-1-3, motion passes

9 Discussion

What about the authentication messages? We haven't said they are banned.

If we are doing 1.x, we should not be using MAC level authentication at all. If STA uses MAC level authentication, STA cannot use Enhanced security services (authentication). AP can allow different STAs to use different authentication schemes.

As a result of Motion 8, Upper Layer authentication is the same thing as Enhanced Security.

Q: Can a STA change its mind? A: Yes; it has to start the authentication process over.

Q: We have constrained ourselves to do nothing at the MAC layer, and we are adopting a standard of another IEEE group. Is this a problem? A: This was adopted by TGe and 802.11 when they adopted the security baseline. We have the authority to adopt any recommendation to TGe and 802.11.

Q: Is .1X over .11 our standard or .1X's standard?

We have not defined procedure for registering new values for the probe response, association request/response, reassociation request/response.

Q: If EAP is the only enhanced security scheme, why are its values different in the probe response? The numbers will have to match. It may be easier to define two NULL EAP algorithms for open and shared authentication, so we don't have to set up our own numbering scheme.

Review of open issues

Bob Beach agrees to put together a strawman of how the system works in small/home environment.

419 does not discuss IBSS case. We need a group to talk about this problem: Volunteers: Tim Moore, Bob Beech, Dan Wiley.

10 Next Steps

Need text assembled by 4 Wednesday.

Section 5.10 was not written, because don't know what goes into Section 8.

Dave/Glen: work on text for 8. Bob Beech on 5, Jesse 5.10. 802.11d has a request information element for the probe. Jesse to draft text on 11.3.

11 Recess until 4 Wednesday

Resumed. In Dave Halasz' absence, Bob Beech presided as temporary chairman.

Business: either we can give document to TGe as our official output, or we can schedule interim meetings and conference calls to continue to improve the document before the Hilton Head meeting.

Proposal, go over document for comments, then reserve last half hour to make decision.

At this point Dave arrived and Bob yielded the chair to him.

5.2.2.3: There are really lots of things we have enhanced, not just the three items mentioned here.

Text refers to authorization agent, but this is never shown in Figure 1.

"Authorization server" should be called "authentication server"

5.2.6: "In most cases..." we are not altering the upper level protocol at all.

Authentication and authorization mixed up again.

5.4: first paragraph: need to add sentence saying what the new services are used for.

5.4.2.2. It would be useful to call out that association is used to form 802.1X port. Same comment for 5.4.2.3

Q: Does disassociation terminate authentication? You have to do an upper level authentication to get re-connected. Where do you go in the state diagram? A: This should be the same as plugging a cable, or unplugging it, so yes. Should add text in 5.4.2.4 to talk about this effect when upper layer authentication is in use. We are talking about 2 kinds of authentication: this is the roaming case. Initial connect is different.

5.4.3. This needs to be cleaned up, since establishing their identity to an authentication server, not the AP directly.

5.4.3.1. last paragraph: "specific upper layer". What is this?? It should be removed. There are 3 in the standard, but it is feasible to get back other ones. Upper layer as a generic term meaning authentication carried in data frames.... Go solve it editor.

"A mobile unit may..." be careful about "may". Also a STA may decide not to authenticate for many reasons among them being....

"One protocol mandated..." to "Support for one protocol is mandated..."

5.4.3.2. "mandatory" indicates normative statement, and clause 5 is descriptive only

5.4.3.3. Controversy: We haven't agreed to remove Deauthentication, only authentication. See 5.7.7 as well.

5.4.3.4. We need to say whether the Kerberos (Key Management) lifetime is used by 802.11 in derived keys. Yes. Note: We don't have a way for Key management to specify lifetime. Q: Do we need to do anything? It should be deriving new keys at the appropriate time. Note: we have no mechanism for deleting keys.

5.4. This is a good place to reiterate that MAC layer authentication is forbidden when using upper level authentication.

Do we need the 4th state? We can go directly from State 1 to State 3. If not, we need a way for 802.1X to signal .11 that it is now authenticated. We need to discuss this.

Last paragraph in 5.7.6 is redundant

5.7.7 and elsewhere: Use “MAC authentication” to refer to “open and shared key authentication”

5.9.2. “802.1X signals...” not true. This just means key management has set a key. 802.11 does not care that 802.1X has completed authentication.

5.10. second half of 1st sentence incorrect. 802.1X does have authentication algorithms, but they are not suitable for .11 authentication.

“The client does this by...” We need to know the server we are talking about. The client does not necessarily authenticate itself to the KDC unless it is using pre-authentication. Need to clarify the exchanges this is talking about.

Q: What does it mean to mandate support for Kerberos?

12 Thursday evening Jan 18th Dave H.

7.1.2 up to 7.1.3 It belongs in section 8.

Discussions on Table 7, Table 7 should be the same as table 9.

Table 8, Realm and Principal. There should be a note that these only apply to Kerberos.

Table 12, Delete since this is not sent in every probe response.

Table 13 and 14. Delete since we are no longer using “2”.

7.3.2.17 This is a list of authentications type, not cipher suites. So, it should be revised. Also, there should be an entry for, “Don’t know” since the AP may (probably) not know the types of authentication available. The value will be the EAP type value. If the “Don’t know” is missing then no others are allowed.

7.3.2.18 This is a list of cipher suites, not authentication types. This list is a list of EAP types. We would then seek identifiers for open and shared key.

7.3.2.21 & 7.3.2.22 & 7.3.2.23 Delete since already listed.

8.1 Please review original submitted. The authentication type is not listed on all authentication types.

8.1.3 Second sentence. It needs to be reviewed to note that authentication is removed in the .11 MAC layer. Also the second paragraph.

8.1.3.2 Second sentence can be removed. The WEP key will not always get set.

8.1.3 through 8.1.3.2 Re-organize to be

- .11 negotiation
- General .1X/EAP
- EAP-GSS/IAK/IB/Kerberos
- Then continue OK with the initial packet exchange and roam packet exchange.
- Topologies are missing

8.2 This should be deleted if it’s the same.

8.2.2 The note about exportability should be reviewed for which sections it applies. Delete everything up to the word “due” and capitalize the D.

Please search for all instances of WEP. WEP is a generic term. A more specific term should be used for each instance.

8.3.1 5th paragraph mentions 17 but should be 16. Also, there should be a image for encipherment. Also, the IV should change randomly. Also, note where the padding is applied to remove ambiguity. Also, call out specific key lengths(40, 104 and 128). The total length remains the same (16 octets)

8.4.1 196 should be 192.

Stopped at AES.

**IEEE P802.11
Wireless LANs**

802.11 Task Group f Minutes

Date: January 2001

Author: Jesse Walker
Intel Corporation
Phone: 503-712-1849
Fax: 503-264-4843
e-Mail: jesse.walker@intel.com

**Minutes of the IEEE P802.11 Task Group F
January 15-19, 2001**

Hyatt-Regency, Monterey, CA

1 Appointment of Secretary

Jesse Walker volunteers to take minutes

2 Motion to accept minutes from September

Moved and seconded. Approved without objection

3 Motion to approve November Minutes

Moved and seconded. Approved without objection

4 Adoption of Agenda

Since little progress at November, ad hoc meeting held in December.

Originally approved target was ballot this month, but this cannot happen. Instead write first draft in January, first internal ballot in March, schedule fork issue decision by May

Proposed agenda:

1. Start, admin, review ad hoc work, adoption decision. Monday 1-5:30
2. Text drafting Tuesday: 3:30-5:30, 6:30-9:30, Wed 8-10
3. Review and draft adoption. Thursday 8-12, review and discuss, adoption of 1st draft

Moved and second to approve agenda. No discussion. Approved 9-0-0

5 Ad-hoc Meeting Review

Ad hoc meeting rehashed the problem of transferring data from one AP to another. To meet the 802.11 requirements, IAPP had to become a routing protocol. OK for unicast traffic, but not for multicast/broadcast. When STA moves to another segment, directing subnet directed broadcast becomes too expensive for APs.

Ad hoc group concluded that IAPP does not need to deal with this problem. IAPP exists only to build and maintain the ESS. Requirement: STA must have a valid layer 3 address. STA can use MobileIP, or can use a media change event. Once Mobile station has a valid network address, normal routing protocols will handle the traffic correctly.

Further decided that IAPP needs to determine set of APs that comprise the ESS, so the issue becomes one of registration of the APs. Want to use existing protocols for this. First idea was to use SLP. (No general agreement whether this is the right thing to do).

The only thing needed to communicate among APs are reassociation events. This is needed to enforce a single point of attachment of a STA to the ESS.

Discussion of “reasonably secure” at ad hoc meeting. Broad range of opinions. Decided we don’t need anything for the IAPP to meet this requirement; security is a network policy decision.

Q: Any desire to use IAPP for key distribution? A: No conclusion at ad hoc meeting.

Q: What is the minimal recommended practice? This doesn’t seem like it addresses this. A: We are trying to specify a minimum practice for 802.11 networks, not in other regards. Q: But if not all APs implement this, then we haven’t solved the problem, because different APs will still support different security functionality. A: Do we want to put every details for all protocols? Q: But if all we are is telling an AP that a STA has moved? How does the client know it is authenticated? A: In the existing TGe proposal, the client uses a ticket that the AP can use to authenticate itself.

Other part of protocol is support for a configuration database and automatic updates of configuration.

Solution requires significant infrastructure support. This will happen in a large business, but not likely in home or small office. More work needed to address small environments.

Do not know how to account for QoS work, because it is not well-defined yet, so its impact on IAPP is a TBD.

Discussion about whether AP should deliver IP topology information, so OS will not tear down connections if changing AP does not change subnets. Suggestion: we should provide a service to OS to allow them to solve the problem; we should not attempt to solve it in 802.11. A: Whenever you sit at a boundary, usually a gain if you provide a hint to the layers using your service. Chair is not opposed, but thinks it is not primary issue addressing TGf.

There is no sentiment that this is not a valid way to proceed.

6 Discussion

Q: Are we sweeping things under the rug?

Q: What state has to move from AP to AP? A: STA has moved from one AP to another; we might want to move security context as well; unknown for QoS. From client’s viewpoint, no state moves from old AP to new one.

Q: What is the benefit of the IAPP? A: The world does not understand how to build networks with equipment from multiple vendors.

Q: Is there a problem with VoIP? A: crossing subnets will cause a hiccup, if not a dropped connection. Name of protocol indicates the application was not designed for this environment. The application has to change to accommodate itself to mobility. VoIP is designed for Ethernet to a fixed desktop. Out of scope to fix old applications.

Statement: the question of what is IAPP good for is legitimate. A: It allows APs to find one another and to enforce a single point of association. Without the latter function, traffic may not really get routed to the client. Q: Why do we need to do anything? It is feasible to roam between implementations at WECA without an IPAA. We need to generate reason why we are doing this. A: If we do nothing more, then establish stand way to do STA hand-over event notification.

Statement: As long as there is uncertainty as to what we are trying to achieve, it will be difficult to recruit people to work on this topic.

Statement: we need to get to a place where there are not proprietary subnet roaming implementations.

7 Motion to adopt December Ad-Hoc recommendation per the minutes

Moved and seconded.

Discussion:

Q: Why isn't whether or not to require client to resolve its own IP address out-of-scope?

Statement: IAPP is for moving data between APs. The less the better. Second, need to indicate how STA moves, so APs can clean up their state. Third, how to bootstrap an ESS.

Statement: 802.11 doesn't have a concept of subnet roaming. Only trying to define what happens in the back-end to make the distribution system work.

Functional requires for TGf: document 160

Vote: 6-0-3, Motion passes.

8 Call for additional proposals

No new proposals submitted.

9 Discussion: How to create draft text as per the agenda

Suggestion: Ad journ to ad hoc. Go through outline, and see who wants to contribute to each piece.

10 Recess for cookie break

11 TGf resumes after cookie break

Question: What granularity can we break the group into? Best we can do is break into a number of pieces that we can make progress with.

12 Suggested outline

Suggested document:

1. service interface definition. (Initiate, Add, Remove, Move)

2. operation of IAPP (foundations, support for 802.11 authentication and pre-authentication, secure operation, AP specific, MIB, single station association)

Question: Any of the management entities in the current .11 standard use these? A: yes

Question: These operations only affect local state? A: true, except for Initiate. Initiate may cause an AP to issue Disassociates.

Question: do we have enough information to break up, or do we have to get to a more granular level of understanding?

AP has to make a decision as to whether packet should be forwarded to the wired space or to the wireless space. Thus if a STA migrates to a new STA, we need a way to tell the initial AP to forward packets over wired space instead of wireless.

When an AP boots, it needs to join an ESS. Could do this with SLP or some director service.

When a STA roams, it needs to send a reassociate frame, with address of old AP, so new AP can send message to old AP. IAPP.Move would address this function. IAPP.Add for Associate, IAPP.Remove for Disassociate.

Problem: If you have n-thousand APs, sending update information on every Associate/Disassociate will cause continuous packet storms. Reassociate is the only operation that seems to scale.

Q: Is the following all: add, remove, nothing happens; move sends a frame from one AP to another? A: No. we also have to define registration service, to allow an AP to join an ESS.

Recess.

Initiate: initialize an AP to run. This might allow mgmt to assign the ESS for it to run in.

13 Motion to recess to have creation of ad-hoc text for next scheduled session for review

Vote 7-0-0, motion passes.

14 Recess (end of TGf Monday)

15 Resumption (Wednesday)

Ad hoc session has been filling in text. Document is on Venus. This session will continue the editing.

16 Recess until Thursday

17 Resumption (Thursday)

Spent most of the week creating text to give official status. We will not get there this morning. The right thing is to continue working on this until finish the text. Give the document official status at next meeting, since it will not get sufficient review at this meeting, even if it gets finished today.

Discussion of whether to include PHY type in IAPP packet. Why would the old AP care about this?

Discussion of whether an IAPP message should send both the old and new BSSID. The Re-associate message provides both.

Decision: take out 802 type and PHY type. The only thing that needs to be is the STA's MAC address. STAs need two MACs if it wants to run two PHYs at same time. Each will do separate associates and reassociates.

Goals for next meeting:

- Review comments from January output
- Consider submissions to fill holes in January output
- Adopt resulting merged text as official first draft Recommended Practice.

**IEEE P802.11
Wireless LANs
Hosted by Philips Semiconductors Inc.
Hyatt Regency Monterey – Monterey, CA**

Minutes of TGg Meeting, January 14-19, 2000 (Doc. 01/108)

Date: January 14-19, 2000

Author: Ron Provencio – TGg Acting Secretary
Texas Instruments, Inc.
141 Stony Circle, Suite 130
Santa Rosa, CA 95401
Phone: 707.284.2232
e-Mail: ronp@ti.com

January 15, 2000, Monday 10:30am – 12:00noon

- I. Call to Order by Matthew Shoemake at 10:30am
- II. Selection of Secretary: Ron Provencio will serve as temporary Secretary
- III. Motion was made by Jim Zyren to amend agenda of Old Business section: Add item 5.2 (Decide whether or not to table Agenda Item 5.3

5. Old Business

- 1. Submissions related to Selection Procedure (other than those to be presented as part of Selection Procedure)
- 2. Decide whether or not to table Agenda Item 5.3
- 3. Execute Selection Procedure (00/209r3) Steps 14-20

Call to question amended item
Chris Heegard – TI
Sean Coffey - TI
For: 20
Against: 22
Abstained: 4
Failed

Motion I: Call to question the motion
Sean Coffey - TI
2nd Jim Zyren- Intersil
For: 43
Against: 2
Abstained: 2
Motion Passed

Motion II: To strike the word “execute” to replace “ to table”
Jim Zyren - Intersil
2nd Barry Davis - Intel
For: 33
Against: 12
Abstained: 9
Motion Passed

Motion III: Motion to amend agenda with item 5.2

Jim Zyren - Intersil
2nd Barry Davis - Intel
For: 30
Against: 16
Abstained: 6
Motion Passed

Matthew called for unanimous consent to vote on agenda: Approved

For: 54, Against: 0, Abstained: 0

Motion IV: Approve minutes for November meeting (Doc 402)

Unanimous consent to approve minutes from November meeting (Doc. 402)

Barry Davis, Intel FCC Meeting Results: Doc. 01/043g

Presented new information on a visit Intel had with the FCC on November 29th, 2000 (See Doc. 01/043g for details)

Purpose: To understand FCC position on new high-rate proposals for 2.4GHz ISM band

Motion V: Henceforth have all regulatory issues addressed through and coordinated by Regulatory Committee as chaired by Vic Hayes

Bill Carney
2nd Sean Coffey
For: 14
Against: 24
Abstained: 5
Motion Failed

Sean Coffey call the question of Motion V.

Recessed at 12:15noon by Matthew Shoemake

January 15, 2001, Monday 1:00-3:00pm

Meeting called to order by Matthew Shoemake at 1:15pm

Motion I: Henceforth have all regulatory issues addressed through and coordinated by Adhoc Regulatory Committee as currently chaired by Vic Hayes

Bill Carney
2nd Sean Coffey
For: 58
Against: 1
Abstained: 5
Motion Passed

Motion II: Call to question to immediately vote

Approval by unanimous consent
Voted on Motion I above

Motion III: Move to ask the Adhoc Regulatory Group to initiate a conversation with the FCC as soon as possible to clarify FCC position on high data rate proposals at 2.4GHz and possible revisions of the relevant FCC rules and regulations

Barry Davis
2nd Jim Zyren
For: 52
Against: 0
Abstained: 3
Motion Passed

Motion IV: Move to amend “ and possible revisions of the relevant FCC rules and regulations”

Dean
2nd Barry Davis
Passed with unanimous consent

A list of questions were put together by TGg, which will be ask by Adhoc Reg. Group to gain clarification on FCC rulings

Recessed at 3:00pm by Matthew Shoemake

January 16, 2001, Tuesday 8:00-10:00am

Meeting called to order by Matthew Shoemake at 8:10am

Sean Coffey ask for Point of Information: Review Steps 14-20 of Selection Procedure
Point of information by Bill Carney: Requesting amount of proposals

Presentations for TGg

- PBCC
 - Comparison of 802.11g proposals, Coffey
 - Description of PBCC 22Mbps Code, Heegard
 - Options for PBCC Proposal, Batra
 - IP Statement, Heegard
- OFDM
 - Overview of OFDM, Halford
 - Coding and Equalization for High Rate, Halford
- MBCK
 - Update of MBCK Proposal, O’Farrell, 00/366r2

Motion I: Move to table Agenda Item 5.3, Execution of Selection Procedure Steps 14-20

Tim Wakeley-HP
2nd Stuart
For: 16
Against: 16
Abstained: 6
Motion Failed

Matthew Shoemake called for a 10 minute recess to ask for clarification on parliamentary procedure

Meeting called to order 9:40am by Matthew Shoemake

Motion II: Accept agenda as modified
Jim Zyren
2nd Sean Coffey
Passed with unanimous consent

Agenda was modified by TGg Chair Matthew Shoemake

Modification to Agenda as follows:

- 5.3 Execute Selection Procedure (Doc. 00/209r3) Steps 14-17
- 5.4 Report for Adhoc Reg. Comm. by Vic Hayes (Doc. 01/053)
- 5.5 Execute Selection Procedure (Doc. 00/209r3) Steps 18-20

Recessed at 10:00am by Matthew Shoemake

January 16, 2001, Tuesday 10:30am-12:00noon

Meeting called to order by Matthew Shoemake at 10:30am

Begin Agenda Item 5.3: Execute Selection Procedure (Doc. 00/209r3)

It was determined that the presentations will follow the order below. A coin toss was used to determine order of presentations.

- MBCK
 - Update of MBCK Proposal, Tim O'Farrell, 00/366r2
- OFDM
 - Overview of OFDM, Steve Halford, Mark Webster Doc. 01/059
 - Coding and Equalization for High Rate, Steve Halford Doc. 01/060
- PBCC
 - Comparison of 802.11g proposals, Sean Coffey Doc. 01/064
 - Description of PBCC 22Mbps Code, Chris Heegard Doc. 01/065
 - Options for PBCC Proposal, Anuj Batra Doc. 01/066
 - IP Statement presentation, Chris Heegard Doc. 01/067
 - IP Statement Doc. 01/023

Tim O'Farrell - Supergold presented "Update of MBCK Proposal" Doc. 00/366r2

Question session on "Update of MBCK Proposal" Doc. 00/366r2

Recessed at 12noon by Matthew Shoemake

January 16, 2001, Tuesday 6:30pm-9:30pm

Meeting called to order by Matthew Shoemake at 6:35pm

Continued question session for presentation "Update of MBCK Proposal" Doc. 00/366r2

Steve Halford, Mark Webster – Intersil " Overview of OFDM" Doc. 01/059

Question session on "Overview of OFDM" Doc. 01/059

Recessed at 9:30pm by Matthew Shoemake

January 17, 2001, Wednesday 8:00-10:00am

Meeting called to order by Matthew Shoemake at 8:05am

No further questions on Doc. 01/059

Steve Halford presented "Coding and Equalization for High Rate" Doc. 01/060 8:10am – 8:45am

Announcement: Adhoc Regulatory Group and TGg will have a teleconference call with the FCC at 11:30am. Key members of TGg will actively participate on the call. Members for

Question session on "Coding and Equalization for High Rate" Doc 01/060

Recessed at 10:00am by Matthew Shoemake

January 17, 2001, Wednesday 10:30am-12:00noon

Meeting called to order by Matthew Shoemake at 10:30am

Matthew Shoemake proposed a modification to the agenda to review Doc. 01/053

Approved by unanimous consent

Reviewed all the responses from the FCC to bring TGg up to speed prior to the teleconference

Recessed at 10:45am to have joint meeting of Adhoc Regulatory Group and TGg

January 17, 2001, Wednesday 11:30am – 11:45am**Minutes from Joint Adhoc Regulatory and TGg teleconference with the FCC****Panel**

Vic Hayes – Adhoc Regulatory Chairman

Stuart Kerry – 802.11 Chairman

Matthew Shoemake – TGg Chairman

Jim Zyren – OFDM

Bill Carney – PBCC

Tim O' Farrel – MBCK

FCC Official - Julius Knapp

The call was broken-up into four specific segments:

I. Status for the 2.4MHz rule issues

Julius Knapp stated there are several issues pending:

- HomeRF proceeding – still the process of addressing HomeRF
 - FCC needs to provide clarification on HomeRF decision
- Wi-LAN application for equipment authorization
 - Reviewing petition for reconsideration of Wi-LAN ruling

FCC has not made any decision on path moving forward. Needs to be address by full panel of commissioners at the FCC.

II. Plan Industry Form

- Timing of forum: Julius stated FCC is not sure when would be the best time.
- FCC understands a need for a ruling ASAP.

- Julius stated a ruling needs to allow flexibility for 2.4GHz band and avoid rules which could become an obstacle for technology in 2.4GHz band
- Vic Hayes requested a ruling by March

III. Ask original questions sent to FCC by Adhoc Regulatory Group:

1. Does the FCC understand that the charter of TGg is to deliver >20Mbps data rates and that no specific data rate has been selected yet?
Yes
2. Does the FCC want us to delay the technical selection process pending further information from the FCC?
Although
Although no, it is a decision for the industry to make. Not going to take a position if they look like they can be solved. Make decision based on issues today.
3. Is there any guidance that the FCC can provide to TGg at this time in our deliberations on best technology or stated goal?
No, it's the IEEE's decision
4. Is the FCC is willing to engage in a dialogue to provide guidance to TGg in their efforts to select the technology?
Yes, not their intention to sheer group to one technology
5. What is timeframe for addressing these issues to achieve type approval?
Soon, no specific target. Coming months try to address these issues
6. Should the selected technology inherently fit in the existing rules?
 - a. Or would a quick rules change be a solution
 - b. Or would we get a waiver for selected technology, pending the rules change**No assurance will be blessed through rule making. Can take the position where they will make a rule change**
7. Would it be possible to have an FCC representative attend the March meeting in Hilton Head, SC?
Yes
8. Should proposers submit devices that implement their high rate technology solution for certification before the 802.11g selection process is complete, if they are of the opinion that the equipment in question complies with the current rules?
Decision that advocates will have to make. Address as they come up

IV. New questions from panel members:

Q1-Jim Z: Regarding the open issues involving the 2.4GHz ISM band, do you anticipate developments on any of these issues within the next month or two

A1-Julius: Working on it just have to wait and see. Can't give a definite date

Q2 Tim O: Since dissimilar time domain waveforms can transform to similar power spectral densities, would the FCC regard frequency domain characteristics as more important than time domain characteristics in any new ruling by the FCC on Part 15.247 (Jamming Test)

A2-Julius: Freq. This is a process issues and the FCC staff does not have an opinion how they should rule. This will be subject to the rule making decision

Q3-Bill C: From FCC's written response Doc. 01/053, can you please elaborate on what the term "controversial solution" means, and what the definition of controversial you're using here is,

A4-Julius: Issues where there are a wide diversion in driving towards industry consensus. The FCC would like to move the issues along and resolve as quickly as possible under FCC due process.

Q4-Bill C: Why did the FCC single out Doc. 99-231 for multi-carrier in their response and does that indicate a preference?

A4-Julius: It has surfaced with different companies approaching the FCC. Although it is the position of some parties that they may qualify under the existing rules.

Q5-Jim Z: Should we give equal consideration to multi-carrier and single carrier systems?

A5-Julius: Provide as much flexibility as possible. Don't want the rules to tilt technology one way or another.

Q6-Bill C: In response to Question #1, did you mean "may" have problems" or "does have problems"

A6-Julius: May or does have problems is the real issues before us. The FCC must first decide what direction and wait for the outcome.

Q7-Jim Z: Clarification- Any new rules will not be "Technology Specific"?

A7-Julius: It is a decision that the FCC committee still needs to make. The IEEE should move forward and choose a technology based on the regulatory rules of today.

Q8-Bill C: What is expected purpose and outcome of the industry forum?

A8-Julius: The idea of a forum was created since some parts of industry were interested in the final outcome of the FCC rule changes. Would like to solicit feed back from the industry.

Q9-Jim Z: Would the OET like to have periodic correspondence with standards –making groups such as 802.11 task group g?

A9-Julius: The FCC wants to avoid influencing IEEE 802.11 body in anyway shape or form. Would be happy to help in however they can. If it involves travels, funds may be an issue.

Q10-Tim O: Since dissimilar coding schemes can mitigate jamming interference by similar amounts, would the FCC differentiate between coding schemes allowing some but not others in an new ruling by the FCC on Part 15.247

A10-Julius: The Committee will do what it can to be flexible as possible.

Q11-Tim O: Would it be a consistent interpretation that the FCC's openness to technologies implies that several diverse modulation/coding scheme will share the 2.4GHz band.

A11-Julius: Any new rules will not be technology specific. Having rules which need to be modified every time a new technology comes along, is not the direction the FCC would pursue.

Recessed at 11:45am by Vic Hayes - Adhoc Regulatory Chairman at 11:45am

January 18, 2001, Thursday 8:00-10:00am

Meeting called to order by Matthew Shoemake at 8:10am

Continue agenda item 5.3: Execute Selection Procedure (Doc. 00/209r3)

Sean Coffey presented "Comparison of 802.11g proposals" Doc. 01/064

- Comparison with CCK-OFDM
- Comparison with MBCK

Chris Heegard presented "Description of PBCC 22Mbps Code" Doc. 01/065

Anuj Batra presented "Options for PBCC Proposal" Doc. 01/066

Recessed at 10:00am by Matthew Shoemake

January 18, 2001, Thursday 10:30am-12:00noon

Meeting called to order by Matthew Shoemake at 10:35am

Continue agenda item 5.3: Execute Selection Procedure (Doc. 00/209r3)

Question session on:

- Comparison of 802.11g proposals, Sean Coffey Doc. 01/064
- Description of PBCC 22Mbps Code, Chris Heegard Doc. 01/065
- Options for PBCC Proposal, Anuj Batra Doc. 01/066
- IP Statement presentation, Chris Heegard Doc. 01/067
 - IP Statement Doc. 01/023

Recessed at 12:00noon by Matthew Shoemake

January 18, 2001, Thursday 3:30pm-5:30pm

Meeting called to order by Matthew Shoemake at 3:35am

Continue agenda item 5.3: Execute Selection Procedure (Doc. 00/209r3)

Resumed question session on:

- Comparison of 802.11g proposals, Sean Coffey Doc. 01/064
 - Description of PBCC 22Mbps Code, Chris Heegard Doc. 01/065
 - Options for PBCC Proposal, Anuj Batra Doc. 01/066
 - IP Statement presentation, Chris Heegard Doc. 01/067
 - IP Statement Doc. 01/023
- Matthew Shoemake stated that company logos on presentations should not be used. This is based on IEEE 802.11 policy. He asked that in future presentation, these logos should be removed

Motion I: Move to end discussion of PBCC documents under agenda item 5.3

Sean Coffey
2nd Anuj Batra
For:

Call the question
Sean Coffey
2nd Anuj Batra

Jim Zyren objects to calling the question
For: 18
Against: 32
Abstained: 4
Call the question failed

Friendly amendment to Motion I: Move to limit discussion PBCC documents to the end of the meeting (5:30pm today) end discussion of PBCC documents un

Bill Carney
2nd Stuart Kerry

Call the question
Ivan Reed
2nd Kevin Smart
No objection

Motion II: To amend Motion I
For: 10

Against: 31
Abstained: 7
Motion II

Motion I withdrawn by unanimous consent

Motion III: Move to extend meeting time to 6:29pm and at 6:29pm end discussion on PBCC documents under agenda item 5.3

Chris Heegard
2nd Ivan Reed

Motion IV: To amend Motion III (Move to extend meeting time to 6:29pm)

Chris Heegard
2nd Ivan Reed

Call the question – No objection

Ivan Reed
2nd Greg Chessen
For: 19
Against: 24
Abstained: 9

Call the question

Jim Zyren
Kevin Smart
For: 8
Against: 40
Abstained: 8

Motion V: Move to limit questions to one minute

Ken Clemens
2nd Kevin Smart
For: 12
Against: 30
Abstained: 5
Motion V Failed

January 18, 2001, Thursday 6:30pm-9:30pm

Meeting called to order by Matthew Shoemake at 6:30pm

Continue agenda item 5.3: Execute Selection Procedure (Doc. 00/209r3)

Resumed question session on:

- Comparison of 802.11g proposals, Sean Coffey Doc. 01/064
- Description of PBCC 22Mbps Code, Chris Heegard Doc. 01/065
- Options for PBCC Proposal, Anuj Batra Doc. 01/066
- IP Statement presentation, Chris Heegard Doc. 01/067
 - IP Statement Doc. 01/023

Matthew Shoemake asked if there are any additional question from TGg members. No one in TGg had any additional question

Completed Step 16 of (Doc. 00/209r3) “Execute Selection Procedure” agenda item 5.3

Review and completed the Comparison Criteria Matrix Doc. 00/00/422r1,

Ehpi Zhehavi requested time to present a presentation “ Simulation and Comparison of OFDM and 8-PSK Doc. 01/061.

- Chair ruled out of order: A motion was brought to the group for a vote.

Motion I: Suspend the rules to allow presentation of document Doc. 01/61 “Simulation and Comparison of OFDM and 8-PSK”

Rob Roy

2nd Carl Andren

For: 27

Against: 13

Abstained: 7

Motion I Passed

Ehpi Zehavi, Rob Roy, Jim Lansford - Mobilian presented “Simulation and Comparison of OFDM and 8-PSK”
Doc. 01/061

Question session on “Simulation and Comparison of OFDM and 8-PSK” Doc. 01/061

Completed step 17 of Selection Procedure (Doc. 00/209r3).

Adjourned at 9:30pm by Matthew Shoemake

